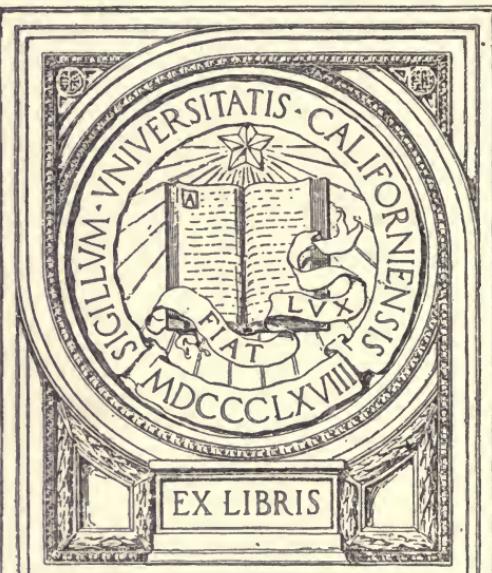


MODERN SHEEP  
BREEDS AND  
MANAGEMENT

GIFT OF  
Prof. E.J.Wickson



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G.W. Hanson







"Shepherd Boy."

*E. W. Jackson*

# MODERN SHEEP

## BREEDS AND MANAGEMENT

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BY

**“SHEPHERD BOY”**

*Associate Editor “American Sheep Breeder”*

*Author of “Fitting Sheep for Show Ring and Market,” etc., etc*

AMERICAN SHEEP BREEDER CO.,

CHICAGO, ILL., U. S. A.

1907

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## PREFACE.

The cordial reception that "Fitting Sheep for Show Ring and Market" met at the hands of some of the world's greatest flock-masters, shepherds, the agricultural press and sheep breeders generally, was the prime factor inspiring the writing of this work. A wide acquaintance with prominent sheep breeders, fanciers and shepherds of several countries and many years spent in practical pastoral pursuits and in the pastoral journalistic field, has put the writer in possession of information which it is hoped will prove of interest and value to those into whose hands this volume may fall.

The author takes great pleasure in acknowledging the assistance rendered him by those gentlemen whose names are mentioned from time to time in the pages of this work, without which it never could have appeared in anything like the complete state in which it is presented.

In selecting the illustrations for this work it has been the aim of the writer to use only first class photographs, as drawings of animals are always more or less misleading and consequently disappointing.

"SHEPHERD BOY."

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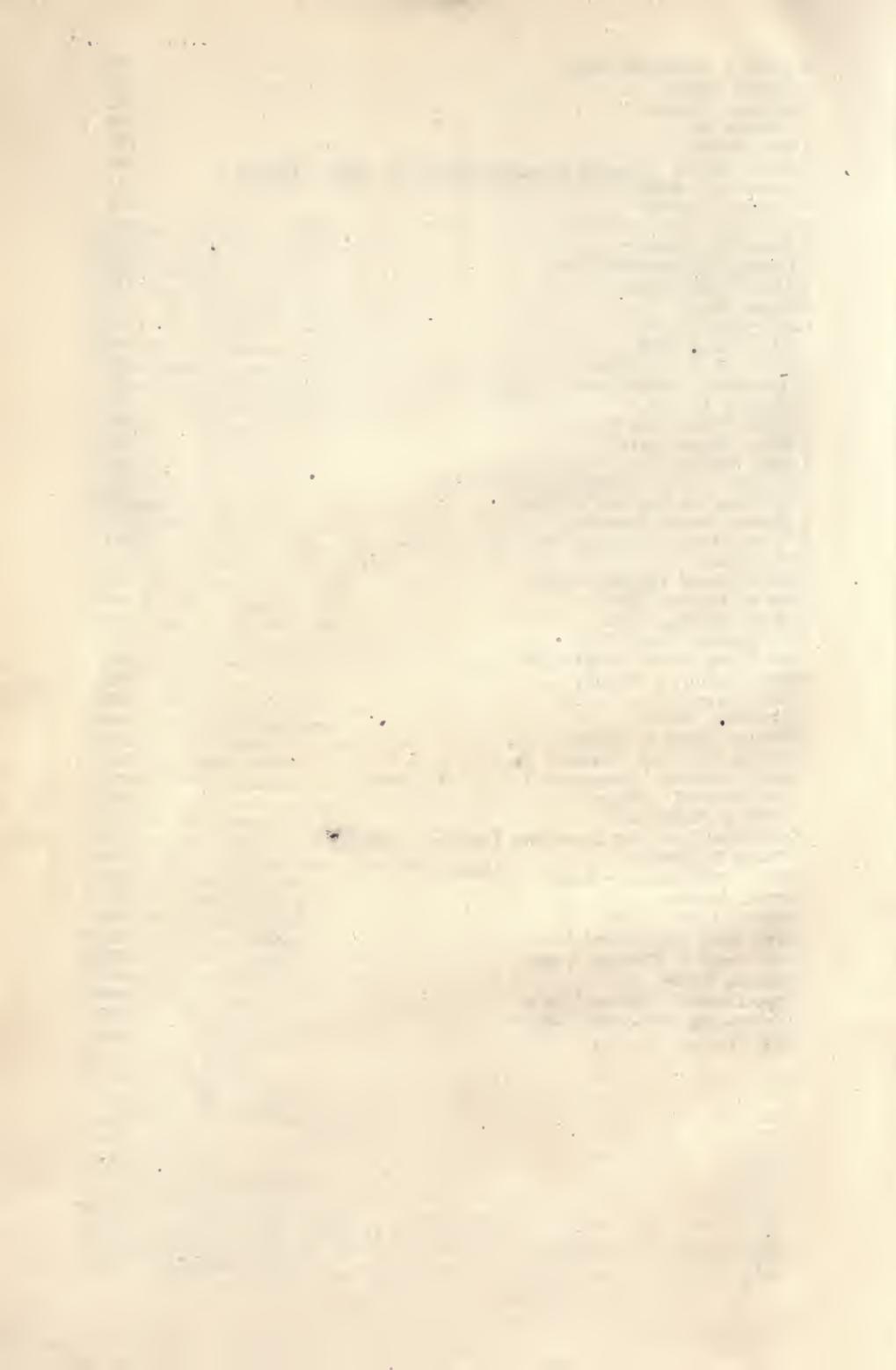
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## PART I.

### HISTORY AND BREEDS.

#### HISTORY.

When commencing this volume it was not the author's intention to enter into the early history of the sheep, but upon second thought it became clear that without something along that line this work would be incomprehensive and incomplete. However, at best, the treatment of this subject must be in a very condensed form.

The sheep belongs to the genus *ovis* (signifying with or without horns) and is a ruminant of the pair-toed section of hoofed



Bearded or Barbary Sheep.—*Sydney Mail*.

animals. Naturalists agree that its origin is not traceable. The oldest record of sheep is found in an account of the excavations of the Swiss Lake Dwellings. In these records proof is found that the people who inhabited the Lake Dwellings, and who belonged to the Neolithic Age, were good architects, well up in agriculture and stock raising, and that cattle, sheep and goats were raised extensively by them and that they carried on a large business in woolen cloths. Men of science give as their opinion that the sheep existed before the creation of the human race. It was found in India and China during the earliest stages of the

world's history. In cave deposits, in England, have been found the bones of sheep in company with those of the hyena, and in some cases extinct animals, showing that they existed ages before the invasion of England by the Romans. No doubt the sheep has figured in supplying clothing and food for man for a very long time, and no other animal is doing more toward his comfort than it is today. The Bible tells us that Abel was a keeper of sheep, and we read of Abraham's vast flocks and those of other patriarchs. We learn that the first woolen goods were manufactured in Asia two thousand years before the Christian era. The first English woolen mills were established by the Romans at Winchester.

Until the 18th century sheep were kept principally for their wool and milk. We read that fine-wooled sheep were raised extensively in Spain before the Christian era, and for centuries the Spanish Merinos were divided into provincial varieties which differed in sympathy with the care they got and the climatic conditions with which they were surrounded.

The flocks of Spain were divided into two classes—the traveling and the stationary. The traveling flocks were considered the more valuable. Some of these sheep were taken to Saxony in 1765 and these formed the foundation of the famous Saxony sheep famed for the extreme fineness of their fleece. These traveling flocks (according to a traveler whose identity can not be placed by the author, but to whom he would be pleased to give due credit were it possible) belonged to great nobles and certain religious houses. They are traceable back to the year 1350, when the plague had desolated Spain, destroying two-thirds of the population. These flocks are driven north into the mountains in summer, and when winter returns they pasture homeward again. When traveling they may feed on wastes and commons, but passing through cultivated country must be confined to a recognized track. In the barren districts a flock is made to travel at the rate of six or seven leagues a day, but where pasture is to be had they are suffered to move very slowly. It is to the claims of the Merino flock (to public grazing) that some political writers have attributed the want of cultivation in the interior provinces of Spain.

History states that the native Spanish sheep was a very indifferent animal until improved by crossing with the Cotswold, which was imported into Spain from England in the eleventh century. The offspring from this cross were named "Chunah." Columella, a Roman engaged in rural pursuits near Cadiz in the first century, says that the Merino descended from fine-wool Tarentian ewes crossed with rams from Barbary. Strabo and Pliny the elder are not of this opinion.

Spanish Merinos were introduced into Sweden in 1723 and into the Argentine Republic about 1797. In 1788 King George

III introduced the Merino into England, but it never found much favor there with the British agriculturist. There is still existing in England a flock which is a straight descendant from this king's flock.

The first Merinos introduced into Austrália came from the Cape of Good Hope in 1797. One writer, however, gives it as his opinion that no pure bred Merinos were imported into that colony before the arrival of the Argo lot, purchased at King George the Fourth's sale in June, 1805.

Worlidge, the author of "Systema Agriculturae," whose work was published in 1675, says of sheep: "Next unto these, the sheep deserves the chiefest place, and is by some preferred before any other, for the great profit and advantage they bring to mankinde, both for food and apparel. Whereof there are divers sorts, some



Indian Sheep.—Photo by Doctor Arbuckle.

bearing much finer wooll than others; as the Herefordshire sheep about Leicester bear the fairest fleeces of any in England. Also they are of several kinds, as to their proportions; some are very small, others larger. But the Dutch sheep are the largest of all, being much bigger than any I have seen in England, and yearly bear two or three lambs at a time. It is also reported that they sometimes bear lambs twice in the year. It may doubtless be of very good advantage to obtain of those kindes; and also of Spanish sheep that bear such fine fleeces."

No breed of domestic sheep is indigenous to the United States. The first domestic sheep to reach this country came to New Mexico with Francisco Vasquez de Coronado in 1540. Fifty years later the Merino was introduced by Juan de Oriate. Governor Charves, the first ruler of New Mexico under the Mexican Republic, is quoted as having had a million sheep which were herded by twenty-seven herders. It would seem that the Navajo tribe of

Indians has for a very long time been interested in sheep, more particularly for wool growing than for any other purpose, and the Navajo blanket is a much talked of article the world over. Today they own somewhere near a million head of sheep, which are being very much improved by the use of purebred rams.

Mention is made that Columbus, on his second voyage to America, loaded some sheep at Gomera, one of the Canary Islands, October 5, 1493, which he afterwards landed at Isabella, the first Christian city in the New World. From there they found their



Scene on the Snowy River in Australia.—Sydney Mail.

way to the Isthmus of Panama and to Mexico. We are told that in 1609 the colonists of Virginia were provided by the London Company with sheep and in 1625 the Dutch West India Company brought sheep to New York. The first settlers of Connecticut are said to have brought sheep with them, and no doubt their class of sheep was kept in the central western states, more or less, until the introduction of the Spanish Merino.

The Down breeds of sheep derive their name from the Down counties in which they originated, and many of the Longwools from the counties bearing their name. The Downs are a range of hills in southern and southwest England, underlaid with chalk,

left untilled and used almost exclusively for sheep pastures. It is generally believed that at one time all the sheep of this part of the country were horned.

Linnaeus classifies the sheep breeds as: Hornless, horned, black-faced, many-horned, Spanish, African, Guinea, broad-tailed, fat-rumped, Bucharian, long-tailed, cap-bearded and Bovant.

Professor Archer classes the sheep of the world into thirty-two distinct divisions, viz.:

#### I. EUROPEAN SHEEP.

- I. Honiah, or Black-faced sheep of Tibet.
- II. The common sheep (*Ovis Rusticus*).
- III. The Cretan sheep (*Ovis Strepsiceros*).

#### II. ASIATIC SHEEP.

- I. Honiah, or Black-faced sheep of Tibet.
- II. Cago, or tame sheep of Kabul (*Ovis Cagia*).
- III. Nepal sheep (*Ovis Selingia*).
- IV. Carumbai, or Mysore sheep.
- V. Garor, or Indian sheep.
- VI. Dakhun, or Deccan sheep.
- VII. Morvan de la Chine (Chinese sheep).
- VIII. Shayambilar, or Mysores.
- IX. Broad-tailed Sheep (*Ovis Laticandatus*).
- X. The Pucha, or Hindustan Dumla sheep.
- XI. Tartary sheep.
- XII. Jayanese sheep.
- XIII. Barwal Sheep (*Ovis Barwal*).
- XIV. The Short-tailed sheep of Northern Russia.

#### III. AFRICAN SHEEP.

- I. The Smooth-haired sheep (*Ovis Ethiopia*).
- II. The African sheep (*Ovis Guienses*).
- III. The Guinea sheep.
- IV. The Zeylan sheep.
- V. The Fezzan sheep.
- VI. The Congo sheep (*Ovis Aries Congensio*).
- VII. The Angola sheep (*Ovis Aries Angolensis*).
- VIII. The Yenu or Goitered Sheep (*Ovis Aries Stealiniora*).
- IX. The Madagascar sheep.
- X. The Bearded sheep of West Africa.
- XI. The Morocco sheep (*Ovis Aries Numada*).

#### IV. AMERICAN SHEEP.

- I. The West India sheep, found in Jamaica.
- II. The Brazilian sheep.

## THE EWE IN CHEESE MAKING.

In the earlier days of sheep keeping in Great Britain the milking of ewes and making of ewe cheese formed a part of the farming industry of the Cheviot Hills and border counties. The process began about the time the lambs were taken from their dams and continued from one to two months. The milking was done early in the morning and was always performed by girls. The diary of a Liddesdale farmer for October 3, 1749, contains the following entry: "This day sold to Andrew Wilson, Hawick, 75 stone cheese for which he is to pay me at Candlemas. I have no bill for it, but only his receipt that he received so much. I think the price will be 3s. 7d. a stone" (of 24 lbs.). Toward the end of the eighteenth century the price advanced 8s. per stone. Ewe cheese was highly esteemed as a stomachic, as well as a relish.

In richness sheep's milk surpasses that of any other farm animal. The average proportion of solids of the milk of the cow is about 12 per cent, while that of the sheep runs from 17 to 20 per cent. In regard to the butter fat content the milk of the cow and the ewe show quite a difference, the average proportion of the former being 3.5 to 3.75, while sheep's milk generally yields from 6.0 to 7.0 per cent of fat.

## BRITISH BREEDS.

. With the exception of the Merino family the Tunis and the Persian, the prominent breeds of sheep found in this country are of British origin. It is claimed that no domestic breed of sheep is indigenous to North America, although the Spanish Merino has been very much improved since its introduction into this country, and in its present state is as much an American production as the Rambouillet is a production of France or Germany, and is justly entitled to its title, "American Merino," "Delaine," or whatever name it and its offshoots are known by today. The Bureau of Animal Industry is at present turning its attention to evolving a sheep for the west, in which it intends to incorporate the good qualities of the mutton breeds with those of the wool breeds. The Iowa Experiment Station has a similar work under way.

Comparisons of the various British breeds are attended with considerable risk of serious criticism, therefore the author leaves such an unthankful undertaking to other pens. England seems to be a bee-hive of breeds, and many, perhaps most, of the different counties of that country have breeds peculiarly their own. At a recent meeting of the English National Sheep Breeders' Association it was stated that twenty-one breeds of British sheep would be represented at the next show of the Royal Agricultural Society. This does not complete the list, however, as several minor breeds, for

which there is no class at the Royal, bring the number up to a much larger total—only about half of which has been tried, to any extent, in this country. The British breeds of sheep are divided into two classes—Downs and Longwools. Those of the former class which are popular with us are the Shropshires, Oxfords, Hampshires, Southdowns and Suffolks, ranking in popularity about as listed. Among the Longwool breeds which have received attention from American and Canadian fanciers are the Cotswolds, Lincolns and Leicesters. These are large, attractive looking sheep—specimens of the two first mentioned, and perhaps the last, having tipped the scales at over 500 pounds. Most all of the British breeds have associations to promote their interests. The value of ordinary breeding stock of the different breeds does not vary to any very appreciable extent; especially is this true of the females. For instance, the cost of a yearling ewe or a two-year-old ewe of the Shropshire breed would be similar to that of a ewe of the other breeds of similar age and quality. Show and stud animals of the various breeds vary more in price, however. In their native land the Lincolns hold the record price for stud rams. Good healthy breeding ewes of the British breeds can be bought in this country at prices ranging from \$15 to \$40 per head. A fairly good stud ram of the different breeds can be procured from \$75 up. Those suitable only for crossing or grading purposes go at much less figures. The British mutton breeds are very prolific, frequently giving birth to twins, sometimes triplets and occasionally quartets. A well managed flock should, in a favorable season, give an increase of at least 125 per cent.

#### THE SHROPSHIRE.

The modern Shropshire is a beautiful creation and a living monument to the flockmasters' skill. Luster is added to its beauty by the profit it returns where good management is in evidence. Utility, as is sometimes the case with other "things of beauty," has

not been sacrificed for beauty's sake alone. A more universal charm than the Shropshire does not exist in livestock breeding circles. No matter in what direction our eyes are turned on the live stock breeders' horizon, *Shropshire* appears in indelible characters. What is more charming or seductive than a well-bred, well-fed Shropshire yearling ewe? That charmingly-finished outline; that proud, yet graceful carriage; that aristocratic pose—purely Shropshire as it is—that scale and plumpness of form; superb skin and fleece; that sweet and smiling countenance; that well-bonneted head and somewhat heavily-veiled face; that shortness of leg, wealth of flesh, spring of rib,



Mr. A. E. Mansell.

countenance; that well-bonneted head and somewhat heavily-veiled face; that shortness of leg, wealth of flesh, spring of rib,

smoothness and fullness of crops and twists, together with the sweetest disposition ever dispensed to our domestic friends, constitute such harmonious blending of the beautiful with the useful as makes it extremely infatuating and worthy of the stanzas of the poet.



Mr. T. S. Minton.

Further, what gives us a more striking, truthful or practical definition of the word noble, on the domestic side of the brute creation, than the Shropshire ram, whose compactness of form is ever liable to deceive us as to his correct weight, and whose masculine character and mutton qualities stand out at all points of his anatomy, so much so that we cannot fail to recognize in him something of an Adonis and a Hercules in the animal kingdom. We may even go further in our musings. What presents a more beautiful pastoral effect or a more beautiful and harmonious combination of beauty and utility than a well-bred and well-cared-for flock of Shropshire ram lambs, or, in fact, such of any other of our improved mutton breeds? Watch them feeding in the paddocks, in the early hours of a fall morning, when roots and



Mr. Richard Gibson.

forage crops are theirs in endless variety, and oil-cake and corn are supplied them in such quantities as is best suited to their proper development, which they literally shovel from their troughs after their appetites have been whetted by the cool, bracing breezes of the morning, when their voices are changing from the shrill baby-like voice of the lamb to the sonorous voice of the adult, and masculinity is cropping out all over their bodies. Those who cannot see a picture in them fall very short of being connoisseurs of the beautiful in pastoral life.

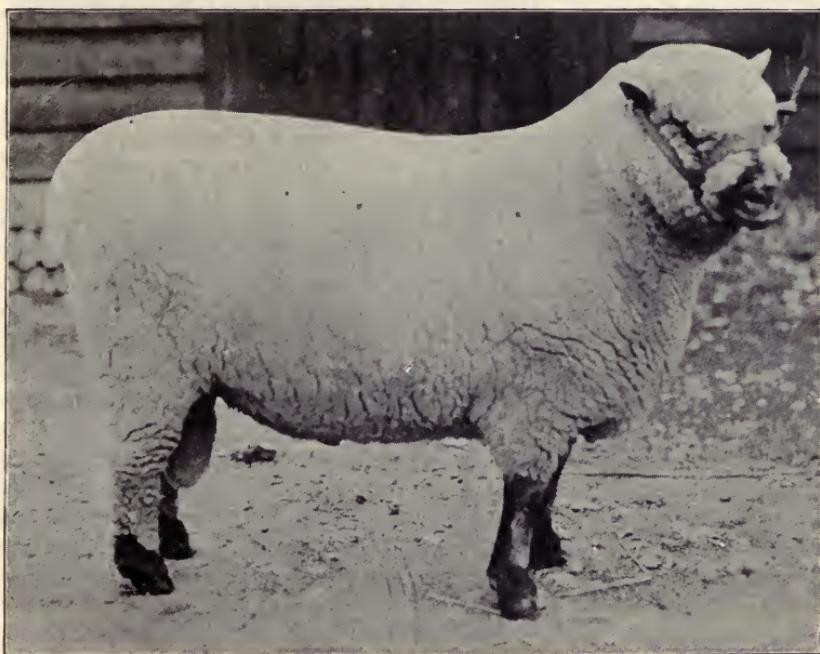
Mr. Preece, of Shrewsbury, once paid the following charming tribute to the Shropshire: "It's a farmer's sheep, a rent-paying sheep, a tenant's sheep. It's a money-making sheep, wool-producing, mutton-carrying sheep. It's a bank, a save-all, a frugal-living and quick-fattening hardy sheep." An admirer of the breed once said: "They carry a leg at each corner." He might have said they carry nearly two legs at each corner in comparing them with our common native stock.

That eminent authority on sheep, Professor Wrightson, of the Downton Agricultural College, England, remarks, in one of his comprehensive works, that it has been humorously said of this sheep by its admirers that it is so thrifty that in looking for grass they turn the stones over which lie scattered on the surface of the clover fields.

The evolution of the Shropshire has been swift but, neverthe-

less, most pleasing. The transformation of the common stock, indigenous to certain localities in the counties of Shropshire and Staffordshire, England, into the beautiful living picture the modern Shropshire presents at the great Chicago International, and other famous shows, was certainly no haphazard work of the ignorant or unthoughtful, but, on the contrary, the result of the deepest thought of genuine improvers—they who have proved themselves past-masters in the art and science of breeding and molding flesh into form.

The Morfe Common sheep, or its relations who have figured



Up-standing Type of Shropshire Yearling Ram. Bred by Sir Richard Cooper, England.

in the history of the now popular Shropshire, was not always beautiful or built upon anything like beautiful lines, judging from the vantage by which we judge modern Shropshire type. The Morfe Common sheep took its name from a common or wild tract of land, known by that name, situated at no great distance from the banks of the beautiful river Severn and the exceedingly pretty town of Bridgnorth, England. Not only was Morfe Common a very wild tract of land, but a very poor one, of some 4,000 acres. It is but a short time since, comparatively speaking, when the black-faced, or speckle-faced, stilt-legged, semi-wild, but hardy and valuable-fleeced denizens of this common, with an occasional

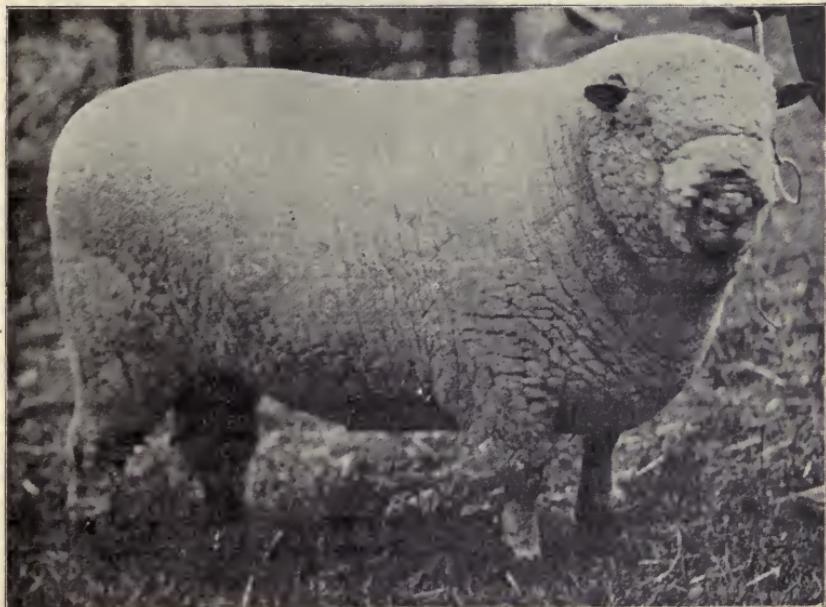
black one among them, roamed this unenclosed and uninviting tract of land, which was at that time the common property of those who saw fit to run their stock upon it, which generally consisted of sheep or geese. While this land did not afford such fare as we would call desirable, in this day of intensive farming for the feeding of our modern "mortgage lifters," or England's "rent-payers," it furnished a pretty good bite for the animals that depastured it in those days, from the middle of June to about the first of October; but when snow covered the ground it offered them little and at times starvation stared them in the face. No wonder their princely offspring have qualities to resist the elements.

As may be naturally inferred, it takes time to breed out the more objectionable features of a breed, and even to this day the undesirable horns of the Morfe Common seem more or less determined to show themselves in poorly-bred flocks of Shropshires, and many an otherwise good ram has been relegated to a lowly position in the show ring for this reason, or for the appearance of black wool, which is so objectionable.

It would appear that historians are a unit in that Mr. Samuel Meire and Mr. George Adney, although working on somewhat different lines, laid the foundation of the Shropshire breed. Mr. Meire operated at Berrington, until he left that farm and went to live on his own estate at Harley, in the same parish where Mr. Adney did considerable of his work as an improver of the breed. That Mr. Meire's sheep possessed surprising constitutional vigor is shown by the fact that his great ram "Magnum Bonum" was in service eleven seasons, and his dam lived to be twenty years old. "Magnum Bonum" was the sire of "Perfection," used by Mr. Foster, of Kinver, which sired the first prize shearling at the Chester show. At the same show the first prize pen bred by Mr. Meire had this remarkable description accorded to it in the catalogue: "Two, eleven years, three months and two weeks old; two, nine years, three months and two weeks old; and one, seven years, three months and two weeks old; pen of five Shropshire Down ewes, dark brown face and legs." These were shown against what has been described as "blooming" shearling ewes. What proof of constitution! In 1853, at Gloucester, Mr. Foster and Mr. Meire captured all the premiums, and this with entries from Mr. Meire's stock. When Mr. Meire gave up Berrington Farm he took but a few ewes to Harley, not more than forty, authorities claim. Mr. Meire's first ram sale netted him the equivalent of \$62.50 per head for fourteen head. He is said to have favored rather light, uniformly-tinted features, also wool and quality rather than size. He did not long follow ram breeding, on account of ill health.

Coleman, in his work (1877), speaking of Mr. Henry Smith's flock of Sutton Maddock, says: "Mr. Smith's flock, which was so well known at one time, was at first principally descended from Mr.

Meire's stock, the great characteristic of all his sheep being quality. No man took more pride than Mr. Smith in his flock, so long as his health permitted. We visited the farm in the autumn of 1864, during very dry weather, and found everything burnt up, notwithstanding, the ewes were in excellent condition. They were on some dried-up seeds, without any water, yet looking uncommonly healthy; small in appearance, as compared with some flocks, because closer to the ground; they were thick, proofy sheep, with straight backs, oblique shoulders, and big rumps—quality, aptitude to feed,



Low-Down, Bullet-Type of Shropshire Ram. Bred by Sir Richard Cooper, England.

and true form were unmistakable. The color was dark gray, with flat foreheads; the legs black. Later on, both the Kinver Hill and Sutton Maddock flocks were altered in character by the influence of the Oxfordshire blood."

Mr. Adney bred the great ram "Buckskin"—a descendant from a Southdown cross. This great ram has been described as possessing a rather flat head of gray character. "Old Patentee" was a son of "Buckskin," his dam a twin ewe, bred by Mr. Adney. "Old Patentee" did not favor his sire, having a large, plain and quite dark head. As a stock getter he was a wonder, and it is considered every English flock of note has the influence of his blood in it. The enemies of Mr. Adney declared he sold more rams than he bred, and that he bought where he could the material he furnished.

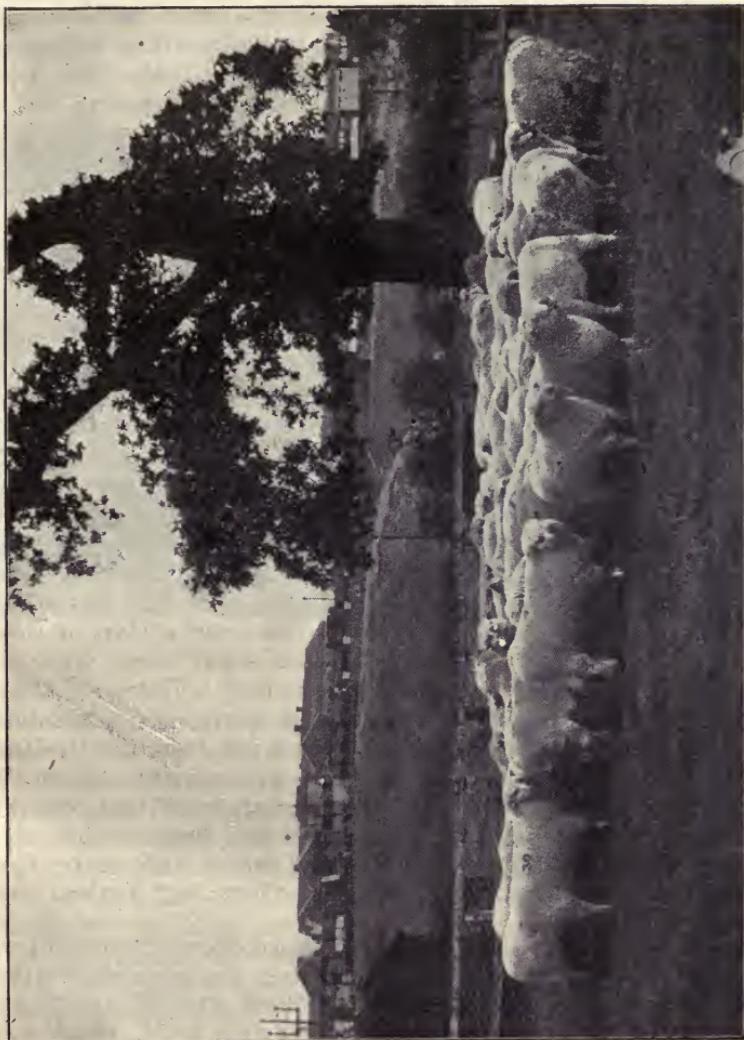
Notwithstanding this accusation, it was admitted by all that Mr. Adney's judgment was unsurpassed, if indeed equalled.

Considerable difference of opinion exists as to whether the Shropshire is an original breed in a pure state from the Morfe Common foundation, or whether blood of the established breeds, such as the Southdown, Leicester and Cotswold, was not introduced in its evolution; still there is not much doubt but that many different methods were employed with a view to improving the original stock. This is evident by a marked lack of uniformity in the type of our Shropshires a few years ago. Evidence weighs in favor of the theory that the Shropshire is the product of both cross-breeding and selection, rather than selection only, of the best from the original Morfe Common stock. This is largely proved by addresses and essays given before farmers' clubs, etc., by those who did considerable toward evolving the modern Shropshire.

Professor Wilson, in the *Journal of the Royal Agricultural Society of England*, expresses his opinion that the original stock from which the Shropshire sprung was the Morfe Common sheep, but as the country advanced, and the breed became more valuable for its mutton and wool, there was a dash of blood introduced in some instances from the Leicesters and Cotswolds, and in others from the Southdown. The infusion of the Leicester and Cotswold blood was, it is asserted, introduced with a view to giving size to the carcass, while that of the Southdown was used to remove the horns and to give more quality and encourage early maturity.

Spooner, one of the best informed writers, perhaps, on matters pertaining to the evolution of the Shropshire, tells us in one of his essays on cross-breeding that the Shropshire is undoubtedly a cross-bred, which affords a striking example of the perfection that can be derived from a judicious mating of various breeds, and that even those flockmasters who considered themselves to be the holders of the original breed could give no proof of purity of blood for any length of time antedating any particular time. In this particular essay he quotes Mr. Samuel Meire, of Berrington, Shropshire, a prominent breeder, who observed at a farmers' club meeting, in 1858, that it was not intended to deny that the Shropshire was a cross-bred sheep and that the Southdown had been used with a view of getting rid of those useless incumbrances—horns. Mr. Meire is exceedingly frank in his statements regarding the evolution of this wonderful breed of sheep. While he admitted that the Morfe Common sheep was well adapted for the Morfe common or downs, he was not willing to concede that they were the sheep for enclosed lands, for the reason that a more docile sheep could be more easily handled and would give better results. Today this does not apply, for a more docile sheep than the Shropshire is hard to find. We are compelled to take Mr. Meire's opinion as being very valuable, as he was not a theorist but a man of considerable experience

and judgment, and was the owner of a flock that during the process of improvement carried off many high honors in the show ring, and to his effort is largely due its rapid ascendancy from the mediocre to the now almost ideal. He was extremely desirous of



Group of Export Shropshire Rams. Compliments of Mr. A. E. Mansell, England.  
Photo by Babbage.

obtaining what we now worship—a desirable spring of the rib. Then, to his endeavors, we owe the elimination of the peakedness of certain points of the Morfe Common, and the establishment of the oblique shoulder and square rump. Although he did all this naturally, it was left to our more modern breeders to put the

finishing touches on, which was necessary to make the breed "a thing of beauty and a joy forever." Mr. Meire used no hesitancy in admitting that he got the more desirable points which he introduced into the Morfe Common from the Southdown, and it is a matter of history that he did not scruple to pay what in those days appeared to be extravagant figures for the use of the best rams procurable of that breed, well knowing, no doubt, that the surest and shortest road to the goal is through the best horse. He drew largely from John Ellman's famous flock for improving blood. Once, having form and type, he went to work to fix same by the most careful selection of such animals as were strong in those characteristics which he sought, and to his endeavors is no doubt largely due the existence of this now beautiful and very cosmopolitan breed.

Mr. Alfred Mansell, secretary of the English Shropshire Breeders' Association, a gentleman who has done as much or more than any one in recent years toward the improvement of the modern Shropshire, does not follow Mr. Meire's views in regard to the introduction of such blood as that of the Leicester, Cotswold, or Southdown, for, says he, "the Shropshire sheep is descended from a breed which has been known to exist in Shropshire and Staffordshire for upwards of a century. Whether or not, as some assert, Southdown or other rams have been introduced, it has been by developing the strongly inherited characteristics of the native breed of the district that all the best flocks have been built up, and not by the introduction of new blood."

Centuries ago, as far back as 1343, there was a class of wool in Shropshire which was considered far-and-away ahead in quality to that of any other section of the country. There are those who have given considerable thought and study to the question who are inclined to the belief that this wool was from the Ryeland sheep—a sheep which in those days much resembled the Morfe Common sheep, if it was not in reality a variety of that breed—and that today the quality of the Shropshire's fleece is due in a great measure to its influence. Of course this is little more than supposition, for we have no reliable data that tend to bear out this contention.

We are told that in 1792 the British Wool Society reported that on Morfe Common there was found, during the summer months, a flock of about 10,000 sheep which produced wool of a very superior quality. They were pronounced a native breed, which was very little subject to scab, liver-rot, or foot-rot, and whose wethers dressed from 11 to 14 pounds per quarter. While Professor Wilson is strong in the belief that the present breed of Shropshire Downs sprung from the old Morfe Common and crosses of the Leicester, Cotswold and Southdown, this view is not universally shared, for there are many who, with Mr. Mansell, believe the pure Shrop-

shire to be a direct descendant of the Morfe Common sheep in its entire purity of blood, whose improvement in type has been brought about wholly by selection and modern methods of feeding. Then, again, there are those that contend that the Longmynds from Shropshire and the Cannock Chase sheep of Staffordshire were the original stock from which our now popular Shropshires hailed. Shropshire and Staffordshire are adjoining counties.

In 1858 Mr. Tanner made a survey of the county of Shrop-



Shropshire Yearling Ewes. Property of Sir Richard Cooper, England.

shire in the interest of agriculture, and became very much interested in its sheep. After a thorough investigation and exhaustive inquiry in regard to this breed of sheep, he sums up as follows: "For my part I do not consider them a pure breed, but a cross-bred animal from the original Longmynd or old Shropshire sheep."

Plymley, in a review of the agriculture of Shropshire, published in 1803, says: "There is a breed of sheep on the Longmynd, with horns and black faces, that seem an indigenous sort; they are nimble, hardy and weigh near ten pounds per quarter when fatted. The fleeces upon the average may yield two and a half pounds, of which one-half pound will be breechens or coarse wool, and is sold distinct from the rest. The farmers of the hill country seem to think the greatest advantage they derive from the access of foreign stock is from the cross of the Southdown with the Longmynd sheep; the produce they state to be as hardy and to bite as close as the Longmynd sheep; and the weight of the carcass is increased."

Beside those who contend that the modern Shropshire is a

child of the Morfe Common, the Cannock Chase, Cannock Heath, or the Longmynd sheep, there are others who consider that its foundation was laid from a sheep very similar in type to the Cannock Chase breed and known as the "Whittington Heath Sheep," which was considered to be one of the hardiest sheep existing in that day. Notwithstanding the evidence bearing on the Shropshire as the result of cross breeding pure Cannock Chase Shropshires and flocks of pure Whittington Heath Shropshires exist to this day and Mr. J. R. Adderly, of Mansley Farm, situated close to Cannock, holds an annual sale of these sheep. In September of 1902 he sold thirty-eight shearling rams and 100 shearling ewes which were described in his catalogue as follows: "The rams are of great scale, with lengthy frames, strong necks, and big legs of mutton, and throughout are typical wether getters. The ewes are of the same good size, and contain several pens of exceptional merit. All the sheep have been reared on the poor but healthy land of Cannock Chase, and will be found to maintain the reputation of the farm for producing sheep which are very hardy and thrive on any land."

In his essay on Staffordshire (1877) Evershed remarked that the dry surface and the good climate favored a heavier heath sheep than elsewhere. He stated, further, that the original Cannock Chase sheep had a light fleece of about three pounds and a carcass which at three years old weighed up to nine stone.

Mr. Charles Howard, of Biddenham, Bedfordshire, in an address before the London or Central Farmers' Club in 1860, gave his opinion in regard to the evolution of the Shropshire, as follows: "This breed has been established by a prudent selection of breeding animals, and I learn from a gentleman who kindly favored me with information upon the point that the late Mr. Meire was the first to improve upon the original type. This he did, in the first place, by the use of the Leicester. As their faces became white he would then have recourse to a Southdown or other dark-faced sheep. It was, however, left to the son to carry out and bring to a successful issue what the father had commenced, and Mr. Samuel Meire may be looked upon as the founder of the improved Shropshire Downs. We gather from his address to the Wenlock Farmers' Club that he accomplished this, not by resorting to any of the established breeds, but by using the best animals from his own large flock. Lately a very great change has come over the breeders of Shropshire; they have availed themselves of larger sheep of heavier fleece and earlier maturity, so that the only affinity they bear to the original Shropshire is dark faces and legs. They now pride themselves in exhibiting some well-fatted shearlings (yearlings past) weighing, upon times, 22 to 24 lbs. per quarter, but this is not general."

Mr. Spooner informs us that the Shropshire was first brought

into national repute at the Shrewsbury meeting in 1845. We may suppose he alludes to what is now known as the Shropshire and West Midland show. The following comment is from his pen: "At the Chester meeting they beat the Hampshire Downs as old sheep, but in their turn were conquered by the latter in the younger classes. They present themselves to our notice in a more compact form, though shorter they are wider, broader on the back and deeper through the heart."

The Shropshire was first recognized as a pure-bred sheep by the Royal Agricultural Society of England at the Royal Gloucester



Shropshire Wethers. Bred by Sir Richard Cooper, England.

Show at Gloucester in 1853, where the attention of British sheep breeders was called to them, who generally conceded them to be a breed of very great merit. In the Royal Agricultural report of the Gloucester meeting in 1853 they were commented on as follows: "The new class of Shropshire Downs was very successful and it is to be hoped that the society will recognize them as a distinct breed." In the same report they are described as being without horns, with faces and legs of gray or spotted color; the neck thick, with excellent scrag; the head well set on; breast broad and deep; back straight, with good carcass; hind quarters hardly so wide as the Southdown, and the legs clean with strong bone. They were further described as being very hardy, thrifty even when only on moderate keep, and readily fattened for market. The tegs weighed on an average from 80 to 100 pounds each. The fleece was said to be longer and more glossy than the other short-wools, weighing, on an average seven pounds.

It was in the year 1857, while the Royal was being held at Salisbury, in Wiltshire, that the Shropshire won its first prominent laurels. This was in the year when sweepstake prizes were

awarded to the three great rams, "Celebrity," "Earl of Salisbury," and "Patentee." The prominence which they were thought entitled to as a breed, however, was not given them until the year 1860, when, at the Royal Show, held at Canterbury, they were allotted a separate class. This step brought no less than 192 entries into the ring, and since then almost without exception, the Shropshires at this famous annual show have outnumbered those of any other breed.

In 1858 Professor Tanner wrote: "Only a few years since any mention of the Shropshire Downs raised an inquiry, even among intellectual agriculturists, as to their character and few, comparatively speaking, knew anything of them."

Anent the Shropshire and his achievements at the Royal Show, Mr. Alfred Mansell says: "Since 1859, despite the great prejudice and opposition of exhibitors of other breeds, the Shropshires have steadily increased in number at the Royal Shows, culminating in the grand display of 1884 at Shrewsbury, when 875 Shropshires were exhibited against 420 Southdowns, Hampshires, Lincolns, Leicesters, Cotswolds, Mountain, and all other distinct breeds, being considerably more than double the number of all other breeds, and demonstrating very conclusively that the Shropshire is a sheep that meets the requirements of the day, and surely is the coming race."

No less than sixty exhibitors hailing from fifteen counties, besides one exhibitor from Ireland, were represented at this show, and if this number of exhibitors and exhibits is any guide as to the popularity of the Shropshire, it surely must be most convincing.

The Shropshire has not only found its way into every nook and corner of Great Britain, but all over the American continent, Australia, New Zealand, Tasmania, South America, and continental Europe, and is truly a cosmopolitan. This is not all; it has flourished as the proverbial green bay tree everywhere it has gone, notwithstanding the wide diversity in climatic and geological conditions it has met. No doubt the readiness with which it adapts itself to varied conditions to some extent accounts for the rapid strides it has made the world over. Speaking of this characteristic, Mr. Alfred Mansell says: "Another fact worthy of notice is that this breed seems to thrive and become acclimatized in all places if properly cared for, as is proved by the exhibitors extending over a wide area and by the experience of others who have seen the breed flourishing in England, Scotland, Ireland, the United States, South America, Canada, the colonies, France, Germany, Greece, and most other continental countries whose soil and surroundings differ to a great extent. The power of acclimatizing itself has not escaped the notice of foreigners, who of late years have exported the breed largely." In Australia they are not perhaps quite so fashionable as the Lincoln and the Leicester, and the same may be

said in regard to South America, but they are fast gaining a firm hold in both countries, and there is scarcely a county in England where it has not been tried and found to be a grand good sheep, as it must necessarily be if it finds favor among the conservative breeders of breeds that are indigenous to a shire and which are peculiarly adapted to the climate and the local conditions of that shire, as they are in England.

The Shropshire has pretty nearly monopolized the great west-central district of England. It has been said that it will thrive in any clime where there are sensible shepherds, and that the Shropshire has been the salvation of the agriculturists of the county of Shropshire, and no doubt there are just grounds for this assertion. This breed, no doubt in some instances, has been abused through falling into the hands of poor shepherds, but, generally speaking, it has never disappointed the highest expectations. They produce mutton of the best quality and in great quantities, and a very desirable class of wool.

The English Shropshire flock book has been in existence longer than any other, and the American Shropshire Breeders' Association, of which Hon. Mortimer Levering is the efficient secretary, is the largest and richest livestock association in existence. Besides the American Shropshire Association there are two other associations promoting the cause of the Shropshire in this country, viz.: the International Shropshire Registry Association, Mr. B. Hartley, secretary; and the National Shropshire Association of which Mr. S. J. Weber is secretary. Australia, Tasmania, New Zealand, the Argentine Republic, etc., have Shropshire associations. No sheep as yet have been taken to in this country in crossbreeding as the Shropshire has. The Shropshire-Merino cross is a great one.

The term Shropshire Down has been dropped in England, perhaps because the county of Shropshire has really no *Downs* as the term is understood in Hampshire, Wilts, Sussex, etc.

Michigan figured largely in the introduction of the Shropshire into America, the first finding their way here being, it is said, introduced from Canada. It is stated that the first importation of any note into this country was made in 1855, Virginia claiming it. A Michigan fancier is quoted as being the first to introduce them into the American show ring. This was in 1875. Dr. Hubbard of Michigan is said to be the first one to use Shropshire rams as a cross on common ewes, from which he got the most favorable results. Then Richard Conley of the same state, noticing the pleasing results of this cross, decided that it was the sheep for improving the flocks of the state, and in company with Mr. Hubbard made an importation of eighty head, direct, in 1880. They brought out an excellent lot of sheep, which at the time were the talk of the country. Some of these fell into the hands of Mrs. W. G. Mason of Michigan, a lady passionately fond of good sheep,

and others of the importation went to J. F. Rundell and W. J. Garlock, both of Michigan. The latter gentleman was so infatuated with the breed, and such was his determination to secure nothing but the best of the breed, that he gave no less a sum than \$800 for ten head of the same consignment. The success that attended Mr. Rundell's venture warranted his making several importations himself. Another gentleman that got a bad attack of Shropshire fever was the Hon. James Turner of Michigan, with the result that in 1888 he made, in conjunction with other parties, a large and very choice importation of the breed selected from the flocks of the most prominent breeders in England. Among the other earlier importers in Michigan must be mentioned the name of L. S. Dunham, a gentleman who has stuck to the breed through thick and thin. Then Blake Bros. of the same state have been with the breed since their introduction into the state. The name of Breck was long associated with the importers of good Shropshires. For many years the names of Allen and Davison have stood in the lead among Shropshire breeders in this country, and many new names are being fast added to the list. Connected with prominent breeders in Canada must be mentioned the name of Mr. Richard Gibson, who, without a shadow of doubt, has done more in his "Notes from Belvoir" towards popularizing the breed and teaching good sheep husbandry in this and some other countries, than any other man living or dead, and were his "Notes" published in volume form (which I trust they some day will be) agricultural history and agricultural education would be the richer. With the hope of assisting in perpetuating his good name and work, I take the liberty of making special mention of his name and giving his halftone herewith. Other names that have figured prominently in Canadian Shropshire history are those of Messrs. Miller, Campbell, McFarlane, Hanmer, Lloyd-Jones, Carpenter, etc.

I am indebted to Mr. A. E. Mansell of Shrewsbury, Shropshire, England, one of our greatest living breeders of Shropshire sheep and a gentleman whose name is a household word among Shropshire fanciers and breeders the world over, for the following comprehensive compilation of record prices of Shropshire sheep and list of noted sires which have made history. Not only does this list show the prices and list of noted sires, but also introduces to our readers the names of the most famous English Shropshire breeders of the past twenty years, breeders who have done their share toward bringing the breed to that high standard and degree of popularity which it now enjoys the world over. Mr. Mansell's compilation reads in part as follows:

1887—"Royal Jubilee," first at the Royal, bred by Mr. J. Beach, was let to Messrs. J. Bowen-Jones and T. S. Minton for a single season for 120 guineas. "Boscobel," bred by the same breeder, was sold to Sir J. Pulley for 105 guineas. "Duke Royal," bred by Messrs. Evans, was purchased by Sir P. A. Muntz for 110 guineas. The same year Messrs. Bradburne's entire flock of six stock rams averaged £47, including

the five-year-old ram "The Rector," bought by Messrs. Evans and Tanner at 100 guineas, and fifty ram lambs averaged over £8 each.

1888—"Nottingham Royal," bred by Mr. A. E. Mansell, was sold to Mr. W. F. Inge for 115 guineas.

1889—A ram bred by Mr. G. Graham was sold to Captain Russell for the Argentine Republic for 200 guineas; "Ace of Trumps," bred by the same breeder, was sold to Mrs. Barrs for 170 guineas; "Shenstone Rector," bred by Messrs. Evans, was sold to Sir R. P. Cooper for 180 guineas; "First Lord," bred by Mrs. Barrs, was sold to Messrs. Price & Fowler for 120 guineas; "Frontier," bred by Mr. J. E. Farmer, was bought by Mr. J. Beach for 145 guineas, who later refused 200 guineas for him. At the dispersion sale of Mr. Thomas Mansell's flock, "Marble Cutter" sold to Sir P. A. Muntz for 160 guineas, and a shearling ram to Mr. G. Cook for 150 guineas. Shearling ewes made up to 15½ guineas, an average of £8 18s 3d. Two-shear ewes averaged £9 8s 3d; breeding ewes, £7 2s 6d; ram lambs, £7 18s 3d; ewe lambs, £4 8s. The average of the entire flock was £10 5s 9d.

1890—"Attractor Second," bred by Mr. A. E. Mansell, sold to Mr. A. Tanner at 100 guineas. "Royal Knight," bred by Messrs. Evans, was sold to Mr. G. Cook at 105 guineas.

1891—Among the great rams of this year may be mentioned "Passport," which sold for 135 guineas; "Shearling Ram," 120 guineas; "Dunsmore Star" (winner of the Doncaster Royal), 185 guineas; "Doncaster Royal," 200 guineas, and "Thorpe Common," 170 guineas.

1892—The great rams of this year were "Ercall Hope," which sold for 135 guineas; "Bath Brick," 160 guineas, and "Warwick Champion," 110 guineas.

1893—Among the great rams of this year may be mentioned "Dunsmore Sherlowe," which sold for 105 guineas; "Montford Dreamer," 175 guineas; "Shropshire President," 200 guineas; "Doncaster Royal," bred by Mr. W. Inge and repurchased by him at 250 guineas; "Chester Royal," 175 guineas; "Ercall Royalist," 140 guineas; and "Past Warden," 190 guineas.

1894—"Double First," bred by Mr. A. E. Mansell, sold for 200 guineas; "Young Hercules," 110 guineas; "Hatten's Assistant," 125 guineas, and "Downton Emblem" for 100 guineas.

1895—"Norton Constable," 125 guineas; "Darlington" (to serve thirty ewes), 105 guineas; "Ruddington Eclipse," bred by Mr. A. E. Mansell and sold to Mr. P. L. Mills, 230 guineas; "Beach's Perfection" (a ram lamb), was sold to Mr. A. E. Mansell for 120 guineas.

1896—"Royal Dream," 165 guineas; "Royal Dreamer," 155 guineas; "Phenomenon," 120 guineas; "Leicester Royal" (to serve twenty-five ewes), 100 guineas.

1897—"Diamond King," 170 guineas; "Downton Jubilee," 135 guineas; "Ensdon Four Bs," 185 guineas; "Dunsmore Ensdon," 100 guineas; "Odstone Pennant," 105 guineas; "Buttar Blue," 150 guineas.

1898—"Royal Record," bred by Mr. D. Buttar, was purchased by Sir R. P. Cooper for 310 guineas; "Scotland Hero," bred by the same breeder, and sold to Mr. P. L. Mills, realized 110 guineas, and "Adam Tractor," 120 guineas.

1899—"Maidstone Royal," 120 guineas; "P. D. Q." 150 guineas; "Montford B.," 120 guineas; "Dunsmore Royal Blue," 115 guineas; "Dunsmore Commander," 115 guineas; "Ashlyns Knight," 110 guineas; "Strong Bone," 100 guineas.

1900—"Royal Blood," bred by Mr. A. E. Mansell, sold to an Australian for 240 guineas; "Rose of York," bred by the same breeder, 150 guineas; "I. X. L.," 100 guineas. The same year Mrs. Barr's shearling ram "19951" sold for 140 guineas for Australia. Mr. A. Tanner's "Great Expectation" sold for 120 guineas for Tasmania. Mrs. Evans' "Sherlowe Monarch" sold for 120 guineas.

1901—Sir R. P. Cooper's shearling ram "11342" sold for New Zealand for 240 guineas, and Messrs. Evans' "Newport Monarch" sold for 145 guineas for export to Tasmania. Mr. A. E. Mansell's dispersion sale of this year was a red-letter day in Shropshire history, inasmuch as two records were established; the shearling ram "Lord Cardiff" selling to a Tasmanian buyer at 400 guineas, while the shearling ram "O. 628 R." sold to an Australian fancier for 220 guineas. Sixty-one rams offered

at this sale made an average of £33 8s 8d; 101 shearling ewes made an average of £8 15s 10d; 43 two-shear ewes made an average of £17 7s 6d; 205 young stock ewes, £5 7s 6d; 143 ewe lambs, £3 17s 2d, and 101 ram lambs, £10 4s 6d.

The year 1902 recorded no record prices. The dispersion sale of Mrs. Barr's in this year was one of the notable events of that year and the dispersion sale of Mr. Harry Williams' flock was another notable event. It may not be out of place to mention that at Australia's leading show the champion ewe sold at 60 guineas.

In 1903 a Shropshire ram sold at the Melbourne, Australia, sale for 195 guineas.

In 1904 an important event was the selling of the Mansell Memorial Cup Winner for 185 guineas to Mr. Alfred Tanner, and the first prize shearling ram at the Park Royal, bred by Mr. E. Nock, to Sir R. P. Cooper for 140 guineas.

1905—At the Royal Show all the animals entered into the selling class are to be sold with a reserve of 15 guineas. These sales have proved a great success, as the following results show: Sir R. P. Cooper's "Royal Eclipse" sold to Mr. P. L. Mills for 90 guineas; the ram, "Holker Premier," bred by the same breeder, sold to Hon. Victor Cavendish for 82 guineas. At the same sale Sir R. P. Cooper sold ten rams at an average of £52 each. Mr. M. Williams' "Dunsmore Whiston King" sold to Sir P. A. Muntz for 150 guineas, and Mr. T. Fenn's "Countersign" sold to Mr. F. Bibby for 100 guineas.

At the 1906 sales, Mr. P. L. Mills' ewes sold as high as 16 guineas each. At Mr. John Harding's dispersion sale of the same year, the highest priced ram sold was "Crested Wave," which sold at 90 guineas; thirty-four rams averaged £23 1s 6d; 75 shearling ewes, £7 14s 7d, and 74 ram lambs made an average of £6 1s 7d, the highest priced being 16 guineas. All the ewe lambs went to Tasmania. In the selling class at the Royal Show of this year (1906), Sir R. P. Cooper sold a shearling ram for New Zealand at 115 guineas, and Mr. B. H. Mander a ram lamb for 42 guineas. At Mr. P. L. Mills' dispersion sale the highest priced shearling ram sold for 75 guineas and the highest priced shearling ewe for 16 guineas.

"Montford Dreamer," 7022, bfed by Mr. T. S. Minton, and purchased by Mr. Mansell in 1893 for 175 guineas. The pedigree of this ram is as follows and shows the value of close breeding in certain cases: Sire, "Marquis of Meale," 4072; dam by "Blue Blood," 1360, the sire of "Blue Blood Yet," the champion of America. The record of this ram as a sire is most remarkable. In three years Mr. Mansell has taken four prizes at the Royal in the shearling ram class with sons of this ram, and besides this, at the Royal in 1895, the first prize ram lambs were by him; in 1896 three of the first prize shearling rams and two of the second prize ram lambs were by him, and in 1897, besides the first prize and champion Royal winner being by him, two out of the second prize pen of shearling rams and one of the second prize ram lambs were by "Montford Dreamer."

Writing the author regarding the famous ram, "The Rector," Shepherd Dan Taylor said: "I am the one that was in charge of his mother when he was born, and fed him at Captain Townsend's place in Warwickshire, England, until he was sold. He was sired by a ram that Captain Townsend bought at Mr. Evans' sale for 100 guineas and he got more prize-winning stock than any other Shropshire ram I know of. He was no doubt the making of the Bradburne Brothers' fame. When I led him into the ring at Bingley Hall, Birmingham, bids were flying all around the ring. The Bradburnes said, 'Forty guineas!' and the bids kept going along slowly until Bradburne Bros. said, 'Seventy-five guineas.' After they had bought him this firm said: 'If he went up to 500 guineas it would have been just the same; we would have got him!'"

Among the most noted Shropshire sires must be mentioned: "Conservative," 435, used in the flock of the late Mr. Thomas Mansell with great success. "Conservative," was the sire of no less than five Royal winners. "Blue Blood," 1360, used in several of the best flocks and the sire of "Blue Blood Yet," champion ram at the World's Fair; "Nonpareil," 908, the sire of three Royal winners in one class, at Bury St. Edmunds, 1867; "Marquis of Bath," 822, the sire of "Lord Carlisle," winner of first at the Royal; also "Montford Hero," 160, winner of first at the Royal on two occasions, and several other valuable rams; "Fair Star,"

5177, bred by Mr. T. Fenn, sire of "Ruling Star," 8720, winner of first prize at the Shropshire and West Midland shows; "Old Latimer," used most successfully in Lord Chesham's flock at Latimer and the sire of many winners; "Cardinal," 339, bred by Lord Chesham, made a great mark in the celebrated Uffington flock; "Pride of Montford," 959, bred by Mr. T. S. Minton, proved himself a grand sire; "Crested Knight," 8957, bred by Mr. John Harding, made a great reputation in Scotland; "Ulster Councillor," 11618, bred by Mr. John Harding, has made a great mark in Ireland and sired many winners.

#### THE HAMPSHIRE.

The home of the Hampshire seems to be everywhere, notwithstanding that historians of less than twenty years ago designated it to be in the chalk formations of Berkshire, Hampshire, Wiltshire, Dorsetshire, and in later instances in Sussex and Surrey. In this country it has made itself very much at home, both in the show ring, on the farm and in the feed lot, and its popularity is growing apace. It is also pushing itself into countries where only breeds indigenous to same were thought fitted. It is a breed that is deserving of all the good things that may be said of it.

It is pretty generally conceded that the Hampshire owes its origin to the crossing of the old Wiltshire-horned sheep and the Berkshire Knot, with the Southdown, which was introduced into Hampshire and adjacent counties in the early eighties. There seem to be fewer fads in regard to the Hampshire Down than with many other breeds. Perhaps that, in a measure, accounts for its wonderfully rugged constitution. The Hampshire is a very large, strong constitutioned, early maturing breed, with black face and legs, darker than the other Down breeds of sheep, with the one exception of the Suffolk. Hampshires are kept in very large flocks in England, running from a hundred up into the thousands; in fact, flocks of this breed are larger on the average in England than those of most other breeds.

Ram lambs are rented at very high figures by the English Hampshire breeders, only recently one being rented by Mr. Cary Coles, a well-known breeder, for one month's service only at \$576. In August of last year he rented nine head at an average of £76 10s, one of which rented at 180 guineas or \$945.

In twin-raising this breed has no superior, if equal, and no lamb seems to grow faster than the Hampshire lamb. It takes lots of feed, but makes good use of it, and gives a good profit on what it consumes. The Hampshire is a very prolific breed, one English breeder reporting 850 strong, healthy lambs from 650 ewes.

The Hampshire stands prominent among the early-lamb raisers. The lambs grow very rapidly, a gain of one pound a day being nothing unusual with this breed. The demand for the breed in this country is greater than the supply.

To the hungry man or epicure the Hampshire chop is very tempting, for not only is it large, but rich, juicy, and very full of

flesh. The carcass of the Hampshire always dresses bright and makes an attractive appearance on the butcher's block.

Few, if any, breeds give better returns for food consumed than the Hampshire. It is fleshy, well-balanced, so far as blending of lean and fat is concerned, and not at any time overburdened with blubber, as is quite often the case with some breeds.



Hampshire Shearing Ram.

They are not particularly heavy shearers, although a vast improvement has been made in their shearing qualities and the quality of their wool during the past few years. Its wool is now ranked among the finest of native British breeds.

The Hampshire is not in any sense a pampered breed, as it has to rough it the year round out-of-doors in its native country, and under conditions that have strengthened rather than weakened its ability to withstand the hardships brought about through inclement weather. Rain or snow does not bother the Hampshire, provided it has the right kind of food and plenty of it. The constitutional vigor of the Hampshire allows it to assimilate a large amount of food, which is amply offset by its very rapid growth. The Hampshire is a most impressive sire and the first cross of the purebred Hampshire ram on the native ewe sometimes so much resembles the pure Hampshire that it is hardly distinguishable from the original so far as character is concerned. The annual fairs of Hampshire Down sheep held in England are a sight worth seeing. It is nothing unusual to see from 30,000 to 40,000 head of this grand breed penned at a single fair.

In 1894 there were 84 flocks registered in the English flock book—114,000 head; ten years later this number was doubled and is still growing apace.

No breed has made more improvement or a greater impression on the public than the Hampshire during the past few years.

It is, perhaps, par excellence the sheep of early maturity. The weights that it has made in comparative babyhood, under modern systems of feeding and management, are almost incredible to those who have handled smaller and less early maturing breeds. A gain of over a pound a day is nothing unusual. In the Agricultural Magazine of 1900, mention is made of a Wiltshire lamb which weighed 24 pounds per quarter and contained 14 pounds of loose fat. Nothing makes so impressive a pastoral scene as a bunch of several hundred six or seven-months'-old Hampshire lambs, as they are seen on English farms. Nothing gives one a better idea of the wonderful popularity of the breed in certain sections than a visit to the great Salisbury Fair and sales, where they are offered for sale by thousands.

The Hampshires were first awarded classes to themselves at the Royal at Salisbury in 1857.

The modern Hampshire is a merger of the old Hampshire ewe and Wiltshire rams. The Wiltshire sheep were known as "crooks" on account of the shape of their horns, which grew somewhat after the style of the "old crumpled-horn" cow, that is, they turned back behind the ear and crooked toward the cheek. They were said by authorities to be the largest breed of sheep of their day.

According to history the Cotswold figured in the evolution of the Hampshire, for about 1829 Mr. John Twynam used Cotswold rams for this purpose according to his own words. In 1840 the Hampshires were shown at the Royal Agricultural Society Show at Oxford as West-County Downs, a name which they bore for a long time after. They were in face and other characteristics like the

present day Hampshire, but much smaller, lighter in color and lighter in the fore-end and rougher. Many names have been mentioned as the Bakewell of the Hampshire, but evidence points strongly to Mr. Humphrey of Oak Ash, near Wantage in Berkshire, as being the rightful candidate to the title.

When Mr. Humphrey died (1868), his flock was dispersed, and Mr. Jas. Rawlence, the present secretary of the English Hampshire Down Association, gave 60 gs. for a ram lamb and Mr. King, another well-known breeder, secured one at 50 gs. Mr. Ferris and Mr. Child gave 47 gs. and 40 gs. respectively for two other rams. Mr. Rawlence was among the early breeders of Hampshires, who, in contradistinction to Mr. Humphrey, started his flock with what was



Hampshire Ewe Lambs—Property of Mr. H. C. Stephens, England.

known as the Sussex breed, while Mr. Humphrey originated his foundation from the West-Country Down ewes. Mr. Rawlence selected the largest and best proportioned ewes and used Hampshire Down rams on them, but for new blood he used Mr. Humphrey's rams. Then to introduce new blood he purchased ewes from other flocks upon which he used some of his own rams and upon the produce other rams of his flock.

Among other breeders of the district which may be considered as the particular native home of the Hampshire Down, must be mentioned the late Mr. Jas. Reed of Hornington, Mr. Alfred Morrison of Fonthill (who early brought his ample means and skill to bear upon the improvement of this sheep), Mr. Dibben of Bishopstone, the late Mr. Newton of Dogdean, Mr. Parsons of Micheldever and Mr. Coles of Middleton Farm, Warminster.

For crossing purposes the Hampshire is very much sought, not only in England, but in this country as well, and grade Hampshires from the western flocks have topped the Chicago market in several instances, and at the International Show grade lambs of this breed have carried off the highest honors on several occasions.

For the following interesting and unbiased report on the Hampshire in the west, I am indebted to Mr. Frank J. Hagenbarth, vice-president and general manager of the Wood Livestock Company, Salt Lake City, Utah, a gentleman, who, as a judge of the Hampshire and Cotswold breeds and an all-round judge of mutton sheep, is perhaps second to none in this country. Few if any have accomplished what he has in topping the Chicago lamb market, not with single carloads or so of lambs, but whole trainloads. To travel with this famous breeder and feeder in quest of purebred rams, as the writer has done, is an inspiration and education in business ethics which fall to the lot of few to enjoy. The writer recalls a little incident that happened in Canada a few years ago which will not soon fade from his memory and which gave him a true conception of the calibre of the western business man. As we were walking across a field, on the farm of a well-known sheep breeder, we came upon an exceptionally fine bunch of, perhaps, seventy-five yearling and two-year-old rams. "I like the looks of that bunch of rams," remarked Mr. Hagenbarth, "and I'll buy them." The first question asked by Mr. Hagenbarth of the owner of the rams, after an introduction had been brought about, was: "How much do you ask for those rams?" The price was named. Like a shot from a gun came: "I'll take them, provided you keep back five which I will pick and pay you for just as if I were taking them. I do not want you to think that I want to pick your flock unfairly." How many ram buyers are as broad as this gentleman? But to revert to Hagenbarth's report. It reads:

"In answer to your enquiry, concerning the adaptability of the Hampshire and Cotswold purebred sheep to this western climate, will say that the Hampshire seems to take more kindly to this climate when imported from the east or England than does the Cotswold; the latter breed seems to be seriously set back the first year. However, the increase from the Cotswold seem to take kindly to our climate and develop into strong, rugged sheep. This is especially true of the variety of Cotswold displaying mottled noses and legs. The pure white faced and legged variety seem to be a little tender. The Hampshire is as rugged and strong as an ox and equal to the Shropshire in ability to stand our climatic conditions. It is, however, of much earlier maturity and larger growth than the Shropshire.

"We find, in our own experience, and I think it is generally conceded, that the Hampshire ram when crossed on the western ewe produces the very best range mutton animal that we have

seen up to date. They mature earlier, grow larger, stand shipping well, and are market toppers. Next in rank, I believe the Cotswold or Shropshire come and then the Lincolns. We have used all breeds extensively, and our experiences have demonstrated the above convictions.

"We have found it a difficult matter to secure sufficient Hampshire ewes to afford the foundation for a good-sized flock. However, in the course of five years, we have got together about 700 head of purebred registered ewes, including this year's lambs. This flock includes the Chilmark, Duke, Cochrane and other top studs. Our sires we have bought at home and abroad, and I think we are breeding twelve rams of this breed that are among the best that ever came to the United States.

"Our aim in breeding is to produce two types, first, the strictly mutton type, and second, the wool-mutton type, both, of course, being the Hampshire breed. In attaining the former type our method is to breed our leggy, lengthy ewes to short, heavy-bodied, blocky rams, and vice versa, the product giving us a uniform lot. With this mutton class we use that type of Hampshire resembling the Oxford Down, i. e., the open-wooled. The second or wool type of Hampshire we get by selecting our heaviest shearing ewes and serving them with a ram of like characteristics. We have two imported rams which sheared twenty-six and twenty-seven pounds respectively, as yearlings. We also have two and three-year-olds which shear over twenty-five pounds.

"The rams from the first, or mutton class, go direct to the market from the range, whereas the increase from the second or wool class, we keep for a foundation of our range flocks. We find that by crossing this type of ram on the Merino range ewe we get a one-half blood Hampshire—large size, with strong Hampshire markings that will shear us eight pounds of well bred one-fourth blood and three-eighths wool.

"We find that the Cotswold cross-bred lambs do not stand shipping from range to market as well as either the Hampshire or Shropshire, though under proper range conditions they make rapid growth and take on plenty of fat. Where range conditions are at all adverse they quickly show depreciation. We have maintained a large herd of pure bred Cotswolds for many years, but have concluded to cross them with the Hampshire in order to insure hardihood against range conditions, and to better equip them for withstanding the hardships of shipping to market. We think that the crossbred sheep, which will practically be an Oxford Down, will afford better results than the Cotswold purebred.

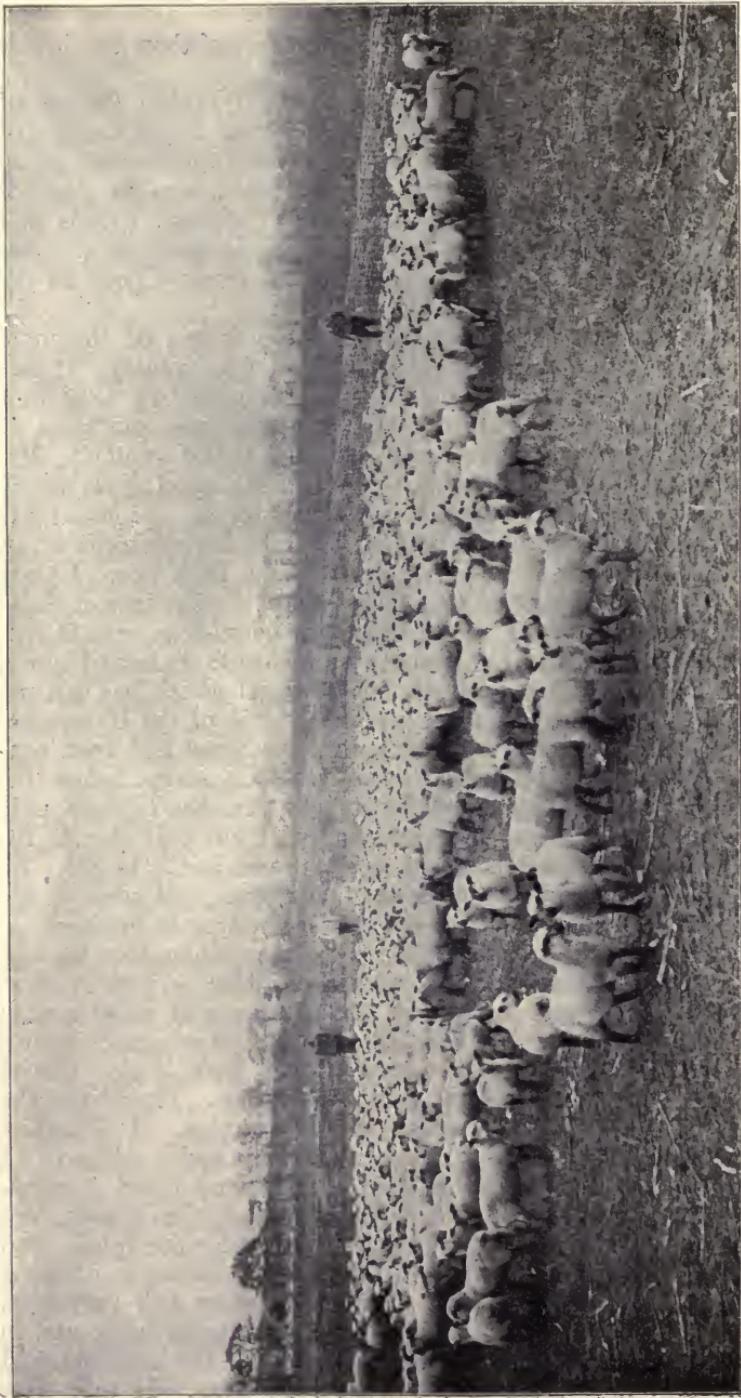
"There seems to be at all times an insatiable market for well-bred Hampshires and Cotswolds. The chief handicap of the latter breed has been in the fact that many inferior and poorly bred, diseased animals have sought the western market. There would be

almost unlimited sale for a proper class of either of these two breeds among western sheep owners."

Prof. John Wrightson, president of the Downton College of Agriculture, and professor of agriculture in the Royal College of Science, London, England, must be rated among the greatest living scientific and practical authorities on the breed, and to give his tribute to this breed as it appears in his "Sheep; Breeds and Management" (Vinton & Co., Ltd., London), is perhaps the medium through which the writer may do the greatest good to the breed, its breeders and improvers. He says:

"The improved Hampshire Down sheep is one of the more recent additions to the agricultural wealth of this country. It was only at the first meeting of the Royal at Salisbury in 1857 that Hampshire sheep were awarded classes to themselves, and some of the earliest improvers of the race are still living—notably, Mr. James Rawlence, Mr. William King of Old Hayward, now ninety years of age, and his brother, Mr. Stephen King. No breed has made more rapid progress, either in absolute improvement or in the wide appreciation in which it is now held, than this. I trust my readers will excuse me if I dwell on this particular race of sheep at somewhat great length. I do this from no wish to give it special prominence, but because I have examined into its early history, and find that there is a good deal of material which has not yet seen the light. David Low lived before the birth of the Hampshire Down, and William Youatt wrote before the breed had been constituted. The late Professor Wilson wrote on sheep before the Hampshire Downs became prominent, and Mr. Rowlandson only gives them a brief notice. I therefore feel it not only due to the early improvers of the breed, but to the breed itself, to place on record a detailed account of its history, and trust that some of the information I am able to give will prove interesting to breeders.

"The old Hampshire and Wiltshire rams have long been merged in the present improved breed. The Hampshires originally were horned, tall, light, and narrow in the carcass, and usually with white faces and shanks. The Wiltshire sheep were originally known as 'crooks,' so called from the shape of the horn, which turned back behind the ear, and bent over the cheeks. They were the largest breed of fine woolled sheep in this country. A Wiltshire lamb which weighed 24 pounds per quarter, and contained 14 pounds of loose fat is described in the Commercial and Agricultural Magazine for April, 1800. 'These sheep,' says Youatt, 'not only prevailed upon the Wiltshire Downs, and were much, and deservedly, valued there, but were found in considerable numbers in North Devon, Somersetshire, Buckinghamshire and Berkshire. They were a peculiar breed, differing in the shape of horn, and in other points, from the sheep of any other part of the kingdom, and were probably indigenous to the Wiltshire Downs. If they were



Four Hundred and Eighty Head of Hampshire Twin Lambs—Property of Mr. H. C. Stephens, England.

rather slow in feeding, they were excellent folding sheep, and enabled more corn to be grown in Wiltshire, in proportion to its size, than in any other county in England. These Wiltshires have now (1837) passed quite away.' They were crossed 'again and again' with the Southdowns, until every trace of the old breed disappeared, and a useful variety of the Southdowns remained—only distinguished from the Sussex sheep by somewhat larger size, lighter colour, and a lighter and finer fleece. The last flock of the old Wiltshire horned breed disappeared about 1819 (Rawlence).

"According to Mr. E. P. Squarey, 'the Hampshire breed originated in a cross between the old Wiltshire horned sheep, as well as the Berkshire Knot, with the Southdown. From 1815 to 1835 the Downs of North Hants and those of South Wilts were very different. The Wiltshire Down was larger, perhaps less handsome, and not so uniform with respect to color as those of Hampshire, and a ewe with a speckled face and ears was not always drafted.'

"About 1829, Mr. John Twynam, as he himself afterward related to a farmers' club, used Cotswold rams. His idea was to blend together the best breeds then in existence, and by using an improved Cotswold sheep upon Hampshire ewes, he considered that he obtained an animal which united the qualities of the old Wiltshire, the Southdown, the Cotswold, and, indirectly, the Leicester. Mr. Twynam thus expressed himself: 'You must have observed an immense improvement in the character of the Hampshire sheep generally, within the last fifteen years. I have had my attention called to this fact frequently since I have ceased to be a breeder. How has this altered character been obtained? Can we recognize none of the Cotswold fleece, or his more symmetrical proportions? And, when I tell you that in the years 1835-36 and subsequent years, I sold many half-bred lambs, and not only into Hampshire Down flocks generally, but into those of six or eight of our first ram breeders, whose names are to be seen at this day upon my books; when, as you must be aware, these breeders are in the constant annual habit of selling one to another in this and adjoining counties, I trust I may, without presumption, lay some little claim to having supplied a portion of the material from which our present flockmasters have worked up a better and more valuable fabric.'

"In 1835 the sheep of both counties, and also of parts of Berkshire, were, to speak generally, modified Southdowns, retaining some of the features of the older breeds—especially those of size and quality of wool—but had not arrived at the distinction of being a recognized breed. They were exhibited at the first show of the Royal Agricultural Society of Oxford in 1840 as West Country Downs, a name they long retained, and were at that time something like the present sheep, but smaller, looser, narrower at the fore-end, and lighter in colour.

"It has been noticed that the crossing with Southdowns had been going on for many years before the formation of a breed was accomplished. Just as Shorthorns existed before the days of the brothers Colling, and Leicesters before the days of Bakewell, so Hampshire sheep had taken their general form before the days of Mr. Humphrey of Oak Ash. Not only so, but Mr. Humphrey had contemporaries and customers from the first. Mr. James Rawlence (of Bulbridge), Mr. Stephen King, Mr. William King, Mr. Moore (of Littlecot), Mr. Edward Waters (of Stratford-sub-Castle), Mr. Frank Budd (near Whitchurch), Mr. Saunders (of Watercombe), Mr. Canning (of Chisledon), Mr. Ferris (of Manningford, Upavon), Mr. Bennett (of Chilmark), were all engaged in breeding these sheep. Mr. Humphrey is, however, by common consent, looked upon as the man who lifted the sheep into its present position. Thus Mr. Squarey writes: 'To Mr. Humphrey of Oak Ash is due in a great manner the present character and position of the Hampshire Down sheep. This agriculturist effected its improvement by careful crossing with the largest and best fleshed of the Babraham Southdown flock. This means, applied with wonderful ability, and at a great cost, at length resulted in the present perfect animal.' This justifies me in giving Mr. Humphrey a first place, while Mr. James Rawlence, the oldest living breeder (with the exception of Mr. William King, now retired), must be looked upon as his most worthy and best-known successor.

"Mr. Humphrey, in a communication to Mr. W. C. Spooner, in 1859, gives a short account of the manner in which his flock of ewes was got together: 'About twenty-five years since, in forming my flock, I purchased the best Hampshire or West Country Down ewes I could meet with. Some of them I obtained from the late Mr. G. Budd, Mr. William Pain, Mr. Digweed, and other prominent breeders, giving 40s. when ordinary ewes were making 33s., and using the best rams I could get of the same kind until the Oxford Show of the Royal Agricultural Society. On examining the different breeds exhibited there, I found the Cotswolds were beautiful in form and of great size; and, on making inquiries as to how they were brought to such perfection, I was informed that a Leicester ram was coupled to some of the largest Cotswold ewes, and the most robust of the produce was selected for use. The thought then struck me that my best plan would be to obtain a first-rate Sussex Down sheep to put to my larger Hampshire Down ewes, both being the Short-wooled breed. With this object I wrote to Mr. Jonas Webb to send me one of his best sheep, and he sent me a shearling by his favorite sheep, Babraham. I went down the next two years, and selected for myself; but the stock did not suit my taste so well as the one he sent me, and I did not use them. I then commissioned him to send me the sheep which obtained the first prize at Liverpool, and from these two sheep, the

first and the last, by marking the lambs of each tribe as they fell, then coupling them together at the third and fourth generation, my present flock was made.'

"Mr. Humphrey found his first difficulty in loss of size, and to obviate it drafted out his finest and smallest bred ewes, replacing them with the largest Hampshire Down ewes he could find that suited his fancy, and on these he continued to use the most masculine and robust of his own bred rams. This policy entirely succeeded, and, as he himself said, 'beyond what I could have expected.'

"Oak Ash is eight miles from Wantage, Berks, and was named from an ash tree which grew up within the hollow trunk of an ancient oak, but which was removed and replanted where it now stands. It is an estate of 600 acres, all under tillage, and without water meadow. It is nearly all good, and rather strong land, and has been known to grow one load of marketable wheat per acre over the whole wheat area. The house is well placed and commodious. Mr. Humphrey, at the time under our notice, was the proprietor of this and other lands, and remained there until his death. He unquestionably possessed in a high degree the peculiar genius required in a first improver of stock. It is a faculty which must be implanted by nature, and comes to few. He is described as a fine-looking man, a capital public speaker, a keen man with the gun, and an excellent shot. He was a kind master and a good neighbor.

"The following is a statement made to me recently by Abraham Hopkins, who lived as shepherd with Mr. Humphrey from 1842 to 1868, and, therefore, from the date at which the Babraham Southdowns were first used down to Mr. Humphrey's death: 'When Mr. Webb's sheep came, master would stand and look at him for two or three hours; or when a good lamb fell from a favorite ewe, he would stand and look at it, and move it about, for an hour or more.'

"He took first prize with a West Country Down ewe at Oxford in 1840. It was not, however, till 1842 that he hired his first sheep from Mr. Jonas Webb, and he had in all three sheep from Babraham, for which he paid 60 gs. each for the hire. He had them at intervals of about two years, and these were all the rams he ever bought or hired from Mr. Jonas Webb or anyone else—one of them was named Thickhorn—but, with these exceptions, he used his own rams all the time. The ewes were drawn to these rams with the greatest possible care.

"He only once bought ewes. They were bought in a lot of 100, and of these Mr. Humphrey had twenty-five, Mr. Rawlence twenty-five, and a neighbor fifty. The ewes were picked one by one, and Mr. Humphrey had the first pick. The ewes were just outside the house, and (Abraham Hopkins says) he had noticed the

best beforehand, and when he was told to go in and pick one he went for her first. She was a perfect sheep, and she bred John Bull, which beat All England, and he was the father of Comet, which took first prize as a shearling at Chester, and also at Warwick as a four-tooth. Kettledrum was another son of John Bull, and took first prize as a shearling at Leeds, and first at Battersea in 1862.

"Besides these ewes, no others were bought, unless it might be one or two which struck Mr. Humphrey as desirable. One of such bought ewes bred Jack Tar by a ram from John Bull's strain. Such fresh blood was used with great caution and never directly. Thus Jack Tar was given a few ewes, and their ewe lambs were saved as dams for rams. It was, therefore, only after being well mixed with the blood of the flock that new blood was allowed to permeate it.

"Every lamb was marked as it fell, and those which showed any breaminess or coarseness were notched at the top of the ear; and no matter how well these lambs turned out, they were castrated and went to the butcher. Every lamb, in fact, which was not let for breeding was fattened off, and no ewes were ever sold. Only good ewes were kept for breeding, and all the rest were sold to butchers. The ewes which were thought good enough for the flock were bred from until they were worn out. One favorite was kept till she was fourteen years old, and her last lamb was Oliver Twist. This ewe had no udder for the last four years of her life, and Oliver Twist was given to another ewe. This ram was first in his class at Leeds and at Battersea.

"In using sires Mr. Humphrey was very particular. Lambs were used cautiously, by giving each of the best about twenty ewes. If the stock proved satisfactory the ram was used again as a shearling, and in subsequent years, but if not he was sent to the butcher. He always kept back his best lambs from the annual hiring for his own use, and was not a buyer at other people's ram sales; neither did he ever introduce strange blood straight into his flock.

"Mr. Humphrey died in 1868, and his flock was then dispersed. Mr. Canning had some ewe lambs, so had Mr. Parker and Mr. Budd. Mr. James Rawlence gave 60gs. for a ram lamb, Mr. William King paid 50 gs. for one, Mr. Ferris 47 gs. for one, Mr. Child 40 gs. for one.

"Mr. Rawlence never missed a year having a lamb or two, and Mr. E. Waters the same.

"Mr. James Rawlence has already been mentioned as an early breeder of Hampshire Downs. It is worthy of note that while Mr. Humphrey commenced upon a foundation of West Country Down ewes, which had, as already explained, originated in Southdown crosses made during many previous years, Mr. Rawlence's

original flock was 'of the Sussex breed.' He commenced by drafting all the small and delicate ewes, and crossing the larger and stronger ones with Hampshire Down rams. Mr. Rawlence frequently used Mr. Humphrey's rams, and thus obtained a fresh mixture of the Hampshire Down and Babraham Southdown blood, which was introduced with great skill and caution. The flock was further refreshed by purchases of Hampshire Down ewes, to which he put his own rams and used their produce. Mr. Humphrey's rams were used on some of the best of his ewes, and they again furnished sires for his flock. This process of infusing new blood gradually, and of rigorous selection, at length resulted in a flock of the highest possible merit, and Mr. Rawlence, in consequence, is regarded by many as the father of the breed. No one has done more to fuse the various elements into one compact and typical breed of sheep, and the Bullbridge flock became at length the foundation of many others. Mr. Spooner, in 1859, speaks of Mr. Humphrey's flocks as distinct from any others, and applies to them the expression of *sui generis*, from which we infer that one more step was necessary before the Hampshire Down could be regarded as a uniform and homogeneous race. In the accomplishment of this object Mr. Rawlence took the leading part, and we may look upon the Bullbridge flock as fairly representing the Hampshire Down as we see him at the present time. Among other breeders of the district which may be considered as the particular native home of the Hampshire Down, I would especially mention the late Mr. James Read, of Homington; Mr. Alfred Morrison, of Fonthill, who early brought his ample means and skill to bear upon the improvement of these sheep; Mr. Dibbin, of Bishopstone; the late Mr. Newton, of Dogdean; Mr. Parsons, of Micheldever; and Mr. R. Coles, of Middleton Farm, Warminster. Other early breeders have already been mentioned, and others are, no doubt, equally worthy of notice.

"The improved Hampshire Down sheep is the heaviest of all the Down breeds, and is only excelled in weight by the Lincoln, and occasionally by the Cotswold, among the long-wooled races. Its extreme earliness of maturity is well known; and although it has recently been contested that the Cotswold may be brought up to as great a weight, or even greater, by careful feeding from birth, the entire habit of the Hampshire sheep is more in favor of early maturity than any other largely distributed breed. The fact that Hampshire ram lambs are habitually sold for service at seven and eight months old illustrates this fact. The rapid growth of the lambs is most striking to witness, and one pound increase per day is a record which could be surpassed any year in particular cases. The late Mr. Coleman, of the Field, pointed out that the Cotswold did not appear at advantage as a lamb, but with the Hampshire it is just the reverse, as he appears at the greatest perfection in

July or August, when about seven to eight months old. Those who wish to see what these lambs can do would find a visit to Salisbury Fair in July interesting.

"The Hampshire Down has been accused of carrying an ugly head, but this defect, however common in years gone by, is now remedied. The ram lamb can scarcely be too dark in feature for the tastes of the buyers, but this must be accompanied with white wool. A dark tinge around the poll will consign a sheep to a low price at once, but dark features and a fair fleece might elevate the same sheep into the region of keen competition. The ears must be free from any mottled appearance, and should in summer be like a bat's wing. The shank also should be of rich dark brown colour, and free from mottled appearance. Some distinguished breeders have held a position in spite of a certain lightness of tint, but no light-faced sheep finds favor around Salisbury, which is the capital of the breed.

"The nose in the ram should be thick and bold, and the ewe should carry a bold head of more feminine character. The character and ampleness of this feature are seen at all ages, and distinguish the breed from Southdowns in a marked degree. The lips are black, as are also the nostrils, and the eye is of rich yellow-brown and large or full. The ears are long, and in the best types fall slightly outward, giving the idea of great width of poll. They are thin and mobile, and are set forward when the animal is in an attitude of attention, giving an idea of intelligence and liveliness. The ear of the Hampshire is undoubtedly a character, and differs from the shorter and rounder ear of the Southdown or of the Shropshire. The head is well covered with wool both between the ears and on the cheek. The neck is of fair length, enabling the sheep to stand with head erect, instead of being carried horizontally as in the Leicester or Southdown. It is thick and muscular, and is considered to be a point of special excellence and importance. The shoulder tops are wide, and the girth behind the shoulders and of the entire fore-end must be well marked to secure any attention either in the prize or sale ring. The remaining carcass points are common to all breeds, and it seems unnecessary in every case to insist upon the importance of well-sprung ribs, wide loins, straight quarters, good legs, square and massive form, etc. These go without saying, and are as important in the eyes of Hampshire Down breeders as in those of any other sheep masters. The fleece is composed of exceedingly fine fibres, and is thick on the skin, which is pink in color. The slightly Roman character of the face and the fine wool have no doubt partly been derived from the old Wiltshire horned sheep, which lies back in the pedigree. The quality of the flesh and the color have come through the Southdown, but the color has been deepened by selection. The length of ear has probably been derived from an alliance with the

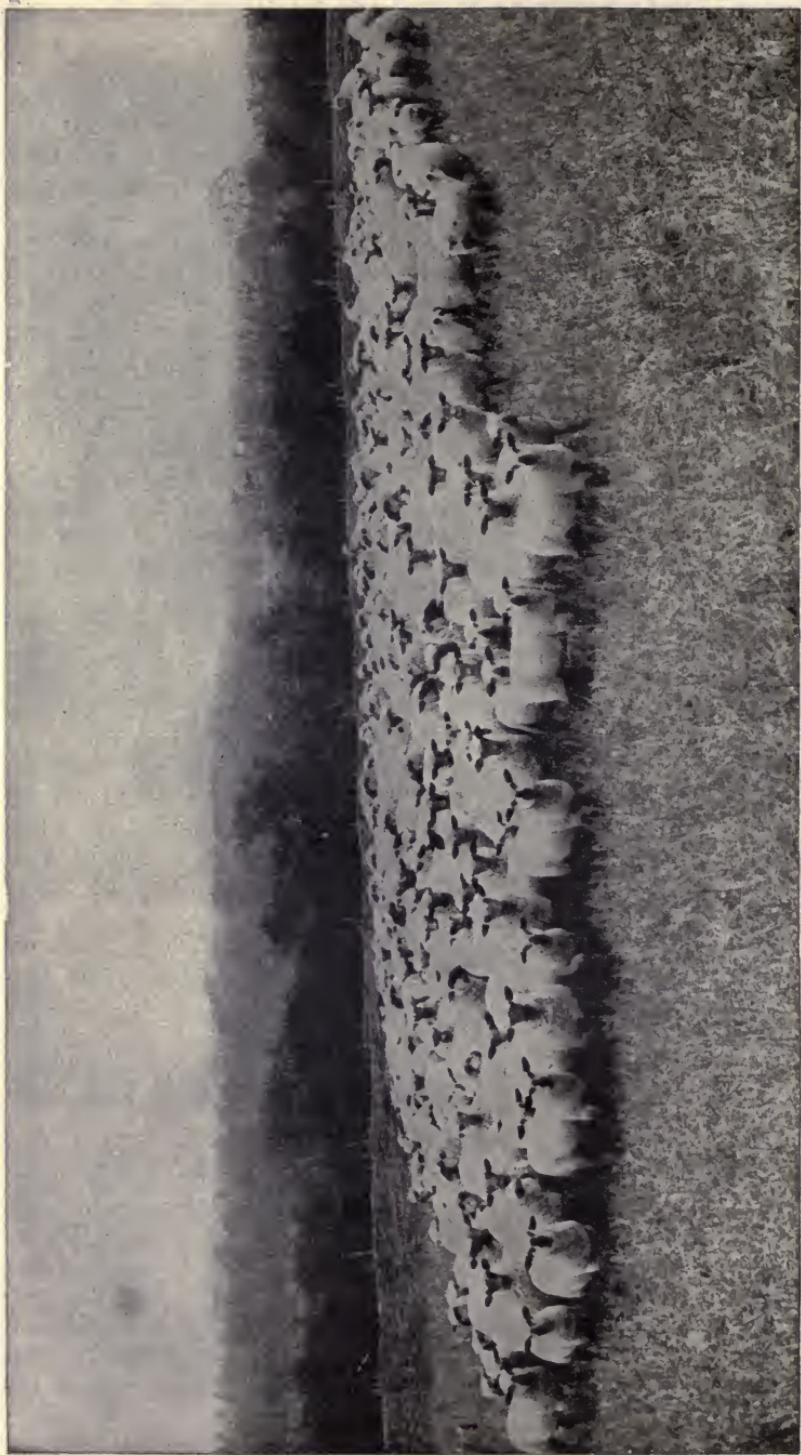
Cotswold, made, as already pointed out, by Mr. Twynam, and in this feature there is a point of resemblance between this race and the Oxford Downs. Let anyone who wishes clearly to see the peculiarities of the Hampshire study them in contrast to the other breeds named in these particulars, and he will have no difficulty in fixing in his mind the peculiar characters of the Hampshire.

"Knowing the susceptibilities of breeders, it may be well here to state that such reference to characters derived from a mixed ancestry is no slur upon the breed as it at present exists. The Hampshire Down has been too long established as a breed, and too long bred *entirely inter se*, to be now charged with being of mixed origin. Every race of sheep already mentioned has been crossed, with the exception of the Southdown and possibly of the Leicester. It, indeed, seems to be necessary, if robustness of type is to be maintained, to make as a first step such crosses as were effected by Mr. Humphrey, Mr. Rawlence, and, as has been asserted, was made by Mr. Twynam with the Cotswold. One of the great arts of breeding appears to be judicious crossing, followed by continuous breeding and weeding.

"The Hampshire Downs are well inured to life between hurdles. So accustomed are they to this method that when turned out they usually move about in mobs, often grazing in a semi-circle, the foremost being in the center of the curve. The number of sheep maintained upon Wiltshire and Hampshire farms is extraordinary. We have, for example, on the College Farm at Downton, lambed down 550 ewes on 600 acres in a recent season, as well as having maintained 200 tups. The summer stock, when the lambing season proved to be very favorable, has consisted of about 1,250 to 1,300 sheep and lambs, beside a dairy of thirty cows and young stock in proportion.

"This almost rivals the stock which Arthur Young mentions as occupying Mr. Ellman's farm at Glynde a hundred years ago, but the greater weight of the Hampshire Down sheep must be taken into account. Such a stock can, of course, only be maintained upon the acreage named in seasons when food is abundant, and must in less fortunate circumstances be provided with hired keep off the farm.

"The constant use of hurdles points to an artificial system of feeding, and there is no doubt that sheep-farming upon the Hampshire and Wiltshire hills is a much more complicated business than the same pursuit upon the hills of Scotland or Wales, or even of Yorkshire and Northumberland. The character of the land and of the climate of these southern counties favors a system of double cropping with fodder crops followed with roots, and this, when assisted with large importation of cake and corn, and the ability of the Hampshire sheep to stand close folding, is the secret of the large number of sheep maintained.



Hampshire Ewes and Lambs, Property of Mr. H. C. Stephens, England.

"The latest development in the history of the Hampshire Down is the establishing of a society for the promotion of the breed and the regulation of a flock-book. A preliminary meeting, held during the Smithfield Club Show in 1899 in London, was largely attended by breeders from many counties, and the feeling seemed to be unanimously in favor of the formation of such a society. It was felt that this step was chiefly necessary in the interests of the foreign trade, and that the Hampshire men ought not to be behind other breeders in this matter. The large size of the flocks is the chief difficulty in recording pedigrees. What may be easy when 150 to 250 ewes are kept might prove troublesome on farms carrying from 500 to 1,000 ewes."

"For crossing purposes the Hampshire is exceedingly useful. It was by the alliance of a Cotswold ram to Hampshire Down ewes, and also, I believe, by adopting the reverse course, that the foundation of the Oxford Down was laid by the late Mr. Druce of Eynsham.

"The simple cross between Cotswold and Hampshire is frequently made for producing wethers, and the result is an increase in quality of mutton and of lean flesh, as well as of wool. Every year large numbers of rams find their way into Lincolnshire and the midlands for crossing with long-wooled ewes. They form an excellent cross with Leicesters, Lincolns and Cotswolds, and are often put to these ewes during their last year of breeding, for producing fat lambs or wethers.

"The Hampshire breed is able to withstand severe climates. Mr. John Craster of Craster Tower, Northumberland, has for several years past kept a flock of pure-bred Hampshires, and esteems them highly. His estate borders the sea on the bleak east coast of the most northerly part of England; and as these sheep are able to thrive and give satisfaction in such a climate they may be credited with a hardihood equal to that of any other English race of sheep."

The Hampshire breeders of England are among the most judicious feeders in the world. Their object is to get their lambs to market as early in the fall as possible and they spare no expense in providing the best foods for that purpose. As soon as their lambs commence to eat they are provided with grain, oil-cake, bean meal, palm-nut meal, etc., besides having an abundant supply of turnips or rutabagas. They are allowed the range of irrigated meadows by day and the swede field by night. As the season advances they are put on rye, winter oats, Italian rye-grass, vetches and such-like fodder crops. The growth these lambs make on such fare is almost past credence.

The writer is indebted to Mr. Jas. J. Kerr, agent to H. C. Stephens, Esq. (who, by the way, is to be thanked by Hampshire breeders generally for what he has done, with other prominent



A Choice Bunch of Hampshire Ram Lambs, Property of Mr. H. C. Stephens, England.

breeders, in its interest, by way of advertising the breed), for the following on the management of the Hampshire in England: "We are not one of those breeders who have made record prices for rams. We do not aim at making high averages for our let rams or for our first 100. Our endeavor is to level up the tail end of the flock so as to secure a profitable return on the large number we rear. It is the practice with some breeders to give a large price for a ram with the knowledge that the owner of that ram will return the compliment. We have always discouraged this practice, and therefore are in the independent position of buying sheep to suit our flock. The policy we follow is to buy or hire three lambs, say at £50 each; we consider this better than putting all our eggs into one basket by giving £150 for a single ram. This practice we have found to answer admirably. Our flock has improved 50 per cent and it stands very high in popular esteem, and I believe we are the largest exporters of Hampshire Downs in England—sheep from our flock going to the United States, Canada, Argentina, Chili, Russia and Germany. This season we have sold 420 ram lambs at an average of £18 1s. 6d. per head. Some breeders may tell you what they sell their first eight or one hundred for, but they will tell you nothing about the others.

"You ask about our methods of forcing. Well, I do not think that we do much forcing. Our ewes we try to keep in the most natural condition possible, and for that purpose we rent a tract of grass land of about 800 acres, where the ewes have gone today and will remain until Christmas. This land has been clear of sheep for nine months and is therefore perfectly clean and healthy. The ewes will have nothing but grass, if the weather keeps mild and open, up to the 10th of December, after which they will get one pound of hay each per day. At Christmas they will return home just in time to get settled down before lambing starts, on January 1st. The ewes will get no roots before lambing, but from Christmas they will get one-half pound of linseed cake each per day and their hay ration will be increased to two pounds. As soon as they lamb they will be allowed, in addition to the hay, mangels, cabbage and swedes. The linseed cake will be changed to decorticated cotton cake and bran, the ewes with single lambs getting an allowance of one pound per day, per head, and ewes with twin lambs having two pounds per day. The lambs, as soon as they can feed, get a mixture of the best linseed cake and pea-chaff, and as time goes on the mixture is further added to by locust beans, peas, beans and ground linseed. This feed varies according to the age of the lambs, but we reckon they will consume two pounds per day for the last month they are on the farm.

"Mr. Stephens is a great believer in hereditary fecundity, and has for years been breeding on twin-producing principles, and as far as it is practical we never use anything but twin ram lambs,

with the result, while many of our neighbors can only produce a lamb to the ewe, we have been able for several seasons to produce from 35 to 47 per cent more lambs than ewes put to the ram.

"We are glad to see that English breeders are waking up to the importance of using twin rams and we are often asked for them. We have also introduced into the flock individual registration and we hope very soon to induce the council of the Hampshire Down Sheep Breeders' Association to adopt the principle of the individual registration of ewes. We consider the present method of registration far from being perfect, as we can only get the pedigree on the sire's side, but we hope very soon to see a new order of things. Our method of disposing of our rams is by private treaty and by auction. We sold over 300 last year. Our foreign trade is increasing year by year and we have at present 200 splendidly bred ewe lambs in preparation for next year's export trade, besides 30 grand field rams and some useful wethers which will make useful exhibition sheep next year."

The American Hampshire Sheep Association is doing a good work for this great breed in this country, thanks to the efforts of Secretary Comfort A. Tyler and his colleagues.

#### THE SOUTHDOWN.

The Southdown is the oldest pure breed of short-wooled sheep. It takes its name from a long line of chalk hills, known as the South Downs, situated south of London and extending from Beachy Head on the east to the Adur river in Sussex. These Downs are covered with a short, close herbage, upon which great numbers of sheep have been kept for many generations. Although the grass on these Downs is, at the best of times, somewhat scant, it is very nutritious, and much of the superiority of Down mutton is due to its fine feeding qualities.

Not only to the Southdown is due the improvement of the mutton of other breeds, but the fleece of the short-wool types as well. Southdown wool is the finest in texture and quality of all short-wooled breeds, and is the nearest approach to Merino wool in these respects. Some authorities claim that the Southdown and the Leicester have the same common origin; but how dissimilar in characteristics and temperament! The appellation that one sheep will live where another will starve, no doubt originated with the Southdown. Southdowns withstand extremes of heat and cold, and are suitable for every climate. It is considered by its champions to be the king of all mutton breeds. That it deserves most of the praise showered upon it is proved by its phenomenal achievements at our great Chicago International Shows. The following is its record there: In 1902 the championship carcass of the show was a grade Southdown, and in the college contest the champion

wether and the first prize lamb in the carcass competition were got by a Southdown ram. In 1905 the champion wether and wether lambs were both Southdowns. In 1906 the champion wether and wether lamb were both Southdowns; the first prize wether carcass was a pure-bred Southdown; the first prize wether lamb carcass was from a pure-bred Southdown, and the champion carcass was a pure-bred Southdown. Southdowns also won the grand champion sweepstakes for the best carload lot of not less than fifty lambs.

This breed has made its home in Germany, France, Russia, Spain, Sweden, United States, Canada, New Zealand, Argentine Republic, Mexico, Japan, Switzerland, Jamaica, Finland, British Columbia, Australia, Tasmania, Chili, Peru, Norway, and Uruguay. It would seem that Southdowns, when taken from their native heath and placed on rich lowlands, change considerably and very rapidly both in regard to frame and fleece. A striking proof of this is given by Coleman in his work on the sheep of Great Britain. He says on this question:

"We would refer the reader to the different types of sheep which were shown by the late Mr. Ellman of Glynde, and Mr. Jonas Webb or Lord Walsingham, for example, and which led the nephew of the former to protest against the decision of his colleagues at one of the meetings of the Royal Agricultural Society, on the ground that the sheep were not characteristic. But we can see, in the conditions to which each was subjected, sufficient cause for modification without the introduction of foreign blood. The Sussex Down of old time, and to a certain extent at the present day, is the manure carrier from the open downs to the arable land; consequently, after running out all day, the sheep were driven into a fold on the arable land, and there left for ten or twelve hours without food. Small frames and great hardiness were necessary for such a life. Contrast this with the culture as carried out by the foremost lowland feeder—lambs allowed every advantage from birth, accustomed to pick at the best of artificial food, receiving frequent changes of diet, having the supply at hand and not to be sought for. Regular feeding insures increased size."

To Mr. Ellman is largely due the credit of giving us this beautiful and useful breed of sheep—a breed which evidently is taking a firmer hold on the American sheep breeding public than for some time past. Youatt credits Mr. Ellman with the following interesting description of his favorite breed:

"The head small and hornless; the face speckled or gray, and neither too long nor too short; the lips thin, and the space between the nose and the eyes narrow; the under jaw or chops fine and thin; the ears tolerably wide and well covered with wool, and the forehead also, and the whole space between the ears well protected by it as a defense against the fly; the eye full and bright, but not

prominent; the neck of medium length, thin toward the head, but enlarging toward the shoulders, where it should be broad and high, and straight in its whole course above and below. The breast should be wide, deep and projecting forward between the forelegs,



Adeane Type of Southdown Ram.

indicating a good constitution, and a disposition to thrive. Corresponding with this the shoulders should be level with the back, and not too wide above; they should bow outward from the top to the breast, indicating a springing rib beneath, and leaving room for it, the ribs coming out horizontally from the spine, and extending

far backward, and the last rib projecting more than the others; the back flat from the shoulders to the setting on of the tail; the loin broad and flat; the rump long and broad, and the tail set on high and nearly on a level with the spine; the hips wide, and the space between them and the last rib on either side as narrow as possible, and the ribs, generally speaking, presenting a circular form like a barrel. The belly as straight as the back; the legs neither too long nor too stout; the forelegs straight from the breast to the foot, not bending inward at the knee, and standing far apart, both before and behind; the hocks having a direction rather outward, and the twist, or the meeting of the thighs behind, being particularly full; the bones fine, yet having no appearance of weakness, and of a speckled or dark color. The belly well-defended with wool, and the wool coming down before and behind to the knee and to the hock, the wool short, close, curled, and fine, and free from spiry projecting fibres."

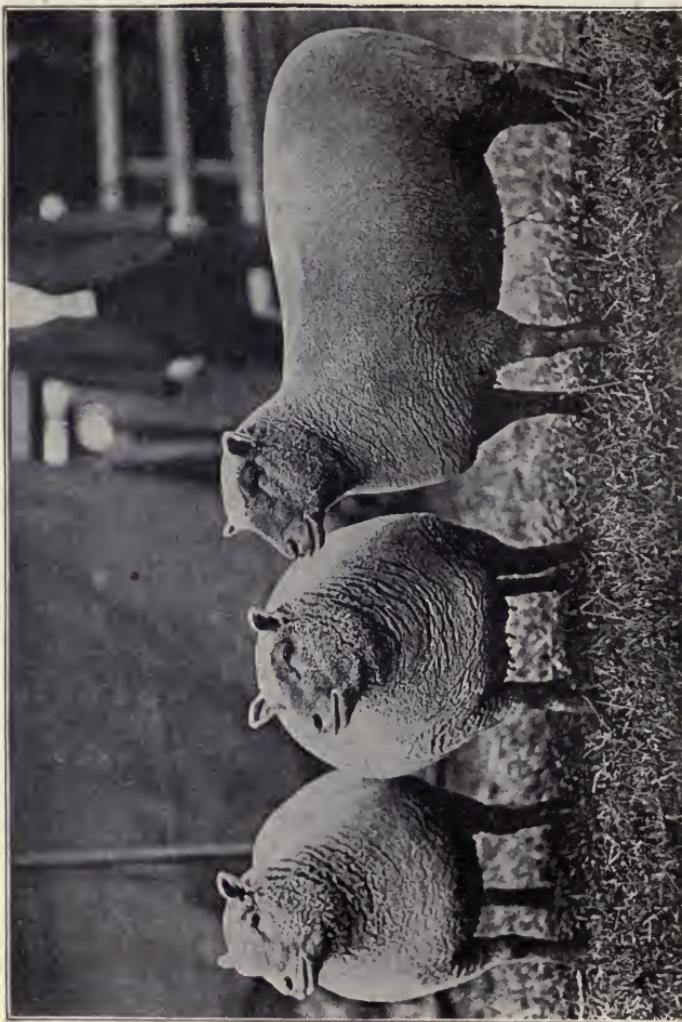
While in many respects this description fits our present-day Southdown, so far as color goes it is a good deal off. Fancy a speckle-faced Southdown in our present-day showyard. A well-known authority has remarked that the Southdowns of Sussex are somewhat lighter in color of face than those of other districts, especially where the land is rich. The Southdown product of the hill farms are naturally not so heavy as those of the lowlands, where roots form a considerable portion of their rations, and thus to his superior method of feeding is due Mr. Ellman's success as a breeder and improver of the Southdown. It is evident that Mr. Ellman did not consider that sheep could travel over the vast areas of poor pasture and be expected to mature early and acquire anything like ideal conformation.

Unfortunately, Mr. Ellman's methods of improvement are not very clearly recorded. Coleman, in his work on the livestock of the British Isles, says, in this respect: "We have but little direct evidence as to the method pursued by Ellman. Experiments were tried, no doubt, and it is possible that either he or the others have introduced a dash of Leicester blood, which would give quality, but it is not necessary to imagine this." In speaking of the Ellman flock, Arthur Young says: "Mr. Ellman's flock of sheep is unquestionably the first in the country, the wool the finest, and the carcass the best proportioned. Both of these valuable properties are united in the flock at Glynde. He has raised the merit of the breed by his unremitting attention, and it now stands unrivaled."

Upon retiring from business in 1829, Mr. Ellman sold out his flock at prices which in those days were remarkable. His ewe flock of 770 head of different ages averaged £13 1s. 6d. each; 320 lambs, 36s. each; 32 ram lambs, 110s. each; 360 rams of different ages, 125s. each, and 241 wethers, 21s. each.

It was up to Mr. Jonas Webb, of Babraham fame, to take up

Mr. Ellman's work—in 1823—which he did with phenomenal results, and to his effort largely is due the splendid standard of the Southdown of today. The Babraham first ram lettings are a matter of history. Mr. Webb was by all accounts a splendid all-around judge of live stock. Like Mr. Ellman, Mr. Webb seems to have given little of his methods of breeding to the outside world. Mr.



Yearling Southdown Ewes.—Duke of Devonshire's Type.

Ellman's sheep, like Mr. Webb's, were remarkable for their size and symmetry, occasioned in part, no doubt, by the influence of roots and the more domestic way of feeding. Mr. Webb had entries at the Cambridge Royal and took both prizes offered in the ewe

classes. After this he showed only rams, as he found it detrimental to the ewes' breeding properties to fit them for show. In those days Mr. Webb had everything his own way in the showyard. His rams were rented by auction, and one of his conditions was that the hirer could become the purchaser of a ram by doubling the price of his hiring bid.

The present Duke of Richmond and his ancestors have been breeders and great admirers of this famous breed for upward of a century, and to their flocks has fallen many of the more important prizes at the leading British shows. To the late Lord Walsingham is due no little credit for what he has done for the breed. To make this brief sketch of this most worthy breed anything like intelligent, the name of Rigdon of Brighton must be mentioned. In the early 70's, Mr. Rigdon stood in the front ranks of Southdown breeders, and his entries were very successful in the leading exhibitions.

From a lecture delivered in 1865 by Mr. Ellman, before the Royal Agricultural Society, it is easily surmised that the feeding of the Southdown by that gentleman was much after the manner of that carried on by the leading breeders of the present day, for he tells us that one great point to be kept in mind by the flock-master is that they must be close fed, otherwise coarse herbage results; and that this is not conducive to good sheep pastures. During the summer months the sheep were kept upon the ground with the help of rape, the rape being sown from the first of May until late in the fall. Vetches and rape were considered the ideal weaning ration. The fat lambs were fitted with sainfoin and oats as a grain ration.

While some Shropshire authorities claim their breed to be pure descendants of the Morfe Common sheep and to be free from the influence of Southdown blood, there are among Southdown breeders those who aver that for their fine conformation they owe much to the aristocratic Southdown.

Since the early descriptions of this hardy and beautiful little rustler and "gentleman's sheep" make such interesting reading it cannot be well considered out of place to quote at length from our early authorities on the breed. In 1788 Arthur Young describes it as follows: "The true Southdown, when very well bred, has the following points: No horns, a long speckled face, clean and thin jaw, a long but not a thin neck, no tuft of wool on the forehead, which they call owl-headed, nor any fringe of wool on the cheeks; thick in the shoulder, open-breasted, and deep; both fore and hind legs stand wide; round and straight in the barrel; wide upon the loin and hips; shut well in the twist, which is a projection of flesh on the inner part of the thigh, that gives a fullness when viewed behind, and makes a Southdown leg of mutton remarkably round and short, more so than in most other breeds; thin speckled legs,

and free from wool; the belly full of wool; the wool close and hard to the feet, curdled to the eye, and free from projecting or strong fibres. Those flocks not bred with particular care and attention are apt to be coarse-wooled in the back, but some are fine all over; weight, fat, from 12 to 15 pounds a quarter."

Professor Low, writing about 1842, gives us the following interesting sketch of the Southdowns home: "The Southdowns of Sussex consists of a range of low chalky hills, are five or six miles in breadth, stretching along the coast upwards of sixty miles, and passing into the chalky lands of Hants on the west. In contact with this range of hills is a tract of low cultivated ground, which is usually connected with the Down-farms, although many of the latter have no vale or flat land attached. The herbage of these hills is short, but well adapted for the keeping of sheep, of which vast numbers have, in every known period, occupied the pastures. Whilst the dryness of the air, the moderate elevation of the land, and consequent mildness of the climate, are all eminently favorable to the rearing of a race of Downs or mountain sheep, the contact of the cultivated country affords the means of supplying artificial food. It is this combination of favorable circumstances which has rendered these calcareous hills capable of supporting a greater number of sheep than, perhaps, any tract of similar fertility in the country, and has afforded the means to the breeders of applying the resources of artificial feeding to their improvement. The original breed of the Sussex Downs was not superior to that of many other districts of the chalk formation; but the means of supplying the animal with artificial food, which the geographical situation of this long and narrow chain of hills in contact with the richer country afforded, aided the breeder in applying to the improvement of the race a system of breeding and feeding which has rendered the Southdown breed the most esteemed in the countries suited to it, of all the short-wooled sheep of England."

The following particulars of prices obtained for Southdown sheep by Mr. Ellman of Glynde, Sussex, are copied from Vol. I of the Southdown Sheep Club: "The first Southdown ram sold for ten guineas was in the year 1787 to Lord Waldegrave, in Essex, by Mr. Ellman, when he sold two to his lordship for £21. In 1794 the Earl of Egremont gave Mr. Ellman two guineas each for 50 ewes. The first ram Mr. Ellman ever sold for 50 guineas was in 1796, to Mr. Goodenough in Dorsetshire. From this time, for many years, there was a regular demand for all the rams Mr. Ellman could supply at prices varying from twenty to a hundred guineas for the season. In 1802 and 1803 Francis, Duke of Bedford, gave him three hundred guineas for the use of a ram for the two seasons, which was the highest price Mr. Ellman ever let a ram for. In 1800 Mr. Ellman sold 200 ewes to the same nobleman for five hundred guineas. The price at which Mr. Ellman sold his draft ewes

soon rose to three guineas each, and eventually to four guineas, at which he contracted for the sale of the whole to one person, George Talbot, Esq., of Gloucestershire, for four years."

The Southdown is unquestionably a fashionable sheep. When George III. of England took it up, plenty of his nobility followed suit, and today many of the leading flocks of this breed belong to such important personages as King Edward VII., Duke of Richmond and Gordon, Lord Walsingham, etc.

The Southdown was introduced into this country in the early eighties. Dr. Rose, of Seneca County, N. Y., imported a flock in 1803, and this was followed in 1823 by an important importation by C. N. Benant, also of New York. In 1834, Mr. Rotch of New York imported six ewes and a ram from the Ellman flock. In 1848 J. C. Taylor, of New Jersey, commenced breeding Southdowns, and established a flock which descended from the famous Webb flock. In 1861 Hon. John Wentworth, of Chicago, imported Southdowns. On May 1, 1882, the American Southdown Breeders' Association sprang into existence. The Southdown was introduced into Ohio in 1834 by Isaac Mainer.

Gen. Cassius M. Clay, of White Hall, Ky., a hero of the Mexican war, was among the pioneers of Southdown breeders.

For neatness of carcass and quality of mutton, the Southdown still leads and is not likely to be soon surpassed. The comparatively light fleece of the Southdown mitigates against its holding the warm place in the American sheep breeder's heart it would were it a heavier shearer. While some complain of its size, it is a much bigger sheep when put on the scales than it looks, and a Southdown lamb pretty well holds its own in weight with other breeds.

The Southdown is a prolific breed as will be seen when mention is made of a ewe in the late Colonel McCalmont's Cheveley Park flock which provided two lambs in 1895, two in 1896, two in 1897, three in 1898, two in 1899, two in 1900, three in 1901, two in 1902, two in 1903, and one in 1904, viz., twenty-one lambs in ten years, in addition to the lambs she raised during the time she was in the flock of a farmer. Two of her daughters and several of her granddaughters and great granddaughters remain in the Cheveley flock, and are greatly valued for their constitution and hardiness; they are always in good condition and almost invariably produce twins.

The following is from a late bulletin of the Wisconsin Experiment Station which speaks well for the breed: "Southdown ewes dropped 78 per cent. of strong lambs while the Shropshire ewes dropped 59 per cent., the Shropshire-Merinos 73.4 per cent., and the Dorset-Shrops 60 per cent. of strong lambs, the latter being but a trifle ahead of the Shropshires."

Some interesting little stories are told of the Southdown, among them being the following from an American recently visiting

England, who says: "I visited the Southdown mutton country when I was in England. I studied the sheep and the land well. As I walked over the Downs, I was amazed at the hundreds of fat snails that I saw in the moist, fine grass. 'It must annoy the pasturing sheep,' I thought, 'to have all these snails about.' And this thought had hardly left my mind when I saw a plump ewe take up a snail and swallow it like an oyster. Jove, she enjoyed it! I followed her, and I saw her eat six snails—a kind of hors d'oeuvre—before she settled down to her regular meal of grass. I talked about this matter afterward with the shepherds and they told me that all the Southdown sheep were great snail eaters. They said it was the flesh of snails that gave to Southdown mutton its peculiar flavor."

In an interesting little work, "Anecdotes of Animals," Mr. John Kent, an English author, gives this clever little story of a



Blackface-Southdown Cross—Photo by "Shepherd Boy."

Southdown ewe—a member of the late Duke of Richmond's famous Goodwood flock. This particular ewe was more than ordinarily domestic and one of the under shepherds, a mere boy in years, made a great pet of her and invariably shared his bread with her at the noonday meal. Not only did the boy find pleasure in feeding his pet but likewise in clothing her. One day while in the "Home Park" and just as he was about to put on the finishing touches to her toilet, which consisted in enveloping her in his time-worn overcoat, a strange dog appeared upon the scene. Her companions, terrified by the intruder, stampeded and raced away toward the race course, where the famous Goodwood Plate is run, hotly pursued by the dressed-up pet, where they intermingled with another flock. The shepherd in charge of the latter, as may be imagined, was not a little startled at seeing the strange figure or apparition and to this day all attempts to convince him that the little "ewe in blue" was anything but a product of the celestial or infernal regions have been futile. The ewe succumbed to the fatigue oc-

casioned by the escapade shortly after leaving her young friend and protector almost broken-hearted.

The American Southdown Breeders' Association, of which Mr. John L. Springer is the capable secretary, is doing a good work for the breed in this country.

#### THE OXFORD.

The Oxford is a breed of comparatively recent origin. It is the result of crossing the Cotswold ram on the Hampshire ewe or vice versa. The idea that a distinct and valuable breed could be evolved from the cross between the improved Cotswold and the Down breeds first originated with the late Mr. John Talmadge Twynam, of Winchester, who in 1829 took the initial step toward forming the Down-Cotswold breed by mating some of his Hampshire Down ewes with an improved Cotswold ram, his object being to form a breeding flock in which the best characteristics of the long-wool and short-wool breeds would be combined. Mr. Twynam died in 1898, in his 98th year. He is said to have had a very retentive memory and related the doings of his youth and the stirring events of those times with a freshness and interest as if they had happened but yesterday. Mr. Twynam's father farmed over 10,000 acres of land on which there were kept a flock of 4,000 ewes.

Former Secretary, R. Henry Rew, of the English Oxford Down Sheep Breeders' Association, wrote of this well-known breed of sheep: "It was just after the accession of William IV., and not long prior, therefore, to the foundation of the Royal Agricultural Society, that the idea occurred almost simultaneously to two or three distinguished sheep-breeders of that day to attempt to unite in one breed the divers qualities of the longwool and the shortwool

Mr. Samuel Druce of Eynsham, Mr. John Gillett of Brize Norton, Mr. William Gillett of Southleigh, and Mr. Nathaniel Blake of Stanton Harcourt, living within half a dozen miles of each other, were the chief founders of the breed. They were joined in their enterprise by Mr. John Hitchman of Little Milton and Mr. J. T. Twynam of Whitchurch Farm, Hampshire. The latter did much to press the claims of the new breed upon public attention. In the *Farmers' Magazine* for 1840, Mr. Twynam stated that his breed of sheep, 'originating in the improved Cotswold ram and the fine-bred Hampshire Down ewe,' had been established for nine years, which would place his earliest efforts in 1830 or 1831."

In a letter to the *Mark Lane Express* in 1862 Mr. Twynam said: "I may claim, without fear of dispute, having first originated the idea that a distinct, permanent, and valuable breed of sheep might be founded on it (the Cotswold and Down cross);

that the most celebrated breeders of what are now called the 'Oxfordshire Downs' visited my flock more than once or twice before they made their final resolve of directing their energies towards the establishment of that justly admired class of the fleecy tribe; that fully one-half of the tup breeders in Hampshire used my crossed tups with their Down ewes, and, selling one to another, have given a universal dash of the Cotswold character to the flocks in this county (Hampshire), whose improved size and symmetry,



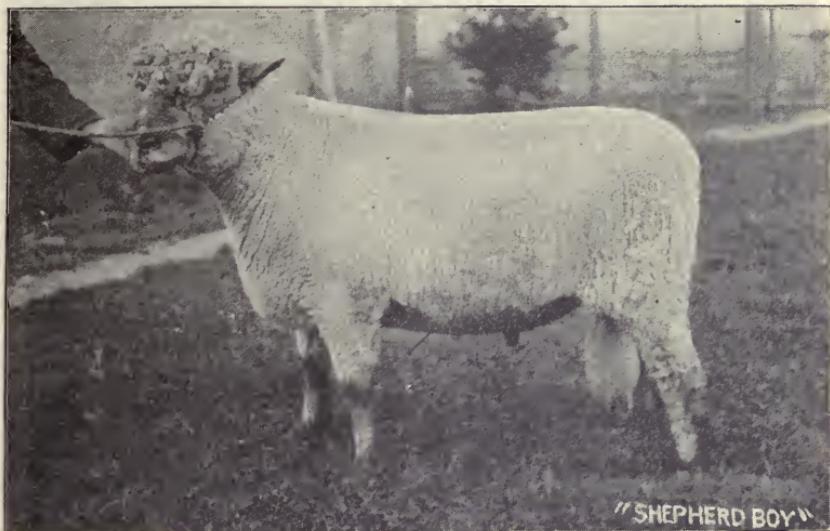
Stone Type of Oxford Ram.

aptitude to fatten and arrive at early maturity, and marked increase of length and weight of wool, furnish a mass of overwhelming evidence of the benefit derived. I am in a position to prove that many of what are termed the 'West Country Downs,' exhibited at the Smithfield Shows, have sprung from this Cotswold cross."

Professor Wrightson, the eminent English authority, remarks that a good deal of crossbreeding on both sides was done before a satisfactory type was obtained. They are a large, handsome sheep and very alert and active on their feet for their size. The fleece is the longest of any of the Down breeds. The quality of the Oxford mutton is good.

Before 1857 the Oxford Downs were called "Down-Cotswold." In that year their title was changed to "Oxfordshire Down" and a little later to "Oxford Downs." They are generally known in this country as "Oxfords."

In 1854 an interesting article on "Farming in Oxfordshire," by Mr. Clare Sewell Read, appeared in the Royal Agricultural Society's Journal, which read in part: "The present 'glory of the county'—the most profitable sheep to the producer, the butcher, and the consumer—are the half-breds. A more intelligible name for this class of sheep, and one which might be generally used, would be the 'Down-Cotswold.' The Down-Cotswold sheep of this county were originally a cross between the Cotswold ram and Hampshire Down ewe, but the cross, having been bred from for nearly



"SHEPHERD BOY"

H. Arkell & Son's Type of Oxford Ram—Recently Shorn.

twenty years without the infusion of any fresh blood, has become a distinct breed of sheep. . . . The superiority of the Down-Cotswold sheep consists in their retaining the excellences of those celebrated breeds without their defects. Thus they combine the early maturity, heavy carcass, and ample fleece of the Cotswold with the fine wool and mutton of the Downs. . . . For consuming crops on arable land in hurdles, and for producing a great and rapid supply of the best meat and wool (and this is not only an agricultural but a national advantage) the half-bred sheep (Down-Cotswold, R. E. T.) stand unrivalled."

The Oxford is a very prolific breed. Mr. W. H. Treweek, a well-known English breeder, reports that from the first 100 ewes of his registered flock 194 lambs were dropped. They consisted of nine triplets, seventy-six twins, and fifteen singles. One ewe had three dead lambs, two others had two each, and five lambs died from different causes. Mr. R. J. Stone, the well-known Illinois

breeder, some time ago told the writer that one of his imported ewes had given triplets three years in succession.

An English sheep breeder, a short time ago, reported that a half-bred ewe bred to an Oxford ram dropped a lamb which at birth weighed 21 pounds.

The first Oxford Down sheep to appear at a Royal Show was at the Windsor meeting of 1851. At Warwick, in 1859, this breed



McKerrow & Sons' Type of Oxford Ram.

totaled no less than 37 entries. In 1862, they were accorded, by the Royal Society, distinct classes in the prize list, for which there were 62 entries. In the same year the Smithfield Club gave separate classes for the breed. For 12 years—1862-1873—this club offered a silver cup for the best pen of wethers in the show, either Oxford Downs, Shropshires or crossbreds, and this was won five times by the Oxford Downs, once by the Shropshires, and six times by crossbred sheep of various descriptions.

Among famous Oxford sires may be mentioned "Freeland," bred at Fyfield, Eng., by Mr. A. F. Milton Druce, and let for the season of 1875 to Mr. John Treadwell for the sum of 50 guineas and afterwards hired for the sum of 85 guineas; "Bryan," the property of Messrs. Henry Arkell & Son, of Canada, and "Hampton Hero III," used in the flock of Messrs. George McKerrow & Sons, of Wisconsin.

Among the leading Oxford breeders in America may be mentioned the Arkells and Lee & Sons, of Ontario, Mr. R. J. Stone of Illinois and the McKerrows of Wisconsin. Among the Down breeds in this country the Oxfords stand about second in numbers and popularity. They have been exported from England to almost all sheep-raising countries and have proved a success. Within the past few years the breed has made steady progress. It has been much in request for many years for crossing with the Merino in Germany and other countries, and the breeders in Argentina are beginning to recognize its merits. The first Oxfords brought into this country were imported in 1846 by Mr. Clayton Reybold of Delaware.

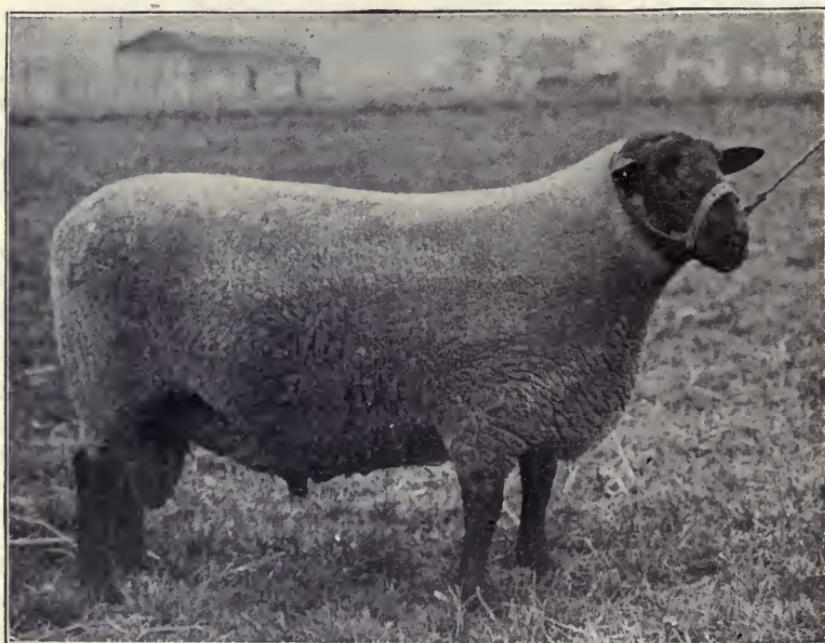
The American Oxford Down Record Association was established in 1881, with Mr. W. A. Shafor as its secretary. Strange to say, the English Oxford Down Sheep Breeders' Association was not formed until seven years later.

The following is the description of a typical Oxford ram as given in the English Oxford Down flock book: "He has a bold masculine head, well set on a strong neck; the poll is well covered with wool and adorned by a top-knot; the ears are self-colored and of good length; the face is an uniform dark-brown color; the legs are short, dark-colored (not spotted), and placed well outside him; the barrel is deep, thick, and long, with straight underline; the chest wide; the back level; ribs well sprung; tail broad and well set on; the mutton is firm, lean, and of excellent quality; the fleece is heavy and thick on the skin. As good wine needs no bush, so Oxford Down sheep need little recommendation to practical farmers. Alike on arable and grass lands they are at home. For crossing purposes an Oxford Down ram can scarcely come amiss. He will give size and weight to shortwools, and quality and good mutton to longwools, without, in either case, impairing the original good qualities of the flock. In these days, when 'better meat and more of it' must be the watchword of the breeder, Oxford Downs are bound to play a prominent part."

#### THE SUFFOLK.

An appeal by the author to S. R. Sherwood, Esq., of Playford, Ipswich, Eng., for information in regard to this great mutton breed of sheep brought the following interesting answer from his

pen: "You will notice that at the Smithfield Club Show, in competition with all other breeds of sheep, in the carcass competitions, for the past six or seven seasons, Suffolk and Suffolk crosses have won more prizes than all the rest of the breeds put together. This fact speaks for itself and is not the mere statement of a partisan. You will see how steadily and surely the Suffolks have come into prominence and how they stand without a rival for quality of mutton and for fecundity, hardiness and early maturity. They are not to be beaten, and equalled by few. They rather suffer from want of advertising as they are mostly



Suffolk Ram, "Playford Model."—Sherwood Type.

in the hands of tenant farmers who can't, or won't, afford to advertise. They suffer very much in this respect, not being so well known in foreign countries as older breeds like the Lincoln and Southdown. Foreign and Colonial buyers, when they want a good ram of these breeds don't hesitate to give from £100 to £1,000 for a Lincoln and from £50 to £100 for a Southdown; yet if you urge them to try a Suffolk probably they will say they want one for £5 as the expenses are so heavy getting it over. How can they expect to get a good sheep for such a sum? Yet they will most likely find someone who will supply them and discredit the breed.

"This year my ram lambs (45 head) have averaged over

£12, to home buyers. If the foreigner wants the best he must pay the highest price.

"I enclose you a good photograph of a typical Suffolk ram which I trust will be appropriate for your forthcoming work on sheep."

"I am perfectly certain that Suffolks are the best mutton sheep in England and they shear a fair clip of wool, that from my ewe hoggets this year averaged twelve shillings (\$3) per head."

In 1902 a Suffolk ewe, in England, in the short space of  $12\frac{1}{2}$  months gave her owner no less than eight healthy lambs. On February 22, 1903, she dropped two ram lambs; August 31, 1903, two ram lambs and one ewe lamb; March 9, 1904, two ram lambs and one ewe lamb.



Suffolk Wethers.

Of this most worthy breed of sheep, Mr. Ernest Prentice, the Secretary of the English Suffolk Sheep Society, says: "The 'genesis' of the breed of Suffolk sheep is clear and indisputable.

"Early in the present century a breed of Suffolk sheep existed, which had been founded by crossing the original horned Norfolk ewes with improved Southdown rams. The mingling of the form and fattening properties of the Southdown with the hardy, pure-blooded, and highly-bred Norfolk resulted in a valuable type of animal. In the progeny, the purer blood of the Norfolks asserted itself in the characteristic black faces and legs, and the objectionable feature—the horns—was eliminated by selection in the course of a few years."

"By the middle of the century these Southdown-Norfolks were

widely known as 'Black-faces' and, in 1859, were christened 'Suffolks.' They are black-faced and hornless, with clean black legs, closely resembling the Southdown in character and wool, but about 30 per cent. larger and proportionately longer on the leg. They excel in the following points:

"**FECUNDITY.**—Thirty lambs reared per score of ewes is a frequent average. The returns made annually since 1887 by owners of registered Suffolk flocks show the number of lambs reared to June 1st, in each year to average 132.25 per hundred ewes.

"**EARLY MATURITY.**—If well grazed they are fit for the butcher at nine to twelve months old, and the ram lambs are so forward at seven to eight months that 19 breeders out of 20 use them in preference to older sheep.

"**HARDIHOOD.**—They will get a living and thrive where other breeds would starve.

"**MUTTON.**—The quality is super-excellent, with an exceptionally large proportion of lean meat, and commands a ready sale at top prices.

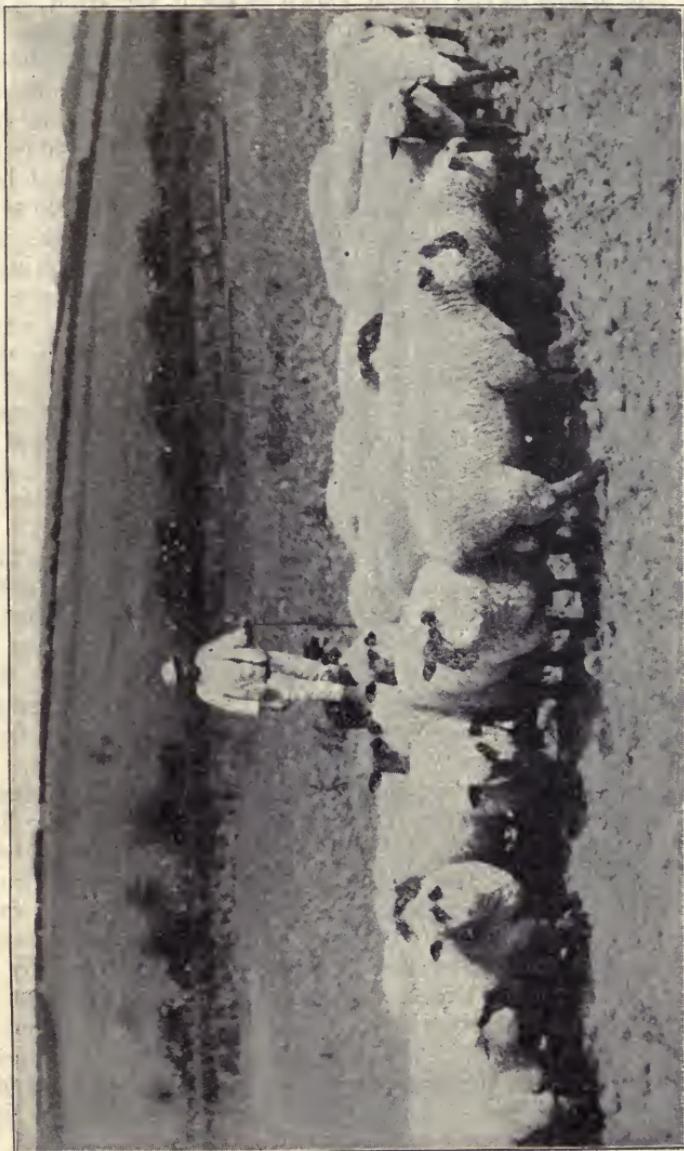
"**CONSTITUTION.**—Robust, hardy, great power of endurance, and comparative freedom from attacks of 'foot-rot.'

"In South America and other countries, crossing with Suffolk rams has proved particularly well adapted for improving the mutton quality of the native-bred Merinos.

"An interesting experiment was carried out in 1894-96 by the Colonial College, at Hollesley Bay, a few aged Merino ewes being mated to a Suffolk ram. The resulting average produce was fully a lamb and a half per ewe, and slaughtered at 15 months, live weight of 94 pounds, and a 'dressed carcass' of 54 pounds, or 60.64 per cent. washed fleece weighing 6.65 pounds, with good length of staple, and wool of fine texture. The flesh was of excellent quality, fine in grain and of good flavor, with a large proportion of lean meat. Their active movements, good carriage, high courage, and intelligent heads, give ample evidence of breeding, stamina and constitution; while the deep, roomy frame of the ewes shows the possession of one of the most essential qualifications for prolific breeding flocks."

#### THE DORSET DOWN.

This is a breed of sheep which has been little heard of in this country; in fact, it is not generally well-known in its native country. As its name suggests, it is a breed peculiar to the county of Dorsetshire in England. The formation of the Dorset Down Sheep Society in the fall of 1904 caused no little interest to be aroused in this breed of sheep. Without doubt it is worthy of the notice of sheep fanciers in almost every country, as its various characteristics denote it to be a sheep of great value from a mutton

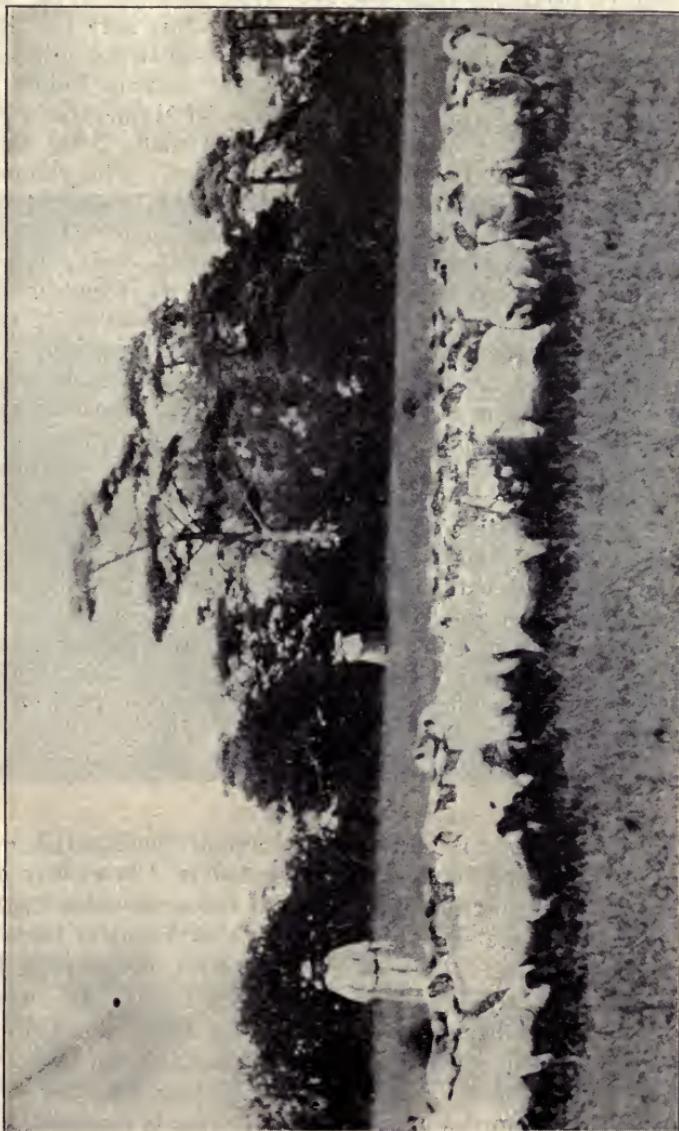


Dorset Down Ram Lambs.

and other standpoints. It is well worthy of a trial in this country. The champions of the Dorset Down make claim that their breed has merits equal if not superior to those of the Hampshire Down. The origin of the Dorset Down is about the same as that of the Hampshire Down. It originated from a cross between the old Wiltshire and Hampshire Down sheep and the Southdown. Mr. Henry Duke, an enthusiastic breeder of the Dorset Down, says he thinks he can claim for the Dorset Down that it is more adaptive than any other class of sheep that he knows, as they cannot very well be put out of place, for they are as equally at home on the chalk downs and the more fertile lands in Sussex as between the hurdles, but the Hampshire Down he found was more at home between the hurdles than anywhere else. Speaking of fecundity, the same gentleman remarked that his experience was that taking an average of five years they could get about a lamb a ewe from an ordinary flock of different ages, although the draft ewes would produce a larger proportion. Sometimes they get ten or fifteen per cent. less and sometimes ten or fifteen per cent. more, but a lamb to a ewe is the average. He also remarked that the Dorset Downs were far the best rent paying class of sheep, for the reason that they could be kept thicker or in larger numbers in one flock.

The Dorset Down is spoken of by one authority as a breed combining size with nice quality of flesh, bone and wool, together with a face of nutty-brown to brownish-black color, suggestive, in a general sense, of being considered as intermediate between the Southdown and Hampshire Down, but distinct from either. Taking up its origin, it may be traced back to some eighty years ago, when Mr. Thomas H. Saunders set to work to formulate a better class of sheep than generally existed in the county of Dorset. He selected a large type of Southdown ewes, which was reasonably common in Dorsetshire at that time, and descended from the flock of Mr. Ellman of Sussex. With this class of ewe Mr. Saunders started by crossing with rams of larger size and somewhat Hampshire in character, which he picked up here and there when he could find those that met his requirements, and by judicious crossing and keeping of a careful pedigree he created what ultimately became the "Watercombe Breed," which were known, however, in certain districts as the "Improved Hampshires" and in others as the "West-country Downs." The "West-country Downs," however, were a similar cross to Mr. Saunders' type, but raised in a reversed manner by Mr. William Humfrey of Chaddleworth, near Newbury, who about the same period as Mr. Saunders, started his work, selecting some of the large types of coarse Hampshire, Berkshire and Wiltshire ewes and crossed them with pure Southdown rams, direct from Mr. Jonas Webb's flock. After twenty-five years and considerable in-and-in breeding, with pedigree and care, he

evolved such a taking sheep in his "West-country Downs" that they created a great sensation at the Royal at Chester in 1858 and at Warwick in the following year, carrying off almost all the prizes in very large entries in the representative classes in which



Dorset Down Ewes.

they were exhibited. Mr. Humfrey's importation of Hampshires was introduced among several flocks in Dorsetshire about that time with good results. Until within the past few years, Mr. Saunders

held an annual sale of the Watercombe sheep extending back to over thirty years, which attracted buyers from all over the country.

The author is indebted to Mrs. William Hooper, Newburch Farm, Dorsetshire, Eng., for the following interesting letter in reply to an inquiry regarding this new, and what promises to be, famous breed of sheep. His thanks are also due to this lady for the fine illustration of Dorset Down ewes and lambs used in connection with this sketch of the breed. Mrs. Hooper's letter reads as follows: "In reply to your letter I am enclosing pictures of six-months'-old ram lambs and 100 of our off-going ewes which made three shillings ahead of any others at Dorchester Fair last year. The photos were only taken by an amateur, the sheep and lambs being untrimmed at the time. The flock is an old established one. The Dorset Down breed has many exceptionally good points, being especially adapted for thick stocking and noted for its fecundity. The sheep are of a very resourceful character, being capable of producing either sucking lamb at ten weeks' old of the primest quality or at eight months old a well-finished carcass of the very best quality mutton. They also possess a hardy and robust constitution and are very adaptable, being equally at home in open grazing or between the hurdles. With regard to their history, the origin of the Dorset Down breed can be traced to about eighty years ago, when Mr. Saunders of Watercombe achieved remarkable showyard fame in the short-wooled classes of their day and did so much to improve the Down sheep then bred in this country. At the present time they are closely related and possess the principal features of the Hampshire Down, but are of finer bone and lighter color and are supposed to supply the present want of smaller joints and primer mutton. Our flock is directly descended from the late Mr. Saunders' flock."

#### THE DORSET-HORN.

The Dorset-Horn is one of the oldest of the English mutton breeds. As its name implies, it originated in Dorsetshire a very long time ago, some writers claiming two thousand years. Although it originated in Dorsetshire, this breed is also found in large numbers in the adjoining county of Somersetshire, where it is highly esteemed as an early lamb raiser and to it the Christmas and Easter hothouse lamb markets owe much for the wonderful quality of this choice article which it supplies. Although the two counties mentioned contain more Dorsets than any other counties perhaps, it is not to these counties alone that the Dorset is confined, as they are bred in several other counties, in a greater or less number, some very choice flocks having been found in the Isle of Wight, and what might be called out-of-the-way places. The Dorset

has made its home in the English colonies, in this country, and in some European countries, with good results.

As an early lamb raiser the Dorset has no rival, if indeed an equal. As milkers they are unsurpassed, and it is very rarely that a ewe is found that cannot supply the necessary nourishment for her offspring, be it twins or even triplets: They are very prolific, giving large percentages of twins and oftentimes triplets. They "do their lambs well," as the British shepherd would put it, and, consequently, they "die well," giving an unusually fat caul and kidney, and, therefore, a very bright and saleable carcass.



"SHEPHERD BOY"

Yearling Dorset Ram.

The original Dorset, it is claimed by some authorities, was not an early lamb raiser, but that this trait was bred into it by selection, improved methods of feeding and management. In the face of this we find in Lisle's "Observations in Husbandry" (1754) that his tenant farmer had ewes which brought his lambs on the 15th day of December,\* which he sold fat to the butcher on Lady Day, 1707, and, at the beginning of June, thinking his ewes to be mutton, they looked so big, he went to sell them to the butcher, who handled them, and found their udders springing with milk, and near lambing, and they accordingly did lamb the first week in June. It was first accorded a place in the prize lists of the leading British shows in 1862, and since then has been very much improved. The Dorset is said to contain no impure blood, conse-

quently is a pure-blooded sheep in the strictest sense of the word. This breed of sheep seems to be holding its ground better than some breeds of sheep on their native heath. A recent annual report of the English Dorset-Horn Sheep Breeders' Association shows a total membership of 176 members, and the total number of sheep entered in Vol. 15 as 65,790, divided as follows: 45,203 breeding ewes, 19,649 ewe hoggs (yearling ewes), and 839 rams, a total increase of 1,148. The number of new flocks registered during the year was thirteen.

Mr. Claridge, in his report on Dorsetshire to the British Board of Agriculture in 1793, said: "The original breed of Dorset sheep is very scarce to be met with, as most of the farmers have crossed their flocks with either Hants, Wilts, or Somerset sheep, which certainly improved them in size."

Mr. Parkinson, an ardent admirer of the Dorset, writing in the early part of the last century, said this of the Dorset: "I look upon the Dorset ewe as the best horned ewe in the kingdom, those of Somerset excepted, and they are so near alike that few people, unless the natives of the two counties, know the difference. The best of the Dorset ewes are more correct in their shape than many of the improved breeds of sheep. Mr. Bridge says: 'They have been much improved of late years; they used to be long-legged, which is by no means the case at present.' He further describes them as being 'straight in carcass, deep in body, with rump much larger than in most sheep, the horns thin and rather bending backward, the eye quick and lively, the face thin, the mouth small, the head standing up well, the neck very proper, the scrag neither thin nor clumsy, the leg well let down toward the shank, set full on the shoulder, which gives flesh on the back and is an indication of flesh in every part.' He further adds: 'The ribs are not so high or round in the upper part as in some improved sheep, which, when as high promoted by Mr. Bakewell, proves a fault, and diminishes the weight.'"

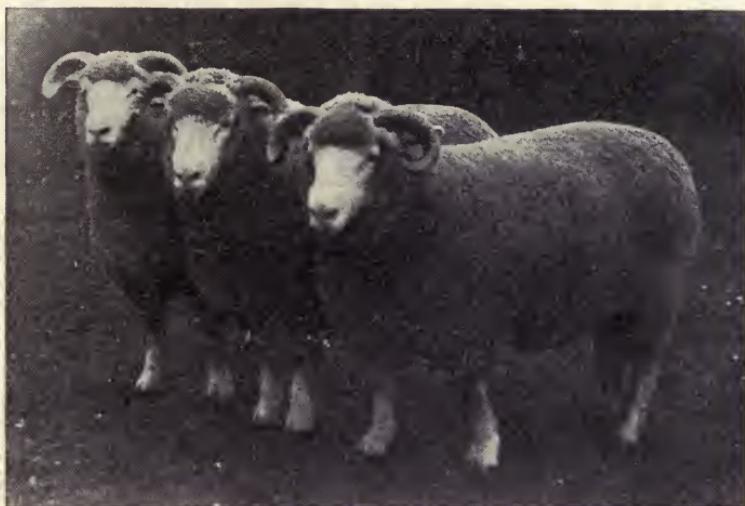
David Lowe, writing in 1841, describes them as "a hardy race of sheep, docile, suited to the practice of folding, and capable of subsisting on scanty pastures; their mutton being excellent."

That great authority Youatt gives us the following description of this famous race of early lamb raisers: "Most of them, at least of the pure breed, are entirely white; the face is long and broad, and there is a tuft of wool on the forehead; the shoulders are low but broad, the back straight, the chest deep, the loins broad, the legs rather beyond a moderate length, and the bone small. They are, as their form would indicate, a hardy and useful breed; they are good folding sheep, and the mutton is well flavored; they average, when three years old, from 16 pounds to 20 pounds a quarter."

Spooner, in his work on sheep, remarks: "They take the ram as early as May and June, and their lambs are usually dropped in

October and November, so that they are the principal sources of the supply of house and early lamb, which about Christmas and the following month is esteemed a great luxury and accordingly commands a high price. \* \* \* At Weyhill, one of the largest sheep fairs in the kingdom, they form a very large proportion of the sheep offered for sale. It is the ewes in lamb that are driven in the month of October a distance frequently of fifty or sixty miles, which journey, occupying upward of a week, they generally bear remarkably well."

Mr. H. Mayo, a famous breeder in the neighborhood of the county seat of Dorsetshire, writing of his favorite breed in 1871,



Dorset Ewe Lambs—*Photo by Doctor Arbuckle.*

informs us that the ewes will take the ram two or three months before any other breed of sheep, and that when the lambs are weaned in October and November, and both they and their mothers receive good feeding, the former will generally be found ready for the butcher in about ten or eleven weeks; nor does it take long to make the ewes ripe afterward, and they will average from 20 to 25 pounds per quarter. To obtain early lambs for fattening he generally makes use of a Sussex ram, as the lambs are considered a little better quality with the cross. He lambs his usual flock about Christmas, and shears about the middle of June, when the lambs yield from  $2\frac{1}{2}$  to 3 pounds of wool, and the ewes from 5 to 6 pounds.

Mr. Paull, a famous Dorset breeder, pays tribute to the merits of the Dorset sheep as follows: "The wool of the Horn lamb is very much sought after for its peculiar whiteness and the fine

points it has. \* \* \* Horn sheep are well adapted to farms that have some good watered meadows, as they possess good quality and fatten readily, and their lambs come to early maturity for market. \* \* \* Horn sheep are dropped about Christmas. As most of these hereabout are fattened, they get cake as soon as they will eat, and all they can be made to consume, the object being to get them off as soon as possible, which in a fair season would be about April 1. Since meat has been so dear many farmers fatten the offgoing ewes as well as the lambs, and they also are allowed whatever cake in reason they will eat, the same object being desired as with the lambs."

Professor Buckman, whose farm was on the border line of Dorsetshire and Somersetshire, said of the soil and the Dorset in that region: "The soil of this part of Dorset is mostly an inferior oolite, the lighter on the inferior sands. Hampshires and Dorset-Horns prevail, but Southdowns are not unusual, and all do well. Both Hampshires and Dorsets are very early and usually prolific. I fancy that for the past few years Dorsets have paid best, but Down mutton is to be preferred."

It will be seen that in some sections of England the Dorset has done its share in supplanting other breeds. For instance, Mr. J. Horner of Martinstown wrote in the 70's: "A very few real Southdown flocks are left in this district, the improved Hampshire or Dorset-Horns being so much better suited to its requirements."

Mr. Ruegg, in his prize essay, published in the Royal Agricultural Society's Journal in 1855, said: "Mr. Pope, having a flock of pure Downs at Toller, sent some of them to his rich land at Mapperton, a Horn country, and found out that the poorest Downs on the thin land at Toller did better than the best Downs on the rich land at Mapperton."

It is the contention of some breeders even today that little improvement has been made in the Dorset in recent years, or in fact in a good many years. Back in the 70's one prominent English Dorset breeder wrote: "I have known many of the best Horn flocks for more than forty years, and I am not at all prepared to say they are better now, if indeed so good, as they were then. I admit they are more uniform in size, shape of horn, and general character, but certainly not so large or hardy in constitution. During that time most of the flocks have been crossed by the Somerset polled sheep (a breed now almost extinct) or by Leicesters, and in some cases by Devons, which has made them more round and perfect in symmetry. I have myself seen within the last seven years Leicester rams with some of the best Horn flocks in the west of England, though I hardly think the owners would like to admit the fact."

There are two Dorset breeders' associations in this country, viz: the American Dorset-Horn Breeders' Association and the

Continental Dorset Club. The former was established in 1891 and the latter in 1897. The two associations have recorded in their books something like 13,000 animals, which is a very good showing.

The Dorset was first imported into this country from England in 1887 by Mr. A. Thayer of New York and Mr. E. F. Bowditch, Massachusetts. In 1889, a large importation of 153 head was made by Mr. T. S. Cooper of Pennsylvania, the secretary of the American Dorset-Horn Breeders' Association. Mr. William Davey of New York also made an importation in 1887. Canada got into the field a little earlier than the United States, by Mr. E. Stanford of Ontario importing in 1885.

The Dorset is somewhat larger than the Southdown, but scarcely as large as the Shropshire. The average of a matured ram is about 215 pounds, and of matured ewes 165 pounds. Of course, show sheep of the breed go far above these weights. The lambs mature very rapidly and make great weights at an early age. In 1894 a pen of three wether lambs of this breed at the famous Smithfield show averaged 190 pounds. Of course these lambs were of pretty near twelve months' growth. The following live weight averages of lambs at that show for a period of four years are given as follows: Leicester, 144 pounds; Southdown, 148 pounds; Shropshire, 151 pounds; Dorset, 144 pounds.

While the Dorset is said by American writers to thrive on rough land, they, like most other British breeds, will return larger dividends on good lands and with skillful management, and the novice should disabuse himself of the idea that the Dorset is one of those breeds which will wax fat where others will starve. No breed will respond to good treatment more readily than the Dorset. The Dorset on his native heath is a well-cared-for breed and can not be expected to thrive under abuse. It would be well also for the novice to bear in mind that the Dorset is not dog-proof any more than any of the other breeds are. Of course, the Dorset ewe will defend herself and offspring as much as possible against the attack of dogs, but that they are wholly helpless when dogs attack them the author is convinced, since he has in mind the utter ruin of a famous Dorset flock by the inroads of the useless cur.

The Dorset will breed at almost any time of the year and twice at that, although such a course is not by any means to be recommended, and it has been proved very disastrous in some instances at least.

The modern Dorset may be described as a white-faced and white-legged breed of sheep, both rams and ewes having horns. The horns of the ram are considerably larger than those of the ewe and are more curved. It has a well-proportioned body, although it often has "the fatal drop behind the shoulder"; especially is this true of the ram. In the last few years, however, this defect has

been largely eliminated by careful breeders. The Dorset is scarcely so heavy a shearer as the Shropshire, but its fleece is a very desirable and saleable class of wool. A Dorset flock that will average eight pounds is considered a good one. In this country and the British colonies, the Dorset has earned quite a respectable reputation as a cross-breeder. In England, the Dorset ewe crossed with Down rams produces fat lambs second to none. This cross is very much used in Somersetshire and Dorsetshire with what is known as off-going ewes, that is, ewes that are fast passing their day of usefulness in the pure-bred fold. These off-going ewes and their lambs are usually fattened at the same time and go to the butcher together, or at short intervals apart.

To Richard Seymour is due the credit of improving the Dorset on its native heath, that is, latter day improvement. As improvers also must be mentioned the names of Farthing, Kidner, Culverwell, and Chick, who were a few years ago in the thick of show-yard battles, and the names of Flower and Hambro, who are doing the fighting at the great English shows at present. The best known flocks in this country at present are the Tranquillity flock of New Jersey, Wing's of Ohio, Gifford & Nash's of Indiana, Henderson's of Pennsylvania, Arbuckles' of Virginia, and Harding's of Ontario. The Hon. John L. McGillivray of Ontario, until sickness caused his retirement, was a faithful champion of the breed.

Dorsets are more numerous in Pennsylvania, Ohio and New Jersey than in other states in this country and are particularly well adapted to those states. In Virginia and Georgia they have given a wonderfully good account of themselves and should be money-makers in those states if kept only for the early lamb raising business, not to mention what might be made out of them from a pure-bred breeder's standpoint.

#### THE CHEVIOT.

The Cheviot is one of the most beautiful and hardy of all the British breeds. In temperament it is not unlike the Southdown, being very alert, inquisitive and suspicious, but always ready to make friends with those who make the first overtures. The Cheviot is a good sheep, the one thing wrong with it being that its breeders do not know the value of printer's ink in exploiting its virtues. In color the Cheviot is white. Its head from the back of the ears forward is covered with clean, white hair, as are also its legs. Its nose is black. Horns occasionally occur in rams of the breed, but are considered a blemish. The Cheviot is of Scotch origin and for over a century it has been one of the most popular of the Border breeds, although the Cheviot Hills, from which it gets its name, is really its home. The Cheviot-Leicester cross is considered a good one in the north of England. The Cheviot

tweeds, made from the fleece of the Cheviot, have been highly esteemed for a very long time. Cheviot wool must have been held in very high esteem in the days of old. Sir John Sinclair, president of the British Board of Agriculture, writing about the year 1791, said "the Highlands of Scotland may sell at present, perhaps, from £200,000 to £300,000 worth per annum of lean cattle. The same ground will produce twice as much mutton, and there is the wool into the bargain. If covered with the coarse-wooled breed of sheep the wool might be worth about £300,000, whereas the same



Cheviot Ram—Parnell Type.

ground under the true Cheviot or true mountain breed will produce at least £900,000 worth of fine wool."

The Cheviot belongs to the middle-wool class of sheep. The rams shear a fleece of seven to eleven pounds and the ewes from six to nine pounds. Whether it is due to the climate or due to the breeders, the Cheviot flocks seem to turn a little to the coarse side in this country. The Cheviot ewe is the best of mothers, giving a good flow of milk, and is fairly prolific, twins being common, and she takes good care of her lambs. An Indiana breeder recently reported an increase of 200 per cent.

Sir Herbert Maxwell relates the following interesting little story of a Cheviot identifying her lamb: "It had fallen into a river and owing to the steepness of the bank could not climb out. An

angler, who was fishing in the stream, rescued the shivering animal, and it staggered away, bleating piteously for its dam. It found her without much difficulty, but the mother, sniffing disdainfully at the dripping little wretch, pushed it off, refusing to recognize it. The angler appealed to a shepherd who happened to pass that way for an explanation of the ewe's behavior. 'Oh,' said he, 'the bit beastie's been in the water, ye see, and the auld ewe canna smell it. She'll take it back as soon as it's dry.' And so it turned out. The fleece was soon dried, the natural odor returning, and the mother and child were reconciled and reunited at once."



A Group of Indiana Cheviots.

The Cheviot gives probably less trouble in lambing than any breed. A well-known shepherd once said he never saw a Cheviot lamb lie down in his life, for the reason that they are never sick and always hunting for food.

The Cheviot ram has been used with good results for crossing purposes in this country. Cheviot mutton is rated among the best quality. As a rustler, the Cheviot is unsurpassed. In their native home in Scotland they are given no shelter and graze the year around in the mountainous districts. That accounts in a great measure no doubt for their extreme hardiness. The Cheviot is a long-lived sheep. A ewe of this breed died in Scotland recently at seventeen years old, which, although a very successful show ewe, had brought forth and raised no less than twenty lambs—eight

pairs and four singles. Her shepherd composed a poem on the death of this, his favorite ewe.

The origin of the Cheviot is very difficult to trace. Tradition says it came "from out of the sea," which means, possibly, that they swam ashore from some Spanish vessel and landed somewhere on the Northumberland coast, as some writers contend they did. One thing we are sure of, that is, that the Cheviots have grazed on their native pastures for centuries with no other food than such pastures afforded.

To show the interest taken in the Cheviot in Great Britain, it might be mentioned that some years ago a flock of fifty Cheviot rams and 100 ewes were sent by the British Wool Society from the Border country to Caithness, 350 miles, and the drover had to deliver one ram and two ewes at each of fifty different farms on the route.

The first Cheviots brought to America were imported in 1838 by Robert Youngs of New York state, and this state probably contains more Cheviot flocks than any other in the country. The Cheviot is particularly free from such troubles as footrot, worms and kindred parasitic troubles. It has been said that Cheviots can graze together with other breeds subject to footrot with perfect immunity. This is certainly a great claim for the breed. Whether it has any right to such a claim is doubtful.

The American Cheviot Breeders' Association, with Mr. F. E. Dawley as secretary, has some very strong patrons at its head and should ultimately bring this beautiful and useful sheep up to that plane where it belongs. Messrs. Keim (now out of business), Lantz Bros., Parnell, Curry, and Professor Plumb of the University of Ohio are breeders who have done no little toward popularizing the breed in this country. In proportion to their numbers in this country the Cheviot always make a strong exhibit at the leading shows.

#### THE LINCOLN.



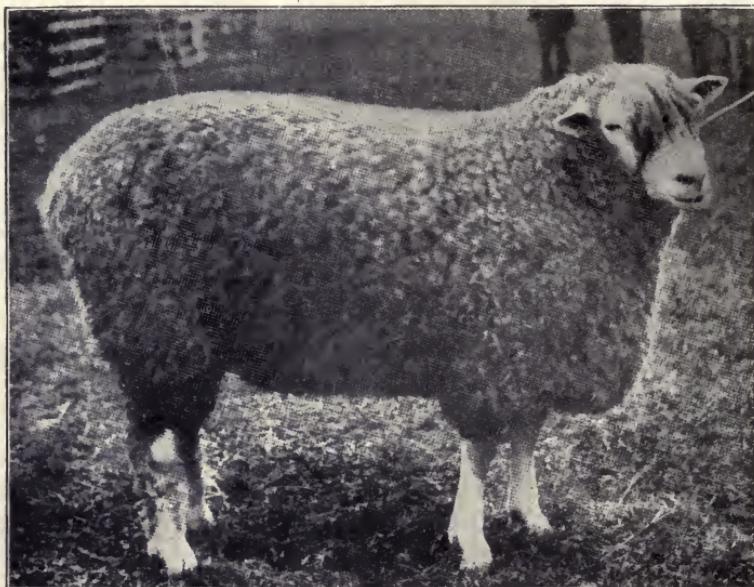
Mr. Henry Dudding.

This breed of sheep, to which belongs the distinction of being the largest of British breeds and probably the heaviest carcass sheep in the world, is one of the most popular breeds of mutton sheep in existence, judging by the prices it has realized at public auction during the past few years, and its popularity for crossing purposes in different countries. It is not so very long ago when the value of the Lincoln was comparatively unknown outside of its own county, where they are found in very large numbers.

"A. Lindsey Yeoman," writing on farming in Lincolnshire in 1854, said that, taking the whole of that county, there were at that

time kept two sheep to every three acres; "in round figures, 1,200,000 will be shorn exclusive of lambs, which must not be considered stock requiring herbage at that time."

As has been intimated, Lincolns have realized very large prices, especially during the past year or two. Only recently Mr. Henry Dudding of Riby Grove fame, sold a single ram, which went to Buenos Ayres, for £1,522 10s, the highest previous price for a ram of this kind being £1,000. Not long ago the sale of the Nopton Heath Lincoln flock of Messrs. Wright, Lincoln (Eng.), to Mr.



Record-price Lincoln Ram, "Royal Champion," bred by Mr. H. Dudding, and Sold for \$7,250.

Miller, of Argentina, for the sum of £42,000, averaging £80 per head, including rams, ewes, and lambs, was reported. This sale is a record for British-bred sheep. The highest price ever realized in America for a ram was \$8,000, which was paid for a Vermont Merino that went to Australia over twenty years ago. Not only are Lincolns held in very high esteem at present, but, considering that a ram of the breed was rented in England at the high figure of \$3,150 in the early sixties, it would seem that they have long been famous so far as big prices are concerned. The Lincoln has been very much sought during the past few years by breeders in the Argentine Republic, for crossing purposes, and very large prices have been paid for rams of the breed there. A short time since, the Lincoln was most grossly libelled by a publication in South America by charging that it was more susceptible to pluero-

broncho-pneumonia than other breeds. The libel, however, did not have any ill effect, since the charge was without foundation, and South American breeders are too well acquainted with the merits of this great breed as money-makers to think seriously of such ridiculous accusations.

Although feeders and breeders of mutton sheep, almost the world over, seem to recognize the merits of this great breed of sheep, it has not made the headway in this country that might be expected of it; but during the past year or so, some of our western breeders have tried it with considerable success and pinned their faith to it. The trouble with the Lincoln in this country seems to be that they get into hands who do not realize that they are big feeders that must be well fed if profit is to be derived from them. In the fat stock show yards, the Lincoln has given a good account of itself, and at a recent Smithfield Club Show in England three wethers took champion prize over all breeds under the hands of a well-known breeder and exhibitor of Shropshires. The butcher who purchased these wethers said in regard to them: "The three sheep, champions of the Smithfield Show in 1902, were absolutely the three best sheep of their kind I ever cut; they were grand carcasses. They were long, level and very full of flesh. I have seen sheep that have only weighed 28 pounds a quarter fatter than these three, and here are the weights: No. 1 weighed 239 pounds; No. 2 weighed 230 pounds; No. 3 weighed 214 pounds. I do not know what the skin weighed, but they were put in a special class by themselves at the hide and skin market, Hull, and made 13s. each."

Twenty-five pounds of washed wool is not an uncommon weight for a Lincoln ram fleece, and as much as thirty-two pounds of clean washed wool has been recorded. A good breeding flock will average from twelve to fourteen pounds each fleece. A three-shear wether was killed weighing 386 pounds, a two-shear 364 pounds, and a shearing 284 pounds dressed.

At this year's Royal (1907) what is said to be the greatest ring of sheep (quality and everything considered) ever shown, was made by pens of five yearling Lincoln rams, in which no less than 155 sheep competed. Some of the fleeces of these exhibits were fully two feet in length.

Among the first to take up the breeding of Lincoln sheep in this country was Robert Knight of Michigan. He was the first to introduce them west of the Missouri River.

Among Canadian breeders who have done their share towards popularizing the Lincoln on this continent the names of Gibson, the Robsons, Neil, Geary, Oliver, Walker, the Patricks, Parkinsons, etc., may be mentioned.

The following anent this great breed of sheep is from the English Flock Book: "The Lincoln sheep has been in existence, and recognized as the established breed of the county, upward of one

hundred and fifty years. Since those early days they have been found to be so well adapted to the soil and climate of this county,



Group of Lincoln Ewes—Casswell Type.

that although at various times other breeds have been tried, none have been found to supplant them, possessing, as they do, the

properties of producing the most wool and mutton of any breed, 25 lb. of washed wool being a very common weight of a fleece from a ram, as much as 32 lb. of clean washed wool is recorded; and a good breeding flock will average from 12 to 14 lb. each fleece. They are very hardy, whole flocks being folded on turnips during the winter months. Another great feature in the Lincoln sheep is their early maturity and aptitude to fatten, as evidenced by their success at the Smithfield show, so that the Lincoln stands unrivalled, where size and wool are required, to cross with almost any breed. The breed is also less subject to footrot than some of the other breeds.

In 1866, at the Annual April Fair, in Lincoln, 220 wether hoggets, sold in one lot by the breeder, made £5 each.

The following report of practical experiments carried out by the Parlington Tenants' Club in 1861-2, published in the "Year Book of Agricultural Facts for 1861," shows the relative value of Lincolns as compared with other breeds: "On the 4th of October, 1861, six sheep of the undermentioned breeds were turned upon rape, so that nature might have its course with natural food, and without stint, until the 11th of November, during which time the cross from the Teeswater gained 2 stone 2 pounds, the Border Leicesters 5 stone 1 pound, the Lincolns 3 stone 6 pounds, the Shropshire Downs 6 pounds, the Leicesters 1 stone 13 pounds, and the Cotswolds 5 stone 8 pounds, while the Southdowns lost 11 pounds. On the 11th of November the sheep were again folded, the several crosses being then in a pretty equal state for taking on condition. If a lead should be supplied it might be in favor of the Cotswolds, from the start this class had made in the latter part of the summer grazing, and whilst on the rape. The whole of the sheep had as many swede turnips as they could consume, and half a pound of linseed cake per day, with the exception of the Lincolns, and these, for forty-two days, had a quarter-pound extra; but this extra cake was placed to their debit in like manner as the various weights of turnips consumed were to that of the several classes." The following figures from the same Year Book shows the relative value one class of sheep held to the other after deducting food-cost from value of the mutton and wool: "The Teeswater cross, 11s 7½d; the North sheep, 12s 5½d; the Lincolns, £1 10s 5d; the Southdowns, 17s 5d; the Shropshire Downs, £1 5s 10¾d; the Leicesters, £1 2s 6d; and the Cotswold, 14s 9½d." The sheep were slaughtered in February following the commencement of the experiments and were sold on the same market. This experiment speaks volumes for the superiority of the Lincoln over the other breeds in this contest.

Mr. Bert Smith is the secretary of the National Lincoln Breeders' Association of America.

## THE COTSWOLD.

The Cotswold is one of the oldest, if not the oldest, of British sheep in existence and certainly is among the largest. Camden says of it: "The Cotswolds are the largest breed of domestic sheep in the world." Modern Lincoln breeders might see fit to challenge this authority's assertion, since a Lincoln succeeded in capturing the premier prize for heavy weights at the Chicago International two or three years ago. In Queen Elizabeth's day the Cotswolds were described as being "long-wooled and large boned," and unsurpassed as producers of the most desirable class of wool. Their frame was large and coarse; they were slab-sided and stood on long legs. The Cotswold has been alluded to by the poet and spoken of by historians, especially in consideration of its wool. Evidently the breed was always noted for its size and fleece since Youatt remarks: "Changed only with the change of sheep farming, the Cotswold sheep are what they have been from time immemorial."

The home of the Cotswold is in the counties of Gloucestershire, Oxfordshire and Herefordshire in England. Running through Gloucestershire is a range of hills known as the Cotswold Hills and no doubt from this range of hills the Cotswold took its name. One writer gives his opinion that it is more likely that the hills got their name from the sheep rather than the sheep from the hills. In old English Cotswold is spelled Cotteswold. Cote was the term applied to portable sheep shelters in olden times and Wolde meant in old English a tract of upland. "Cote for flocks" is mentioned in the second book of the *Chronicles*, as also is sheepcote in the first book of *Samuel*. No doubt the Romans brought the original blood of the Cotswold with them, at least that is a pretty safe conjecture according to historic writings.

Tacitus, the famous Roman historian, makes mention of the manufacture of woolen cloth at Cirencester, in Gloucestershire, as far back as A. D. 75. There is a good deal in history relating to the manufacture of woolen cloth in Gloucestershire from the wool of the sheep raised on the Cotswold Hills. In the Saxon era mention is also made of the fame attained by the Gloucester woolen mills, and it is stated that the king and his nobles were presented with some of its cloth on their visiting those mills. During the reign of Henry VI an act prohibiting the export of sheep or wool was passed, and on this account the king of Portugal petitioned the king of England for a royal warrant enabling him to export sixty sacks of Cotswold wool that he might manufacture, at Florence, cloth of gold for his royal household. About the year 1468 King John, of Aragon, was presented with twenty Cotswold ewes and rams, descendants of which are said to be in existence in Spain.

The modern Cotswold is not only one of the largest, but one of the most beautiful of all breeds of sheep. Its immense size and

beautiful fleece appeal to lovers of beauty in pastoral life. The Cotswold matures rapidly and has found much favor in this country, Canada and other countries. It is said that the Cotswold has not been so fortunate in having the assistance of royalty as some other breeds, but that its evolution and improvement has been left to the tenant farmers of England, among whom may be mentioned the names of Gillett, Swanwick, Garne (his entire flock averaged 10 $\frac{3}{4}$  lb. of wool a year ago), Lane, Ayline, etc. Among prominent Canadian exhibitors, past and present, may be mentioned the



Yearling Cotswold Ram.

Snells, Thompsons, Garbutt, Ross, Park, etc. In this country, Harding, Lewis Brothers, Wilson Brothers, Watt & Son, etc. The Cotswold seems almost to be the national breed of Canada, where they are raised to a remarkable degree of perfection. The Cotswold is thought well of in the western sheep growing sections of this country, especially in Oregon, where it is said to thrive equally as well as in its native habitat, on the Cotswold Hills. For crossing purposes it has proved itself very useful and profitable. Not long ago quite a furore was caused in the Chicago market by the consignments of market-topping Cotswold grade lambs sent in by the Wood Live Stock Company, of Idaho.

There seems to be a difference of opinion as regards the color of the face and legs. White seems to be most generally fancied among showmen. White faces and legs are not fancied so much among some of the western lamb-breeders as will be seen by the following extracts from an answer to an inquiry addressed to Manager F. J. Hagenbarth of the Wood Live Stock Company, of Idaho, which reads: "We prefer the heavy boned type, broad chested, with a tendency to brown noses and legs. The pure white-faced and legged variety seem to be a little tender. We find that plenty of lung and chest room is essential to a good Cotswold. The Hampshire seems to take more kindly to this climate when imported from the east or England than does the Cotswold; the latter breed seems to be seriously set back the first year. However, the increase from the Cotswolds seem to take kindly to our climate and develop into strong, rugged sheep."

This is a plain, unvarnished opinion of one of the world's greatest sheep-breeders and lamb-feeders and should be received with gratefulness by those interested in the breed, since it shows that although the Cotswold does not become acclimated so readily as the Hampshire, it ultimately proves itself a winner. There is no doubt as to the Cotswolds merits for crossing on western ewes; the demand for rams last year by western breeders who had tried them is ample proof of this, and the fact that Mr. Hagenbarth still pins his faith to the breed is sufficient corroboration that with their drawbacks they have merits which offset anything that may be brought against them. Sometime ago a flock of this breed was shipped to Kodiak Island, Alaska.

The Cotswolds are very prolific, deep milkers and good mothers and fatten very readily.

On October 4, 1861, a bunch of Cotswolds were weighed and turned into a field of rape, which, on the 11th of November, when they were reweighed, showed a gain of 88 lbs. This speaks volumes for the Cotswold and for rape as fattening food for sheep.

While not liked so well by butchers as the Downs, generally, they find great favor among butchers in their own districts.

An ideal Cotswold is described as follows by Mr. W. S. Harmer, an English fancier: "The head should be wide between the eyes, and the eye itself, full, dark and prominent, but mild and kindly, and in no way coarse about the brow; the face should be proportionately wide to the space between the eyes, but not too flat, and should run off much the same width to the nostrils, which must be well expanded and somewhat broader than the face, with the skin on the nose of a dark color; the cheek is full, and, as is the face, well covered with white hair, a just perceptible blue tinge on the cheek and round the eye being rather fancied; the ear, long, but not heavy, of medium thickness, and covered with the same short soft hair, should be well carried up, while black spots on the

point of the ear not considered objectionable; the top of the head should not be coarse nor bald, but covered with wool, not hair, and the Cotswold is to be distinguished by a fine tuft of wool on the forehead; the head should be sufficiently long to save it from being called short and thick, but it should not have a long lean appearance; gray faces still crop up occasionally in all the best hill flocks; the neck should be big and muscular, and should be gently curved to enable the sheep to carry the head well up, thereby giving the animal a grand appearance; the neck should be slightly smaller at the ears than where it comes from the shoulders; the shoulders should lay well back, and the point of the shoulder should be well covered with flesh, as also the chines; the ribs should be deep, well sprung from the back; the hips and loin wide, and well covered with flesh; the rump should be carried out on a level with the back, giving the animal a square-looking frame; the leg of mutton well let down to the hock, and thick on the outside; the legs, both front and hind, should be straight, moderate in length, well set outside the body; the pastern joints, both front and hind, should be short; the whole body should have a firm solid touch (not loose and flabby), and be well covered with a thick-set, long and lustrous wool."

Mr. F. W. Harding is the capable secretary of the American Cotswold Record.

#### THE LEICESTER.

The Leicester is a very interesting breed, historically and otherwise. It is the father of all the Longwool breeds. It is considered to have inhabited Leicestershire long before it was recognized as a breed. It is thought by historians that beauty of form, utility, early maturity and rapid fattening qualities were the main points considered by Bakewell in the improvement of the Leicester and that he did not give any particular attention to wool. However that may be, he is one of the great men to whom memorials to their memory should be erected the world over, but who have been practically unnoticed in this regard.

The Leicester or Dishley breed of sheep is a breed of sheep which has been more written about than any other, first, on account of the great work which Bakewell did in regard to improved livestock breeding, and because it figured so largely in the improvement of other breeds. Mr. Bakewell commenced the improvement of the sheep in his county about the year 1755. From a very modest sum per head (his first rams offered for rent made only 17s 6d each), he rented three rams for 1,200 guineas and seven for 2,000 guineas in 1789. In the same year he made 3,000 guineas in addition by letting the remainder of the rams to the Dishley Society.

The Dishley or Leicester breed of sheep, according to Culley,

was produced by selecting from all the best kinds of long or combing wooled sheep wherever to be met with. Mr. Bakewell began by selecting from flocks in his neighborhood and especially in Lincolnshire, in which he was much assisted by Mr. Stow, of Long Broughton, who procured many rams for him, and at that period (about the middle of the eighteenth century) they had better sheep in Lincolnshire than perhaps in any part of England. This, however, was before the Lincolnshire breeders had begun to pursue the longest wool, large bones and great size; and it was no small advantage to Mr. Bakewell's pursuit that in much the greater part of the kingdom a guinea or even half a guinea would give him the choice of any sheep in any flock. Culley said that before Mr. Bakewell's



Canadian Leicester Ram—Smith Type.

time we had no criterion in sheep but size. "Nothing but elephants and giants would please him." In his description of the form of sheep before Bakewell's improvements, he said: "They had a large hollow behind the shoulders, upon the top as well as the side, now known by the technical term of the fore flank, which in a fat sheep, now, not only fills up the former defect, but even projects beyond the shoulder and gives a great roundness to the form of the carcass."

At an auction of ewes belonging to Mr. Paget, a Leicestershire sheep-breeder, in 1793, five ewes were sold at 62 guineas, five at 52 guineas, five at 45 guineas, ten at 30 guineas and several others at from 20 guineas to 19 guineas apiece. One of these sheep, killed at Walgrave, in North Hants, weighed 36 lb. per quarter, rough fat,  $16\frac{1}{2}$  lb.; the whole, including offal,  $17\frac{1}{2}$  lb.

Although we have great breeders among us today, it is doubtful if we ever had so serious a student of scientific breeding as Mr. Bakewell was. It is considered that he was the first to experiment with the rate of gain in proportion to food consumed and also to consider the quality of flesh in proportion to offal in dressing. Moreover, he had a miniature museum where skeletons and pickled joints of specimens of the Dishley sheep were kept for reference or comparison from one generation to another. It is also stated that he kept a full pedigree of the ancestors of his stock and their descendants. He also paid great attention to the degree of fineness of bone, shape and size of form, thickness of the muscle and depth or thickness of inside and outside fat. He always made post-mortem examinations of stock that died. Mr. Bakewell was wont to lay his principles down in a dogmatic way, such as, "like will breed like." He also maintained that by exercising intelligent care in selecting, it is quite possible to increase the weight of the primer joints of cattle and sheep, and that the sheep should give the greatest value in the smallest compass. Mr. Bakewell's methods of breeding were, always more or less, shrouded in mystery, and some things which he did would scarcely be considered square and above board today. The black ram which he is said to have kept out of sight for a long time, and used in bringing to perfection the now famous Leicester is a case in point. Sir John Sebright said of Bakewell in the British Farmers' Magazine in 1827: "The mystery with which he is well known to have carried on every part of business and the various ways which he employed to mislead the public induce me not to give that weight to his assertions which I should do to his real opinion could it have been ascertained."

The following anent this historical breed is from a member of the "Royal Agricultural Society's Journal": "Mr. John Breedon, of Rotherby, was the last survivor of the Bakewell Ram Club, whose rules bear date January 5, 1790, and pledged the twelve members (who paid 10 guineas each) to keep the transactions secret upon their honor. Mr. Paget was the president of the club, which held its earlier meetings at the Bull's Head and the Anchor at Loughborough, alternately, and fined each member a guinea for non-attendance. There were twelve members, and the rules were made and kept with Draconic strictness. No member might sell ewes and lambs to breed from, unless he sold his whole flock or dealt with members only; only forty ewes could be taken in to keep, and those must be property of one person; not more than two dozen rams could be shown to any person or company at one time; and even members could only show their rams to each other between the 1st and 8th of June, when the general show commenced. On July 8th they were bound to rigidly seal their pens for the space of two months. Certain flockmasters were not to pay less than 100 guineas in their first contract, and after that 30 guineas for wether-getters.

Not more than thirty rams might be let by one member in one year; and it was further enacted that there were to be no dealings with flockmasters who showed rams in the market, and that the much-dreaded members of the Lincolnshire Society should not have a ram unless four joined and paid 200 guineas for him."

Youatt, in his famous work, says: "The sort of sheep, therefore, which Mr. Bakewell selected were those possessed of the most perfect symmetry, with the greatest aptitude to fatten, and rather smaller in size than the sheep then generally bred. Having formed his stock from sheep so selected, he carefully attended to the peculiarities of the individuals from which he bred, and, it appears, did not object to breeding from near relatives, when, by so doing, he put together animals likely to produce a progeny possessing the characteristics that he wished to obtain. Mr. Bakewell has been supposed by some persons to have formed the New Leicester variety, by crossing different sorts of sheep; but there does not appear to be any reason for believing this, and the circumstance of the New Leicesters varying in their appearance and qualities so much as they do from the other varieties of long-wooled sheep, can by no means be considered as proving that such was the system which he adopted."

Markham, in his "Cheap and Good Husbandry," published in 1668, writing of the sheep of the Midlands, says: "The sheep of Worcestershire, which joineth on Warwickshire, and many parts of Warwickshire, all Leicestershire, Buckinghamshire and part of Northamptonshire, and that part of Nottinghamshire, which is exempt from the forest of Sherwood, beareth a large-boned sheep of the best shape and deepest staple; chiefly they be pasture sheep, yet is their wool coarser than that of the Costal" (Cotswold).

Professor Low also says: "There is no reason, therefore, to assume from any of the characters presented by the wool of the new Leicester breed that the parent stock was any other than the Long-wool sheep of the Midland counties."

Mr. Joseph Crust writes of the breed in the English flock book as follows: "The Leicester has, during the last few years, made rapid strides toward perfection, and come most prominently to the front. As their name implies, they are descended from the original Leicester, which is regarded as the most important of our long-wooled breeds, arriving early at maturity and possessing great aptitude to fatten, points which have caused them to be more largely used than any other in crossing and improving other breeds of sheep. By continuous and judicious crossing with other sires of large size and heavy fleeces, a class of sheep has been produced of corresponding proportions, with a fullness of wool, yet retaining the original propensity to fatten. They are very hardy and well adapted for any climate or soil, during the severe winter months being folded on turnips in the open fields on the bleak wolds of

Yorkshire, where they feed quicker than any other class of sheep that have been wintered on the same situation, requiring less artificial food, and with a minimum proportion of loss; they are also remarkably sound in their feet, and but seldom attacked by what is generally termed 'footrot.' This hardiness of constitution is very desirable in any class of sheep, wherever situated, and is of special importance in the case of those reared in exposed situations, where natural food may at times be scarce, and artificial substitutes not easily procurable. Not only are the Leicesters a well-constitutioned class of sheep, but good breeders, having for a long time enjoyed a reputation as the very best on the Yorkshire wolds. They are splendidly adapted for crossing with colonial and foreign sheep, and can be specially recommended for that purpose. In regard to wool the Leicester is very wealthy, having frequently been known to produce fleeces of clean washed wool weighing from 21 up to 28 lb., and the coat is of a beautiful texture. They are upstanding; a good size; exceptionally full in the neck and shoulders; the chest broad and deep; back broad and firm to the touch; and quarters of a good length. The sheep attain to a great weight, records showing that they have turned the scales at 240 lb."

Although Livingston in his "Essay on Sheep" does not in words say that General Washington introduced the Leicesters into this country it is easy by reading between the lines to infer that he considered he did.

The Leicesters are very popular in Canada, but hold no monopoly in this country. In New Zealand they are held in high esteem for crossing in the production of lambs for "freezers."

Among Canadian breeders who have done good work for the breed may be mentioned the names of Smith, Kelly, Laidlaw, Whitelaw, etc.

In the "History of the New Zealand Meat Trade," published in New Zealand in 1903, by Mr. Thomas Brydone, a well-known authority on the meat export trade, the Border Leicester-Merino cross is placed first amongst the list of profitable crosses.

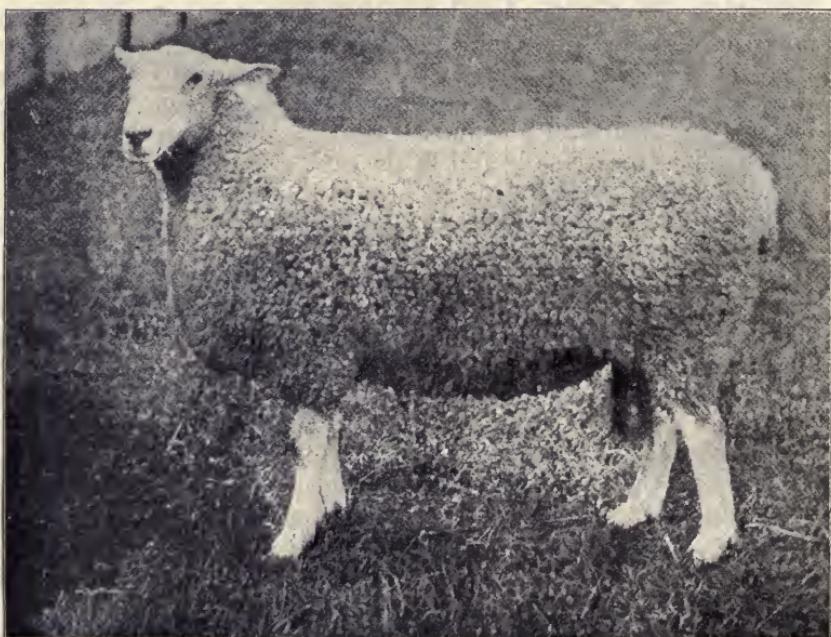
Professor Wrightson, in his famous work, describes the improved Leicester as follows: "Lips and nostrils black, nose slightly narrow and Roman, but the general form of the face wedge-shaped, and covered with short white hairs; forehead covered with wool, although this is not always the case; no vestige of horns; ears thin, long and mobile; a black speck on face and ears not uncommon; a good eye; neck short, and level with back, thick and tapering from skull to shoulders and bosom; breast deep, wide and prominent; shoulders somewhat upright and wide over the tops; great thickness from blade to blade or "through the heart"; well filled up behind the shoulders, giving a great girth; well sprung ribs, wide loins, level hips, straight and long quarters, tail well set on, good legs of mutton, round barrel, great depth of carcass, fine bone, a

fine curly fleece free from black hairs, well-covered back and loins, firm flesh, springy pelt, pink skin. The general form of the carcass, square or rectangular; legs well set on, straight hocks, good pasterns, neat feet."

Mr. A. J. Temple is the secretary of the American Leicester Breeders' Association.

#### THE BORDER LEICESTER.

The Border Leicester is somewhat different in certain characteristics to the Leicester. Especially is this so in regard to the



Border Leicester Ram—Twentyman Type.

head, which in the Border Leicester is white, while the English Leicester has a bluish white face and the head and face of the latter is not so clean of wool. The carcass of the Border Leicester is considered to be a little larger and longer than that of the old Leicester. It has been asserted by some that the Border Leicester is a production of crossing the Cheviot and Leicester, but this idea is not countenanced by their most prominent breeders. To the brothers Culley is given the credit of evolving the Border Leicester by repeated crossings of Dishley rams upon Teeswater ewes. Northumberland is the native county of the breed, although they are found in Durham and other counties and in Scotland.

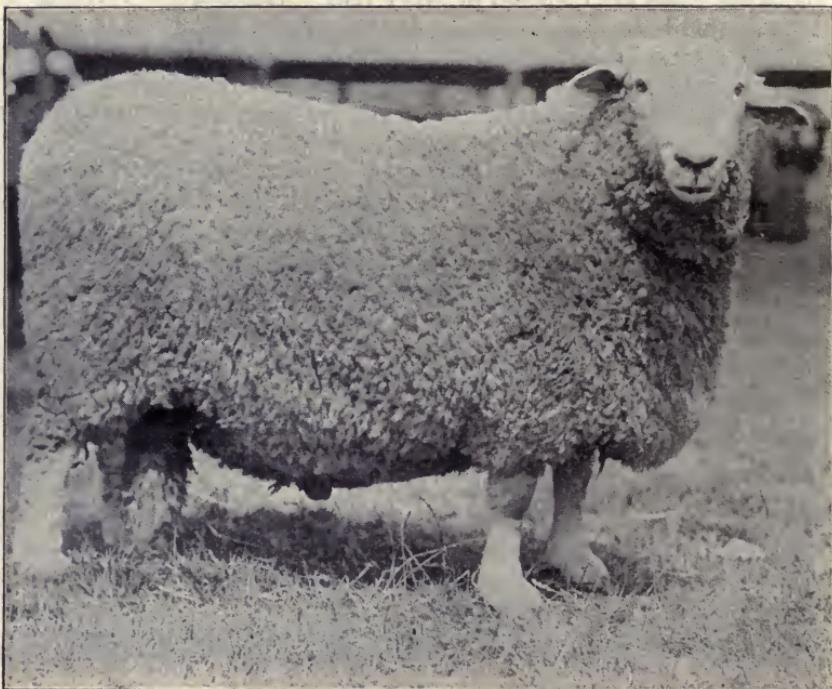
The Border Leicester and native Cheviot ewes give an offspring that finds much favor with butchers. The Border Leicester is said to fatten easily with little other food than ordinary pastures, although their breeders treat them to a little more generous fare. It has outrivaled the original Dishley Leicester and is considered the mainstay of Border counties' farming. Besides being used as a cross on Cheviots, it is also used on some of the smaller mountain breeds. In British showyards the Border Leicester and the old Leicester have classes and are about even as to entries at most of the shows. At the famous Kelso sales between two and three thousand rams are disposed of every year. The Culleys' retiring in 1806 brought about a dispersion of their flocks, and from it sprung the now famous Lord Polworth Mertoun flock. Mr. David Archibald, an enterprising New Zealander, who has given a great deal of time to tracing the history of the Border Leicester, contends that the Mertoun flock was contemporary with the Dishley flock. Rams hired from the Culleys realized good figures, since they made as much in some instances as 100 guineas for their use for a single season. In 1888 Lord Polworth sold twenty-eight rams at an average of £36 9s 3d, one going at 165 guineas. The Canadian Leicester flocks are considered to contain a good percentage of Border Leicester blood.

#### THE ROMNEY MARSH.

Mr. Arthur Finn, a well known English Romney Marsh breeder, gave an interesting lecture before the Rye Farmers' Club on the breed, in which he said: "It is difficult to trace records of breeds, but I feel safe in saying that Romney Marsh sheep are second to none in the possession of a long history. It has been said that possibly they were introduced from the Low Countries, and Mr. Charles Whitehead has written, in the Agricultural Society's Journal thus: 'It has been suggested that the aboriginal Kent sheep posed as the model of the cube upon four legs representing sheep in toy "Noah's Arks," and as toy manufacturing had long been carried on in the Low Countries, perhaps the breed, like hops and other good things, was fetched from Flanders.' This is a slender foundation to go upon, but certainly Dutch sheep and Romney Marsh sheep are very much alike. The breed is now acclimated in this district, but I do not think it originated here. The Marsh is of a comparatively recent formation, and in its earlier state must have been quite unfitted for sheep grazing. The coast dwellers lived principally by fishing, and the first grazing of the newly reclaimed land appears from records to have been chiefly with herds of swine, and later on with cattle.

"The earliest recorded flock I have met with is one established in my own native town of Lydd, where, in 1572, the bailiff,

jurats and commonality, in return for certain people giving up rights of common on land called the Rype, founded a town flock. The sheep were given as a 'benevolence,' and I find it stated: 'John Heblethwait, bayliff, notwithstanding his great loss in sheep last year, gives 6 ewes; Thomas Bate, jurat, gives 40 ewes, the total being 392 ewes.' A town shepherd was annually appointed at the feast of St. Mary Magdalene. He had to give sureties and to annually render his account. It would be interesting to trace out from the records what success this Lydd flock had. Mr. Wil-



Romney Marsh Ram.

liam Price, a surgeon of Appledore, who devoted much time to the subject, and wrote a most interesting book in 1809 upon Marsh sheep grazing, saw the necessity of raising a breed of useful, medium-sized animals. There were big, coarse sheep in the Marsh in his day, and the wethers were kept until three years old. He advocated more kindly qualities and endeavors to obtain early maturity.

"About the middle of the 18th century, Mr. Bakewell, a most celebrated breeder, introduced what were called 'Improved Leicesters,' and later, or then, Leicester rams were largely im-

ported into the Marsh. Indeed, there is no doubt that at about this period a great change was effected in the Marsh sheep. Mr. Price wrote some very quaint things. He said it was then thought that no particular qualifications were necessary to become a grazer. After giving his definition of a good manager, he mentions bad ones as too numerous, and their appointments erroneous in principle. It was commonly said in Romney Marsh that anything was good enough to make a grazer. If a man had brains sufficient to keep himself out of the Marsh ditches, he had quite sufficient ability for that pursuit. I hope that we have raised the standard since then.

"I now quote from an article I wrote for the Royal Agricultural Society's Journal a few years back upon this subject: 'Bred on the exposed Marsh and generally grazed upon short and poor feed in its first year, the Romney Marsh sheep may be said to present a result to be expected from the survival of the fittest. Of a hardy and strong constitution, it will live and thrive even upon the poorest land without any artificial feeding or assistance. Nevertheless, upon the best pasture, or when aided by artificial feeding, there is no breed which more readily responds, owing to its natural kindliness and quick fattening disposition. The land in this district, regarded geologically, is a recent reclamation from the sea, and varies very considerably. On the one hand, there are parts with a rich alluvial deposit, and these have become pastures of the highest quality, while on the other hand, closely adjoining, or intermixed, are many acres of the poorest land—hard, stiff and unkindly clay, or sand and shingle, sparsely covered with vegetation, and only barely sustaining stock in the most favorable seasons. Under these circumstances it may well be understood that sheep bred of the soil must be of a most hardy and thrifty nature. Such qualities may be pre-eminently claimed for the Romney Marsh breed.' With his record we have the sheep which have made their home in Kent and in a great part of our adjoining county of Sussex."

The same lecturer, on another occasion, remarked that he had come into possession of a document which referred to the fact that Edward III presented the king of Spain with some Romney Marsh sheep and from these it is said the famous Merinos took their rise.

The writer is indebted for the photograph of the ram from which the halftone illustrating this article is made to Mr. N. Millen, Syndale Valley, Faversham, England, and the following interesting contribution on the breed: "This breed has been in existence for several hundred years, although until recent years it has not been very well known abroad, but since the foundation of the Kent or Romney Marsh Flock Book in 1895 there has been a larger demand for export, which increases considerably year

by year, and I should think will continue to do so as the breed becomes better known. The chief countries to which it is exported are Argentina (largely), Punta Arenas, Uruguay, New Zealand, Australia, Falkland Islands, Patagonia and Chili. These sheep are bred and reared chiefly on the open marsh land (which lies close to the sea) and are very hardy and in consequence can stand climatic changes, I should say, better than any other breed. They are never housed nor sheltered in any way and are kept on grass in the marsh all the year, except the lambs, which are brought on to the uplands in the autumn and wintered either on grass or roots with hay and return to the Marsh in the early spring. It is the best breed for grazing a large expanse of land, as they will distribute themselves all over the ground and therefore graze it more evenly, and do not foul it as much as other breeds which usually herd together. They are also very suitable for wet, low-lying lands, as they are not subject to footrot. The chief points of the Romney are: Head wide, level between the ears (which should be thick); no horns nor dark hair on the poll, which should be covered with wool; nose black; neck short, strong and thick, well set on the shoulders, which should be wide; chest wide and well let down; back straight with wide good loin; rump wide, long and well turned; thighs well let down and developed. The fleece should be of even texture, good staple and thick on the pelt. It is a good mutton sheep, growing to good weight, carrying plenty of lean flesh and comes to maturity fairly early. It is crossed chiefly with the Hampshire and Southdown, which crosses answer very well, especially for fat lambs, as the ewes make good mothers and the lambs attain a good weight. I herewith enclose photo of my ram 'Syndale No. 75 of 1904,' which has won the champion honors this season in the show yards. Have already sold several of his lambs for export. The lambing season is the end of March or beginning of April."

Mr. Price, nearly a century ago, described this breed as follows: "The pure Romney Marsh bred sheep are distinguished by thickness and length of head, a broad forehead, with a tuft of wool upon it, a long and thick neck and carcass; they are flat-sided, have a sharp chine, are tolerably wide on the loin, have the breast narrow and not deep, and the forequarter not heavy or full; the thigh full and broad, the belly large and flabby, the tail thick, long and coarse; the legs thick with large feet, the muscle coarse and the bone large; the wool long and not fine, and coarsest on the thighs; they have much internal fat, and are great favorites with the butcher. They have much hardihood, they bear their cold and exposed situation well, and they require no artificial food during the hardest winter except a little hay. The wethers seldom reach the market until they are three years old; then they weigh from 10 to 15 st. and the ewes from 9 to 11 st."

There is not a shadow of doubt but what the Romney Marsh is an ideal sheep for certain sections of this country. So far as the writer can learn but one or two small flocks of the breed has, as yet, been tried here. Mr. Wm. Riddell, Jr., of the firm of Wm. Riddell & Sons, the well known Oregon breeders of pure bred long-wool sheep, showed a small flock of "Romneys" at the St. Louis World's Fair, which did not meet with a great deal of favorable consideration, no doubt on account of their being only in ordinary breeding condition and their being shown under the disadvantage of having only recently landed after a long and tiresome voyage. That the breed is entitled to consideration by Oregon sheep breeders is manifested in the following letter from the junior member of the above mentioned firm, who says: "I have an idea that you know a good deal more about these or any other breed of sheep than I do, and all I can tell you is how they are doing here, and how they seem to compare with the other two breeds which we raise—the Lincoln and Cotswold.

"The climate and feed here seems to suit the Romneys exactly and they simply could not do better than they have done. The fleece is finer in staple than the Lincoln or Cotswold, and I was somewhat surprised after shearing to find that they averaged in weight fully as well as the other two breeds.

"In size the sheep I have are much larger than the average Lincoln or Cotswold, and they seem to be a hardier and more vigorous sheep in every way, seeming to prefer to stand outside in a pouring rain to going under a shelter with the other sheep, and their fleece seems to be well adapted to shed the rains which are so frequent in this climate in the winter season.

"So far my little flock has not increased much on account of the fact that nearly all the lambs have been rams, and after selling six of these I have left seven ewes and a buck. I hope before long to be able to get some more from the Old Country.

"In general appearance the Romneys bear a considerable resemblance to the Lincolns, the main difference being in the character of the fleece. The Romney fleece is more like that of the middlewools in some ways, than the longwools, and they have a very bulky fleece, compared with a fleece of the same weight of either the Lincoln or Cotswold.

"The forehead is almost bare of wool, as is usually the case with the Lincolns here, but I have seen a picture of a flock of Romney rams in New Zealand, some of which had a very good foretop; but I understand that in general the sheep are like those I have, in that respect.

"Everything considered I think the breed is going to be a very valuable one for this climate, and I intend to stay with them and give them the best show I am able to. The climate here is so similar to that of their native country that they have

every chance to do well here, and I think I have every reason to feel encouraged."

#### THE DEVON LONGWOOL.

This is a breed that is worthy of the notice of every mutton raising country. To the writer's mind the Devon Longwool is one of the handsomest, most hardy and useful of the longwool breeds. They have existed for centuries in certain sections of the county of Devonshire, especially in the vicinity of Bampton, a well known market town, where they are sold in large numbers. Bell's Gazetteer, of the year 1836, contains the following: "Many sheep are fed in the neighborhood; they are of a large size, and of an uncommonly fine quality, from the excellence of the pastures." It would seem that the Devon Longwool originated from the old Bampton Nott, since Professor Wilson wrote in the '50s: "It is very difficult to find a pure Bampton unmixed with other blood, a few only remaining in Devonshire and West Somerset."

The old Bampton Nott was a big-framed, heavy-fleeced sheep, with white face and hornless. Some authorities claim, and properly so no doubt, that the Devon Longwool is a product of the old Bampton Nott brought about by crossing with the Leicester and Lincoln. Today the Devon Longwool is raised in Devonshire, West Somerset and several districts in Cornwall. The present day Devon Longwool very much resembles the Leicester, but its face is somewhat longer, it has a greater width of forehead and nose, and the ears are somewhat longer. The frame is more bulky and of greater length, although not quite so neat. They have the reputation of being great early lamb raisers. The wethers are not now kept as they used to be until they are two years old. By the time they are yearlings they dress from 22 lb. to 24 lb. per quarter. As yearlings they shear from nine to eleven pounds of clean washed wool, notwithstanding that they are generally shorn as lambs. The ewe flock generally averages from eight to nine pounds of wool. In the rich lowlands of Somerset, especially in and around the vale of Taunton Dean, they make remarkably heavy weights with a very little supplementary food. The Devon Longwool is now recognized by the Royal Agricultural Society of England, and some very remarkable shows of the breed are made at the different agricultural shows in that country.

Mr. John Risdon, secretary of the Devon Longwool Breeders' Association, writes of this grand breed:

"The Devon Longwool is descended from the Bampton sheep, which were an excellent strong, hardy breed.

"Bred in the district from which they took their name, these sheep were mated with Bakewell's Dishley blood, and from time to time with rams from the South Hams (Totnes district), while some flockmasters took character and strength from Lincoln blood.

"The Devon Longwool is found over a great portion of Devon, Somerset and Cornwall, and no rams in these counties produce better results on Dorset Horns, Dartmoors and Exmoor ewes, either for fat lambs, or for producing fat hoggets. As these sheep are spread over so wide a district with diversity of climate, there has for many years been no need for breeders to go outside for fresh blood, hence the Devon Longwools have for a very long time been recognized as a prime breed sheep of high character.

"Wherever they have been exported to they have at once acclimatized themselves, and no breed thrives better. As a cross



Devon Longwool Ram—Recently Shorn—Property of Mr. F. White, England.

with Merinos they are excellent, as their wool is of a high character. Mr. Alfred Hawkesworth, wool expert of the Technological Museum, Sydney, Australia, says:

"Upon opening out a Devon Longwool fleece there is a beautiful metallic lustre, which could be easily taken for Lincoln. Although a strong, deep grown wool, it has a silky texture. Fibres are true and even to the end, and would give satisfactory returns either in the combing machines, drawing, or spinning frames. It has high-class dyeing properties and would take delicate shades.

"As wool producers they stand in a high position, as the shearing rams produce from 18 to 24 lb. and some even more;

after being shorn as lambs, when they cut 3 lb. or over, the ewes cut from 12 to 14 lb.

"For producing chilled or frozen mutton with Merinos they are excellent, being full of high-class lean flesh. They are a prolific breed, the lambs come with strength, and the ewes are good mothers.

"If fat lambs are required, they can be had from 36 to 40 lb. each at 10 to 12 weeks; while for fat hoggets, they are killed at from 18 to 24 lb. per quarter, and old ewes up to 50 lb. per quarter."

"The Devon Longwool ram should have a well developed head, covered with wool; a clean and striking countenance, and prominent eye; strong, well set neck; the body symmetrical and deep, on short well formed legs; the skin should be a rich pink color; the face white, and the nose a full black; the ears a fair length, with black spots on them; the belly and purse should be well covered with wool, and the fleece, breech and shoulders, included, to be of one quality of rich curly wool, with long soft staple and thick in the skin.

"The Devon breeders have at last recognized the value of a flock book, and it now only remains for colonists to try these sheep to find them second to none.

"The principal sales are held at Taunton, Tiverton, Exeter, Dulverton and Barnstaple, in the month of July."

A short time ago the Duke of Devonshire presented a fine Devon Longwool ram to one of the English crack regiments as a regimental mascot.

#### WENSLEYDALES.

Wensleydales are known under the name of the "Bluefaced Wensleydale" and the "Wensleydale Longwool," both having associations to champion their cause. There is little doubt but what these are practically one and the same breed. The origin of the "Wensleydale Blueface" is a good deal similar to that of the Lincoln, since it is a branch of the old Teeswater sheep, from which the Lincoln is said to have descended. It is noted for its early maturing qualities and is a breed of great hardihood, and activity, and particularly well adapted for the stormy weather peculiar to the north of England. The Wensleydale Blueface was very much improved by the introduction of Leicester blood about half a century ago. This breed was recently introduced into this country by the Wyoming Experiment Station and is a breed that will no doubt prove satisfactory here. The following are the points of the "Wensleydale Blueface," as given in the flock book of the breed's association:

"The wool is bright and lustrous, of a flat staple of medium breadth and good length, each staple curled or pirled out to the

end; the head is broad at the muzzle, and wide below the ears, the head and the ears of a deep blue tinge, which extends to the rest of the body; the neck of good length, strong, and rising gracefully from the shoulders; the ribs well sprung and deep, great length of side, loins broad, and well covered with firm flesh along



Wensleydale Ram.—Willis Type.

the back; hind quarters square and nicely packed; tail broad; legs with plenty of bone, with freedom from coarse hair, straight set on at each corner, and well apart."

The "Wensleydale Longwool" is described as being descended from a branch of the old Teesdale sheep and as being good breed-

ers, good feeders, excellent mothers and famous for their twin bearing qualities. One authority claims that about 150 years ago a breed called "Mugs" was introduced into Wensleydale. These, he considers, were a branch of the old Teeswater breed, from which the race of "Wensleydale Longwools" descended. The points of this breed are as follows:

"Head broad and flat between ears; face dark; ears dark and well set on; muzzle strong in rams; a tuft of wool on forehead; eyes bright and full; head gaily carried. Neck of moderate length, strong, and well set on to the shoulders. Shoulder broad and oblique. Chest deep and wide. Wool, bright lustre, curled all over body, all alike in staple. Back and loins show ribs well sprung and deep; loin broad and covered with meat, tail broad, flank full. Legs and feet straight and a little fine wool below the hock; fore legs well set apart; hind legs well filled with mutton. Skin, blue, fine and soft."

A breeder of Wensleydales, writing of the weights and early maturing properties of the breed a short time since, said: "I have a pure-bred Wensleydale ram lamb dropped in the latter part of March which showed a gain of 68 pounds in 61 days, and I have on several occasions had lambs of this breed average 17 ounces per day from March to October."

#### THE DARTMOOR.

The Dartmoor receives its name from a wild, picturesque moor of that name, situated in Devonshire, which has inspired many a charming little pastoral narrative. It is considered to be one of the most ancient breeds of British sheep, but has been much improved in recent years and would no doubt make a splendid sheep for our western states. Although a very undomesticated kind of grass is about all the moors of Dartmoor afford its denizens for summer grazing, it is of a very nutritious character, as the condition of the flocks of this large, rugged breed is ample proof. The Dartmoor sheep breeders are careful not to turn their sheep out too early onto the moor pastures, but keep them on their home farms, which in many instances are as good as almost any found in England.

The little "Moor-dag" has practically disappeared before the invading influence of the modern Dartmoor, the latter very much larger, due to the influence of the Lincoln or Leicester, no doubt, but has lost little or none of its ancestors' hardiness. As a writer recently remarked, the wild storms that sweep over Dartmoor have never hurt them, and seasons of heavy rains have been withstood without the appearance of rot so apparent in many other breeds.

The Dartmoor very much resembles the darker faced types of Cotswolds. Professor Wrightson says of it: "The Dartmoor

sheep of today are a large, long woolled variety rivalling in size the Cotswold, Lincoln or Romney Marsh breeds."

Speaking of this breed Mr. John R. Kingwell, Brent, Devonshire, a well known breeder and exhibitor, who has successfully exhibited at the Royal and other famous shows, says: "They are very hardy in constitution, with heavy, lean flesh and plenty of bone. My flock have averaged for the past three years over 14 lb. of wool each (of course, omitting the lambs). In breeding my flock I have always aimed at getting animals of as perfect symmetry as possible, with good constitutions and rich, curly wool,

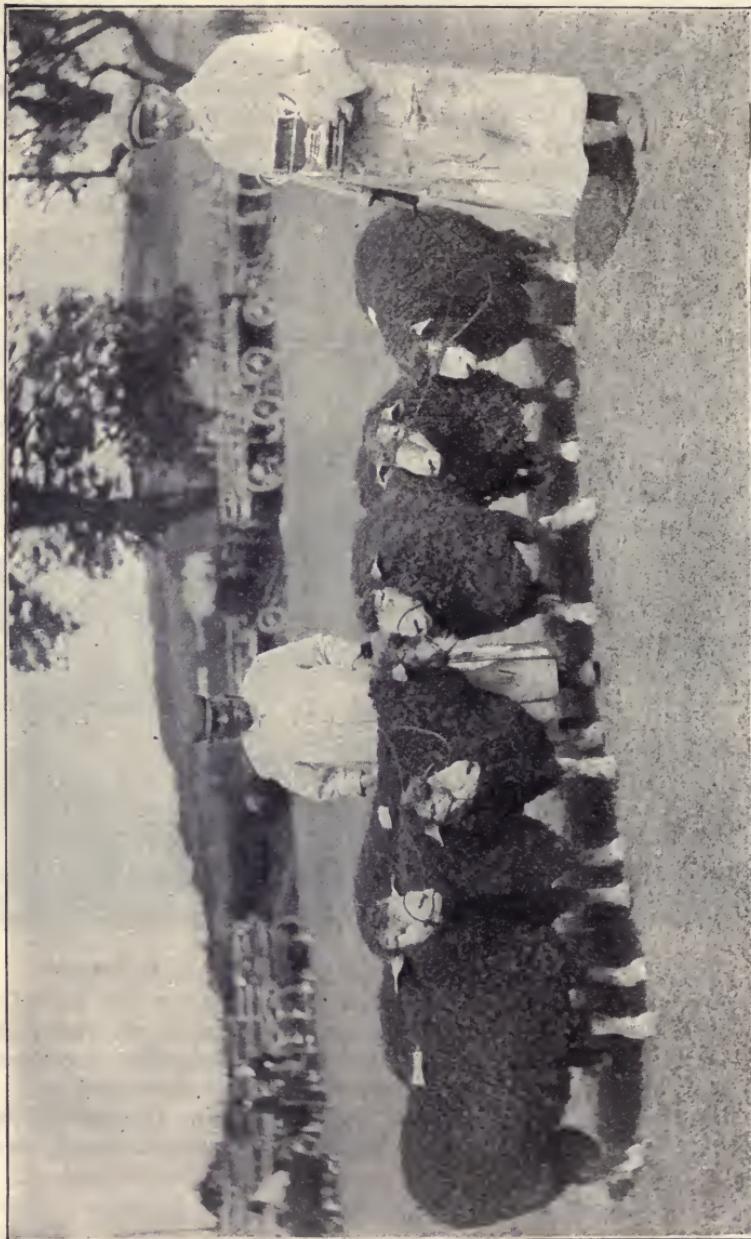


Dartmoor Yearling Rams.—Bred by Mr. R. T. Kingwell, J. P., England.

moderately thick. The loin should be broad, well covered with lean flesh; the neck massive, and sprung well from the shoulders; the ears thick, and well covered with smooth, clean hair (if a few black spots on them, so much the better); the face should be large and broad, eyes full and bright, and nostrils black and broad."

#### SOUTH HAMS.

Whether there is any difference between the South Devon and the South Ham the author has been unable to find out from any authoritative source, but he is inclined to think that they are one and the same sheep under a different name, so far as blood is



South Devon Rams—Property of Mr. J. Stooke, England.

considered, if not in actual type, since they are found in the same localities in the southern part of Devonshire, England. However, whether this is so or not, the South Ham has considerable merit, for its extreme early maturity. A South Ham breeder recently

reported that he had a seven months' old lamb that weighed 224 pounds, a weight that would be hard to surpass by any breed.

#### THE ROSCOMMON.

As its name suggests, this is an Irish breed of sheep, and indeed, as Mr. Matthew Flanagan, a well known Roscommon breeder of Tomona, Ireland, states in a letter to the writer, "Roscommon sheep are Ireland's only native sheep," and that they are a good breed the following extracts from a booklet published by the Roscommon Sheep Breeders' Association, given below, goes to show. To Mr. Flanagan is due the thanks of the author for the picture used in illustrating this article, and other information.

"Unlike the patrons of Kerry cattle, the breeders of Roscommon sheep, instead of a diminutive and originally starved type of stock, as was found in Kerry, have a type of sheep which for size, robust constitution, wealth and weight of flesh, can hardly be excelled. And with an association, and the establishment of a flock book protecting their best interests, such a breed of sheep is yet calculated to become a tower of strength all over the land. When other countries had produced any new breed of live stock to their great advantage, they were quickly recognized by their national societies, but in regard to native Roscommon sheep, it was not until some twenty-five years ago that the breed was recognized by the Royal Dublin Society.

"Unlike the other counties of Ireland, Roscommon has mainly confined her attention to this breed of sheep which she claims as native, and has given little countenance to other varieties. This fact is due rather to the high character of the native Roscommon sheep than to any prejudice on the part of breeders, who it must be said have been energetic and successful in the improvement of their native stock. Under the modifying influences of soil and climate in other counties and districts, they exhibit considerable variety in type and character, but the sheep at present known as the long-wooled Roscommon are indigenous to the county, their origin dating back for centuries. They have shown a gradual improvement in type, particularly during the last fifty years. It is held by some authorities that the present breed is the result of crossings with English blood, but the general consensus among old flock owners in the county is that they are the native breed, improved by judicious blending of the various predominant qualities of the sire with flock—that is, by taking advantage of the valuable peculiarities, encouraging their development, and by degrees rendering them more permanent.

"In the Irish Farming World Mr. William Davidson, of Queen's County, Ireland, a well known authority on the ovine family says of the Roscommon :

"After fifty years' experience I have come to the conclusion

that this is the most useful type we have in this country, and I often hear men talk of improving this breed. If any one wishes to take them out of their native counties and do so, they may, and with some profit for a butcher's sheep; but I hope there will be no tampering with the type of those sheep in their native soils; for if the ewe were altered in her present size, milking qualities, and robust constitution, it would be a national loss, especially in the midland counties, where those fine slashing big ewes have no equal for producing fat lambs or good two-year-old butcher's wethers for the Dublin market. What the Cheviot is to the Lowlands of Scotland the Roscommon is to the midland counties of Ireland, with the difference that the Scotch breeder has to produce size from the Cheviot by the sire used; but this sheep will give size to the produce of any sire used. The only thing gained by



Roscommon Sheep.

crossing the Roscommon ewe is early maturity, and by a proper cross suitable to the soil on which they have to feed and the market they have to meet, they will produce a sheep that for mutton, bone, and weight, will be second to none in any country, and for breeding fat lambs they have few equals for house-fed or very early fat lambs. Some may do as well, but when the season advances, and when weight is wanted in a lamb as well as fat, then this ewe excels all others.'

"Some stockmen who are avowed patrons of other breeds, hold that Roscommons do not mature early enough, and are not therefore so suitable for market requirements. This breed, like all classes of stock bred in the west, is kept more in a natural way, and it is doubtful if they have undergone as much forcing and pampering as other breeds of sheep, either for the show ring or the butcher's block. In the latter case we must not, however, lose sight of the butcher's adage that 'when you have done weigh-

ing, you have done selling,' and with such a breed of sheep this truism will ever continue to make itself manifest. \* \* \* The sound land to be generally found in Roscommon, with the intelligent judgment of an industrious people, have now produced a sheep with an excellent class of wool and mutton, and of entirely different formation from centuries ago, and this is what has given Roscommon men pre-eminence in their flocks, from which others are year by year replenished. In the breeds of sheep in England, her demands some years ago were for a thoroughly artificial animal, calculated to increase the area of tillage, while Ireland had less desire for tillage, and wanted a sheep sufficiently hardy to stand the winter without shelter, active in pursuit of food, a good grower and weigher when it reached the abattoir, and of a weight sufficient to repay the expense involved by its protracted keep, and an animal possessing a heavy fleece of long silky wool. This is the mission the Roscommon sheep fulfills in its present far too limited sphere.

"What the Balfes, the Taaffes, the Flanagans, the Cottons, and the Flynns have done for the breed many years ago has been well maintained of late years in keeping up Roscommon sheep to the highest standard of perfection, so much so, that the breed can now hold its own in public competition with all pure bred flocks. It must have been very gratifying to lovers of the breed to find that at the Royal Society's Sheep Show of 1895 the challenge cup in the long-wooled classes was carried off by three superb shearling rams from the well managed flock of the Messrs. Cotton, Longford House, Castlerea. They weighed at that time 21 stone respectively, all showing size, rib, symmetry, and quality of wool. Mr. M. Flanagan of Tomona, Tulsk, had the premier winner in the aged ram class at last year's Dublin show, with his strong four-shear sheep, that won first in his class two years before. He weighed 27 stone 12 lb., and was as near to the type of what Roscommons should be bred to as could be desired. In the class for ram lambs Mr. John Kean, of Templepatrick, Mullingar, won the chief honors with a well grown pen, scaling 14 stone each. For these well brought out sires there is always the keenest demand, and they are now brought to all parts of the country in developing the breed. For ordinary marketable purposes there is no better stock. Mr. Alfred Mansell, the well known auctioneer of College Hill, Shrewsbury, writing of them says: 'Last year I killed five lambs from Roscommon ewes by a Shrop ram which dressed 82 lb. each.'"

#### THE RYELAND.

To the writer's mind the Ryeland is one of the best breeds of sheep in existence. Its fleece is very fine, the finest, in fact, of any of the British breeds, and there certainly is a place for it in

this country. It is a very hardy breed, found originally in large numbers in Herefordshire, Shropshire and Morfe Down, where it was much in request for its wool and considered very valuable for the manufacture of the finer of British cloths. It is one of the oldest of the British breeds. For a long time what was known as the Old Ryeland sheep was on the ascendancy, but when the New Ryeland sprung into existence and some attention was given to its breeding and promoting, it again made some headway. The carcass weight has been increased considerably and in the place of the fourteen or sixteen pounds per quarter carcass of the



Ryeland Shearling Ram.—Barneby Type.

Old Ryeland wethers, lambs now ten months old make as high as eighteen pounds per quarter, and yearling wethers at sixteen or seventeen months old reach as high as twenty or twenty-two pounds per quarter. Although the New Ryeland has perhaps lost some of its fineness, it has gained considerable in weight, since the Old Ryeland sheared about two pounds of wool as against eight pounds for the improved Ryeland. The Ryeland fattens very easily and is well suited for raising fat lambs. The breed has been described as a white faced Shropshire dressed in a Merino's fleece. In Herefordshire and Brecknockshire it is becoming very popular. Very recently this breed was given a class at the Royal Show.

## THE EXMOOR.

The Exmoor is an English breed, making its home in West Somersetshire bordering on North Devon. Exmoor is a wild mountainous tract of land consisting of uncultivated commons well covered with heather, and still the native haunt of the black cock and red deer. A race of mountain sheep has run these wilds from time immemorial. Some authorities claim that the Exmoor came from the same common stock as the Dorset, which would seem not unlikely judging by their similarity in appearance. The Exmoor is a very hardy sheep, and where properly cared for is



Exmoor, in Full Fleece—Skinner Type.

quite prolific, often bringing twins and even triplets. Its mutton is of the best. They are famous as fat lamb raisers. They are fair shearers.

Mr. H. H. Dixon, who perhaps understood the Exmoor as well as anyone, says this of the breed: "A very strong constitution, which will bear being buried in a snowdrift for several days; a fine, curly horn; a broad, square loin; round ribs; a drum-like and not a square carcass, on short legs; and close-set fleece with wool well up to the cheeks."

Billingsley, in his Survey of Somerset, says of this breed: "Though these sheep in appearance are vastly inferior to those before described (Old Bampton breed), being in their youth sub-

ject to a precarious subsistence on the forest and hills, it is the opinion of many sensible farmers that they are altogether as profitable stock."

The following comprehensive description of the management of the Exmoor appears in the prize report written by Sir T. D. Acland on the farming of Somerset in the "Journal of the Royal Agriculture Society" (1850):

"The hill-country farmer generally keeps a breeding flock of horned ewes and a small flock of wethers, which run on the hills summer and winter. The number of his ewes will be limited by the extent of his water meadows, on which he relies in great meas-



Exmoor Ram; Out of Fleece—Skinner Type.

ure for the keep of the couples after the lambs are dropped. The number of hill wethers depends on the extent of the common right attached to the farm. About the 20th of June all the sheep are gathered for sorting and shearing. The mouths of the sheep are examined and those whose teeth are broken are drafted and kept back from the hill to be sold or fattened off. The ewe hoggets replace the draft-ewes and the wether hogs of the former season are shorn with the hill wethers and turned off to the hill after being signed with some large mark which can be seen at a distance. They cost nothing but the trouble of an occasional gathering until the next year, and the only profit they yield is about 5 lb. of wool. In their fourth or fifth year they may be brought on to grass. They are also used as laborers on the farm, to eat the grass down close in the fall of the year, and are sometimes marched

in close phalanx up and down a ploughed field to tread in the wheat. The ordinary sheep of the country, when fat, do not weigh above 11 to 12 lb. per quarter. Where pains have been taken to improve a flock they may reach on the average 16 or 18 lb. a quarter and some are brought up to 24 lb. a quarter when fed on the Bridgwater marshes. There is also great difference in the quality of the wool of a common and of a well-bred sheep. It is the practice of farmers who have good land as well as common to put their draft ewes with a small-headed and high-proof Leicester ram to sell the lambs fat in May and the ewes as soon as they get fat. There are great objections to horned sheep. It is almost impossible to prevent them from being infected with the scab while they are on the open hill; they also acquire such restless habits that they are always breaking the fences when brought into the inclosed ground. In fattening them much judgment and practical knowledge is required, for they do not get on well in hot weather, and it frequently happens that when they are first put on turnips they lose ground, or 'pitch,' as it is called, for two months in the autumn, and are slow in regaining it afterward. For these and other reasons, farmers who occupy good land in the vale with their hill farms are getting tired of their horned sheep and use their hill farms only as summering ground for knot sheep and bullocks."

Vancouver in his "General Survey of Agriculture" (in England, 1808), paid a visit to Devonshire and reported upon the merits of the cross of the Merino upon the Exmoor. In this report he shows that the native fleece of 4½ lb. sold at 26 cents per pound; the first cross Merino fleece of 5 lb. sold at 52 cents per pound, the second cross fleece on this produce of 5 pounds sold at 66 cents and the third class of 5 pounds sold at 82 cents. He added to this report that the carcass was rather advanced in quality than otherwise.

The Exmoor Horn Sheep Breeders' Society, recently established, already has 117 members and about 17,000 sheep entered in its books and is in a very flourishing condition. The Exmoor would no doubt be worthy of a trial in this country, since it has proved itself worthy of respect in South Africa.

#### LONK SHEEP.

Among the mountain breeds of sheep that might be tried with a good chance of success in this country is the Lonk. The author is indebted to that famous breeder and exhibitor, Mr. David Hague, Bolton-by-Bolton, Yorkshire, England, for the following comprehensive sketch of the breed:

With regard to your inquiry about Lonk sheep, I take great pleasure in forwarding you photos of my Lonk ram, "Worsthorne

Wonder," and three shearling ewes. The ram won the Royal in 1905 and 1906 and has never been defeated, neither last year nor this, having won more than thirty first prizes, cup and medals. The three ewes were the winners of the first prize at the Royal Lancashire in 1905, beating the Royal winners under the same judge, and have won more than twenty firsts and medals.

As regards the sheep being exported, I don't think they have gone much abroad as yet, but they have begun to buy them for crossing with the Blackface Scotch because they are much bigger and a lot finer in the wool. A few have also gone to Austria-Hungary. The Lonk and Wensleydale cross and Lonk and Lin-



Lonk Sheep.—Hague Type.

coln cross are two breeds that are bred about here and are very good to sell either to the butcher or farmer. The cross with the Lonk makes a splendid carcass for the butcher, being much fuller of lean meat than a full-bred one. The Lonk is supposed to be the leanest-fleshed sheep there is for its size, being a big, long-framed sheep. The ram "Worsthorne Wonder" when fifteen months old weighed three hundred and forty pounds. They are a mountain breed and very hardy and can live anywhere. There are not many sheep besides Lonks kept on the hills about here, they being the only breed that seem to stand the climate. The wool is as high in price as any other pure wool about here, 1s 2d

(28 cents) a pound being obtained for it this year and the ordinary clip for the Lonk is nine or ten pounds.

The points of the Lonk are: Good head, with nice flat horn coming out of the corners of the head. The color of the face and legs is a clear black and white. They have a good Roman nose. The body should be all white, no black is wanted in the wool, plenty of bone in the legs and a good strong fleece to stand the rough weather, but not kempy. The fleece from the ram enclosed, when a shearling, weighed seventeen pounds. When put up for show purposes the sheep are put indoors about November and are fed linseed cake, oats, peas and corn with plenty of good hay and turnips. The average price for a good ram lamb is about 10 guineas, but I refused £30 for "Worsthorne Wonder" when a shearling, as I wanted him for breeding purposes. The ewes are sold for about 50s right off the hills, but some of the best make much more.

#### THE HERDWICK.

The Herdwick, which is noted for its strong constitution, is a native of the Cumberland and Westmoreland Hills. Tradition has it that after Admiral Drake had broken the famous line of Spanish galleons on the sandy shore of Cumberland, at Driggs, forty sheep managed to save themselves and were claimed as flotsam and jetsam by the lord of the manor. These sheep are well adapted for the mountains. It would seem that there is a place for this hardy breed in the mountainous districts of this country.

Herdwick sheep are not unlike the Highland Blackface in their ability to live and thrive upon poor fare. In their home in the poor mountainous districts of Cumberland, where they are known locally as "heaf" sheep, a little heather and now and then a tuft of grass is about all that can be found on the rock surface. In the winter when the snow lies deep on the fell, these sheep will eat their way to the very crest of the hills and do well. It is said that the best managers make it a rule never under any circumstance to furnish hay, but leave the sheep to take care of themselves, which they do in a most wonderful way. On some farms a portion of the flock of Herdwicks belongs to the landlord and is handed down from tenant to tenant. Changes are not frequent. When they do occur the sheep are inspected very carefully by the two viewers or inspectors of each party, who if necessary call in another man to settle any misunderstanding as to valuation, etc. They make a report as to the value of the flock as regards size, wool, bone and general quality and this report is compared with the condition of the animals when the farm was rented or leased. Should it have degenerated a claim is made and allowed

for deterioration and if improved the renter receives compensation.

The Rev. W. B. Daniel, writing of Cumberland in 1813, says: "In the midst of secluded scenes formed by the involutions of the mountains, uncorrupted by the society of the world, lives one of the most independent, most moral and respectable characters existing—the estatesman, as he is called in the dialect of the country. His property is usually from eighty to 200 pounds a year; his mansion forms the central point of his possessions, where, surrounded by his own paternal meads and native hills, he passes an inoffensive life; occupied in cultivating the first and browsing the



Herdwick Ram—Mackerell Type.

last with his large flock of three or four thousand sheep, he transmits to his descendants, without diminution or increase, the demesne which from his frugal and contented forefathers had devolved upon him. Hence it is that more frequent instances occur in the deep vales of Cumberland of property being enjoyed for a long series of generations by the same family than in any other part of England.

"Their sheep roving wild upon the mountains and never taken into the farmyard, are exposed to perpetual accidents from the inclemency of the weather and the horrors of snowstorms which have destroyed from 1,290 to 1,500 head in a year. This circumstance prevents the estatesmen from getting rich, but, on



The Herdwick at Home.

the other hand, their losses never induce poverty upon them. Their hospitality is unbounded and sincere. ‘Go,’ said an estatesman to a friend of Mr. Warner’s, whom he had entertained for some days; ‘go to the vale on the other side of yon mountain, to the house of such an estatesman and tell him you come from me. I know him not, but he will receive you kindly, for our sheep mingle upon the mountains.’”

An English writer says that when the Herdwicks of the West Cumberland mountains are allowed a taste of the sweeter herbage of the enclosures or of the turnips in severe weather they will perform astonishing feats of leaping and daring to obtain a repetition of the treat and that they will wade streams and watch incessantly for a gap in the wall or an open gate. They will exercise considerable cunning and commit their depredations by night only, never showing the slightest disposition to encroach during the daytime, but when morning comes they are invariably found in their proper location on the mountain.

The Herdwick is an inveterate climber and it has been said that it will go where even goats fear to tread. Better proof of its climbing abilities cannot be given, perhaps, than the half-tone illustration showing these hardy little mountaineers in their native haunts, used in connection with this sketch. The photograph from which this half-tone was made was taken on the farm in Eskdale, Cumberlandshire, owned by a brother-in-law of Mrs. W. W. Burch, wife of the publisher of the American Sheep Breeder, to whom my thanks are due for its use.

In “Crag and Hound in Lakeland” C. E. Benson says in regard to the Herdwick: “Given the opportunity the Herdwick will show himself as big an ass as his congener, the Southdown wether. Foule Crag is still very fatal to sheep. From the bulk of the mountain several ledges run out on to the crag, gradually diminishing in breadth as they get farther from their base, until they finally disappear in the rock face. Along these the Herdwick crops his way in pursuit of the meager pasturage until he reaches a point where it is impossible to go further and for a sheep to go back. So there he has to stay until he is rescued or is blown over or falls from exhaustion. In the case of rescue the shepherd has at least learned that it is advisable to take a companion and a rope, otherwise the grateful animal will assuredly do its best to kick or shove him off.”

A peculiar circumstance is recorded of a strain of Herdwicks in a certain locality with fourteen ribs.

#### KERRY HILL SHEEP.

A well-known Canadian importer and breeder of Lincoln sheep, who spends a good part of his time in our western states,

says of this breed: "If there is a breed of sheep that should be tried in its pure state in our western states it is the Kerry Hill breed, as it is an excellent mutton sheep, an excellent wool sheep, very hardy, and just the sheep for our western ranches." The Wyoming Experiment station has imported or will import in the immediate future some of these sheep through the gentleman to whom reference is made in the above quotation. A well-known breeder of this breed some time ago made an experiment by way of proving their hardihood. He sent some Cheviots and Blackface Tweedale sheep to a farm with the idea of trying if they would do better than the Kerry Hill on that farm. These sheep came



Kerry Hill Ewes.—Property of Mr. J. Venables, England.

from the Scotch mountains, which are much higher, rougher and bleaker than any section of the Kerry Hills. They were kept under the same condition as the Kerry Hills, had the same rations and treatment at all times, but they never did so well or proved as profitable, and after four years' trial they were given up. The English Farmer and Stockbreeder recently had the following to say of this hardy breed:

"This breed is rapidly growing in public favor. Some eight or nine years ago the breeders formed themselves into a society, and as an instance of its growth we would point to the last meeting of the Welsh National Agricultural Society, where the exhibits of Kerry Hill sheep far exceeded those of any other breed. The ewes are very hardy and extraordinary sucklers, and for the fat lamb trade have proved highly successful. The experiments in fat lamb

production carried out on the Aberystwyth College farm in 1904 and 1905 are noteworthy. The ewes tested were Shropshire, Kerry Hill, Radnor Forest and Welsh, and it was gratifying to Kerry Hill breeders to find that their sheep gave the most satisfactory results. The yearling wethers are handy weights, being from 15 lb. to 17 lb. a quarter, but if fed beyond this period they develop into big weights. They are specially sought after by the butcher, owing to their having a large proportion of lean meat, and as the mutton is very sweet a ready market is easily obtained. At Wellington Christmas fat stock sale the wethers usually win first prize and, what is perhaps more remarkable, at the annual sale held in the same town the wool has for several years past reached the highest figure."

#### GRITSTONE SHEEP.



Gritstone Ewes and Lamb.—*Photo by William J. Clark, England.*

This is another breed of sheep which for want of proper advertising has become little known outside of what might be called its "secluded haunts." It is well-spoken of by those who have tried it. The author is indebted to Mr. William J. Clark of Alport, Bakewell, Eng., the secretary of the Derbyshire Gritstone Sheep Breeders' society for the following information on the breed: "In regard to the Derbyshire Gritstone sheep I have very great pleasure in sending you a few particulars about them. In the first place let me say that these sheep are not a new breed, but, on the contrary, a very old one and have been bred pure for

the last 150 years. I have in my possession proof of this and many of the old breeders say they have been used to improve several breeds of sheep that are better known.

"The Breeders' society has, however, only recently been formed for the purpose of bringing these very useful animals to the notice of others.

"You ask: 'What are the characteristics of the breed?' They are: First, hardiness; second, excellent mutton and fat lamb producers (for good lean mutton of medium weight and quick growing lambs they are, I believe, unbeatable under natural conditions, and as they require no pampering they are therefore the very best farmers' sheep); third, the quality of the wool is really first class; the prices paid for it in this locality are absolute proof of this.

"These sheep (which are polled with black or mottled faces) are bred in the highest part of England, on the bleak hills of Derbyshire. They lamb out in the open and require very little attention at the time and either the rams or the ewes are very good for crossing with other breeds for the purpose of getting early fat lambs; or when used pure they are one of the hardest and best breeds of farmers' sheep to be found in Great Britain.

"The management of them is the same as for any other kind of hill or mountain sheep, and when brought down from the hill and put on better land they grow rapidly. They are very free from disease of all kinds and are suitable for all climates and soils.

"I may say that the pedigree of every lamb registered in future will contain both the dam and the sire, as the breeders are going in for individual pedigrees, which will be a very great advantage to purchasers."

#### WELSH MOUNTAIN SHEEP.

My esteemed friend, Mr. David Evans, an English shepherd of considerable experience in this country and New Zealand, who returned home recently after an absence of some fifteen years and made a special trip to the home of the Welsh Mountain sheep in the interest of the author of this work, writes of this interesting breed as follows: "I was never more greatly astounded than to see the great strides that have been made in sheep farming in Wales and the evolution of the Welsh Mountain sheep itself. There are large show flocks of these sheep now, fitted, trimmed, etc., as carefully as any Shropshire flocks ever raised and the first copy of the Welsh Mountain sheep flock book was published recently and a very handsome little volume it is, a copy of which has been sent you by the secretary.

"Mr. W. E. Williams of Gwerclas, North Wales, is the pio-

neer in the improvement of the Welsh Mountain sheep. He has given me my pick of a lot of good photographs for use in your book, which I mail you.

"Now, with regard to an ordinary Welsh flock, I think you know pretty well how these are run. They are ranged, as you say in America, on the mountains.

"Mr. Williams, with whom I am staying, has a very fertile farm of 250 acres in the Valley of the Dee, which, of course, he farms in an up-to-date manner—that is, in his methods of cropping, etc. The Dee Valley is very narrow here, but is very rich land. With this he has also 400 acres unenclosed mountain land—heather, not fenced—upon which he runs some 800 to 1,000



Welsh Mountain Ram.—Williams Type.

sheep in summer. The first of November all these sheep are brought down from the mountain to the valley and wintered. Sometimes he has to rent winter quarters—that is, he pays about two shillings and sixpence (something like fifty cents) for grazing hoggets elsewhere for the winter. Some of his two-year-old wethers he leaves out on the mountain all winter. His sheep wold is situated in the mountains about four miles on the Berwyn from his farm in the valley.

"About the year 1879 he picked out his best ewes and kept them on his farm in the valley and this flock subsequently developed into a show flock. With regard to his show flock, that is simply kept and treated like any other show flock in England. Its feed and treatment is of the best. Turnips, of course, play a very

important part. There is nothing new that I can give you in regard to the method of feeding this show flock, as Mr. Williams spares no expense in getting it up.

"As I said before, Mr. Williams' 400 acres of mountain or heather land is unenclosed, yet the sheep keep within their own boundary. This has always been a mystery (and is yet an unsolved one) to sages of old, how the different flocks grazing on the same mountain keep within their own bounds. Some of them, of course, do stray, and the man—a sort of shepherd in charge of the whole mountain—appointed by the Lord of the Manor has an annual muster of stragglers, where men, providing they declare their ear-mark, go into the corral and pick out their own stray sheep. This is a very old Welsh custom, but I am not well



Welsh Mountain Sheep.—Property of Mr. W. E. Williams, North Wales.

enough versed in Welsh folk lore to describe it minutely to you. In Montgomeryshire most of the sheep wolds are fenced with wire fencing.

"I spent a very pleasant day last week with Mr. John Jones, Dinarth, Llanduduo. Mr. John Jones is a large butcher in Llanduduo. He told me that he kills 600 lambs every month in summer for his trade. He a few years ago had a splendid show flock of Welsh sheep; but had a dispersion sale. He breeds Southdowns now and also the old Horned Wiltshire sheep, which I had never before seen. The Wiltshire Horned sheep are largely used in Wales now, chiefly in Carnarvonshire to cross on Welsh ewes for fat lambs. Mr. Jones does not breed many himself, but he buys annually in England about 700 of them, yearlings, etc., and sells them to the Welsh farmers. This was something new to me. This cross makes excellent fat lambs from 60 to 80 lb. off grass about July. Mr. Jones buys all the lambs back again for his trade. He sells and distributes a large number of Southdown rams, too,

which he, of course, buys in the south of England from the best breeders. Mr. Jones is a very up-to-date man."

The following is a description of a Welsh Mountain ram, as given in the Welsh Mountain Sheep Breeders' Flock Book: Head, masculine, wedge-shaped, tapering towards nose; face, broad forehead, if possible, black muzzle, slightly tanned on white, horns fairly strong and well curved, not too close at the roots; eyes, prominent and bright; ears, small and thin, obliquely set; scrag, strong and thick; throat, short and well defined; brisket, wide and prominent; shoulders, nicely rounded, level with back; ribs, well sprung, deep through the breast; back, straight; loins, strong; hindquarters, thick and well let down; tail, long, strong and bushy; legs, fine, comparatively short, white or slightly tanned; under part, under line straight; skin, pink, with mellow touch; wool, short, thick, firm to handle, a small proportion of kemp not to disqualify.

This breed of sheep has been selected and shipped by the British government to cross on the Fat-tailed sheep of the British East African Protectorate.

#### THE RADNOR SHEEP.

This breed of sheep, like most other British breeds, takes its name from the county to which it is indigenous—Radnorshire. It is of a hardy, active race, which of late has developed into a breed of fair size, carrying a fleece of good quality. Radnors are of different colors; some being tan, others grimy and others gray; in fact, most all intermediate colors running from black to white are represented. The rams are horned and the ewes hornless. They are short-legged and active, and their mutton is of excellent quality, equaling Welsh mutton, when fed on the mountain side. The Radnor, like most other British breeds of sheep, has of late been very much improved in size and weight and quality of fleece. This breed is now found on the hills of Breton, Montgomery and some parts of Merioneth, besides its own county of Radnorshire. A good many Radnor ewes are sold to go to other counties for fat lamb breeding, by crossing with Shropshires, Leicesters and Cotswolds. The ewes are prolific, excellent mothers and fatten their lambs well. It is a breed that might be tried with every prospect of success in this country.

#### THE BLACKFACE HIGHLAND.

The original home of the Blackface Highland was in Perthshire and Dumbartonshire, Scotland. David Dun, of Kirkton, is written of as the Scotch Bakewell.

The Blackface Highland is horned, very hardy and will thrive

on coarse fare. It has a black and white or mottled face and legs, a topnot of coarse wool on the forehead, small, short ears, broad back and shoulders, and a very long fleece of loose, curly and very shaggy wool, sometimes running very kempy. The staple runs



Blackface Highland Ram.

from 15 to 18 inches long. It is one of the most active of all breeds. It is celebrated for its mutton, the finest in quality found in Great Britain, with perhaps the single exception of the Welsh Mountain. Scotch mutton is quoted the highest in price of any in the Smithfield meat market. The heather it lives on in its native home gives the flesh a gamey flavor.

Writing of the breed, Youatt said: "They have mostly horns more or less spirally formed, but the females are frequently without horns. The faces and legs are black, or, at least, mottled. They are covered with wool about the forehead and lower jaw and the wool generally is somewhat open and long, coarse and shaggy. The weight of one of these sheep when fattened is from 16 to 20 lb. per quarter, and the weight of the wool laid or unwashed is about 5 lb. and that of a washed fleece, 3 lb."

They are a very picturesque breed, and no little romance is connected with them. Ferguson learned astronomy while tending a flock of this breed. Among the first importers of the breed into the United States were Mr. Samuel Campbell, of New York, and Mr. Sandford Howard, of Massachusetts. Among recent importations imported into this country are those of Mr. L. D. Rumsey, of New York (who has found them very desirable for crossing on native ewes), Col. Geo. Truesdell, Maryland, and the Wyoming Experiment Station. The Blackface Highland has found considerable favor in Ireland.

A Blackface ewe in Scotland, a short time ago, made a singular lambing record. The shepherd one morning watched her while she gave birth to two strong lambs. She was removed the following day, together with her lambs to another field, and six days later the shepherd was surprised to find the same ewe requiring assistance to lamb, when she produced another strong lamb. The shepherd reported that she would have nothing to do with the third one. A foster mother, however, was found for it, which gave it a good start in life.

At a recent sale of Scotch Blackface rams at Lanark, one animal sold for \$650, and two others for \$475 and \$375, respectively.

#### THE CLUN FOREST SHEEP.

The Shropshire is not the only breed of sheep found in the county of Shropshire as many imagine. On the hills of its native county it is to an extent supplanted by a breed of sheep known as Clun Forest, the ewes of which are very largely employed in breeding market lambs. Lambs from these ewes, when mated with Shropshire, Leicester or Ryeland rams, are credited with an excellent capacity for early fattening in the spring, and are much sought for by dealers at the local fairs at that season of the year. The Clun Forest and Radnor Forest form the boundary line between Montgomeryshire and Shropshire.

The Clun Forest sheep was originally white and polled, carrying a fleece of from  $2\frac{1}{2}$  to 3 lb. and dressing from 12 to 14 lb. per quarter. The improved or modern Clun Forest breed of sheep, which are said to be the produce of the Clun Forest ewe and the Ryeland ram are considered a very useful breed, although they do not yet

breed particularly true so far as an established type is concerned. They are famous for early maturity and their meat is of excellent quality. The color of the face of this breed varies from fawn-color to mottled and black.

#### THE NORFOLK SHEEP.

The Norfolk sheep was at one time pretty generally bred in Norfolk, Suffolk and adjoining counties, but now, as a mutton sheep, it is fast disappearing. They have been described as being very well suited to the heath districts of the different parts of the country. They very much resemble the Blackface Highland, having long, spiral horns and black faces and legs. They are of a wild, roving disposition. The mutton is considered to be of exceedingly fine quality. Two-year-old wethers weigh from 16 to 20 lb. per quarter. The writer has often thought that some of these old, neglected breeds could be tried with advantage in this country, as they are not by any means children of pampering or care.

#### WILTSHIRE SHEEP.

The Wiltshire sheep is a large breed, carrying a very fine fleece of medium length. It was at one time thought a very profitable breed in its native and neighboring counties, but of late they have been considered as extravagant feeders and thought not to give proper returns in meat for food consumed. They are a horned breed with white face and legs, rather light in the fore-quarters with no undercovering and an unsightly dewlap.

#### THE YORK OR PENISTONE SHEEP.

In the hills of Lancaster and Yorkshire there exists a breed of sheep known as the York or Penistone. It is said to have existed from time immemorial. It is a horned breed with black, grey or spotted, and sometimes white face and legs. It carries a somewhat superior fleece of rather long staple, and is recommended for deep soils. Its meat is said to be of coarse texture, and its tail considerably elongated and very thick. It has been improved in recent years by crossing with Cheviot and Leicester rams.

#### BERKSHIRE SHEEP.

The Berkshire is in many respects much like the Wiltshire sheep, only smaller, but perhaps it is equal so far as fineness of fleece is concerned.

#### BRETON SHEEP.

It has been claimed that this is the smallest breed of sheep in the world. It is too small to be profitable to raise, as it gives but little wool and the hungry man could eat almost a whole sheep

at a single meal. It is so small that when full grown it can hide behind a good-sized bucket. It takes its name from that part of France where it is most raised. A writer says of this tiny ovine: "If not a profitable sheep, it is a dear little creature for a pet, for it is very gentle, and, because it is so small, it is not such a nuisance about the house as was the celebrated lamb which belonged to the little girl named Mary. Any little girl could find room in her lap for a Breton sheep. One of this little creature's peculiarities is its extreme sympathy with the feelings of its human friends, when it has been brought up a pet in the house, and has learned to distinguish between happiness and unhappiness. If any person whom it likes is very much pleased about anything, and shows it by laughing, the little sheep will frisk about with every sign of joy, but if, on the contrary, the person shed tears, the sympathetic friend will evince its sorrows in an equally unmistakable way."

#### ORKNEY ISLAND SHEEP.

Among the very small breeds of sheep is the Orkney Island sheep. They are nothing but mere toys compared to some of our improved breeds, and are said to have very little commercial value.

#### SHETLAND SHEEP.

Another small breed of sheep is the Shetland. As its name would imply this breed, if it might be truly called a breed, is a native of the Shetland Islands, and from its silk-like fleece, the famous Shetland shawls are made.

Shetland sheep, whose wool is remarkable for its fineness and softness, are rarely sheared. Instead of being clipped in the ordinary way, their wool is plucked out by hand once a year.

In the year 1790 a committee appointed by the Highland Society, of Scotland, prepared a report on Shetland sheep and wool and according to that report there were at that time not less than 100,000 sheep in the Shetland Isles and in all probability more. The report says further: "Their fleeces, which at an average do not produce above 1½ lb. of wool each, are not worth at present above sixpence a pound; whereas the finest wool might fetch at least five shillings per pound. If the same breed were reared in the Hebrides and the Orkney Islands (where they would thrive equally well) wool might be produced in those neglected parts of Great Britain to the value perhaps of half a million." The report states that the finest wool was produced by the hardiest sheep, those which were never housed nor kept in any particular pasture and which in winter were at times so pinched for food that many of them were obliged to feed on the seaweed on the beach. The healthiest sheep, it was noticed, were those which lived on the hills entirely and never touched seaweed. It was not usual to shear or clip the sheep

which in many cases had long hairs growing amongst the wool which cover and shelter it but early in June the wool was pulled off, leaving the long hairs, which sheltered the young wool and contributed to keep the animal warm and comfortable.

The author feels very much honored, and at the same time indebted, to the British Board of Agriculture and Fisheries for the following interesting description of the sheep of the Shetland Islands:



Shetland Sheep.

"The sheep kept in the Shetland Islands include, in addition to the native breed, the Cheviot, Blackfaced and Leicester and crosses between Shetland ewes and these breeds. The pure Shetland is a small sheep having an average weight when fat of about 30 pounds. It has a handsome head, prominent eyes, a thick, short body, supported by clean, deer-like legs; the tail is short, about four inches in length, and pointed. Being very hardy, this sheep can gather a living where the larger breeds cannot subsist. The color varies very greatly from white to black, including brown, grey and flecked, that is black or dark with white spots, and the

shades known locally as murrat and sheila. The ewes are generally hornless, but the rams are often horned. As mothers, the ewes are particularly careful of their lambs, and have usually an abundant supply of milk. The fine wool of the Shetland sheep is a very valuable asset to the owner, being always in demand at home for hand manufacture, and also for export to Scotland. The average weight of a fleece is about two pounds; it is not clipped, but pulled off by hand, and when taken at the proper time it peels off easily. This breed is used with great success for crossing purposes, especially if a better pasture be provided; and their deep-milking properties make them very valuable as mothers. The produce is usually exported to Scotland as lambs. Cheviot, Black-faced and Leicester rams are used for crossing. Cheviot and Black-faced one-year-old ewes are also imported from Scotland for crossing with the Leicester tup, for half-bred lambs. One or two small flocks are kept for breeding pure Cheviots. The lambs are sent to Aberdeen market every year in the month of September. The Blackfaced breed is much hardier than the Cheviot, though not so strong as the Shetland or native sheep. They chiefly feed on the hills, and generally give plenty of milk to their lambs in the spring. The Cheviots graze in the low-lying farms."

#### THE LARZAC SHEEP.

In and around the little town of Roquefort in the French department of the Landes, which has been described as a dreary waste of shifting sands, where the shepherds walk on stilts to tend their flocks, the manufacture of "Roquefort" is carried on from the Larzac breed of sheep, which are raised there in the thousands for cheese production. The soil produces a scanty growth of coarse grasses, but this defect is met by crops of alfalfa and other fodder plants. The aromatic vegetation natural to the district imparts the flavor for which this cheese is renowned. The sheep are almost worthless to the butcher and their wool is of little value. Attempts have been made to improve the fleece by crossing with the Merino, but with such disastrous results to the milking properties of the sheep that the practice has been abandoned. Larzac sheep resemble miniature milch cows and have the protruding hips and shoulder blades, large paunch, deep udder and narrow chest of the dairy cow. The number of Larzac sheep in and around Roquefort is somewhere about 500,000, of which more than half are milch ewes. Roquefort cheese is a local commodity, said to be impossible to produce elsewhere. Reasons for this are said to be the influence of the soil and the peculiar rocky caves in which the cheese is stored for ripening. Returns from individual ewes vary. About thirty pounds of cheese is about the average from the flock,

though more than twice that quantity has been produced from exceptionally good animals.

#### THE HIMALAYIAN MOUNTAIN SHEEP.

The principal beast of burden in the Himalayas is the Mountain sheep. It is said to comfortably draw a load of about twenty-five pounds and lives entirely on the herbage on the wayside. It has been known to travel a journey of 1,000 miles and be little the worse for wear. Animals of this class were used in the Young-husband expedition in Tibet. It is common in the Himalayas to load sheep high up in the mountains with borax and then to drive them down to the plains, shear them and return with loads of grain or salt. They stand the severe cold of the higher ranges of Tibet better than any other animal, and are indispensable to the needs of transit of the people there.

#### ABYSSINIAN SHEEP.

There are three breeds of sheep in Abyssinia, viz: the plains or "fat-tailed" sheep, found in Syria and some other eastern countries, which is white with a black head; that of the hills, which is of a reddish-white and grey color, and a race of very small black sheep. The two first mentioned breeds have no fleece, and are raised for their mutton only. The small black sheep produce wool, which is used for making the coarse cloaks used by the people in the cold regions of the country. The meat of all these breeds is very good, and many of these sheep are exported to Aden and places on the Red Sea. The value of a sheep in Abyssinia ranges from forty cents to about \$2 per head.

#### SOMALILAND SHEEP.

The United States consul at Aden gives the following account of the Somaliland sheep: "No matter by whom eaten, the mutton of the 'Samoli,' or black-head sheep, is pronounced the best ever tasted. These sheep are raised in flocks and herds and move from place to place, where food is most plentiful, under the guidance of shepherds, and, generally speaking, a native's wealth is estimated by the number of sheep he owns. The grazing these sheep get is very limited, but, like goats, they can subsist on the coarsest and seemingly most unpalatable food, such as the prickly mimosa and a kind of desert scrub bush, as well as whatever else they can find in such a barren and sandy country. These sheep present a rather peculiar appearance. Their heads are perfectly black, this black sometimes extending as far back as the shoulders, the rest of the body and legs being white. They have no wool,

like ordinary sheep, but a short, fine hair, similar to that of the dog. The most peculiar thing about them is that they have a large lump of pure fat growing right at the root of the tail, and this fat varies in size and weight according to the condition of the sheep. A medium-sized lump of this fat weighs about four pounds. One of these sheep in reasonably good condition weighs from 35 to 40 pounds."

#### THE WALLACHIAN SHEEP.

The Wallachian sheep is a variety of domestic sheep with enormously long, spiral, upright horns. It is found in portions of western Asia and eastern and southern Europe, where they are known in some instances as Cretan sheep. The head, horns, hair and general conformation resemble the mountain goat tribe much more than sheep, though they are classed by naturalists as sheep.

#### BARBADOS SHEEP.

This breed of sheep was recently imported into this country by the U. S. Department of Agriculture, by whom the picture used in illustrating this sketch was furnished. Prof. George Rommel of the Department, says of this breed: "Barbados sheep are raised in Barbados and other parts of the West Indies and are thought to be of African origin. They are said to be very hardy and in dry districts are profitable. Nearly every peasant proprietor in the drier districts around the coast keeps a few head. They are tethered to a peg while pasturing during the day and are placed under cover at night. They are a medium-sized, upstanding, fawn-colored breed, practically without wool, and hornless, or nearly so.



Barbados Sheep.

Their color is exactly the shades of fawn seen in Jerseys. The sheep are decidedly 'leggy,' but have fairly deep bodies and well-sprung ribs. There is fair width of back and loin, but a very deficient hind quarter. The rump is quite steep from the hips to the tail-head and the tail is set very low. The thighs are 'cathammed'; there is a little rotundity of buttocks, very little depth of twist and the flesh is not carried down on the hocks as one sees in the best mutton breeds. The ears are somewhat large and drooping and are peculiarly marked with a light, fawn-colored

line close to the outside edge, and extending about two-thirds of the way around. They also generally have black hairs among the fawn-colored ones on the outside and a few fawn-colored hairs near the head on the inside. There is also a slight tendency to a Roman nose, especially in the ram. The body is covered with a thick, pliable and generally soft skin, which carries an abundant coat of coarse hair. The hair seemed coarser on the light colored sheep than on the darker ones. Some of these sheep show traces of white wool fibers. The buck has a decided beard, which extends from the angle of the jaws, almost to the brisket, at which latter point it is quite prominent. The color of the beard is black, with a few brown hairs. The hair fibers are about three-fourths of an inch long over the most of the body, increasing in length on the back of the hind quarter to as much as one and one-half inches. Where wool is present it is longer than the hair. The bone is rather large but generally clean. The yearling ewes average a little over 75 pounds and the yearling bucks weigh about 80 pounds."

#### TIBET SHEEP.

In "Tibet and the Tibetans," Mons. F. Grenard gives some very interesting information regarding the sheep of that country. He says they supply the natives with meat, furs for the very severe winter and wool for export and home use. In western Tibet the sheep are used as beasts of burden. The mutton is coarse. The wool is thick, hard and coarse. A fat sheep costs about 75 cents.

#### ASTRACHAN SHEEP.

The Astrachan sheep is found in southern Russia and Central Asia. This breed is noted for its fine, spirally curled wool which is of a gray or mixed black and white color. The horns of the ram curl backwards and spread at the tips.

#### ICELAND SHEEP.

Iceland sheep are small and cut but little figure in the world's mutton or wool supply. The farmers of Iceland have been experimenting of late with a view of ascertaining the suitability of the milk of the ewe for making butter. They have made butter both from sheep's milk alone and from a mixture of sheep's and cow's milk. Samples of both products have been tested by Danish experts, who declare they could tell but little difference between them and the butter made from the pure milk of the cow.

#### ST. KILDA SHEEP.

This breed of sheep is considered by some authorities to have originated in the Hebrides and Iceland. Several flocks of them are to be found in Wales. A peculiar characteristic of the breed is

that the ram sometimes has two horns, sometimes four and in some instances six. Another peculiarity is that the horns seem to grow in all directions, pointing here, there and everywhere. No two seem to grow in the same direction. The St. Kilda is a very hardy breed and is said to be free from most ills which other sheep are heir to. They have been mated with Shropshire rams with good results, the mutton being of excellent quality. The flesh of the purebred St. Kilda is somewhat darker in color than ordinary mutton, being more like venison than the average mutton carcass.



St. Kilda Ram.

The wool is of fine texture and much in demand for the manufacture of fine underwear.

#### SHEEP OF THE PHILIPPINE ISLANDS.

Some time ago, while editing a well-known sheep journal, the author of this work received, among other interesting matter, the following particulars anent the sheep of the Philippine Islands, from an American soldier doing duty in that country:

"Among other industries of the island is that of stock growing. It would not be very easy to locate a sheep farmer in the country for the reason that sheep raising—what there is of it—is conducted on limited lines. The few farmers engaged in the industry own

but a limited number of sheep. There is no system of breeding, feeding or shearing. The larger proportion of sheep on the island are running wild. They are rounded up only when some enterprising native wants to obtain the wool for purposes of packing sacks for pillows or mattresses. There has been practically no demand for the wool of the sheep for purposes of manufacturing, although there are quite a goodly lot of wool fabrics made from woolen or part woolen yarns obtained from Hongkong and other markets.

"Ordinarily the sheep of the country as well as most of the stock runs as it sees fit, and a general rounding up is essential for each owner to get his stock. In some sections, native boys are engaged to keep herds together. Occasionally one sees a type of bamboo fence.

"The natives do not give the proper attention to their sheep or to the processes of shearing. They do not know the value of the wool. I have been in the island about three years and during that time have met with but very few buyers of wool; therefore, the average native sheep-grower produces mostly for the purpose of getting the mutton and for securing a small quantity of wool stock when wanted for stuffing purposes. There is no shearing time. A native sheep owner waits until he has an opportunity to sell some wool and then he has a number of his stock captured and the shearing progresses in the rudest fashion possible. The sheep are caught and held by two or three natives and one man proceeds to cut, rip and tear off the wool in bunches and all sorts of ways, with the crudest sort of devices. Often a single bladed knife is used and the fiber is shaved off close to the skin. After the pile of wool is made to the weight wanted, by shearing a number of animals, it is washed without soap, by beating with sticks and stones on the bottom stones of rivers which are but a few inches deep. Much wool is washed away and lost. Next the wool which is saved is spread on the shores to dry, and it is then ready for stuffing purposes. I saw a few instances in which the wool was carded out by hand, spun on handwheels and manufactured into fabrical form on hand looms. But this was rare. It is nothing unusual to see a sheep, with a ring in its nose, tethered to a stake."

#### HOLLAND SHEEP.

The English Agricultural Press Association recently visited Holland, of whose sheep it says: "The sheep were mainly of the Lincoln crossed on the native Texel, but crossed to such an extent that they were nearly pure Lincoln; there were some of the Leicester cross, but these are not in favor now. Of recent years the Blue-faced Wensleydales have been in great request, inasmuch so that

very few of them are converted into mutton, being rather kept on for breeding."

#### THE "MAYO HORNY" SHEEP.

A breed which makes its home in the mountains of County Mayo, Ireland, is the "Mayo Horny." An Irish authority says of this breed: "These sheep now enjoy great popularity with breeders who go in extensively for the production of early fat lambs, as for this particular purpose the Mayo ewes, when judiciously mated with rams of the Shrop and other approved breeds, are found to be especially suited. It is on account of their great hardiness and thriftiness, which they acquire from their mountainous haunts, that these sheep prove so profitable to breeders. The small quantity of food they can live on is really wonderful, and those who have had long experience with them say that they thrive well without any sort of artificial rations. Another great point in their favor is the fact that they make excellent mothers, producing an abundant flow of good, rich milk."

#### THE CRIMEAN SHEEP.

The Krimmer or Crimean lamb, deriving its name from the Crimea, is gray or slate colored, heavily wooled with a fleece with a more or less tight curl. Its skin is used principally in the manufacture of muffs and collars.

#### FRENCH BREEDS.

United States Consul-General Gowdy, Paris, in a letter to the State Department, says of the sheep of France: "The three best native breeds of sheep are the Charmoise, the Poitevin and Lauragais. The first named is a long-headed, barefaced sheep, with long, fine white wool. The breed originated in a cross between Barrichon ewes and English (New Kent) rams, and takes its name from the farm where originally bred. The Poitevin (from Deux Sevres) furnishes from 4½ to 5 pounds of 'half-fine' wool and makes fairly good mutton, but the sheep are wild, bad tempered and very large eaters. They fatten easily and attain weights of from 110 to 130 pounds. The Lauragais, from Haute Garonne, are a strong breed, much appreciated for their long, fine wool and the quality of their meat. The wool is not so fine as that of the Larzac breed (of which the Lauragais is a variety), but the milk is excellent and is used for making the celebrated Roquefort cheese. There is also a famous flock of sheep bred on the government stock farm at Rambouillet."

#### THE "MOOR" SHEEP OF SYRIA.

The "Moor" sheep of Syria are generally kept for domestic use, especially in Mount Lebanon district, where they are fattened

and killed for winter use. Every family, no matter how poor, seems to own at least one of these sheep, which is literally stuffed all through the summer and fall so as to be as fat as possible. At the beginning of the colder weather the sheep is killed and the flesh cut up into small pieces and cooked. The cooked meat is then packed into earthen jars, the suet is melted and poured over it, and the jars stored away. During the winter this meat and suet is taken out of the jars in small quantities for daily use, forming the animal food of the owner.

#### QUARTO-NIPPLED SHEEP.

Dr. Alexander Graham Bell, the inventor of the telephone, has for sixteen years been engaged in evolving a new type of sheep. His work is based upon the selection of ewes showing rudimentary nipples on their udders. These have been nurtured and developed until every ewe, cow-like, has four functional nipples instead of two as found in all ordinary sheep. In some instances it is said the nipples have increased to six. Dr. Bell is quite sure that he will have no difficulty in evolving quarto-nippled ewes. The doctor's ewes almost invariably produce twin lambs and it is along this line that the doctor has directed his efforts. One of the doctor's ewe lambs carries eight well formed nipples.

#### OLD MOUNTAIN SHEEP.

There used to be a breed of sheep common to West Virginia, known as the "Old Mountain Sheep," and called "Reg Legs" or "White Legs," according to their color. They were evolved from the original sheep brought to that section of the country by the colonists. One who has bred these sheep says that the "Red Legs" are the best, and that no better mothers exist. The "White Legs" look a good deal like Cheviots. What is said to be another family of mountain sheep is common to the mountain districts of Virginia. One enthusiastic writer speaks of this family as having black faces and legs with a fine white stripe down the front and side of the face. This he thinks is best of all the mountain breeds and he says that if only there was a Bakewell to take hold of them for a few years that a breed of sheep could be evolved from them that would outstrip any breed ever imported into this country.

#### SAHARA SHEEP.

According to a writer in the English Live Stock Journal the sheep of the Sahara are both hardy and prolific. They live on the saline shrubs eaten by the camel, and other plants, where grass is scarce, and are regarded as "patient of thirst." In spring they are driven to water once in five or six days; in summer every other day. During the great heat of summer pains are taken to prevent

them from drinking at the pools of water lying on the surface, experience having shown that these stagnant and tepid pools are very unwholesome. They generally lamb twice a year, in the early spring, and again in the autumn; this tends to make the Arab owner careless of his flock; no shelter is provided in severe weather, nor forage to save them from starvation in drought; consequently, in bad seasons they frequently lose half their flock. If reproached for this want of attention they answer quite simply, that the sheep belong to the Almighty, who does with them what he pleases. "Our ewes give us two lambs every year, and next year our losses will be repaired."

#### THE TUNIS SHEEP.

The Tunis has many good qualities to recommend it, among them being early-lambing, early-maturing and deep-milking. To Charles Rountree of Indiana is due much praise for what he has done for this breed. The following from the American Tunis Record, is a very interesting history of the breed: "Tunis is a country in Northern Africa. In 1799 when Gen. Wm. Eaton was United States Consul at Tunis, he purchased from the Bey of Tunis, and on his farm, ten head of Tunis sheep, which he placed on board the man-of-war Sophia; bound for the United States. One ram and one ewe only survived the voyage. This pair was placed under the care of Judge Richard Peters, of Belmont, near Philadelphia, who kept and bred them until he had a fine flock of pure blood Tunis sheep.

"The imported pair, Caramelli and Salina, were both killed by dogs when very old, the ewe raising her last lamb at the age of 16 years. During the 20 years or more in which Judge Peters bred the Tunis sheep, several fine flocks were sent to North and South Carolina, Virginia and Georgia, where they were successfully bred in large flocks until the beginning of the war in 1861, during which they were nearly all destroyed.

"Judge Peters offered the free use of his rams to his friends, his pastures were overrun with ewes, brought from far and near. Soon a number of wealthy victualers from Philadelphia, discovering the superiority of the Tunis sheep for mutton over all other breeds both in quality and price, made by a purse and offered Judge Peters any price he chose to fix on his imported ram, but he refused to sell. These sheep are hardy, bearing heat or cold and fattening with less food and much quicker than any other sheep. An unsound sheep of the Tunis breed was unknown. The great demand for lambs for mutton was detrimental to the multiplication of the breed. In 1810 the Merino craze struck this country, with fine

Merino wool selling at \$2 per pound. Mutton was lost sight of. But now when mutton is king, inquiries are being made for this noble breed of sheep. Their day is coming because they have proven themselves adapted to all climates north or south, they have proven a success on the piney mountains, on the desert and in the swamp lands. They have cleaner noses and less tagging than any other sheep; they are hustlers, and will make their own living if food can be found. They are quick, active and strong, have clean faces, a bright intelligent look. They will raise two crops of lambs



Rountree Type of Tunis Sheep.

a year or will bring lambs any month in the year desired. Tunis ewes, make the best of mothers, will raise from one to three lambs at a time. They will shear six to twelve pounds of wool. They will make one hundred pounds of finest mutton with less feed than any other sheep in America. September and October Tunis lambs weighing one hundred pounds for Easter market means money to the owner. Quality of mutton superior to all breeds for fine flavor and early maturity."

Some years ago a small lot of Tunis sheep from the Rountree flock were imported into New Zealand by Messrs. W. Cooper & Nephews which found much favor.

Association's scale of points:

First—Blood. Imported from Tunis or a perfect line of ancestors extending back to the flock owned and bred by Judge Richard Peters, of Pennsylvania. Twenty points.

Second—Constitution. Healthful countenance, lively look, head erect, deep chest, ribs well arched, round body with good length, strong, straight back, muscles fine and firm. Fifteen points.

Third—Fleece. Medium length; medium quality; medium quantity, color white, sometimes tinctured with gray; evenness throughout. Ten points.

Fourth—Covering. Body and neck well covered with wool, legs bare or slightly covered, face free of wool and covered with fine hair. Ten points.

Fifth—Form. Body straight, broad and well proportioned; small bone; breast wide and prominent in front; tail should be docked short. Twelve points.

Sixth—Head. Small and hornless, or nearly so, tapering to end of nose; face and nose clean, in color, brown and white; ears broad, pendulous and covered with fine hair, in color, brown to white. Ten points.

Seventh—Neck. Medium in length, well placed on shoulders, small and tapering. Five points.

Eighth—Legs. Short, color, brown and white (wooled below the knee, not objectionable). Six points.

Ninth—Size. In fair condition, when fully matured, rams should weigh 150 pounds and upward; ewes, 120 pounds and upward. Six points.

Tenth—General appearance. Good carriage; head well up, quick, elastic movements showing symmetry of form and uniformity of character throughout. Six points.

Total, 100 points.

An Indiana Tunis breeder contributes the following additional bit of Tunis history:

"In 1893 Mr. J. A. Guilliams of Indiana learned, through correspondence with Col. W. W. Watts of Laurence, S. C., that a flock of pure Tunisian sheep yet existed in South Carolina of about 35 head, and owned by Col. M. R. Spigener of Columbia, S. C. Also that a man on James Island near Charleston, S. C., owned five head. Mr. Guilliams purchased the five head located on James Island. They were shipped to him to Putnam County, Indiana, in March, 1894. He also purchased five head of Mr. Spigener, which were shipped to him in May, 1894, and another shipment was made in the fall of the same year from Mr. Spigener.

"These sheep were exhibited by Mr. Guilliams in September, 1894, at the Crawfordsville, Indiana, fair, where they created considerable comment and were a great attraction.

"From that time to the present day the Tunis sheep have multiplied and prospered beyond the most sanguine expectations of their friends. Mr. Guilliams believes they have made a record unexcelled by any breed of sheep on earth.

"In June, 1894, Mr. Guilliams, with a few breeders, organized the A. T. S. B. Association.

"In June, 1906, the first flock book of the association was published with a list of 30 members and 874 sheep recorded and financially clear of all indebtedness with a surplus in the treasury.

"The Tunis are being successfully bred in almost every state from Maine to California. Mr. Guilliams has all faith in the Tunis sheep and firmly believes they have no superior as a hardy general purpose sheep for wool and mutton."

#### PERSIAN SHEEP.

The Persian seems to warrant a place in the sheep industry of this country. Of them my esteemed friend Dr. W. C. Bailey of California says: "In regard to Persian sheep will say they were imported into this state in 1892. We had about fifteen head then. We distributed some throughout California, and a pair went to the experimental station at Fort Collins, Colorado. Governor John Sparks of Reno, Nevada, also had a pair. C. Goodnight of Goodnight, Texas, has had several lots. We have found the sheep very valuable for crossing on fine-wooled sheep. The cross produces a cheviot wool and the crossbred lambs are very strong, rapid growers, and make a fine mutton sheep. Some of the lambs grow as rapidly as a pound a day for the first three months. I have never seen a hardier sheep. They flock well, so are valuable on the ranges. One California sheep raiser now has about five thousand crossbred animals, and he thinks they are the best he has ever handled. Your friend, Rountree, bought a few of the sheep at the St. Louis show. He also had some muttons tested which were very flattering. We consider the Persian valuable for crossing on fine-wooled sheep to give hardiness, rapid growth, and freedom from disease.

"We have never had any disease of any kind in our flock. This is rather remarkable, as our sheep have been exposed to scab, and they have never shown any signs of the mite. I should not want to be quoted as saying they would not take scab, but I do know they are very resistant to the mite, and I have never seen a case of scab in Persian sheep. We have a register for the sheep and there are several hundred registered animals scattered throughout the United States."

At Kansas City the Persian Sheep Breeders' Association organized, just before the St. Louis World's Fair, for the purpose of qualifying breeders to exhibit at that long-to-be-remembered event.

There are said to be about 20 breeders of Persian sheep in the United States owning an aggregate of 300 pure-bred animals. The famous cartoonist, Homer Davenport, has a flock of Persians on his farm and is one of the directors of the association.

The following is the standard and scale of points for Persian sheep as used by the Cape Stud Breeders' Association of South Africa: 1. The head, and at least portions of neck, be of black color, 10 points. 2. Tail broad, well defined, well upon back, the second joint of tail to be firmly set against the main tail and in an upward position, the third point to hang perpendicularly and not coarse, 25 points. 3. The bare skin visible behind the tail quite



Persian Rams.

black, 10 points. 4. Symmetry, back broad, deep at girth, good brisket, short, straight legs, 25 points. 5. Weight 15 points. 6. Strong, smooth coat and without wool, 15 points.

John W. Gates tells the following story of a German butcher in New York:

"Dhere was a bretty young womans who one of my markets came at," runs the legend, "who a leg uf lambs for her dinner would buy. She had no married been long yet alretty, und vas greens about marketing, py grachus.

"'Vat kind uv legs uf lambs you will have?' mine glerk he asks her, bolite as possible.

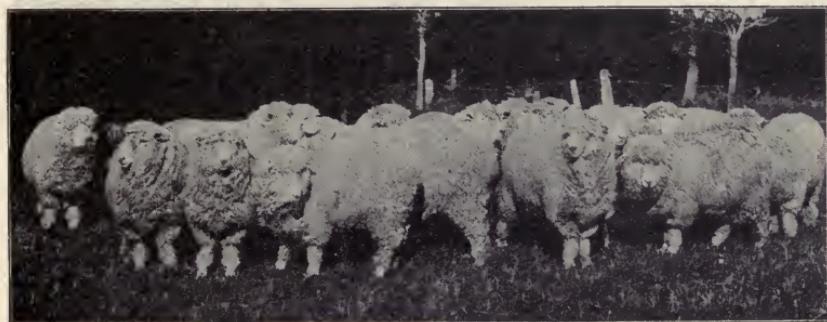
"'It is company ve vill have the dinner for,' she says, 'und my husband to get the best says.'

"My mans the very best he has shows, and tells her how fine und tender they be, alretty the finest of the market, he says.

"Id vas a joke then he says by my mans, und a good joke it vas, too, for she say, quiet like, 'Vas dot a Persian lam's leg?' Und she vas mad when my mans he smile and say, 'Dis ain't no furrier's, ma'am,' for she blush and say real loud, "If I vas new by the marketing business alretty, I know dot Persian lamb vos the most expensive, und it vas the very best my husband he vants.' "

#### THE "CORRIE DALE" SHEEP.

The Corriedale sheep is a New Zealand product and it is considered by many New Zealanders to be as near an ideal dual-purpose sheep as can be raised, combining a well-proportioned carcass



Yearling Corriedale Rams.

and a fleece of splendid quality. The name "Corriedale" originates from the district in which it was first raised. The demand for an ideal sheep for export-freezing purposes, that would at the same time produce a fleece that would be more than ordinarily profitable, induced the sheep breeders of New Zealand to carry out many experiments with several of the English breeds and the Merinos. The Corriedale was originally the product of a Lincoln, Romney Marsh or English Leicester ram mated with a fine combing Merino ewe. It is really the offspring of a half-breed inbred. In 1903 the council of the New Zealand Sheep Breeders' Association recognized the Corriedale as a distinct breed of sheep. A friend of the author's, Mr. David Evans, a well-known New Zealand shepherd, says in regard to this breed: "Mr. James Little and Mr. John Stringfellow, both of Canterbury, in the South Island, had a clear line of ancestry in their flocks for over twenty years, both breeding on the same line, from a Lincoln foundation, while another breeder in the colony, Mr. Ensor, started about the same

date with the English Leicester cross. By the various breeders getting their foundation years ago from three distinct breeds of Longwools, i. e., the Lincoln, English Leicester and Romney, it is only natural that a slight diversity of type should exist and it is still open to question whether the true one aimed at is even as yet properly fixed. The New Zealand Sheep Breeders' Association, for some unexpected reason, has not adopted a scale of points. In general appearance of the Corriedale there is little to choose, but there is still a noticeable difference in the character of the wool, some flocks being finer in fleece than others. A yearling will on an average clip fourteen pounds. For record entry sheep have to be described as whether from a Lincoln, Romney or English Leicester strain. A two-tooth Corriedale wether, dressed, will average fifty-eight pounds, and Corriedale rams are much sought after and used for crossing to get freezers. Corriedale sheep during the past few years have been exported to South America, Argentine, the Malay Peninsula and Australia."

## FINE WOOL BREEDS.

### THE AMERICAN MERINO.

To Mr. Roscoe Wood, of Michigan, the well-known authority on fine wools, I am indebted for the following on this breed, also for the able contribution on the Rambouillet in this work:

Any history of the development and improvement of Merino sheep in the United States is necessarily one of the entire sheep industry and many of the industrial conditions and influences that affect the latter. It is a wonderful story, as truly marvelous as any of the other great developments that this country has produced in the last century. Merino sheep have probably reached as dizzy heights of price and descended to the extreme of nothing in as short time as any known commodity; from five thousand dollars per head to one dollar represents the fluctuations of their value. All in all it is a story whose completeness an entire volume could hardly contain, and which is worthy of any man's time and attention. So that to treat so much in the small space at our disposal precludes anything but the barest and most essential facts, and the briefest description of general tendencies.

Of the importations from Spain and those who made them there are many accounts. Suffice it to say here that Colonel Humphreys, of Connecticut, made the first of any note in 1802, and that Consul Jarvis, of Vermont, made the largest and most important, in the years 1809-1811, and that since then no Merinos have been imported from Spain. At the time of their introduction fabulous prices were paid for many individuals, rams selling at

\$1,000 each, and ewes at \$300 to \$500. But with the industrial disturbances attendant upon the war of 1812, Merino sheep in three years time decreased in value to one dollar per head.

During the depression of the next few years interest in Merinos was almost entirely wanting, but with the general industrial revival and a demand for fine wool, the Saxony Merino was introduced, by importation, in 1824, and for a few years they were the fashion. They were a type of Merino bred with a single idea, viz.: fineness of fleece. They proved of little practical value, although the great majority of the breeders of the Spanish Merinos crossed them on their flocks. One noteworthy exception to this was the Rich flock of Vermont, owned at that time by the two brothers, John T. and Charles, which was kept entirely free from the use of Saxony sheep. This flock of sheep was maintained by the Rich family



Vermont Merinos—Bissell Type.

for nearly three quarters of a century, until the last male descendant died, and was unquestionably one of the foremost flocks of the breed during its entire existence. Sheep which carried Rich blood were considered to be of the bluest and best.

Following the use of the Saxony we find a continued period of depression in the sheep business, and a consequent lack of importance of the Merino, although some of his breeders were making steady improvement. Another conspicuous breeder in those early days was Stephen Atwood, of Connecticut, who founded his flock in 1813, and maintained it as long as he lived, until 1867, when it was continued by his sons. In 1844 he made momentous sale of ewes to Edwin Hammond, of Vermont, in whose hands greater improvement in the same length of time was made than by any other breeder. Later, in the palmy days of long pedigrees and fancy prices, Atwood sheep were among the leaders.

In the late '40s the price of wool began to increase a little and

there was a consequent advance in the interest taken in Merinos, which maintained a steady growth culminating in the veritable boom times during the Civil war. During the latter period, prices reached an abnormally high level, ewes selling for \$300 to \$1,000 per head and rams from \$1,000 to \$5,000. Following the war came a depression, sudden and severe, the price of wool declined, and thousands of good Merino sheep were sold and slaughtered for their pelts. For the evolution of the packing house and the demand for mutton were then unknown. The recovery was comparatively quick, however, and with the resumption of general industrial prosperity and the opening of the vast western range country came good times to the Merino business. And as the depression was not so long continued leading flocks did not suffer materially, and improvement was practically continuous.

The late '70s saw the height of prosperity to the Merino as bred and improved by American breeders, especially in Vermont, for sales were numerous and highly profitable. These were days of high tariff and high wool, and any adjustment of the former greatly affected the Merino and his breeders, so that with tariff disturbances in 1883 and again in 1885 we see depression in the Merino business, and the power and glamor of Vermont Merinos were slowly but surely on the wane, and by the time of the industrial depression of 1893 the condition of Vermont flocks was as depressed as at any time in their history, and since then there has been little revival.

The causes of this are various and numerous, but two very important and underlying reasons for the loss of popularity of the Vermont Merino were the rise and development of a demand for mutton, thus making all sheep valuable for it as well as wool, and the movement of the great center of the sheep industry to the northwest range states. One great factor in retarding the decline was the export trade to Australia and South America, which furnished a profitable market for the best animals at good prices for several years. But this market has also decreased until now it is of little more importance than the home market.

We may here note some of the improvements and characteristics of these Vermont Merinos, and some of their leading breeders. Merino breeding started with the sheep imported from Spain, which were then considered a superior wool bearing animal, the heaviest rams' fleeces weighing about 9 to 10 pounds of unwashed wool and ewes five to six pounds. According to Stephen Atwood's records, his heaviest ram's fleece in 1820 was seven pounds, one ounce, and his heaviest ewe's fleece, four pounds, six ounces, of washed wool, while in 1844, they were respectively twelve pounds, four ounces, and six pounds, six ounces. In 1862, Edwin Hammond sheared twenty-seven pounds of unwashed wool from old

Sweepstakes, and seventeen pounds, eight ounces from his heaviest shearing ewe.

For the next thirty years we find a gradual increase in the weight of fleece, and in the latter part of this period considerable records are obtainable, as during the decade from 1880 to 1890 public shearings under association auspices were held regularly. From these records we find the heaviest shearing ram to have been one bred by A. A. Wood of Michigan, his fleece weighing forty-four pounds, four ounces, at three years old, with a gross weight of carcass of 156 pounds. This was in 1884. The heaviest ewe fleece on record we find to have been shorn from one bred by



Australian Type of Merino.

N. A. Wood, of Michigan, in 1890, weighing twenty-eight pounds, five ounces, with carcass weight of 132 pounds.

With the increase in weight of fleece, which was necessarily accompanied by increase of density and of oil, we find improvement in head and leg covering, and in evenness of fleece on all parts of the body. Other minor improvements were also accomplished along with the one great advance. With the decline in popularity of the Vermont Merino, which is the type of Merino carrying the most wrinkles and the heaviest fleeces, we fail to find any records of public shearings, and interest in this type of sheep which had been improved so rapidly and so greatly along the lines desired, gradually diminished until now their breeders number but a handful compared with former days; and many of them are old breeders living in Vermont, New York, Ohio, Michigan, and Illinois.

The predominant idea of the breeders who made the great improvement was per cent. of wool to live weight, and this was best produced by securing an excess of wrinkles and oil in the fleece. A dense, heavy fleece was the desideratum. To name the breeders who made valuable contributions along this line would re-

quire several pages. But to recall the names of Colonel Stowell, Rockwell, Rich, Brookins, Stickney, Burwell, Bissell, Buttolph, Lane, serves to bring to the mind a host of other Vermont breeders of their time, who bred great Merinos, and did their share in improving the breed.

With the Merino, as with all else, the star of empire wends its way westward, and with this movement we find a gradual change of type from the excessively wrinkly Vermont Merino. The leading breeders of New York, prominent among whom we may name Ray, the Martins, Markham, Cossitt, Earll, Bell, and others worthy of mention as true breeders and improvers, clung to the wrinkles. But the central states breeders, especially in Michigan and Ohio, while breeding heavy fleeces yet felt the force of the western demand for larger, plainer rams, and were almost imperceptibly influenced toward a type of Merino approximating what is known at the present time as the Merino B type. Prominent among these central states breeders were the several members of the Wood family, the Van Gieson brothers, the Deweys, Kennedy, Fellows, Boyden, Ball, and many others in Michigan, while the Hiatts, and later the Elders, Bell, Cook and many others of Ohio, the Pecks of Illinois, and many more have had no small part in improving the Merino.

A larger, better shaped body, carrying all the good, fine wool possible, but with a little more staple, possibly a little finer fiber, a free oil, not gum, not so many wrinkles on the body, these are a few of the characteristics sought by present day Merino breeders who are breeding the type of Merino in which wool is the principal consideration. To be sure, during the time when the Vermont type was enjoying its greatest prosperity these central states produced as good sheep as were produced in Vermont, even to furnishing stock rams to the latter, but with the evolution of American sheep industry, these breeders changed their idea of type of Merino to conform to the new conditions, while the more eastern breeders still clung to what had made them fame and profit.

The present day American Merino is distinctively an American production, no recourse to imported animals having been made for new blood since the Spanish importations of nearly a century ago. And that he is the greatest wool producer known is evidenced by the fact that the leading sheep breeding countries in all parts of the world have sought to improve their flocks and increase the weight of their fleeces by the use of the best American Merinos. And his breeders are constantly aiming to improve him, by correcting possible faults of form and securing as much good fine wool with as much staple as possible. For even as he who makes two blades of grass grow where only one grew before is a public benefactor how much more is that breeder who makes two fibers of wool grow where only one was before?

## THE RAMBOUILLET.

Although the Rambouillet has been bred in a distinct line for more than a century, yet he has only attained a position of importance in American sheep husbandry during the last fifteen or twenty years. His ancestors were the best individuals from the choicest cabanas in Spain, were secured through royal favor for a king (Louis XVI of France), regardless of cost, and the entire flock, 318 ewes and forty-one rams, thus selected in Spain in 1785 were brought to the French royal estate at Rambouillet near Paris, whence they secured their distinctive name. Here, under government care and supervision, the flock has been main-



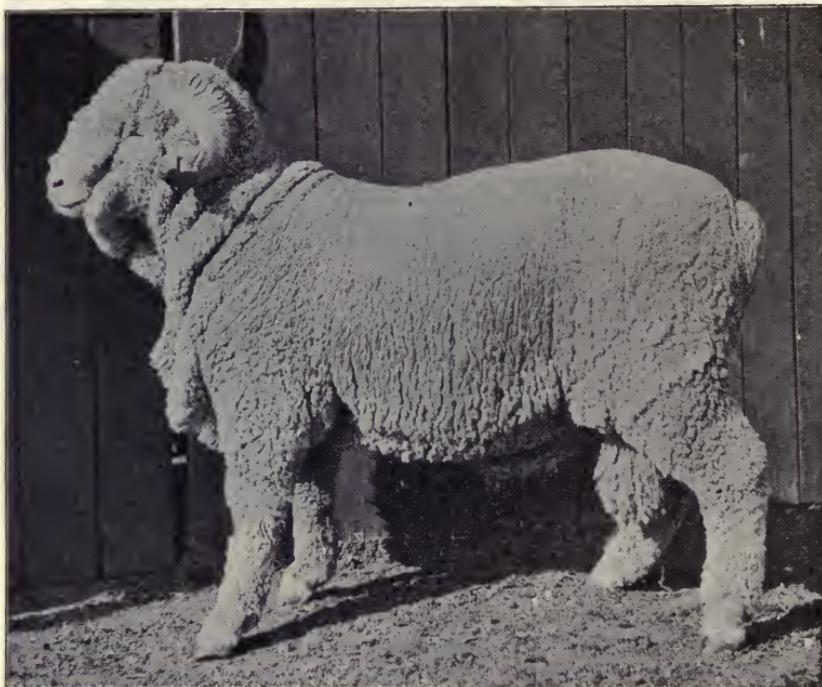
Rambouillet Rams.—Lincoln Type.

tained to the present day, sales of rams being made, and very rarely a few ewes. A few other flocks were established in France, from the government flock and from Spanish importations, and they have furnished sheep to Germany and America, the other countries where the Rambouillet has secured popular favor.

The first importation of Rambouillets to the United States was in 1840, by D. C. Collins, of Connecticut, and consisted of fourteen ewes and two rams. In 1846, Mr. J. A. Taintor, of Connecticut, made a small importation and continued annual importations for several years. Few of these sheep were from the government flock, and nearly all of them found their way to the Pacific coast through the instrumentality of Mr. J. D. Patterson, of New York, and Mr. Bingham, of Vermont, and thus became the foundation of the leading flocks of French Merinos on the coast.

In 1851 a small importation of about fifty head from a

prominent French flock was made by Mr. A. P. Howard, of Ohio, for a company of breeders of that state; and again in 1881 a small importation was made by practically the same parties, from another private French flock. In 1899 and the three following years several importations from both French and German flocks were made by Dwight Lincoln, of Ohio, (the secretary of the Association); F. W. Harding, of Wisconsin, and others. George Truesdell, of Washington, D. C., also made a large importation of choice French and German sheep in 1902. The acquisition of these latest



Two-hundred-pound Yearling Ramboiselle Ram—Baldwin Sheep & Land Co. Type.  
Photo Taken Soon After Shearing.

importations is too recent to be able to determine their value to the breed.

The importations, however, which gave the greatest results to American Rambouilletts, and which were most instrumental in starting them on the highway to popular favor were those made from the flock of Baron von Homeyer, of Prussia. This German flock had been established in 1862, by the purchase of 150 ewes and seven rams of the government flock and four prominent French flocks, and from that time until the death of Baron von Homeyer in 1898, the flock was maintained and improved along

the lines of both wool and mutton. The character of these sheep and their impression on the flocks in which they were used stamp von Homeyer as one of the great sheep breeders of the world. He sought size and form, and with it he required a fine fleece of good weight. Note his foundation flock. The ewes averaged 130 pounds in weight, and sheared 11.84 pounds of fine wool.

The first of these sheep to come to America were two ewes and a ram that came as a present to Hon. W. G. Markham, of New York, in 1882. In 1885 seven rams were sent to Mr. Markham, who disposed of all but one. Two of these rams found their way to Michigan, were used on some of the leading flocks which had been founded from other sources, and the improvement which they produced was so marked that these breeders were eager for more of such stock. In 1890 they secured two head only, but in 1891 a company composed of the leading breeders of Michigan, who had organized the American Rambouillet Association the preceding year and in which L. B. Townsend was one of the prime movers and financial backers, sent Thomas Wyckoff to Europe to inspect the various flocks and select an importation. He visited the leading flocks of both France and Germany, including the government flock at Rambouillet, and finally selected seven rams and sixteen ewes, all from the von Homeyer flock, brought them to Michigan, and distributed them among the breeders who were interested in the venture. In 1893 two more rams were imported by the same parties.

The improvement in the Rambouillet as bred in the eastern part of the United States, and especially in Michigan and Ohio, where are located the principal flocks, practically begins with this importation and that of 1893, sent by Baron von Homeyer to Mr. Markham for exhibit and sale at the World's Columbian Exposition. This latter lot consisted of eight rams and sixteen ewes, probably of von Homeyer's best sheep. They created so favorable an impression at that show that they were disposed of at private sale to leading breeders, and whenever afterward anyone spoke of Rambouilllets the mind instantly reverted to those magnificent sheep, "elephantine Merinos," as they were called. For they excelled anything in the shape of a Merino sheep that had been seen, in size and form combined with a fleece of such quality and weight, and such coverings of head and legs. Mr. Markham received another importation of eleven rams and seven ewes in 1894, which were either disposed of to other breeders or retained in his own flock. A North Dakota breeder also made a small importation in this year, but no results were obtained from them.

These importations, all told consisting of less than 100 head, coming as they did at a time when the heavy fleeced, wrinkly Vermont Merino was losing popular favor and when the demand for mutton was beginning to assume proportions, we feel safe in say-

ing that no single flock has produced so great improvement as did these von Homeyer sheep in America. For they improved not only the Rambouillet flocks in which they were used, but they were adopted by some of the breeders of Vermont Merinos and Delaines who wanted to increase the size and improve the form of their sheep without destroying the quality and character of the fleece. For these von Homeyer sheep carried a fleece nearer to a Merino ideal of fineness and character, and showed more true breed type than had any of the Rambouilletts in this country at that time.



Polled Rambouilletts.

Some of the breeders in Michigan have since made a specialty of breeding Rambouilletts of pure von Homeyer blood, with a view to maintaining and improving this type of sheep, especially toward fleece improvement, both as to quality and weight, without losing any of the valuable mutton characteristics, especially of size and form. In Ohio, as in Michigan, the use of von Homeyer rams was equally marked and beneficial and as these two states have been most prominent in furnishing foundation flocks and stock rams, the widespread effects of the use of von Homeyer sheep is easily realized.

Col. Truesdell, the president of the American Rambouillet Association, has made some very important importations of the

breed, is a very enthusiastic breeder and is doing much towards promoting the breed in this country.

During the last decade several large flocks of Rambouilletts have been established in the far west, notably in some of the range states, for in these states the Rambouillet has found especial favor with the average grower, for with his Merino characteristics and his sizeable body he produces a sheep that has both wool and mutton.

The Baldwin Sheep & Land Company have made an unqualified success of the breed, have made several large and very valuable importations from the leading French and German flocks, (including the famous government farm flock at Rambouillet, France,) and otherwise done their share towards promoting the western interests of the breed. Among their most notable importations must be mentioned that of the present year. Other breeders who are doing good work for the breed are Messrs. Butterfield, Jackson, Seely, Herrin, Hansen and the Inter-Mountain Sheep Company.

In this country there are no records of either weight or carcass or fleece. The most authoritative records are those of the French government flock, and these are comparatively old, the last available figures being those of 1880. Suffice it to say that good rams weigh from 200 to 250 pounds and shear from sixteen to twenty pounds, with extraordinary individuals exceeding these figures quite a little; while ewes weigh 130 to 170 pounds and shear ten to thirteen pounds, figures that are nearly double those of the original flock at Rambouillet. In this country these figures are fairly applicable, probably the most improvement being in the fleece, although advance is being made in the symmetry and form, the ideal being a better backed and quartered animal than has been produced.

The Rambouillet is a pure bred Merino, merely a family of the great tribe of Merinos, and the general aim of his American breeders is to improve him so that he will produce the maximum amount of fine wool and good mutton in one animal, and how well they are succeeding at the present time is evidenced by his general popularity among the average growers, both eastern farmers and western rangemen.

#### THE DELAINE-MERINO.

The following, written especially for this work, on this splendid American production, is from the pen of the well known Ohio breeder, Mr. George A. Henry:

The Delaine-Merino is a sub-breed, or rather a different type of the Spanish or American Merino, bred purely from Spanish Merino blood.

This type, however, was not brought into existence as a rival of the mother breed, but to fill a place in sheep husbandry to grow a wool required in the manufacture of a Delaine class of goods—requiring a longer staple than that grown upon the wrinkly type, and at the same time retain as fine a fibre as possible. With this in view it was necessary to select smooth bodied sheep, with as long and dense a fleece as possible in order to get a fixed type that would carry with it uniformity. This, with a mutton form, was all to be accomplished in the Delaine-Merino.



Gamber Type of Delaine Ram.

The first importation of sheep into the United States was made by Christopher Columbus in 1493. History does not inform us as to the breed of these sheep, but it is a foregone conclusion that they were what is known the world over as the Spanish Merino.

Spain is the mother of this world renowned sheep, which has formed itself into a distinct breed differing in characteristics from all other breeds, being an all wool sheep and bred for this purpose alone, having every part of the body, head and legs covered with wool of the finest quality. Minor importations of Merino sheep were made in 1801 by Seth Adams and De Lesert.

In 1802 Col. David Humphreys, minister to Spain, made the first importation of merit; the flock consisting of 200 head. In 1809 Wm. Jarvis, minister to Portugal, imported an additional 200. Abraham Heaton in 1811 imported forty-two head of Merino ewes, and other importations followed. These sheep were susceptible of great improvement, which opened up to the American shepherd and breeder a grand opportunity which has developed the Merino beyond expectations. Unlike the breeders of our mother country in establishing sub-families or types, our people bred principally a more wrinkly type in order to increase the weight of fleece, and for more than half a century wool was the principal object.

It was not until about 1867 when the woolen manufacturers demanded a larger staple of fine wool, and the production of mutton was no longer a secondary object, as the demand for mutton steadily increased. It was then the broad-minded breeders of certain localities of the eastern and central states conceived the idea of a wool and mutton type, and at once set about to produce this combination from the American Merino.

The selection from the Merino family was made to combine these two qualities—wool and mutton. Nothing but pure Merino blood unmixed with any other breed could be used, therefore an organization must be effected and rules and regulations adopted.

Most prominent of the promoters of this organization were R. H. Russel, W. R. Craighead, J. C. McNary, J. S. McNary, James Quivey, McClelland Bros., afterward succeeded by James McClelland, C. H. Beal and others, all from Washington county, Pa. This organization was known as the "Delaine-Merino Sheep Breeders' Association," but later was changed to the "National Delaine-Merino Register," which is still in existence. A standard of excellence was selected consisting of a scale of points that was to be a guide in the formation of the type in view.

Length of staple, retaining its original fineness of fibre and the formation of a mutton form, were objects sought. To the end these men worked with a zeal that knew no retreat. Others fell in and gave the association their undivided support. About the same time the "Dickinson Merino Sheep Record Association" was brought into existence, and remains in a flourishing condition up to this time.

In introducing this association the secretary says: "This register is printed to embrace a record of the only pure bred Dickinson Merino sheep in the United States of America, descended pure from the celebrated thoroughbred flock of W. R. Dickinson, of Stubenville, Ohio, who had established and preserved the blood intact for many years of a flock of Merinos that were

descended pure from sheep imported from Spain in the year 1802 by Colonel David Humphreys, of Derby, New Haven county, Conn. This flock was the pride of Mr. Dickinson's life, and at his death passed into the hands of James McDowell, whose flock is the standard of the register. The incorporators of this association were James McDowell, H. G. McDowell, Wm. Beecher, of Canton, Stark county, Ohio; Henry Eberhard, G. W. Helder and A. C. McDowell, of Summit county, Ohio.

The history of this association would be incomplete without the mention of Thomas McEwen, J. G. Paxton, T. M. Paxton, of Pennsylvania; Hugh Hammond, C. G. Mead and others of Ohio in the organization of this pioneer association. That the foundation of the association was built right, no one will question. The corner-stone being the Humphrey importation of 1802, and a direct line of breeding for more than a century speak volumes for those who have faith, energy and nerve to accomplish this end. Others have followed and are making rapid strides onward. Other associations too numerous to mention have been brought into existence and help swell the volume of breeders as well as to improve and increase the flocks that are being so eagerly sought.

The American Delaine-Merino has a future before it. It is being sought far and near. At home and abroad it is the coming sheep and its onward march to supremacy is not far distant.

The following is the scale of points adopted by the Delaine-Merino Sheep Breeders' Association, in the original Registry:

1. Constitution .....	10
2. Heavy around the heart .....	6
3. Short heavy neck .....	6
4. Good dewlap .....	5
5. Broad back .....	8
6. Well sprung ribs .....	5
7. Short legs .....	6
8. Heavy bone .....	8
9. Small sharp foot .....	10
10. Length of staple, 1 year's growth; 3 inches.....	8
11. Density of fleece .....	8
12. Darkish cast on top .....	5
13. Opening up white .....	5
14. Good flow of white oil .....	5
15. Good crimp in staple .....	5

100

Weight of rams at maturity not less than 150 pounds.  
Weight of ewes at maturity not less than 100 pounds.

## THE FRANCO-AMERICAN.

This is comparatively a new breed of sheep and an American production, originating among the fine wool breeders of Michigan and New York states, and is the result of crossing the Rambouillet ram on Merino ewes or, perhaps, vice versa. To the writer's mind there is no more beautiful sheep than the first cross of the Rambouillet ram on the Merino ewe. The rams are remarkable for their extreme masculinity. Their fleece is ideal, partaking of the fineness and density on the dam's side with the staple of that on the sire's. If the type of the first cross can be maintained this is a breed that will find favor no matter where it may go, but whether this can be done very readily with animals of practically the same blood, bred on divergent lines for so long a time, remains to be seen. There is no doubt but that after the first cross the offspring will be somewhat erratic in type, as there is a wide field for sporting between such divergent types as the Rambouillet and the Merino. The Franco-American has already been taken a fancy to by South African sheep breeders, and that it has a big future before it there is no doubt.

## BLACK SHEEP.

Being very much interested in, and having unusual opportunities of studying this interesting class of sheep, I was inspired, a few years ago, to pen the following in regard to them:

Flocks of black sheep are not common, still there are those who have taken especial interest in establishing flocks of this kind, not only in Australia, but likewise in this country. It's a common saying that there's a black sheep in every flock, and in a figurative sense no doubt this is true.

That there are flocks of sheep composed entirely of black animals may not be generally known. One of the most valuable, if not the most valuable one, is that left by the late Hon. Allen, of Braeside, Queensland, Australia. This flock is composed entirely of Merinos and was established more than twenty years ago, and numbers 625 ewes and twenty-five rams.

Some time ago a flock of 2,000 black sheep were shorn in New Zealand.

It is said that there is in the United States a flock of black Shropshires, but as I have no data at hand concerning this flock, I offer no comment thereon other than that of saying that cases where Shropshires produce black lambs must be extremely rare, except it be in the case of poorly bred flocks, for in my experience in years of handling large flocks of this breed, both on their native heath and in this country, I have never yet had a ewe bring forth a black lamb.

Furthermore, I would not care to invest in a ram from a flock that I knew had produced one. It is said that the immortal Bakewell kept a black ram for use in improving the Leicester. I have reasons for believing rather than doubting this contention.

In Quebec the common stock of the country appears to all intents and purposes to be of the pure Leicester blood, and no doubt it is, as the foundation of that stock is said to be from an early importation of that breed. The flocks are very uniform in type, but one thing which drew my attention there was the large number of black individuals found in every flock. In quite a number of cases 25 per cent of the flock was made up of black sheep.

In one case I noticed that no less than 90 per cent were black or of a very dark gray color. Whether or not they had been selected and bred with a view of establishing a flock of black sheep I could not learn.

The only flock coming under my notice that has been bred with a view of establishing a pure-bred flock of black sheep is that of Mr. John B. Wing, of Dutchess county, N. Y. While in this flock there are individuals that are as black as the ace of spades, there are others that are not black on the surface, but rather of a very dark gray. I should mention that the under color of the fleece is almost perfectly black.

It is said that President McKinley was the recipient of a suit of clothes made from the wool of this novel flock. Mr. Wing is to be complimented on the progress he has made in regard to the establishment of this flock and there is little doubt that he will in the course of a few years be the owner of a very valuable one, for the reason that black wool is worth considerably more than the ordinary white fleece.

This value accrues from the great demand for that class of wool in Great Britain and certain countries of continental Europe, where it is used in the manufacture of gowns for certain religious orders, who by their vows are compelled to use undyed woolen clothing. Concerning black wool, a British writer says:

"The production of 'sanitary' or health flannels or undergarments is now a thing of first importance with underwear manufacturers and these are the men who compete keenly for black wools.

"It is no uncommon thing today to see a bale of black fine wool sell for 25 to 50 per cent more than does the ordinary white wool out of the same flock, simply because black is rather scarce and wanted. When the British government gave out an order for natural underwear flannels at the beginning of the Boer war, black wool went up tremendously, and it has fallen very little since, it being today relatively dearer than white wool.

"Even the scouring of the black wool does not alter the shade, only the grease being removed, the color being the same. In these

black wools we have everything a sensible person can possibly require for comfort and appearance, besides wearing capabilities, and the more hygienic qualities become known the greater will be the call.

#### GOAT-SHEEP HYBRIDS.

It is not within my province to attempt to upset any scientific theories advanced as to the possibility or impossibility of the goat crossing with the sheep, but to give herewith a picture (made from photograph) and a letter from Prof. W. J. Spillman, of the Farm Management Investigation Department of the United States Department of Agriculture, on the subject, and leave my readers to



Goat-Sheep Hybrid.

judge for themselves as to the possibility or probability of such a cross. For years I have been questioning the leading goat breeders in this country, and some scientists, as to the possibility of such a cross, all of whom have expressed their opinion that such was not possible, and this is the first instance, so far as my experience goes, in which anything like color has lent itself to the idea that a goat-sheep cross was possible. Professor Spillman's letter on the subject reads:

"Replying to your favor of May twenty-seventh, I will say that I have seen the pair of twin lambs produced this spring on the farm of Mr. E. Arnand, near Monett, Mo., one of which is an ordinary lamb and the other seems to be unquestionably a hybrid between a sheep and a goat. It has the ears of a sheep, the tail is intermediate in length, between that of a goat and a sheep,

and the body covering principally reddish-colored goat hair mixed with a considerable quantity of what appears to be white wool, though this latter may be simply an exaggerated form of similar material found on goats. If it were not for the ears and the tail one would unhesitatingly pronounce the little animal a kid. There can be no reasonable doubt as to the hybrid nature of the animal. Mr. Arnaud found the pair of twins when they were perhaps an hour old. The ewe was licking them, and evidently regarded them both as her own. They are inseparable, and always lie down in contact with each other. There is only one female goat on the place, and she brought a kid three weeks after these twins were born."

#### INTERESTING BREED EXPERIMENTS.

An interesting experiment was made a few years ago at the Iowa experiment station with the view of testing the relative merits of several of the more prominent breeds of sheep. Ten lambs of each variety were selected and fed in the same way. Of the British breeds the Cotswolds gained the most rapidly in weight, the Suffolk and Lincoln breeds coming next on the list, the Oxfords and Dorsets being last. In the yield of wool the Lincolns came first with a fleece averaging 12.85 lb.; the Cotswolds were next with fleece of 12.65 lb.; the Leicester next with 11.50 lb.; the Oxfords next with 10.95 lb.; the Shropshires next with 8.75 lb.; the Suffolks next with 7.65 lb.; the Dorsets next with 6.8 lb.; the Southdowns next with 6.75 lb. The Merinos sheared 9.9 lb. The most valuable fleeces in natural condition were the Leicesters, the Lincolns, Cotswolds and Oxfords in the order named. The Merino fleeces were estimated as being worth the least money per pound in their natural condition, but after scouring commanded by far the highest price. The Merino fleeces shrank 67 per cent in weight. The Leicesters showed the least shrinkage—38 per cent.

#### BRITISH SHEEP NOMENCLATURE.

It is very interesting to listen to the shepherds in different sections of Great Britain as they talk of sheep of different ages. "Pately Bridge" recently compiled the following nomenclature as used by the British shepherds, (for a British agricultural journal, whose identity I cannot place), which, to say the least, is intensely interesting. Mr. Bridge says:

"When newly born and from birth to weaning, the animal is called 'a lamb,' but in the south of England the young sheep retains the name lamb until it is eight months old, and sometimes even beyond this age. In Scotland, the male lamb is called a 'tup-lamb,' and when castrated it is a 'hogg-lamb,' while the female lamb is a 'ewe-lamb' in England, and a 'grimmer-lamb' in Scot-

land. 'Tup-lamb,' 'ram-lamb,' 'pur-lamb' and 'heeler' are different names given to uncastrated males from birth to weaning. From weaning to first shearing; that is after weaning and before the first clipping—the different designations for uncastrated sheep include 'hogg,' 'hogget,' 'haggeral,' 'tup-teg,' 'lamb-hogg' and 'tup-hogg'; for castrated males, 'weter-hogg' and 'he-teg'; and for females, 'gimmer-hogg,' 'ewe-hogg,' 'sheeder-ewe' and 'ewe-teg.' In Scotland the 'tup-lamb' becomes a 'tup-hogg' and in England similar sheep, after they were eight months old, are 'wether' and 'ewe-tegs,' according to sex. From first to second shearing we have for uncastrated males such names as 'shearing,' 'shearling,' 'shear-hogg,' 'dinmont,' 'diamond ram,' 'ram-tup' and 'one-shear-tup'; emasculated males, 'shearing wether,' 'shear-hogg,' 'wether-hogg,' 'wedder-hogg' and 'two-toothed wether'; for males, 'shearling ewe,' 'gimmer,' 'theave,' 'double-toothed ewe' and 'double-toothed gimmer.' In Scotland, the 'tup-hogg' becomes a 'shearling-tup' the 'wether-hogg' a 'dinmont' and the 'ewe-hogg' a 'gimmer.' The animal corresponding to the Scottish 'gimmer' is called in England a 'theave' until she bears her first lamb, after which she is a 'four-toothed ewe;' the year after, a 'six-toothed ewe' and after that a 'full-mouth ewe.'

"In Scotland the shearing brings about another change of names and the 'gimmer,' if she is in lamb, is called a 'ewe'; if barren, a 'barren-gimmer,' and an 'eild-gimmer' if she is not put to 'tup' or 'ram.' A 'shearling-tup' is changed to a 'two-shear tup,' and a 'dinmont' becomes a 'wether.' When three times shorn, a 'ewe' is called a 'twinter-ewe,' a 'tup,' a 'three-shear tup' and 'wethers' are 'wethers' still, but are commonly referred to the number of their 'broad' or permanent incisors or the number of their shearings. After the fourth shearing a 'ewe' is an 'aged ewe' or a 'three-winter ewe,' and the 'tup' or 'ram' is known as an 'aged tup.'

"A 'ewe' taken from the breeding flock is called a 'draft-ewe.' 'Cast ewes' are aged ewes drafted and sold from the breeding flock. 'Culls,' 'shotts,' 'tails' or 'sheddings' are inferior, diseased or imperfect ewes, drawn from the breeding flock. A 'crone' is an old, broken-mouthed ewe, and a 'broken-mouthed' sheep is one in which the teeth are beginning to drop out. A 'crock' or 'milled-ewe' is one that has been crossed with a ram of another breed; a 'guessed ewe' is one not seasonably in lamb, and a 'kebbet-ewe' is one whose lamb has been still-born. A 'eade,' 'tiddlin' or 'hob' lamb is one brought up by hand, and 'pullies' are deformed lambs. A 'rig' is an imperfectly emasculated male. A 'ripe' sheep is one fit for the butcher. 'Hoggets wool' is wool of the first shearing. 'Maiden ewe' and 'yield-gimmer' are respectively English and Scotch terms for females fattened without ever having been put to

the ram. There are many other names—‘chilvers,’ ‘quinters,’ ‘gimbers,’ etc., used locally, but those enumerated are the designations most generally employed in Scotland and England, the nomenclature of the north largely favoring that of Scotland.”



“Bob,” a Welsh Sheep Dog.

## PART II.

### GENERAL MANAGEMENT.

#### SHEEP ON THE AVERAGE FARM.

The sheep business, like every other business, has its ups and downs. At present the world is short of both wool and mutton, consequently prices are high, which is a good reason why all farmers whose farms are at all adapted for sheep farming should keep a few sheep. Prices of wool fluctuate and times have been when sheep paid but little in this country, but such state of affairs is not likely to occur again in a lifetime, since our appetite for mutton and the demand for wool is growing much faster than our flocks. The flock has always held premier position in the animal husbandry of many countries. Especially is this true of Great Britain, and the time will come when this will be true of this country.

. Sheep delight in upland pastures, where dry footing prevails, no matter how poor the pasture. Nevertheless, there are but few farms, fertile or unfertile, upon which one of the many breeds will not thrive. It has been truthfully remarked that sheep will get more sustenance from poor land and do the land more good at the same time than any other class of livestock. And this is not all. In these days of scarce and high priced labor, sheep-raising might be looked upon as a factor in offsetting this serious condition. For conserving fertility of the soil or renovating the worn out farm, nothing equals sheep.

It is a fallacy to suppose that sheep cannot be made profitable on high-priced land, since, on some of the richest farms in England, sheep are kept in large numbers, and it is a question if the rent of some of them could be paid without the help of the flock. Certainly there is no other kind of livestock on the average farm that gives so prompt and sure returns, and with so little labor, as sheep; since they will live largely on the odd growths of the farm. Although it is well to use sheep as a scavenger at certain seasons of the year, it is not advisable to treat them as an everlasting scavenger.

There are thousands of farms upon which sheep would subsist with little more than the weeds and brush with which they are overrun, and which they would convert into the best of fertilizer and distribute more evenly than any other animal on the farm, and would give double returns in wool and lambs for the privilege of doing the work. Sheep manure is worth as much, pound for pound, as most of the high price artificial fertilizers.

It is claimed that seeds eaten by sheep do not germinate, which is more than can be said of seeds eaten by some other farm stock. Sheep are particularly fond of buckhorn and plantain when in seed.

In clearing up stubble fields, nothing just equals a small flock of sheep. In some instances sheep would be profitable even if they gave no return other than their work of clearing up the weeds and fertilizing the farm.

The idea of sheep killing our pastures is a fallacy, for the densest pastures in the world are found in England, where the land is more thickly populated with sheep than any other country in the world, and, further, the idea that sheep will not thrive with other stock is untrue—where the small flock is considered, at least.

Never, perhaps, was there a more desirable time for introducing small flocks of sheep to the farm than now. Where there is one flock kept there should be ten. Contrary to general opinion, there need be no special provision made for taking care of a few head of sheep on the average farm, as they are well able to take care of themselves if they have access to shelter and water. Of course, where large flocks are considered, they must have care, and the larger the flock, the more care must be used.

#### PROFITS.

The sheep business like other enterprises is subject to fluctuations, but it is exceedingly severe times when a small flock of sheep will not pay its way, since it gives two harvests, viz., lambs and wool, not to mention the benefits it bequeaths to the land in the shape of fertilizer and its value as a weed destroyer. A feeder recently remarked to the writer: "There is plenty of money in \$6 lambs when feed is the same price." Sheep consume less per hundred pounds of live weight than any other animal and at present are realizing considerable more per hundred pounds. Sheep and lambs may go down very considerably and yet leave a margin of profit to the breeder and feeder. A well-known breeder recently remarked: "I can put an equal number of pounds of sheep on the same pasture that a cow can be kept, and the sheep will have made the most money at the end of six months, nine months, or one year."

One good thing about the sheep business is that one can start a small flock with very little capital and learn the business as he "feels his way." If he wants to go away on Sundays he can do so as the milking hour does not come around in the sheep business, although at certain seasons of the year, the lambing season for instance, the shepherd must be continually on hand to ensure success. The profits from the flock, of course, depend largely upon management.

Never were prospects brighter for sheepmen than now; wool and mutton are high and it looks as if the day of free wool and poverty-stricken flockmasters has gone for good.

Sheep are the least trouble of any farm stock, and it is safe to say that anyone who will give faithful attention to business can make money without drudgery from a flock.

No animal will redeem a farm from poverty so quickly as sheep, and there is plenty of land in this country that is useless for anything else but sheep or goat farms. A Kansas farmer, being asked what he did to get rid of the weeds on his farm, said that he sold most of them as mutton, at 5 and 6 cents a pound. Not only are sheep the animal to enrich the poor farm, but intensive sheep farming, under prevailing wool and mutton prices, will come nearer to paying 10 per cent. dividends on high-priced farms than any other animal. As the writer stated some little time since, the sheep situation was never more satisfactory than today, nor has the industry ever had a more encouraging outlook. Wool is strong in all parts of the world and prevailing conditions are likely to enhance rather than weaken it. The mutton outlook is bright, with every indication of improvement. Sheep are quick of sale at good prices, and there are a good many more buyers than sellers. There is not a single weak point in the entire sheep and wool situation, and the sheep is proving itself worthy of its title—"The animal with the golden hoof."

There are today many people who from ten to twenty years ago started in the sheep and goat business with practically no capital who now find themselves in very easy circumstances and have demonstrated conclusively that the foot of both the sheep and the goat is golden. The flock which does not pay these days gets poor care. A few years ago it was a hard matter to find many who knew much about the eating qualities of mutton. Today we meet few who do not know that it's one of the finest meats on earth.

An English writer recently said: "Sheep raising in this country has withstood the trials of the last twenty-five years in a wonderful manner and if ever the sheep was a profitable animal it still continues to be so," and what he says of his country is equally true of this. To succeed in the business one wants to stay with it year in and year out.

#### HINTS TO BEGINNERS.

Begin slow and go slow. Grow up with your work. Many of our most prominent flockmasters started this way. If you start with pure-bred stock, don't start with show stock, but rather at the bottom of the ladder. As an amateur you will meet discouragements, but keep on and you will be successful in the end. If you

start with grades, use nothing but pure-bred rams. Sell your culs to the butcher rather than to the novice. The sheep is a very bad animal to doctor, therefore keep your flock healthy. Be careful not to buy disease with your flock. Sell your customers a good animal; it means doing business ultimately with their friends. Don't be everlastingly changing breeds; be a sticker. Don't attempt to tear other breeds than that which you are handling to pieces. Have singleness and tenacity of purpose. Don't invent new make-shifts; such bring disaster. Keep salt, worm powders and fresh water before your flock at all times. Be regular in feeding. Change pastures often. Don't charge your mistakes to bad luck. Don't allow your new purchases to die of homesickness. Don't try to raise February lambs in summer barns. Visit your state and country shows and don't fail to examine the contesting carcasses at the fat stock shows. Train your eye to detect the thrifty or unthrifty animal. Don't feed your sheep moldy rations until you enjoy such yourself. Where possible, pasture your sheep by themselves. Stick to your business until you have built up a reputation and things will come easy to you, but remember, reputations are not a ready-made product. You had better buy scrubs than pure-breds unless you are prepared to give the pure-breds proper care. Use only the best blood on the male side. Study individuality as well as pedigree. Infusion of blue blood is one of the best tonics to be administered to the flock. Observe caution and avoid all hazardous undertakings. Let the sheep you keep be the best of their kind. Condition powders are all right in their way, but good feed and care often dispense with their use. Don't breed indiscriminately; have an ideal and breed to it. If you like sheep for dollars and cents only, you had better keep out of the business. Good books and the advice of good breeders are safe guides, but experience will teach you something they cannot tell you. Remember that the British breeds are children of care. Don't expect to raise good stud sheep without succulent rations. Change your flocks in the cool of the morning or evening during the hot summer months. Don't allow a dog on your farm unless it be a well-trained shepherd dog. Don't sell out because prices are very high or very low. Keep on and in a series of years you will make just as much out of sheep as out of any other business. A small, well-managed flock is more profitable than a large one poorly managed. Let uniformity be one of your ideals. Don't pamper. Don't allow your sheep to shift for themselves. No matter what class of ewe you keep, use only pure-bred rams. Don't feed timothy hay if you can help it. Don't feed grain in excess. Use oats in the breeding flock in preference to corn. Increase the grain ration just before lambing. Feed lightly for several days after lambing. Don't put your money into elaborate barns before you

have found out your ability as a shepherd. Start with good sheep, even if they have to be good grades.

#### ENVIRONMENT.

Environment cuts a very important figure in sheep raising. It is a well known scientific fact that when animals or plants are removed from their natural districts to one entirely different in climate, some surprising changes take place. Almost immediately after the removal is made, they change their character and habits to conform with their new homes or else cease to exist. Wool-bearing sheep, transformed from northern climates to the tropics change their coat to a thin covering of straggling hair, scarcely resembling wool, therefore the question of breed should be largely one of environment. All breeds have merit where they are kept under proper environment. On poor, rough, rugged farms, some of the smaller breeds do better than the heavier breeds, and it would be too much to expect a Lincoln, a product of low, fertile lands, to thrive on the bleak sparsely grassed highlands of Scotland or the rougher sections of New England or Montana. Further, few breeds would thrive in the marshy Romney Marsh districts of England, where the breed of that name is perfectly at home, for the reason that it is indigenous to that locality.

Naturally, it takes pretty good land to raise good specimens of the larger breeds of sheep, but all good land is not ideal for sheep raising. Our corn belt lands are rich enough, but lack too much of lime to make ideal sheep farms. In England some of the best sheep are raised on thin lands situated on chalk formations, notably in Wiltshire, where the Hampshire holds forth.

Arthur Young, the famous English agricultural writer, once remarked: "The different breeds of sheep in the park of the Earl of Egremont at Pitworth in Essex, when left alone, habitually made their way to such localities as their inherited instincts suggested. Lord Egremont had three flocks, Southdown, New Leicesters and Herefordshire sheep. The Leicesters are constantly grazing in a vale where the land is richest. The Southdowns on a hill, the soil of which is of a good quality and somewhat resembling their native pastures. The Herefords are never seen absent from a high, poor hill, the worst spot in the whole park, and which was till then rejected by whatever animals have been kept there. Nevertheless the Herefords, though always on the worst land, were in condition as good as the Leicesters. Each flock kept strictly to itself, chance stragglers not attempting to join another flock."

It is in England where environment is studied more or less scientifically, as farmers know by long experience pretty well

what kind of sheep will or will not thrive on certain kinds of land and in certain districts. They seem to have a natural intuition in this direction. Generally speaking, the higher the altitude, the smaller the sheep, and the lower the altitude, the heavier, while on medium or upland altitudes, medium sized animals are found. Of course this is not an invariable rule, but is one of considerable truth.

It is remarkable how the quality of wools is affected by the soil. According to those who have made a study of this question, clay soils produce the best, sand soils the second best and lime the most inferior quality of wool. For breeding purposes, light soils are generally looked upon as the best—such as are often found on limestone strata, sandy and gravelly soils are also considered very healthy and suitable for sheep raising, although the natural products of such soils are not so good for young stock as those from the limestone on account of the deficiency of lime. Heavy cropping lands are not usually so suitable for breeding sheep as some of the less fertile lands, except in instances where breeds have been "to the manner born," such as the Lincoln, for instance.

It is not the climate perhaps as much as the presence or absence of lime and phosphoric acids in the soil that determines the quality of a sheep breeding farm, therefore experimenting with new breeds in different localities is not a proceeding to be recommended. It is better to choose a breed that has been proven to be the class for the district in which your farm is situated.

An Irish agriculturist says: "One-half of the success of farming depends on practical knowledge of the farmer of the right kind of crops to grow, and the best methods of cattle, sheep and horse breeding; the other half depends on the weather. Science helps, but does not command."

Soils are characterized as clays, loams, sands, gravels, chalks, peats, heavy, stiff, porous, impervious, light, friable, wet, dry, cold, warm, rich and poor, and the most successful sheep breeder is he that studies the nature of his soil. Farms may be divided in three classes, grain farms, grazing farms and stock-raising farms. Don't make the mistake of taking one for the other.

It depends to a great extent upon the soil and lay of your farm as to what breed of sheep you should keep.

The following clipping, evidently from an English paper, was recently handed the author, who would like to have given credit and the source from which it originated were it possible, since it contains a great truth that may be studied with interest and benefit: "Climate is not a matter of temperature, nor is the result of food to be anticipated by the analytical chemist, else the Southdown before mentioned would not change character

when removed fifty miles from his native hills. Raised in Oxfordshire or other south Midland counties he may successfully compete at Islington, when judged by the eye and not by the palate, but transported to another continent, his type is lost in two or three generations. The heavy breeds which do well in the fat pastures of the Midlands bear transportation better, but degenerate abroad only a little less rapidly."

#### ARISTOCRACY AND SHEEP.



Scene on Hon. G. Howard Davison's Altamont Estate.—Photo by "Shepherd Boy."

The sheep is not only the poor man's friend, but the friend of human creation. It is the one animal with peace and poetry depicted in its makeup. No wonder our great and good George Washington took delight in his flock, and King Edward is said to be as much interested in his flock of Southdowns as in any of the many choice breeds of cattle, horses and other livestock found on his famous "Sandringham" estate. Considerable of the aristocracy of Great Britain, Germany and France takes pride in their flocks, and are doing much toward the improvement of the different breeds.

No matter how extensive, how rich in architecture and land-

scape the country place of the American millionaire might be, without its pedigree flock peacefully browsing on the green sward of its parks and lawns, under the care of a skilled shepherd, it is decidedly lacking in those sweet, pastoral charms which savor of the classical. Nor is this all. Without such a flock, the tables of our financial barons would be often bare of those tender, luscious viands, which now tickle their epicurean palates, for such mutton and lamb as it affords is not to be found in the everyday market of this country. Moreover, a flock of this kind lends charm to the landscape. Then, the assurance of prime joints of mutton and lamb for the table of the "laird of the manor" does not constitute the sum total of satisfaction to be derived from such flocks, for the showyard has its fascination, and where properly followed, its financial reward.

#### MILLIONAIRE FLOCKMASTERS.

Millionaires are common among America's leading breeders and exhibitors of pure-breed sheep, New York state being particularly notable in this respect. Mr. William Rockefeller's spacious, emerald-hued "Rockwood" lawns are brightened by one of the most charming flocks of "the little aristocrats"—the Southdowns—that ever left the folds of the British flockmaster. It is cared for by an expert English shepherd. This flock has been exhibited, and with considerable success, but its chief mission is to supply the Rockefeller mansion with the choicest morsels of mutton and lamb procurable.

Mr. L. D. Rumsey, another well known New York state millionaire, is the owner of a very choice flock of Shropshires, which makes a most charming picture as it browses among the trees of "Wa-Wa-Nund" park, which flanks the bank of the mighty Niagara. This flock has won prizes galore at America's leading exhibitions.

Millionaire Diedrich, another Empire State millionaire, owns a fine flock of Shropshires. The greater portion of the increase from same furnishes Mr. Diedrich's table with mutton and lamb, the remainder going as breeding stock to fanciers all over the country.

Dr. G. Howard Davison, a near neighbor of Mr. Diedrich, owns one of the finest flocks of Shropshires in the land. During the past ten years it has won thousands of dollars in premium money at our leading shows, and the genial doctor is the only American exhibitor who has dared to attempt to beard the British lion in his den by making an exhibit at the great Royal Show of England, an exploit which elicited no end of eulogy and sportsmanlike comment from the press on both sides of the Atlantic. To watch this beautiful flock grazing over the broad,

rolling acres of picturesque "Altamont" is nothing less than a sweet pastoral dream.

Another millionaire, who until recently derived considerable pleasure from importing, breeding and exhibiting choice registered sheep, is Mr. Macey, of New York, upon whose charming countryplace, "Chilmark," runs one of the choicest Hampshire flocks in America; one which was most successfully shown before its reduction in size.

The late Colonel Elkins kept a magnificent flock of imported Shropshires on his well known "Folly Farm" estate in Penn-



Rockefeller Southdowns.

sylvania, a flock which held its own in the showyards of the United States, and was once shown at the great Toronto Industrial Exhibition with most gratifying results.

Mr. Morgan, of pneumatic tire fame, is, or was, numbered among the largest, most enthusiastic and successful millionaire importers and breeders of the popular Shropshire that we have. He has spared no expense in his endeavor to procure the best that England produces, wherewith to grace his "Beloit" estate in Wisconsin.

Millionaire Stuyvesant, of New Jersey, and his "Tranquillity" flock of Dorsets are known the length and breadth of the land.

Mr. Whitelaw Reid, the world-famed millionaire journalist, before his appointment as ambassador to Great Britain, kept a nice flock of Hampshires, which were well cared for by a professional English shepherd.

Millionaire Vanderbilt has a choice flock of Southdowns on his famous "Biltmore" estate.

Canada, as well as the United States, has her millionaire sheep fanciers. A flock of Southdowns, many of them selections from the king of England's famous "Sandringham" flock, are commissioned to keep the golf links of Sir George Drummond's beautiful "Huntlywood" estate in order. This flock numbers some 300 head.

We could go still further, but enough has been said to show what universal interest is being taken in the "golden hoof," not only as a money maker, but as an aid in the building of charming landscapes, and pleasing the eye of the rich in particular, and the masses generally. It may not be out of place to mention here that many ladies are numbered among those who take keen interest and delight in raising pure-bred sheep—special mention may be made of Miss Alice de Rothschild, a relative of Baron Rothschild.

#### SHEEP FARMING IN ENGLAND.

Nowhere in the world are sheep raised on such intensive methods or to such a high state of perfection as in England, especially is this true of the mutton breeds. There are a great many reasons for this, the foremost among them being the Englishman's aim to breed a class of sheep that is suitable to his district. It may be said with a good deal of truth that environment and food supply are the father of the different breeds of British sheep. Great Britain has considerably less than one-half the population of the United States, and territory only about equal to Michigan, yet she produces almost half as much wool as the United States. The average American has but a faint idea of the sheep industry of Great Britain. He labors under the impression that English sheep farms are small, whereas in most cases they are much larger than the average farm of the eastern part of this country. A flock of sheep of 200 in our eastern states is considered a rather large one. In England a flock of pure-bred sheep of that size is not considered a large one. There are no end of flocks in that country totaling well up toward a thousand head of ewes, and I have a Hampshire flock in mind that runs up to nearly three thousand head. The Hampshire flocks almost without exception run up into the hundreds, and, in some cases, the thousands. It will take us a long while to anything like reach the standard of the English breeders; in fact, we can never do it, except in certain favored sections, say Oregon, and localities with a similar climate. Climate is one of

the most important factors in sheep husbandry. England is no doubt the most favored country in the world for sheep raising, so far as climatic and geological conditions are considered, her pastures being more or less abundant at all seasons of the year. In the summer while our sheep are seeking shade in fence corners, sheep barns or underneath the trees, the English flocks are dispousing themselves in luxuriant pastures and soiling crops, such as rape, kale, vetches, etc., and in the winter when our sheep are in the barns or yards, the English sheep are enjoying themselves in the turnip field, rape field, kale field, etc. England is not America. English methods do not fit in America. American methods in England would not fit. Our management must be governed by local conditions.

As I write my memory takes me back to Quebec, where an Englishman was busy pulling turnips and piling them in heaps. The manager of the farm inquired what he was going to do with them. He replied that he would cover them up with the tops and a little earth and keep them until winter, for the sheep. "But you are going to put them in the cellar?" remarked the manager. "No," was the Englishman's answer, "I am going to feed them in the field as I want them. I don't believe in housing my sheep."

Of course he saw the other side of the question later on when the snow was fence high and the mercury twenty below zero. It is a good thing for English shepherds to have experience in this country, as undoubtedly it makes them the wisest of all shepherds.

It seems to be rather more of a science to run a flock successfully in this country than in England. Nature seems to help science in England. She is scarcely so kind and generous to the American flock as she is to the English flock. The lamb is better provided for in England than in this country, for the reason that pastures are "hung up" there early in the fall, especially for the ewes and lambs, and forage crops are always plentiful.

The hurdling system is a great system in that country. The best pastures are hurdled off for the ewes and lambs, and the hurdles are moved daily or thereabout so that the lambs always feed ahead of the ewes; in other words, the lambs are provided with creeps and have the first run or cream of the pastures, the ewes coming along and eating up what they leave. No special provision is made for water in many English flocks, the pastures being so luxuriant at almost all times, and the supply of roots so abundant that it is unnecessary only on very rare occasions. Then again, on account of the sea breezes which float across the island, salt is not nearly so necessary to the welfare of sheep there as it is in this country. Where sheep are properly managed in that country, their fleeces are extremely lustrous and brilliant.

The importance of good sires is more seriously considered and better understood in England than most countries. Even the com-

mon farmers with their flocks, which are in reality pure-bred, although unregistered, pay prices for their rams that very many of us would hesitate to pay for rams to use on our pure-bred flocks. To attend an English annual ram sale or "letting" is an inspiration. There are those at which hundreds of rams are sold and at prices that would stagger us. Even the prices paid for the renting of a ram for a single month's service on a limited number of ewes would cause us to think twice before renting once. Very few of us have any idea of the quality of the sheep and mutton found in the British markets, and the fascinating picture the pens of choice fat lambs and yearling wethers which are penned at the different sale yards all over the country make. It is nothing unusual for a yearling, really under a year old, to dress a hundred pounds. Although in certain sections of the country heavy mutton is more or less in demand, generally speaking the demand for lighter carcases is more popular now than it was a few years ago.

#### THE SHEPHERD.

There is more poetry in shepherd life than can be found in many so-called poetical works. The bleat of the lamb, the tinkling of sheep-bells floating "o'er the lea," the sparkling of the brook, the closeness to nature and even the barking of old "Shep" is music and poetry of a kind that charms as few other things do. But, withal, the shepherd's life is not without care, since no matter how faithful, conscientious or careful he may be losses befall him which brings more sorrow to his soul than that of the flockmaster himself. Therefore the idea that a shepherd's life is nothing less than a sweet pastoral dream in which the flute and the harp play the leading role is unfortunately a very misleading one. The sheepfold has been the cradle of some great men. Everyone has read of David, the sweet singer and harpist who slew the giant Goliath; of Ferguson, who studied astromony while tending his flocks; of the "Ettrick Shepherd" (James Hogg) the writer of charming prose, verse and song. Others might be mentioned, but these will suffice.

Shepherds are of different types, and their work in different sections of countries and in different parts of the world is varied. The work of the eastern shepherd, with his small, well-fed, well-sheltered flock and show flock, is different to that of the western shepherd, with his flock of thousands which in some cases have no shelter other than that afforded by the hills, and no feed other than the dry grass and sage brush the range affords, although many of the flockmasters there are now installing modern methods in caring for and feeding their flocks. Many of our leading shepherds handling mutton breeds are of British extraction, and most of our best finewool shepherds are American-

born—both unexcelled, perhaps, in their respective callings. The strangest type of shepherd doubtless is the Yakamik, a very intelligent bird of the crane species, used by the natives of Venezuela for herding and guarding their flocks. It is claimed that no matter how far the Yakamik may wander with his charge it never fails to find its way home at night without leaving an animal behind.

No matter of what type the shepherd may be or what kind



A Trusty Friend.

of sheep he handles, to be successful he must be faithful to every detail of his calling. The showman must be as attentive to his breeding flock as to his show flock or success cannot attend his effort. Scrub shepherds make scrub sheep. The loss of a young lamb is of no serious moment to the unthoughtful shepherd, but to the thoughtful one it is of as much importance as the loss of some adult member of the flock.

The good shepherd is an observant, careful, kindhearted, cautious man, who glories in a big crop of lambs fully as much as he does in winning showyard honors, and whose whole heart and soul are in his work. He is a student of nature and knows

that it takes more than mere luck to raise big percentages of lambs. He keeps a private mental flock-book and through it knows just what his flock is doing. He aims to get all possible growth out of his lambs. He treats the sick members of his flock at the first moment of their ailment and does not go on the rampage on such occasions, or at any other time. He treats his owner's flock as he would his own. He finds more comfort in the warmth of the sheep-barn than in that from the stove. He does not speak unkindly of a breed that he does not handle. He knows the value of a pinch of salt. He does not think that he "knows it all," but realizes that there are a good many things for him yet to learn. He studies individuality before pedigree. He knows that the best bred sheep are a failure under poor management. His interest is centered in the flock he handles, no matter what the breed. He knows that sheep of different ages and temperament require different treatment. He does not grab his sheep by the wool. His vigilance does not cease when the flock goes to pasture. He knows that kindness is the keynote of successful shepherding. He gives continuous attention to the flock throughout the year. He knows that a successful lambing season depends upon his management and that kindness to the flock means money. We are told that the shepherds in the vale of Tempe and on the slopes of Ida were gentle by mirth and profession.

Nine-tenths of the failures in the sheep business are due to the shepherd's negligence, and he that is not interested in his calling is about as bad as a wolf in the fold. Good shepherds are good sheep doctors, better in many cases than most veterinarians for the reason that few of the latter make special study of the sheep. Poor shepherds find fault with the breed they handle or blame bad luck for want of thrift in their flocks. Behind a poor flock we always find a poor shepherd. His neglect is the forerunner of disaster and the missing link in the chain of the flockmaster's success. The shepherd who has no patience or does not think is never successful. There is no breed of sheep that will thrive under the careless shepherd's management. Sometimes environment and breed have something to do with the failure of a flockmaster, but more often it is through the fault of the shepherd. When the shepherd and the "boss" cannot get along the flock does not thrive. A shepherd's work is his recreation. The good shepherd always has the confidence of his flock.

When speaking of shepherds or breeders the writer's mind always reverts to what Abraham Hopkins said of his employer, Mr. Humphrey, who was among the pioneers of the Hampshire. He said: "When Mr. Webb's sheep came master would stand and look at him for two or three hours; or when a good lamb

fell from a favorite ewe he would stand and look at it and move it about for an hour or more."

#### SELECTION OF BREEDING STOCK.

To be a successful breeder one must be a good judge of the breed he handles, and to become a good judge it is necessary that he be in love with and a faithful student of that breed. Even those who have had a life-long experience with a breed are not always good judges of that breed, for sometimes they lack natural intuition or are not keen students of same.

Type and breed character are the first considerations in selecting subjects for the breeding pens or showring, for without these we cannot hope to be successful. Next to type comes quality in fleece and general conformation. All the size possible is a good thing, provided it keeps company with quality. That a good big animal must be more valuable than a smaller one it is superfluous to mention. The highest average of quality is found in animals of medium size, but this does not mean that no large animal carries quality in the superlative degree, for some of the champions of the different breeds shown in this and other countries have been conspicuous not only for their quality but their size also.

#### CONSTITUTION.

Someone has tritely and truthfully said: "Without constitution we have no sheep." To purchase a flock that is constitutionally weak is to fail in the sheep business. To abuse a flock until its constitution suffers, as too often is the case, also means failure. To keep a hill country sheep on the lowlands or the heavy mutton breeds whose habitat is the lowlands on poor hilly lands is to court failure, as their constitutions must ultimately become damaged. These are matters pertaining to constitution which are worth pondering over. Because a sheep is big is no reason why he should be sound constitutionally. Some big sheep are built upon lines almost entirely in opposition to the laws governing a sound constitution. For instance, how often do we see sheep of huge proportions, with sides so flat or "slabbed" as to make it impossible for it to carry a properly developed and healthy pair of lungs. Then in muscle such are often found to be sadly lacking. Then in breadth of skull, thickness of neck and width between the eyes they are anything but what they should be. When a sheep has well-sprung ribs, plenty of heart-room, stands low on leg, is thick in crops and twists and has ample breadth of skull it usually dies of an acquired disease, rather than a constitutional one.

## POINTS OF SHEEP.

The points to be looked for in a ram—and the ewe as well, in proportionate degree—are a large though well-proportioned head, width between the ears and eyes, a thick neck or scrag, a widely distended nostril, thick heavy loins, crops and twists; broad, full chest and brisket; level, strong back and full level flanks. Such are invariably “good cutters” and carry mutton of the best quality. A ram weak in scrag, loin or twist, is entirely unfit to head a flock. There seems to be pretty well-defined laws in sheep breeding. For instance, a shapely twist is usually the companion of a well-sprung rib and well-developed crops. This rule, however, has its exceptions, for many a heavy-fronted animal lacks in hindquarters and particularly in the twists; but the animal with heavy twists has almost invariably heavy, well-developed front-quarters. It would seem, judging from our wild animals, that nature has intended that the male should be disproportionately (according to man’s ideas) or proportionately (according to nature’s ideas) developed in its front-quarters in contradistinction to the general smoothness of the female. Anyone versed in the breeding of our domestic friends must be aware how much easier it is to breed a male animal that is heavier in front than in its hind-quarters than it is to breed one even and smooth all over, which is one of the greatest points to attain in the breeding of our domestic animals.

## THE FLEECE.

With wool selling at present prices it is very clear that it is most important to give attention to both the quality and quantity of wool our sheep shear; therefore, the new beginner should see that his selections are what they should be in this respect. Texture, staple and density are the main features to study. A kemp-fleeced animal should be avoided, as kemp is one of the most easily transmitted of evils. Kemp looks not unlike dog’s hair and can be easily distinguished from wool as it generally exceeds the fleece in length. It appears most prominently on the neck or “breaches”—the hind leg. Kemp is more natural to certain breeds than to others. Sheep with discolored fleeces, such as black or grey spots, should be discarded, as such defects are easily transmitted. Although care and selection in breeding has done much toward eliminating these defects, still in the best of flocks of certain breeds they occasionally make their appearance. Naturally in the case of grade or native flocks these defects are much more common than in purebred flocks. To show how easy these undesirable characteristics are transmitted and carried from generation to generation it may be mentioned that even in the showring they are sometimes in evidence and would be more so but for the fact

that unscrupulous exhibitors very skillfully remove such defects before they send their exhibits to the arena. Not only do the shears play a most important part in the fitting of show sheep, but even dyes are called into use. Therefore, it is evident that in selecting stock for a foundation flock it is essential that great care be used. The fleece is a guide to the health of a sheep. If it appears dry and lifeless there is something wrong with its bearer either constitutionally or on account of improper rations. A healthy fleece is greasy and full of life and luster.

#### THE SKIN.

The skin is an index to the standard of blood as well as to the health of the sheep. Our best strains of pure-blooded sheep carry skins of a soft, rich pink, without such objections as black or discolored spots. No matter how pink the skin of the healthy sheep may be it takes on a pale-blue directly its bearer falls a prey to sickness. It may be said that while all healthy sheep do not have pink skins, all sick sheep have pale ones. Once in a while we find an isolated member in our best flocks, and even in the showring carrying skins that are nearly black. Of course, this should not be where good judgment and management are employed. The methods of feeding, especially in the case of show sheep, has no little to do with the color of the skin. The hue of the skin varies very much in a few hours. At first, when in a high state of fever, it will be almost blood red, but when the fever has left its host the skin becomes pale and gummy.

#### SELECT ONLY HEALTHY STOCK.

In the sheep business, as with other businesses, there are many pitfalls, and it is the new beginner who is most liable to fall into them. Therefore, it behooves him to "keep his eye peeled" when investing in stock wherewith to establish his flock. Foot-rot, scab, liver-rot and the more recent additions to the flockmaster's troubles, nodular disease and the different internal parasites such as stomach worms, etc., must be shunned. There are two factors that will help insure the novice a healthy start in the sheep business—buying of reputable breeders and the help of a conscientious adviser. Culls should not figure in the establishment of a foundation flock, even if they might be had for the asking. This does not mean that ewes well along in years are to be rated as culls, for no other class of animal is liable to give less trouble or better returns to the novice than these, provided, of course, they are bought at a fair valuation. The fact that they are staid and matronly is an assurance that they are of more than ordinary worth as mothers. Good shepherds do not long keep indifferent milkers or mothers in their flocks. Young ewes, especial-

ly yearlings, require more attention and occasion more trouble, as a rule, than do older ewes. The ewe with a record as a lamb raiser takes care of herself and offspring, whereas she with her first-born keeps the shepherd busy. Of course, in the case of the experienced shepherd, young ewes are the best property, but where experience is being bought it is better to start with ewes not less than three years old.

It might not be out of place to emphasize the fact that the novice should not plunge headlong into the sheep business, for of all our domestic animals the sheep is the hardest to manage successfully, notwithstanding the prevalent idea that they are the scavengers of the farm and that it requires no skill to manage them. It is true that a small flock will take care of itself, but it is nevertheless the better for being cared for. It is still further true that many a novice has come to grief by commencing with a big flock, whereas had he commenced with a small one he would have gained an experience which would have landed him in the ranks of successful flockmasters. From twenty to thirty head of ewes makes a fine start for the young beginner. They will make him a sure profit and furnish him no end of pleasure while doing so, to say nothing of the practical experience he derives in the meantime, which is to fortify him against trouble in future larger undertakings.

When selecting breeding ewes due attention should be given to their udders or "bags," for without a healthy udder a ewe is comparatively useless. Fleshy or "caked" udders should be avoided; so also should ewes with "broken" or only "half bags." The heavy-necked masculine ewe rarely proves an ideal mother, although there are exceptions to this rule. Ewes unusually thick and fat are generally those which prove non-breeders or have, for some reason, failed to raise a lamb. A deep milking ewe does not carry a superabundance of fat while nursing a lamb, but her lamb carries all that is necessary and desirable for its well-doing. A show ewe is not usually a breeding ewe and the novice should play shy of such.

#### THE RAM.

It has been said, and with a good deal of truth, that "the ram is half the flock." Since the quality of the lamb is largely dominated by the quality of its sire it is important that the best ram possible head the flock, no matter whether it be a pure-bred or a grade flock. Naturally there is such a thing as paying too much for a ram, but more often too little is paid. Of course it goes without saying that nothing but pure-bred rams should be used even on grade flocks and they should be typical of their breed and masculine to a degree. An effeminate ram should have no place in the breeding fold. A poor ram at the head of a

flock means failure. The easiest way of making profit out of a flock is by adding flesh and fleece to it through the sire. It is not good policy to change the ram when he is doing good service, as changing rams is nothing more or less than experimenting and good sires are not a common article. When buying a ram look to individuality as well as pedigree. Keep an eye out for what you want before you really need it. Select early before the cream of the flock is gone and don't delay until the breeding season comes around before you make your selections. Don't forget that there are culls in the purebred flock as well as in the common grade flock. The best rams are not by any means always those who win the most showyard ribbons, but rather those that sire the best lambs. A ram with a pedigree may be a worthless sire, but the ram without a pedigree cannot be anything else. Always buy your rams of reputable breeders, even if their prices seem a little high. A good opportunity offers itself of purchasing what you need at the state fairs, where the types advocated by the different breeders may be studied side by side. Dispersion sales are also good places to buy rams.

The purchasing of show rams by the novice cannot be recommended. The selection of a ram is a very important matter and the question of profit and loss depends largely on one's skill in this respect.

Don't use a mongrel ram on any account, for such is a profit killer. Don't use a ram carrying the same defects in conformation that your ewe flock carries and don't select the ram strong in particular points with a view to counteracting the weak points of your ewes. The only way to correct weaknesses in the ewe flock is by using a perfectly smooth ram.

Don't allow a few dollars to stand between you and a good ram. Don't sacrifice a good flock header because he is a little on the aged side. Don't cultivate the idea that you must use a yearling every year. A well-tried aged ram is much better than an uncertain young stock ram. The ram that gives the best results is one of active yet thrifty temperament, and one that has not undergone a showyard campaign. That fitting for the showyard unsuits the ram for breeding purposes there is no doubt, and many a valuable animal has been entirely ruined by the process. A ram should be "sirey" about the head and muzzle. The more like a bull-dog he is in this respect the more he attracts the writer, provided his mutton conformation is all right, and those of this type generally are. A wide, open nostril depicts breadth of skull and breadth all over. Of course his fleece and skin should be of the best. Then his carriage should be proud and important. The less daylight appearing under him the better; in other words, the shorter he stands on leg the better. A short leg usually means a

strong bone and muscle and a rotundity of frame not found with a long stiltly leg.

The best ram is invariably the cheapest in the end, as it is through its influence that quality is attained. As has been set forth in a preceding chapter, size is desirable, but quality must not be sacrificed at its expense. When purchasing a ram it is advisable to see that its testicles are perfect; not that a one-testicled ram will not produce stock, and good stock at that, but because when offered for sale the chances are it will not find a buyer, unless at only a tithe part of its former cost. A ram of a dull, sleepy disposition is rarely the getter of such vigorous stock as the bold aggressive type of ram.

#### SELECTION OF THE RAM.

Fashion and the judgment of our best breeders decree that the low-down, blocky type ram, he that weighs "heavier" than we thought, "the little big sheep," is the one which will be sought these days of neat, prime joints of mutton. We must look for breadth of loin, full brisket, deep body, masculine head and neck, strong legs, strong full twist, deep flesh, thickness through the heart and thick, level, well let-down flanks, strong constitution, and all these good things clothed in as fine, long and dense fleece as possible. If coarseness is on either side let it be the ewe rather than the ram. What we are looking for in our lambs are "chips of the old block."

The novice when selecting a ram of the Downs or other hornless breeds of sheep should be very careful not to select one with stubs—miniature horns. Although rams having such defects are almost invariably robust and masculine in character and in many other ways desirable as flock headers, still, stubs brand them as being of inferior breeding. Such animals are generally unfavorably noticed by showyard judges and they should be in every instance disqualified.

Hollow backs, slack backs, or backs with the "fatal" drop behind the shoulder, are very serious defects in rams and care should always be taken to avoid animals of this conformation, as like so many other deformities these are faults that both rams and ewes almost invariably transmit to their offspring.

#### ON THE CARE OF THE RAM.

There are three important factors to be considered in producing a really good ram; viz., individuality, pedigree and good feeding. While there are a few good rams ruined by over-feeding, far more are ruined by being stunted through under-feeding. A well-bred, well-fed ram is a charm, but an ill-fed one has no place in this category. While some breeds may do well under adverse conditions, there is no breed but what will respond to good

care and treatment. Without careful cultivation none of our improved domestic plants or animals can hold their own, and under improper treatment there will soon be a tendency to revert to their primitive state; therefore, we should apply all our effort to keep the props of improvement under them to avert such a condition. There is very little pleasure in raising purebred stock unless we hold, if not improve, the standard of our favorite breed, and surely there is but little profit attending our enterprise if our ideals do not tend in this direction.

Nowhere in the world are sheep raised to that state of perfection they are in the British Isles, and it is a question, if with certain modifications, we should not follow their methods of feeding as far as possible. Of course we must of necessity deviate from their methods in certain cases; for instance, the ram lambs which are expected to rank some day among great sires are weaned rather earlier than with us, and, generally speaking, they are fed more liberally. When our lambs are on dry feed, or the best we can possibly provide, the English lamb is basking in the sunshine of a rape field or kale field or turnip field, which have been left untouched during the winter. Then they also have good grass pastures and perhaps a run of the rye field, with vetches, peas, etc., by way of variation, and all this, with oilcake and grain of some kind regularly each day, with unlimited exercise, they keep remarkably robust and thriving.

Ram lambs should receive generous fare until they have entered the yearling age. A pound a day of a mixture of oil cake and oats, even when they "are up to their eyes" in rape, clover pasture, etc., will be a good investment.

No matter of what breed the ram may be he should be fed liberally and wisely, but not too well. A pampered ram is poor property and good blood counts for little where sensible feeding is not in evidence. Rams as well as ewes sometimes fail as breeders because of their being in too high a condition. Rams should be fed regularly; the best results cannot be expected from those irregularly fed. The ram must not be allowed to run down during the breeding season. Plenty of muscle-making foods should be fed the young rams. Their rations should be strong in protein, as it builds up flesh and muscle. Oats and bran, with a very little addition of oil-cake makes an ideal grain ration for rams. These foods, however, should be used sparingly, or more by way of a regulator of the digestive organs than as a food. Succulent rations are the best fare for the ram. Mangels or beets should not be fed to rams, since they bring about bladder troubles.

#### THE BREEDING SEASON.

The breeding season of the ewe usually commences in this country in September, but in England, no doubt due to her more

equable and cooler climate, it commences very much earlier; in fact, it seems almost always present there.

The heat periods of the ewe last from one to two days and appear at intervals of fifteen to thirty days, but generally every month. When removed from artificial conditions, sheep usually come in season in September and the period lasts but one day, but reappears every fourteen days until the end of December. The presence of a ram in flock induces periods of heat even earlier than September.

#### PERIOD OF GESTATION.

The sheep is very irregular in the time of bringing forth her offspring. The usual period is put at 145 days, but not often is this found to be correct. Old country shepherds calculate on twenty weeks as the time.

#### FLUSHING.

Flushing means preparing the ewe for the overtures of the ram. This is a common practice in England, which is not only intended to encourage the ewe to take the ram early, but to bring the whole flock to yean as near a certain time and as uniformly as possible. Forage crops and grain are provided for the ewes generally when they are taken from poor pasture. Flushing simply means stimulating the genital organs. The rape field is an excellent medium for flushing. Mustard, a plant not yet tried to any extent in this country, is considered by British flockmasters to be a splendid crop for preparing the ewe for the service of the ram.

#### BREEDING THE EWES.

An old English proverb says: "The more rams the more lambs," and with a good deal of truth, since many flockmasters tax the ram's energy to the damaging point. It is not a good practice to turn the ram with the flock without provision for his proper care. When this is done with a flock of any size many ewes will prove unfruitful owing to the overworked and exhausted condition of the ram. So far as the small flock is regarded, there is not much danger, but under any circumstances it is best to allow the ram to be with the ewes but for a short time daily, not to exceed one hour in the cool of the morning and about the same time toward evening. It is a good plan to smear the breast, well back between the forelegs, with a mixture of oil and lampblack. By this means the ewes may be identified and removed from the flock. Later on another ram smeared with another color should be placed with the ewes, so that ewes that breed a second time may be taken proper cognizance of. The ram should have grain daily, oats and bran, with a small quantity of oilmeal. Of course, the time to breed the ewes depends on the time one wants his lambs to appear, and this time varies very much in different sections of the country.

Some breeders of pure-bred stock want their lambs to come as early as it is possible to get them, others do not want them to come before there is an assurance of grass for the lambs, and the western ranchman does not wish his to lamb much before grass is somewhat plentiful and danger of winter or early spring storms is over. The breeding ewes must be kept in vigorous condition during the coupling season. This insures vigorous lambs and brings "luck," which generally follows good care, and insures an even lambing. As the breeding season approaches, the ewes should be given a little grain. About one-half pound of oats per head daily is very good. If ewes are brought into a uniformly good condition they will lamb more uniformly.

#### BARREN EWES.

In regard to "turned" or barren ewes a prominent English shepherd says: "In fine weather they will be seen jumping and playing about; also when they are called up at feeding time it will be noticed that those not in lamb are the first to come up, but those in lamb come up much slower. They are less bulky in the region of the abdomen than those in lamb. Any dirt about the tail is often a sign of barrenness. Another test is to turn the ewe up, and if she is barren she will show no increase in size in the udder, and will have a considerable amount of yellow, waxy excretion on the skin around the udder, and the wool near the udder is generally of stronger growth and more firmly attached than that of an in-lamb ewe."

#### CARE OF THE EWE.

The size and quality of the lamb crop depends a good deal on the care the ewes get. It is impossible for a half-starved ewe to properly nourish her offspring. Provision should be made for the heavy drain on her system. It is not a wise policy to nurse a feeble ewe through the winter while a young one will winter at less cost and care. Breeding ewes should be fed grain daily, but not enough to make them unduly fat. They should be kept in good condition but not loaded with fat. The middle-aged ewe is the one to look to for the best lambs. There is a difference between high feeding, poor feeding, and sensible feeding. Naturally the shepherd likes to have his ewe flock in as fine a condition as possible, but his ambition in this direction is not always properly applied. Troubles of an inflammatory nature at lambing time are more prevalent with the highly-conditioned ewe than with that in ordinary condition. It is a great mistake not to feed grain through the winter and then "pile it on" as soon as the ewe has yeated. Insufficient exercise and too much grain are bad for the ewe, therefore, the flock should have abundant gentle exercise to insure a strong, healthy offspring. Gentle exercise never caused

trouble in the flock, but frights and undue worrying are, however, among its principal causes. Narrow doorways are an abomination and the cause of innumerable abortions. If good health is to be maintained in the flock it should not be confined to ill-ventilated barns. Catarrh and similar troubles are born of such conditions. Comfort to the flock means profit to its owner, for it increases the ability of the various members to utilize food and give better returns for such as is consumed. When the ewes are once housed and yarded for the winter, they should not be allowed to roam the pastures, should a temporary thaw set in. Allowing them to roam the fields makes them discontented and the cold, scanty fare they happen to pick up is likely to cause loss. The ewe confined too closely in the barn and yards and fed to fatness on grain rations never lambs so easily and with so little risk as those fed under ordinary rational conditions. Fifty breeding ewes are as many as should be kept in one flock, and these should be properly graded. Someone has well said: A well littered yard makes a much better resting place than a snowbank does for the pregnant ewe. Some of our best shepherds are of the opinion that one of the principal causes of goitre is the chillings the ewes get while lying around on the snow. An English writer recently said: "With many men there are many minds anent the best extra food for the ewes, and probably the nearest way to arrive at the most satisfactory plan is to practice a little common sense, and consider that we are dealing with one of nature's animals. You may keep your horse in perfect health on dry food in stable and the cows on pretty nearly all dry food in shed, but the in-lamb ewe abhors such treatment, and would flourish better even on a mountain side, where nature's dietary, in shape of scant green herbage, could be picked up. So, as extra diet, it seems right to hold pretty much to the natural home production." Bran, oats and oilmeal make an ideal ration for the breeding ewe, and clover hay for roughage has no superior.

#### MARKING THE LAMBS.

To avoid errors and causes of mistaken identity, the young lambs should be marked as soon as possible after birth, so that if they should happen to stray away from the pens, no difficulty would be experienced in finding them and returning them to their mothers. With a small pencil brush and regular sheep marking fluid the lambs should be marked with the number found on the ear tag of the ewe. By this method it is comparatively easy to keep trace of them and avoid the annoying troubles which attend the flock where the lambs are not properly marked. It is sometimes necessary to mark the lambs twice before ear tagging, since the marks fade as the lambs grow.

## BREEDING.

Darwin truthfully said: "Not one man in a thousand has accuracy of eye and judgment sufficient to become an eminent breeder. If gifted with these qualities, and he studies his subject for years, and devotes his lifetime to it with indomitable perseverance, he will succeed, and may make great improvements; if he wants any of these qualities he will assuredly fail. Indomitable patience, the finest powers of discrimination, and sound judgment must be exercised during many years. A clearly pre-determined object must be kept steadily in view. Few men are endowed with all these qualities, especially with that of discriminating very slight differences. Judgment can be acquired by long experience, but if any of these qualities be wanting, the labor of a life may be thrown away."

To improve the flock, great care on the part of the shepherd is absolutely necessary. Unless a well-laid plan of breeding to a certain type is followed, disaster must result. Steady and persistent line breeding is the only safe rule to follow to accomplish much as a breeder. Individual selections must be carefully made so that the line is not broken so far as either blood or type is concerned. Uniformity of type should be the great aim of the flockmaster and should take precedent to size, therefore, don't allow the tape or weigh scales to lead you astray.

Feeding is a part of breeding, as we understand improved breeding today. "Keep improving," is a good motto for the breeder. If the flock does not improve, it must deteriorate. There is no such a thing as standing still in the breeders' world. The breeder who is satisfied that his flock is perfect will not long take rank with great breeders.

Good breeders are found among those who avoid breeding from males and females possessing similar defects in conformation, for they well know that defects seem to be more easily transmitted to the offspring than good qualities.

Good, pure-bred rams will improve a mediocre pure-bred flock, just as a pure-bred ram will improve a mongrel flock, but a poor pure-bred ram will ruin a well-bred pure-bred flock.

In many American flocks, the sin of reserving ram lambs that should find their way to the shambles, is too prevalent to insure such rapid improvement of our sheep stocks as could be desired. Another mistaken policy is that of using rams, particularly strong in certain points with a view of offsetting the weaknesses of certain points of the ewes instead of using a perfectly smooth ram and through him in a short time smooth the entire flock.

There is a limit to the breeder's work in some directions. The time will never come when the dual purpose animal will possess the combined characteristics to the fullest extent that are found in

the animal that is bred for a single purpose, say mutton or wool. We cannot unite the fleece of the American Merino with the mutton of the Southdown or other famous mutton breeds, and evolve a general purpose sheep that will equal either in both respects. Neither can we unite in horseflesh the speed of the race horse and the strength of the shire horse in one animal, neither can all the excellences of the different breeds of sheep be united in one animal. Nature defies such a condition.

There are many flocks of unregistered sheep which have no known pedigree which are in reality pure-bred. In making an extended tour of the Province of Quebec, Canada, the writer noticed flocks, which were to all appearance, Leicesters. A well-informed farmer of Scotch extraction imparted the information that without doubt all these sheep were of pure Leicester blood, as a small flock of the breed was imported into the province in its early history and its descendants in time disseminated more or less all over that province. To a remark upon the large proportion of black sheep in these flocks, the canny farmer replied: "Yes, that is Mr. Bakewell cropping out," alluding, of course, to the black ram which history states that that famous improver used in the evolution of his flock. Speaking of these Quebec sheep leads to the subject of in-breeding, since, without doubt, they have been in-bred ever since the forefathers of the family first landed in the province.

#### IN-BREEDING.

Is in-breeding injurious? This is the question that came to the writer's mind when looking over the remarkably large, fat, heavy and healthy looking lambs in the Quebec flocks alluded to above. The wonderful milking properties of the ewes and the great growth of their lambs upon such rations as are furnished them, will suggest the answer: "No." It would seem that some breeds of animals are more susceptible to the damaging influence of in-breeding than others. Perhaps no animal suffers more in this respect than the different breeds of hogs, and perhaps no breed of animal suffers less in this respect than sheep. As applied to sheep, it appears to the writer that the damage caused from in-breeding in the flock is largely magnified. One of the greatest in-breeders that ever lived, according to history, was the immortal Bakewell, and certainly no breeder before or since has ever made the improvement in a breed of sheep in the same time that he did. There is little doubt but that the lion, tiger, elephant and most of the rodent family are as large and of as powerful and strong a constitution as they were centuries ago, and that they are very much in-and-in-bred there is no question, but, notwithstanding these facts, no one would consider in-breeding indiscriminately to be a wise policy. An English writer says that the evil effects resulting

from close inter-breeding are difficult to detect, for they accumulate slowly and differ much in degree with different species, and while using the term evil effects, it should be noted that the advantages of close inter-breeding in maintaining character is indisputable, and often outweighs the evil of a slight loss of constitutional vigor.

On this question, the well-known and accomplished livestock breeder, Mr. N. H. Gentry, of North Carolina, says: "Neither in-breeding nor the reverse will be a success unless matings are made with animals suited to each other; that is, having no weakness and as much food in common as possible. This is the key to success in all breeding operations, and success will come in no other way. In my opinion in-breeding as a rule is very good or very bad. If you intensify the blood of animals that are good, you do good, but if they are bad, you go wrong as fast or faster than you go right in the other case."

"If it is true that in-breeding intensifies weakness of constitution, lack of vigor or too great fineness of bone, is it not as reasonable and as certain that you can intensify strength of constitution, heavy bone or vigor, if you have those traits well developed in the blood of the animals you are breeding with? Not only that, but I believe, as do most well-posted breeders, that the in-bred animal, if a good one, by inheritance from ancestors of the same quality, will, as a rule, prove the more prepotent breeder, that is, he will show improvement to a greater degree when used on outside families.

"I believe there is little or nothing to fear from kinship of animals mated, if they are suited to each other. I have watched results of in-breeding in my herd for years, and until I can discover some evil effects from it—and I have not yet—I shall continue to practice it. I think many mistakes have been made by studying pedigrees, that is comparing pedigrees with each other rather than studying the animals. Better by far to match the animals, better to spend time studying them than to match pedigrees by the fireside, not knowing much of the fitness of the animals to be mated.

"There is no doubt that in-breeding can intensify a weakness, if in common, very rapidly. But, as I have already said, I have learned to fear bad results little in in-breeding when I have the good in common to a strong degree and a minimum of bad in common."

#### IN-BREEDING AND "CLIMATIC OUTCROSSING."

A great deal has been said against in-breeding. Is it justified? It is doubtful if any one factor has tended so much to the improvement of our flocks and herds as in-breeding, although people look so aghast at the thought. Our greatest improvers were inveterate in-breeders. If we have studied Darwin aright, we deduct from

his experiments in in-breeding and cross-breeding that no injurious effects follow from mere mating of near relations, but from the fact that near relatives generally possess a closely similar constitution through having lived under the same conditions as regard care, climate, etc. It appears reasonable that sheep of the same blood and the same breed, kept under the same conditions, would develop the same defects in constitutional vigor, though not necessarily in the same degree. Therefore, where the animals selected show evidence of strong constitutions, no serious results should follow in-breeding for a time at least.

According to those who have experimented with in-breeding to extreme latitudes, in-breeding does not alter the typical form of a breed, but on the other hand, strengthens it, but that it does impair size, constitution and fertility, while again they find that members of the same strain of blood, which have been raised and kept for generations under different conditions, will increase in size and vigor to an extraordinary degree. For instance, suppose a breeder in New York and another in Oregon divided a flock of the same blood and gave them the same treatment as regard food, etc., and then traded rams, it is contended that this would materially strengthen the constitution of both flocks. This is a "climatic out-cross."

Notwithstanding what may be said for or against in-breeding, none but great breeders and those of scientific attainments or inclinations should dabble with such a keen-edged problem. It is no work for the ordinary farmer to undertake.

#### BREEDING EWE LAMBS.

Should ewe lambs be bred? This is a question not easily answered, as it depends upon the kind of sheep we are handling and whether our farming methods are intensive or just ordinary. The Hampshire breeders of England have proved that ewe lambs can be profitably bred, but those breeders who run their flocks on the scavenging plan must not think of doing as they do, and on general principles the breeding of ewe lambs can not be recommended.

In an article in the "Wool Record of New York" (now defunct), the writer had this to say on the breeding of ewe lambs: "The question of the prudence and profit of breeding from ewe lambs is a somewhat mooted one, and while some who have experimented along such lines, undoubtedly with a flock lacking in the desirable precocious and prolific instincts of some well-known breeds; or, perhaps, with land minus certain desirable and indispensable chemical qualities, or not, unlikely, lacking the necessary abilities to successfully handle such a flock, will tell us that nothing but a disastrous issue confronts us; on the other hand, we are met by

men who have delved deep down into the depths of science, and with Darwin tell us of what seem to us almost impossibilities.

"I contend, and with facts and figures, wish to clearly demonstrate that where breed, feeding and some of the higher laws of nature are carefully considered and adhered to, that breeding from ewe lambs is not only profitable, but in many instances very desirable; in fact, I have so pinned my faith to such a course of procedure that my experiments will tend in this direction the coming breeding season. Now, brother shepherds, I am not taking the stand to tell you that taking a bunch of ewe lambs—promiscuously—and breeding them will put you on the road to wealth; neither am I telling you to take any of our modern improved breeds and expect to strike a Klondike right off. Oh, no! But I want to tell you that there is a breed of sheep that will, as lambs, produce offspring that in mutton qualities or heavyweights vie with any that may be produced from ewes at any given age. It is the Hampshire.

"When in the year 1760, Bakewell—who was undoubtedly the father of the flockmaster—commenced his improvements of live stock, did he think he would be followed by sons of such high intellectual order or standing as are our flockmasters of today? To make my subject approach completeness, I must introduce one of the greatest flockmasters of the day—De Mornay—who has given us the benefit of his experiments, and the most valuable proofs of the reasonableness of breeding from ewe lambs. He it is who tells us that the development of constitution and muscular form does not take so long a time to effect as does the procreative system. To alter and fix an instinct of precocity requires a long and persistent effort on the part of the breeder in the selection of the most precocious of both sexes without interruption for many years, supplying them at the same time with an appropriate and liberal diet.

"Read what he tells us about early maturity. He says: 'A ram (Hampshire) lamb was put in with the flock of 170 ewe lambs October 5th. In March and April they gave birth to 153 lambs, several being twins, one of which was saved for a ram. They were all good, well-made lambs, easily reared by their young mothers, and with very little more attention than it was necessary to bestow on the principal flock.' He then goes on to tell us that, 'A ram lamb was turned into only fifty of the ewe lambs on September 10, the lambs then being only seven months old, and they gave birth in February and March to fifty-five strong lambs, without the loss of a single lamb. The following year these fifty lambs, being two-tooth sheep, gave birth to sixty fine lambs, some of which weighed 15 lb. on the day they were born. They lambed easier than the two-tooths, which had not lambed when they were tegs. There were reared in four consecutive years 506 teg lambs.'

"The most remarkable proof of the early maturing properties and the fecundity of the Hampshire can be gathered upon again referring to Mr. De Mornay's report: 'Three ewes, each having two lambs by their side, were bred to one of the rams in the flock which could not have been more than three months old, and the three ewes gave birth to six more lambs in August, one having three lambs.' He also mentions a ewe which gave birth to two lambs in the month of January. She lambed again early in July, when she gave birth to two more lambs, making in all six lambs dropped by this ewe within a year. The produce (one year's) from this individual ewe realized \$125, leaving one yet unsold."

"Undoubtedly the Hampshire ewe lamb, on account of her precocity and fecundity, can be profitably bred without the least ill effects, provided the food and care supplied is of the right standard. So far as constitution goes, nothing need be feared."

#### CONTROLLING THE SEX.

A good deal of discussion has taken place one time and another on this interesting question. About eighty years ago an interesting experiment was tried in France with a view of gaining light thereon. At a meeting of the Agricultural Society of Se-verac, held in July, 1826, it was proposed by a breeder, who had formed a theory as a result of experiments, that tests should be made. He suggested that young rams should be put to the ewes from which the greater number of ewe lambs were desired, and the flock put on the richest and most abundant pasture, while to obtain a majority of ram lambs strong old rams should be used and the ewes put on rather inferior pasture. Two members of the society agreed to try the experiment, and in due course the results were announced as follows:

From flock for ewe lambs, served by two rams 15 months and 2 years old:

Ages of Ewes.	Sex of Lambs.	
	Male.	Female.
Two years .....	14	26
Three years .....	16	29
Four years .....	5	21
Five years and over.....	18	8
Total .....	53	84

From flock for ram lambs, served by two rams 4 and 5 years old:

Ages of Ewes.	Sex of Lambs.	
	Male.	Female.
Two years .....	7	3
Three years .....	15	14
Four years .....	33	14
Five years and over.....	25	24
<hr/>		<hr/>
Total .....	80	55

Should not our experiment stations help us out on such questions as these? Certainly they would be doing more universal good by experimenting along these lines than by fitting and showing exhibits in competition with our livestock breeders. The experiment station that determines what controls sex (there surely is such a thing) will make undying fame.

It has been advocated that the sex of possible offspring changes regularly every time the female is in season. A very interesting article on this subject came to the author's notice a short time ago where an Englishman gives his experience with Shorthorn cows which had already produced calves. He states that he did not breed for either sex, but more for the purpose of testing the theory.

The cows were bred at the usual time after calving, the intervening periods being carefully noted. The experimenter pointed out that since cows vary very much in the time elapsing between calving and their first heat, it followed that some were served at their first heat and others at their third or fourth. Some of them "turned" two or three times, but this naturally made no difference to the value of the experiment, except perhaps, as the experimenter said, to add emphasis to the working of the law by increasing the enormous odds against coincidence. In only one case out of nineteen did the theory fail to justify itself in this test. Those cows which had produced a bull calf and were in calf again at the first, third or fifth period had female calves, and those which produced females and bred again at the odd numbers in the heats all gave bull calves and those which bred at the second, fourth and sixth periods produced calves of the same sex as before. In the case of the nineteenth cow, the promoter of the test remarks, which was the only exception, there was room for considerable doubt as to the correctness of her heat periods, but since she was served several times before taking, her failure to fall into line with the other eighteen seemed to him to form but a weak objection to the truth of the theory.

Some years after the same experimenter took up the breeding of Jerseys, and then, of course, heifer calves became preferable. As far as possible the rule by which heifers should be produced was adhered to, but absolute certainty in selecting the

odd or even number of heats was not always possible and occasional disappointments were met with.

A poultry breeder, who was struck with the account of this gentleman's tests, applied the theory to his poultry. Selecting a prolific hen, he placed her eggs in two baskets alternately as they were laid. They were then hatched out, with the result that one lot were all cockerels and the other all pullets.

#### PROLIFICACY.

The different breeds of sheep vary much in regard to their prolificacy. It is a general opinion that sheep in their wild state give birth to but one lamb at a time. Prolificacy is studied a great deal more by flockmasters today than it was in olden times. Although Youatt in his famous work remarks:

- "Ewes, yearly by twinning, rich masters do make,  
The lambs of such twimmers for breeders go take."

It all depends on the milking qualities of the ewe whether twins are profitable or not. Ewes are like cows, some are good milkers and others are very poor ones. It would seem that nature would provide the ewe with the proper sustenance for her offspring, but occasionally she does not.

The Dorset has almost always been famous for prolificacy, not only so far as twins are concerned but also for breeding twice a year. On the whole, so far as the mutton breeds are concerned, twins are more desirable than singles under the present conditions of intensive farming. A big, strong, deep-milking ewe is just as able to take care of a pair of good lambs as a poor individual is one, and sometimes far better able to do so. It has been stated that the smaller breeds of sheep are more prolific than the larger ones, but it is a question if this is quite correct, since Hampshires and Suffolks are well known for their fecundity. The Shropshire comes under the category of prolific breeds. Someone recently compiled a table from the American Shropshire Record, which shows that of 23,000 pure-bred Shropshire sheep, 59 per cent of them were singles, 39 per cent twins and 1 per cent triplets. An English Shropshire breeder recently said that one of his cottagers, who had a field or two, was in the habit of buying about ten of his old ewes each year and invariably reared more than double as many lambs. In a flock competition in England some time ago for flocks of fifty ewes or a little over the number of lambs raised to the first of May per hundred ewes was 185, 166, 163 and 159 respectively. For flocks of one hundred or a little over the figures per hundred ewes were 171, 161, 160 and 160 respectively. For flocks of 150 or over the lambs per hundred ewes were 160, 158, 157 and 145. Most of these flocks were pure-bred Shropshires. It would seem, according to these figures, that with

the increased number of ewes the ratio of percentage diminished rather than increased, showing pretty conclusively that the smaller flocks were the most profitable, although it is doubtful if it would pay to divide some of the large flocks into smaller ones and put a shepherd in charge of each flock.

An English Shropshire breeder says he wants all the couples possible and tries his best to get them. He mentions that the biggest fall he ever had was 160 from eighty ewes, composed of nine singles, nine triplets and the remainder twins. This was the number actually raised and not the number yeaned. Their owner remarks that he lost quite a number prematurely through some trouble with the ewes. A good many of the English breeders are now systematically breeding for twins. The same Shropshire breeder referred to above says that it is the custom of most farmers to buy their rams at pedigree sales simply for appearance, and whether they are single or twin-bred is just luck. It is a common saying in England among those in want of a good ram: "Save me a ram or two from these ewes if they breed twins."

It would seem that ewes were prolific even in early days judging by the Gentleman's Magazine for March, 1750, which says: "Last week a ewe belonging to Mr. Kitter yeaned five lambs; she also brought five lambs last year and four the year before; i. e., fourteen lambs in three years, and not a weak or deformed one in the whole number."

The Agricultural Magazine for April, 1804, contains the following: "Mr. Meadows, of Salcey Forest, Northamptonshire, has a ewe which brought him three lambs in 1802, four in 1803, four in 1804 and four in 1805, being fifteen lambs in four years." Mr. A. F. Filley, an Illinois Hampshire breeder, once wrote: "More than a dozen years ago a son of Mr. James Harrington, who is Mr. Filley's neighbor, was presented with a Cotswold ewe which within the next eleven years presented him with thirty lambs in the following order: Five pairs of twins, four broods of triplets and two broods of quartettes. The males of this remarkable ewe's issue were disposed of and the females kept until the ewe flock numbered eighty head, all of which were dispersed by sale except thirteen of the best ewes, which at the next lambing gave their owners thirteen pairs of twins, every one of which was raised to maturity."

#### TWINS VS. SINGLES.

Considerable difference of opinion prevails as to whether singles or twins are the most profitable. Of course it all simmers down to whether the ewe can raise twins or not. The writer's experience has been that some ewes are much better able to raise twins than others are singles. One good single is worth a good many poor twins, but there is no doubt where conditions are

favorable and the right breed is kept and properly taken care of that twins are more profitable than singles. It depends a good deal on the breed of sheep as to whether twins or singles are the better property. In the lowlands where feed is abundant and the shepherd is always present and supplementary rations are abundant, twins cannot be out of place, but on the bleak, cold hills, where the flock has nothing but such scanty fare as they generally afford twins are not so desirable; so it is simply a question of conditions whether singles or twins are the most profitable.

#### WATER.

Sheep thrive in many parts of England without any special attention being given to their water supply. This is due to the moisture of that climate and the succulent rations with which the flocks are so abundantly supplied. But what applies to England does not apply to this country. To attempt to run a flock here without an abundant supply of water would be business suicide. Watering sheep at stated intervals is a good plan, but allowing them free access to it at all times is better. No good shepherd allows his flock to drink at stagnant pools. If sheep are allowed to suffer from thirst for any length of time and then permitted to have their fill, bowel troubles are liable to occur. The watering trough should be kept clean, as sheep will suffer rather than drink from filthy vessels. Where possible it is always best to pipe the water to drinking troughs. To compel sheep to wade through mud to the trough or drinking place is to court foul-foot and foot-rot. Ewes suckling lambs when on dry rations drink a surprising quantity of water, much more than the casual observer might imagine. Therefore the necessity of keeping them abundantly supplied.

#### SHADE.

In hot climates sheep should be provided with ample shade and to build a shelter in the sheep pasture to protect them from sun and storms is not only desirable but profitable. It is nothing less than criminal to confine a flock to pastures where shade is not available. They are bound to lose flesh rapidly under such conditions and the fleece suffers in sympathy—the whole constitution, in fact. Nothing, perhaps, offers better shelter than a small group of trees. Some authorities claim that such a place is the hotbed of parasites, which may in a measure be true, but some of the most thrifty flocks coming to the writer's notice spend a greater part of the hot summer days in the shade of such a retreat.

#### THE SHEEP BARN.

A good deal of money is spent unnecessarily in the erection of elaborate sheep barns. Of course, where "money is no object,"

this is all right, but there are instances where a costly sheep barn has been the forerunner of disaster. The novice should give his attention first to the quality of his sheep and to the barn after. It is poor policy to build costly sheep barns when cheap ones will answer the same practical purpose and leave their owners with more capital with which to swing their business. Costly buildings have cornered a good many sheepmen and forced them out of business. Almost any kind of a barn, providing it is waterproof, roomy, well drained and well ventilated, will answer the purpose of a sheep barn. A very serviceable barn is that on the Edgewood farm of Dr. H. B. Arbuckle, the well-known Dorset breeder, the main



A New York State Sheep Barn—Shepherd's Hut in Foreground.

features of which are described by the doctor himself in the "American Sheep Breeder" as follows:

"1. Ventilation without draughts. 2. Sunshine. 3. Conveniences for the feeding of lambs. 4. Arrangements for separating the ewes into small lots, so they can be fed differently. 5. Convenient feeding racks. 6. Arrangements for storing grain and other feed. 7. A root cellar."

"This barn possesses all these features. The size of the barn is determined on the principle that every ewe must have at least eighteen square feet of actual space, exclusive of pens, passages, racks. This supposes that there will be at least one lamb for each ewe in such a flock. I am sure that this will be found necessary. This barn, then, must be sixty feet long by thirty feet wide to allow for the special form of racks, the pens, the granary and the sixty

ewes. I am ready to admit that this seems extravagant, but no one can have conveniences in a sheep barn without some outlay. In handling a flock of pure-bred ewes one can afford to furnish these conveniences, for it pays to give individual attention to such ewes. It is absolutely necessary for the highest success.

"In order to get the ventilation and the sunshine, the barn is placed with one long side to the south or southeast, and this side is weather-boarded just four feet from the ground. All the cracks are stripped to prevent draughts. The upper half of this south side consists of long windows hinged at the top, so they can be opened outward and upward. If this amount of glass is too expensive, part of these windows may be replaced by wooden doors hinged in the same way. A ventilating shaft two feet square passes from the top of the shed at the center through the mow and is properly capped about two feet above the comb of the roof.

"The hay is put into the mow with a hay fork and is passed down to the passage between the feed racks by hay holes, which are kept free by building up a set of boxes around the holes as the hay is put in.

"Grain is elevated to the mow by the pulleys of the hay fork and placed in bins in the granary marked G. You notice that bins are provided for oats, bran, corn, peas and meal; oil cake should also be on hand. The feed should be mixed as it is used, so the feeder can adjust his feed to the sheep. He can thus introduce variety in his feeding, which is important.

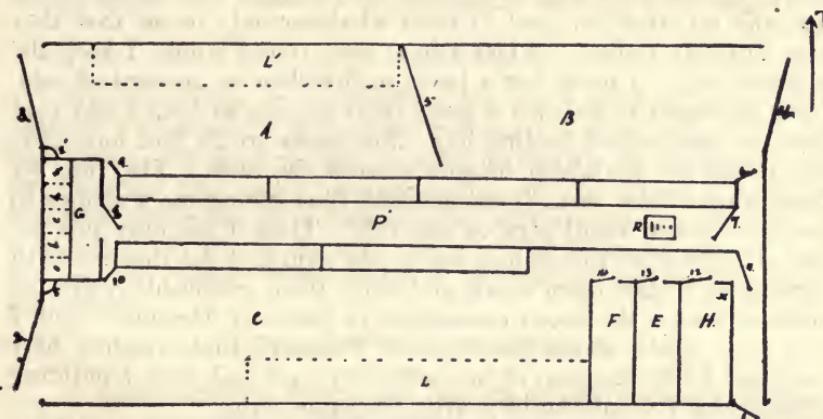
"At R in the feed passage is a trap-door admitting one to the root-cellar, which is so placed that the roots can be placed in from a wagon on the outside by means of a chute. This cellar should be lined with concrete and having the following dimensions: twelve feet long, six feet wide, six feet deep.

"The feed racks are movable. They will average about twelve feet in length for this shed. They are constructed so that both the hay and the grain can be put in from the passage. This is a most convenient rack devised by my brother, and I shall gladly furnish a sketch of the rack later.

"At S and S degrees are salt boxes and a water trough should be just outside the shed. At L and L degrees are lamb creeps in which bran and meal are always on hand for the lambs. The gate marked 5 divides the upper side of the shed into two parts and sheep may be passed from the upper to the lower side by the gates marked 9 and 10. H, E and F are pens for handling a few ewes by themselves. These pens are ten feet long by five feet wide and have their own hay racks and feed boxes. The gates 12, 13 and 14 open outward. These pens should be movable. The sides may be made of light stuff and fastened to the wall by heavy iron hooks. Gate marked 11 is a movable gate. When not in use it can be

lifted from its place and hung up on the wall out of the way. It is used for separating the sheep as they come into the shed.

"One of the greatest conveniences of this shed is the arrangement to separate the sheep without catching them. It is not only tedious work to catch sheep, but it is often injurious to ewes heavy in lamb. When sheep come into the shed, the shepherd can take his place at the x mark in pen H and with his hand on gate 11 can turn the ewes either to the upper or lower side of the shed. All ewes with young lambs and those expected to lamb in a few days may thus be separated from the flock and fed differently. With his left hand he can manipulate the gates 12; 13 and 14 by means of wooden rods fastened to the top of the gates by a movable joint. These rods lie close at hand on the partition of the pen in which he stands.



Ground Plan of Doctor Arbuckle's Sheep Barn.

"When a sick ewe comes along he can turn her to the lower side by gate 11 and then by pushing gate 12 open, she must enter pen H, the gate being pulled shut behind her, so that the other ewes can pass on to compartment C. If it is a ewe with very young twins, he can pass her into pen E. Thus without catching a sheep, he can separate his flock just as he wants them; and do it as the sheep come into the shed. A flock of ewes heavy in lamb or with young lambs move into a shed slowly, so the shepherd will have time to manipulate the gates. Until the sheep get anxious to get into the shed in the winter, it is well to have a good collie dog that has sense enough to work gently with the sheep to bring the sheep in for you."

A sheep barn which appeals to the writer as being, in many ways, a very useful one is that belonging to Mr. Alex Lape, of New York State, the dimensions and description of which in Mr. Lape's own words are as follows: Length, 20x30; width, 20 feet; part

half pitch roof. This barn will accommodate sixty sheep. The loft will hold about five tons of hay. The first floor is composed of just common clay and the distance to the second floor is 8 feet 6 inches. Railroad door faces the south. There are two windows on the end and three on the side and half turned stairs on one corner. The second floor is made of 1-inch hemlock boards, just common unmatched. This floor is 7 feet 6 inches to the loft on the end facing the east. I have railroad door and incline for the sheep to go in and out, with a separate yard on this second floor. There are three windows on each side and two on the end. It is necessary for me to raise some of the windows in zero weather on account of its being so warm on this floor, from the heat generated by the sheep below. The barn is not sealed, but simply covered with common novelty siding. I raise my early winter lambs on this floor. Lambs have been born when the weather was twenty below zero and no attention paid to them whatever only to see that they were properly nursed. When I have very young lambs, I keep the windows shut. I never lost a lamb on this floor on account of cold. I use V-shaped racks with a good tight bottom so that I can feed grain or roots before feeding hay. The racks are 22 feet long, giving 4 feet for the sheep to pass around the ends. They are set lengthways of the barn, little one side, thus giving me a chance to put up a row of small pens on one side. These I use only just before or right after the lamb is born. As soon as I get through with these pens I take them down and store them overhead, ready for another year. My sheep commence to lamb in December and I have sold lambs about the 20th of February that weighed fifty pounds. I like the plan of my barn very well and were I building a larger one I should build it after the same style.

A description of the barn of Mr. A. T. Gamber, the well-known Ohio fine wool sheep breeder, has many features to recommend it. The description of this barn is given in its owner's own words: "This barn is 40x80 ft., 8½ ft. basement and 20 ft. posts above. The barn stands long way east and west, so as to get lots of sun, so that the yard will be on the south side of the barn. I will have a building set north and south at southwest corner of barn next month; then I will have ideal yards and buildings on north and west to break all wind. My wall of stone is only 18 inches. I prefer wood to stone. I have five windows on south side, 7x2½ feet, giving plenty of light and sunshine. There are two windows of same size at each end. Have light rolling gates inside, easy to open and close. We put a track up above on cross-beams; then pieces at ends of gates run up to this track with rollers on pieces. We drive manure spreader through barn long ways. West end for rams, center alley for feed room, with sheep pen either side. Next section of alley is a nice sheep pen and long narrow 14x20 ft. pens on either side. Then sheep pen and

lamb creep at each end. Have 150 barrel tank in haymow three feet from sides and packed with hay.

"Tank takes water from roof. Have three troughs and pipes with faucets. We have a fifty-bushel feed bin with elevated floor, so feed will slide down. This is filled from barn floor and taken out below. Grain is mixed at granery before putting in. I don't like doing this very well, but don't advise a granery in the barn. Mice and even rats are sure to get in. Have a grain house near barn. We never had a mouse in there. We keep some sheep on second floor by scaffolding one side of barn floor and we keep all our tools and a bunch of fine rams there. This barn holds eighty tons of hay. We never put grain in because we do not want our straw stack in yard. It is a good point to have straw stack outside and carry it in to bed with. Our barn has a raised drive and bridge to get in. Some prefer driving in on level, but I don't."

#### THE HOSPITAL.

No sheep farm or shepherd's outfit can be said to be complete without its hospital. It does not necessarily mean that this must be a costly structure or that it must necessarily be equipped with an elaborate and costly paraphernalia, for the rudest kind of a building, providing it is comfortable, will answer the purpose of a hospital. It should be isolated from the sheep barns and kept scrupulously clean, well-ventilated and at all times thoroughly disinfected.

#### THE SHEPHERD'S QUARTERS.

A really modern sheep barn has its shepherd's room wherein is found a complete kit in the shape of bed, stove, medicine-chest and other things necessary to the proper management of the flock during the lambing and other seasons. Of course the inevitable shears, knives, trocar and lambing forceps are among the more important of the shepherd's "surgical" instruments and these are supplemented with needles, splints, cardboard, cotton-wool and bandages of various widths. A good stock of drugs and a drenching bottle for their administration in internal troubles should be on hand. Flaxseed, from which the most soothing and nourishing of "teas" are made, is one of the most indispensable articles in the room. In the drug line is found carbolic acid, which in the proportion of 60 to 1 is one of the best antiseptics and injections for ewes suffering from the after effects of abortion, etc. This also makes a fine disinfectant and dressing for the hands in handling animals suffering from troubles in which danger from blood poisoning may exist.

Of course that great double-acting remedy for constipation and diarrhoea, castor oil, is included in the list, and that great

alleviator of pain in parturition troubles, laudanum, must be mentioned. Then other remedies may be given, briefly. There is alum, useful in diarrhoea and in the prevention of excessive bleeding, and bluestone or blue-vitrol, used successfully in footrot and navel-ill in lambs; butter of antimony, a remedy used in conjunction with other drugs for footrot; borax, very useful as a wash for aphtha or sores which frequently trouble the mouths of lambs; carbonate of ammonia, a powerful stimulant used with considerable success in difficult parturition cases, and that great stomachic and stimulant, ginger, all find a place in the shepherd's medicine chest, as do also tar, rosin, hyposulphite of soda, nitric acid, sweet spirits of nitre, linseed oil, oil of male shield fern, charcoal, chalk and whiskey. Some shepherds say the latter is one of the best remedies on the list.

#### HAYRACKS.

The hayrack is one of the most important feeding appliances needed in sheepkeeping. Different people have different ideas as to which is the most perfect hayrack. There are those who think racks with slats running perpendicularly to be the best, while others think that arranged with slats running diagonally with the top of the rack farthest from the wall to be the thing. The writer, however, considers that which is built almost exactly opposite to the last mentioned is the one which gives the best results, especially so far as obviating or preventing hay seeds from lodging in the neck of the sheep is concerned. It is built so that it is wider at the bottom than at the top when closed. The proper way to make it is to have the frame containing the slats or rungs fixed on hinges so that it can be opened to allow of putting in the hay with comparative ease.

#### PORTABLE PENS.

One of the most useful appliances of the sheep barn is the lambing pen. Its use is for keeping the newly-yeaned ewe and her offspring from separating and providing them a certain amount of privacy from the main flock. The portable pen is far and away better than the permanent lambing pen if for no other reason than that it can be easily knocked down and stored away in space that is not so valuable as space on the floor of the sheep barn. Where sheep are prepared for exhibition the permanent lambing pen is all right, as it makes an ideal fitting pen. A very useful portable pen is made from the following material: Four 2x2 or 1½x1½ posts about three feet long and twelve boards say from three to four feet long—according to size of sheep—six inches wide and one-half or three-quarters of an inch thick. If the two main panels of this pen be already put together it is but the matter of a few minutes to prepare the pen ready for use. As soon

as a ewe shows symptoms of lambing a pen can be placed over her and all danger of her being molested by her companions is removed, although she is not in a sense isolated from the main flock to such an extent as to cause her to become restless. Care should be taken that the boards are nailed close enough together to prevent the lambs from escaping from the pen.

#### CLEANING THE SHEEP BARN.

How often the sheep barn should be cleaned is a much-debated question, some claiming that the manure should be left undisturbed from the time the flock goes into winter quarters until they leave the barn for the pastures, while others say that it should be removed two or three times during the winter. To try to keep the barn clean day by day, as is done in the case of the horse stable, is a very futile and unnecessary piece of work. So long as the manure does not heat it is of little or no injury to the sheep; moreover, it insures a dryer footing than would be the case where an attempt was made to clean the manure out each day, as that insures a continual slimy condition of the floor. The writer's plan has been to clean it out three times during the season, once just before going into winter quarters, just before lambing and as soon as the sheep leave for the pasture. In case of the manure heating to an unhealthy degree land plaster should be scattered around. This will soon neutralize the ammonia and otherwise adjust matters.

#### THE SHEEP YARD.

The yard should face the south since, like the human family, sheep like sunshine. The yard should be well bedded at all times. Filthy yards are often the forerunner of footrot. Boards about seven feet high make an ideal fence for sheep yards, as it acts as a wind break and is a splendid protection against dogs and other pests. If the yard slopes a little it is so much the better, as then it naturally drains itself. Of course the yard should be roomy.

#### MANAGEMENT OF THE YEANING EWE.

A good deal of the shepherd's success depends upon his faithfulness during the weaning season. If he is a student of nature he will learn some new wrinkle almost daily no matter how wise or experienced he may be. A good many shepherds claim that a ewe should not be interfered with so long as the lamb is coming in the natural way—forefeet and head first. The writer has found, however, that most ewes, especially those whose lambs are coming with unusually large heads, can be helped to advantage by placing the hand on the skin of vulva and gently pulling it back over the head and pulling out the forelegs gently one at a time. This

means nothing more nor less than that the ewe is artificially relieved of labor which in the ordinary course of events would mean several hours of natural hard labor. Of course the ewe should not be interfered with until the psychological moment arrives—that is, when the head has arrived at that point where the ewe has to struggle violently to rid herself of her burden.

No one, more than the author, dislikes long quotations from other works, still without such quotations in proper season for comparison of opinion, etc., no writer can serve the best interests of his readers, hence occasion is taken to quote at length from the prize essay of a well-known English writer, Mr. Cleeve, whose essay on this subject appeared in the first volume of the journal of the Royal Agricultural Society.

"The shepherd," says Mr. Cleeve, "must receive it as a general maxim, to be most attentively observed, that nature is the best midwife. He must not be led by the appearances of uneasiness and pain to interfere prematurely. He must watch the ewe closely and so long as she rises at his approach he may be assured that whatever uneasiness she may exhibit all is well. Much uneasiness is generally apparent; she will repeatedly lie down and rise again with seeming distress. If this occurs when driving her to the fold he must be very cautious and gentle in urging her. These symptoms ought to be continued for two or three hours, or even more, before he feels imperatively called upon to interfere, except the lamb is in such a position as to warrant fears of losing it. In cold weather particularly the labor is likely to be protracted. Should the ewe appear exhausted and gradually sinking under her labor, it will be right to give her some oatmeal gruel with a little linseed in the proportion of a spoonful of the latter to two of the former. When the ewe feels that she is unable of herself to expel the lamb she will quietly submit to the shepherd's assistance. In giving her this assistance his first duty is to ascertain whether the presentation is natural. The natural presentation is with the muzzle foremost and a foot on each side of it. Should all be right in this respect he must proceed to disengage the lamb, first very gently drawing down the legs, and with all possible tenderness smoothing and facilitating the passing of the head with his fingers rather than forcibly extracting it—the particular attention of the shepherd being given to these points. This may be effected by passing the fingers up the rectum until he feels the back of the lamb's head and then urging it forward at the same time that he gently pulls the legs. Sometimes the head is sufficiently advanced, but the legs are too backward. In this case the head must be gently pushed back and the hand, being well oiled, must be introduced into the vagina and applied to the legs so as to place them in their natural position, equal to the head. Should the forefeet, on the other hand, protrude they must in like manner be returned and

the same assistance given to advance the head. If the hindquarters present themselves first the hand must be applied to get hold of both hind legs together and draw them gently but firmly. The lamb may often be easily removed in this position. It is no uncommon occurrence to find the head of the lamb protruding and much swollen, but still, by patience and gentle manipulation, it may often be gradually brought forward; or even nature, not unduly interfered with, will complete her work if the pelvis is not very much deformed. Should, however, the strength of the mother be rapidly wasting the head may be taken away and then the operator, pushing back the lamb, may introduce his hand and, laying hold of the forelegs, effect the delivery. It also happens that the legs are thrust out to the shoulder, and from the throes of the animal it is not possible to replace them so as to get up the head of the lamb; by partially skinning the legs you may disunite them from the shoulder joint, there will then be room for the introduction of the hand, and by laying hold of the head you can deliver the ewe. A single season of practice will do more than volumes of writing to prepare the farmer for the preceding and some other cases of difficult labor. But let him bear in mind that, as a general rule, the foetus should, if possible, be placed in its natural position previously to any attempt to extricate it by force. When force must be used it should be as gently as is consistent with the object of delivery."

#### TROUBLES OF THE LAMBING FOLD.

Preparation for lambing should be made well in advance of the season. As soon as the lamb is born it is the shepherd's duty to see that it receives nourishment. Many lambs are lost through delay in this matter. Sometimes the lamb struggles away from its dam when the shepherd is absent and loss results. The ewe should not be fed highly directly after lambing. The cooler her blood at that time the better for her and her offspring. Sore teats and sore udders have, in certain instances, been traced to a too nitrogenous diet. Ailing ewes or lambs should be taken from the flock. To make the first flow of milk after lambing easy, where the lamb is weak, lubricate the fingers with oil or even spittle. This will save the ewe much unnecessary pain. Ewes suffering from garget should be given a dose of Epsom salts as soon as the trouble is noticed and their udders should be thoroughly bathed with hot water and after drying should be dressed with a mixture of lard and turpentine. If the newly weaned lamb appears dull and refuses to suckle, it will generally be found to be suffering from constipation brought about by excesses in the feeding of the ewe, or it might be that its teeth are not properly "cut." Where such is the case, the gums should be rubbed through. Where constipation prevails, an injec-

tion of warm soapy water and a reduction of the ewe's grain ration is the remedy. Many young lambs are lost annually by what is known as "pinning." This is caused by the accumulation of excrement at the vent and tail in such a manner that the proper functions of the bowels can not be performed. In such cases the excrement should be removed, the tail freed and the parts dusted with chalk or sand to prevent a recurrence of the trouble. White scours is caused by the curdling of milk in the stomach. Common cooking soda, one-fourth of an ounce, sulphate of magnesia, one ounce, and a small quantity of ground ginger, as much as can be taken up on a dime, mixed with a small quantity of flaxseed tea or gruel, followed four hours later with a dose of two ounces of linseed oil, is a very good remedy. A ewe which has given birth to a dead lamb should not be allowed to run with the healthy ewes and lambs. Sore mouth is a very common trouble with lambs. Improper rations for the ewe sometimes are responsible for this condition. The following is an English remedy of much virtue: Sulphate of iron, four ounces; carbolic acid (pure), four drams; glycerine, four ounces; water, one and a half pints. Dissolve the carbolic acid in the glycerine, and the iron in the water and mix the two solutions. Shake well before applying. Apply with a soft brush, repeating the dressing daily until a cure is effected.

#### HOW TO CATCH A SHEEP.

It is not proper to catch a sheep by its wool. Butchers know what this means to the poor animal, since it leaves a black mark or bruise on the carcass which interferes very much with its sale. Catch the sheep either by the hind leg above the gambril joint or by placing the hand underneath the jaw or neck. Those using a crook should aim to catch the sheep above the gambril joint. There is danger of severely injuring the leg by catching it below this joint.

#### CLIPPING THE WOOL FROM THE EWE'S FLANKS.

It is a good plan to clip the wool from the ewe's flanks and udder just before lambing, as this gives her offspring a better chance to reach the fountain of sustenance. Dirty tag locks often cause a good deal of trouble by getting into the lamb's mouth, in the place of the teat, and disgusting it so much that for a long time it refuses to have anything to do with it. The best time to remove the wool is immediately after the ewe has been relieved of her lamb and is still weak from the efforts of labor. Care must be taken not to cut the teat or otherwise injure the ewe.

#### RAISING "COSSET" LAMBS.

Only in the case of pure-breds is there much profit in raising "cossets" by giving them too much milk at a time rather than a

little and often. They must be fed often to make much out of them. Overfeeding causes much mortality among "cosset" lambs. Allowing or forcing them to drink too fast through damaged nipples also causes trouble. If the milk enters the lungs the lamb is a "goner." A very rich milk causes bowel troubles, especially during the first week or so of the lamb's life, notwithstanding that the ewe's milk is said to be richer than that of the cow. The question of milk is one for considerable debate, as may be best understood when the difference in the quality of the milk of the



Herrin Lamb-Feeder.

Jersey and that of the Holstein is considered. Very rich milk (Jersey milk) must be reduced at least 25 per cent by the addition of water. The milk of a fresh cow is preferable to one which has long calved. Some good "cosset" lambs may be raised by allowing them to suck a cow. A common nursing bottle is the best thing for feeding "cosset" lambs, although a bucket with several nipples and tubes attached to it is a good thing where big strong lambs of some age are considered.

Mrs. F. W. Herrin, of Oregon, contributes the following to this work on "cosset" raising: "I raise a little band of 'cosset' lambs each year. I am sending you a picture of how I feed them. It speaks for itself and needs no explanation. Quite a little is said

about the proper feed. I think it very foolish to weaken the milk, as milk fresh from the cow is not nearly so rich as the mother's. I feed milk fresh from the cow until the lambs are six weeks old, and feed three times a day, but where one has plenty of milk it is best to feed five times. When they are about six weeks old I give them separated milk with a little oil-meal in it. I also put a small trough full of bran in the pen. I think raising the orphans is so interesting and it is so much fun to see them feed. They certainly eat with an appetite. I am raising twenty-eight this year. Last year I raised eighteen lambs and five kids."

An Indiana shepherdess advocates raw eggs for the first few days of the life of the "cosset" lamb.

#### TRANSFERRING THE LAMB.

Sometimes, through giving birth to a more numerous family than the ewe is properly able to take care of or through lack of milk, and at other times through the death or meanness of a ewe, it becomes necessary to transfer the lamb to a foster mother. Different methods by different shepherds are employed in doing this. The French shepherd's method of making an unwilling ewe suckle her lamb is to tie her up and allow a dog to worry her. This induces her to welcome the lamb as an ally against the enemy. When a ewe loses her lamb the shepherd gives her one of the twins of another. To induce her to adopt it he strips the skin off the dead lamb and fastens it on the body of that which he wishes her to adopt. In about eight days the adoption is generally complete by the ewe accepting the little waif as her foster-child. Placing the placenta or afterbirth of the ewe over the lamb is another way of bringing about a reconciliation between the ewe and the lamb. The writer has found the stanchion a good medium for bringing about a mutual understanding between the ewe and "transfer."

#### THE STANCHION.

There are few flocks in which the stanchion is not needed. Its purpose is to bring refractory ewes "to time"—they who deny nourishment to their offspring. These are usually found among young ewes having their first lambs or among very poor milkers. A very handy, although somewhat crude, stanchion is made by taking four well-sharpened stakes and driving two of them into the ground, so as to form a kind of pillory for the ewe's neck, taking care that they are set wide enough apart to allow her a certain amount of freedom, yet not wide enough for her to regain her freedom. The other two stakes are driven into the ground one on either side of her flanks, which makes her a prisoner, yet does not prevent her from lying down and enjoying such comfort as she deserves. A lamb with the proper amount of ambition will find

no great trouble in getting the nourishment which nature intended for it when a ewe is fixed thus, and it is but a matter of a few days before the ewe is cowed out and seems to understand what her mission in life is.

#### WEANING THE LAMBS.

The author has often remarked that there are two critical periods in the life of the lamb, the first few hours after birth and the first few days after weaning. Where lambs are not properly weaned, parasitic troubles are bound to make their appearance. It is the lamb that is losing ground that is usually attacked with worms and other parasitic ailments. The author's experience has been that the earlier the lambs are weaned in season the more rapid is their progress. To allow the lamb to harass the ewe when it is well able to take care of itself is wrong. As soon as the pastures get hard and dry the lambs should be put on rape or second growth clover. The ewes will keep in good enough condition on less luxuriant pastureage. Lambs should be weaned at from three to four months and put on fresh clover pasture.

Unless great care is observed a serious checking of growth will occur at weaning time. It is well to teach the lambs to eat grain before weaning. Since the best ewes will be poor at weaning time, it is well to cull the "beefy" ewe at this season. Give her a little extra feed and sell her to the butcher, for such of her class are unprofitable to keep. When the lambs are first taken from their mothers they should not be allowed within each other's hearing for obvious reasons.

#### REVIVING A CHILLED LAMB.

To revive a chilled lamb, place it in warm flannel near the stove or give it a hot bath. It is well to rub the limbs of the little patient to encourage circulation. Chilled lambs suffer considerably from constipation for a day or so after they have been revived, especially is this so of those revived by the hot-bath process. Warm milk should be administered slowly as soon as the lamb shows signs of coming to itself. Some shepherds say a little gin or whisky is good for reviving a chilled lamb and, without doubt, it is. After the lamb has been returned to its mother, the shepherd must be on the outlook for bowel troubles.

#### DRENCHING SHEEP.

To drench a sheep "to death" is wholly unnecessary and would be of rare occurrence if those administering the drench took the trouble to study the anatomy of their subjects. To force the drenching bottle too far down the throat of the sheep is to court trouble. The subject must not be forced to take its medicine with too strong a hand. The bottle should be placed on the palate and

the sheep allowed to drink rather than be forced to drink. The best way to drench the sheep is to back it into a corner, straddle it, hold the head high and simply pour the drench into its mouth and give it its own time to swallow it. A sheep usually takes its medicine well.

#### THE CARE OF YOUNG STOCK.

Good sheep can not be raised from poorly-taken-care-of lambs. One great essential in getting the proper growth from a lamb is to keep its baby fat on it as long as possible. If it loses this desirable property before well on toward maturity, it can not possibly make a first-class mature animal. If a lamb becomes stunted, no amount of feed will ever counteract the effect of the setback. Pure-bred lambs of both sexes should have a small allowance of grain, no matter how good their pastures may be, the outlay is more than offset by the superior growth of the lamb. After the fall sales of ram lambs are over there will be a number of small or indifferent ones in most all flocks left to winter over. These, no matter how robust they may be, should never be kept with the yearling rams, but should have separate enclosures and be fed liberally so that they may be forced on as fast as possible and the best possible results gotten out of them as yearlings. Those that come under the category of culs, no matter of what breed or pedigree they may be, should be fattened and sent to the butcher. Roots should be provided for the young stock.

In the attempt to raise good sires, nothing but the most liberal methods of feeding should be employed. Especially is this true so far as the lambs go. Sheep whose ancestors have been fed for nearly a century under the most improved and scientific methods of feeding, can not be expected to thrive under common everyday treatment; therefore, the best results can only be obtained by starting the young animal well and keeping him going from birth to maturity. The first six months of the lamb's life are the most important so far as feeding and care go. After then it seems better able to rustle for itself, but that does not mean he's to be treated as a scavenger. The lamb that is dull and listless is not making growth; those that run races are the ones that are making headway. Bran, oats and oilmeal, with an abundance of roots, are what make lambs grow into useful sheep. As some one has said, "the care of young stock should commence long before they are born," and, he should have added, "should certainly continue as long as they live." The points to be studied in the young and growing lamb should be constitution, character, bone, flesh, form, fleece and management. If these features are kept in view there is a pretty good chance of success.

## SHEARING.

In some countries shearing is looked upon as more of a festival than as a laborious undertaking. This is especially true in Great Britain. The time of shearing must be governed by climatic conditions, or by conveniences of shelter. In some instances early shearing is advisable and beneficial; in other cases, it is unadvisable and detrimental. To shear a flock of sheep and expose them to the changeable weather of spring without available shelter is not good management. Only a short time ago, an Australian lost



The Shearing Machine Is Good for Both Sheep and Goats and Can Be Operated by Woman As Well As Man.

a thousand out of a flock of 3,200 through recklessness of this kind. It is a common practice with our eastern flockmasters to shear those rams which they intend for the western trade quite early in the spring, some as early as February, but, of course, they have ample shelter provided. Shearing is done very much earlier as a rule now than was customary a few years ago, no doubt because of better facilities for properly taking care of the flocks than were in vogue before the improved breeds were handled to the extent they are now.

The old proverb that "God tempers the wind to the shorn lamb" is scarcely true. Early shearing, as a rule, is best only where proper shelter is provided for emergencies. There is no doubt

but that sheep shorn early do much better than those left to be shorn later on, if only for the one reason that the work of the tick is somewhat curtailed.

Since the shearing machine has practically displaced the old-time hand shears, to describe how hand-shearing is done would be entirely out of place in a modern work, as shearing machines are now made suitable for the shearing of large or small flocks. A hand-power machine, suitable for the small flock, can be purchased for something less than \$10, a price within the reach of all, and large plants at a proportionate cost. The hand-shears have no longer a place in the shearing-shed, unless for trimming show



The Shearing Machine in Idaho.

sheep, tagging, etc. Any one with an idea of shearing sheep by the old-hand shears can learn in a very short time how to shear with the machine. In fact, a novice can learn to shear sheep much quicker by machine than by the hand shears.

The shearing machine cuts smoother and gets more wool from the sheep than can be secured with the hand shears. Another thing in favor of the shearing machine is that the sheep are not hacked, cut and maimed as they often are with the hand-shears in the hands of rough operators. The shearing machine of today is not what it was a few years ago. Then it was an experiment; today it is practical in every sense of the word. So far as speed is concerned, the machine is all that can be desired. "Dick" Mar-

quis, who for several years held the record for fast shearing, both hand and machine, succeeded in shearing with the machine 360 seven-pound fleece wethers in fourteen hours and forty-six minutes. At the World's Fair International Sheep Shearing Contest in St. Louis "Con" Picket sheared three sheep in six minutes and forty seconds with the machine. The same operator at the same place took thirteen ounces of wool from a hand-shorn sheep after the shearer had worked at it for twenty minutes.

If the right kind of machine is selected and mechanical sense so far as adjusting the tension, etc., is employed, there is no rea-



Japanese Sheep Shearers.

son why even a cab-driver or preacher cannot shear sheep with the machine in a most satisfactory way and manner after a little practice. The trouble with too many shearers is they are too parsimonious in regard to oiling and use little sense in the care of the cutters. When it is considered that the cutting plate runs at a very high rate of speed and with more or less dirt to create friction and wear and tear it will be seen that a stinting of oil is a bad thing for the machine and an injustice to the manufacturer.

When shearing, the sheep should be placed about a foot to the right of the vertical shaft and an equal distance in front of it. It should be laid gently on its side, being placed in an upright position ready for "opening out." Expert shearers claim that to

get the best results the sheep should be always turned to the right. The skin should be always stretched tight as the shears run over it. The wool is first parted at the forward end of the brisket and opened down as far as the hind legs. The front legs of the sheep are then kept in position by the right arm and the machine run down the right side from the foreleg to the flank. Next, the shears are run across the belly over to the left side, from the left shoulder to the right to a line extending from the shoulder to the flank. The heel of the clipper should be elevated a trifle and the



A Very Handy Shearing Machine.

points kept well down on the skin. The fore feet are now dropped and the left hand placed on the stifle joint, which is straightened out and the skin made tight. This makes it easy to trim the wool from the inside of the legs with outward strokes. Both hind legs are treated in an exactly similar way. The tags on the outside of the leg are next trimmed off. In shearing the wool from the neck, straighten out the neck by placing the left hand on the sheep's under jaw and turning the head back and resting it on the left knee. The shears should be run lengthwise on the back of the neck toward the top of the head. In shearing the shoulders, the sheep should be given a quarter "cramp" and each stroke run towards the backbone, the skin, of course, being kept tight all the

while. In shearing the sides of the sheep the knee is pressed firmly against the brisket and the sheep allowed to lean well back. This is the easiest part of the sheep to shear. As the shearing proceeds down the sides, the sheep is allowed to gradually drop, until it lies nearly full length on the floor. As soon as the detail work is finished, such as shearing the hind legs and the tail, considerable speed may be made by making three or four continuous cuts from the rump to the shoulder. The sheep should be straightened up now, the operator straddling it and holding it firmly between his knees with the back convexed as much as possible, without danger of injury. In this position several good swathes can be made up the back and the back of the head and left side of the neck finished.

While this is not a detailed or complete description of the operation of shearing, it is sufficient to give the novice an idea of how to proceed in first trying to shear by machinery. If he proceeds after the manner described here, he will acquire the cardinal features of the art of shearing while the detail work will take care of itself. In shearing a sheep it should be held on a balance, as it were, so that, although perfectly helpless, it is not uncomfortable. While the power sheep-shearing machine is to be recommended for large flocks, the small hand-power machine is all that the manufacturers claim for it. This is known to be true of one machine having the solid jointed shearing shaft as the author knows from experience.

In New Zealand recently twenty shearers sheared with the machine 4,229 head of sheep in eight and three-quarter hours, one man shearing 280 in that time. Another fast piece of work was done by a Maori named Raihama, who sheared 332 head of sheep at an average of one minute and thirty-seven seconds per sheep. Nine men of the same gang sheared in six hours an average of 266 per man. This certainly puts the hand-shears on the shelf.

#### TYING THE FLEECE.

When tying the fleece always put the best side marketward. A well-tied fleece always attracts more attention than that which is indifferently tied. It always pays to take a little care in folding and tying the fleece. On our western ranches wool is generally sacked in a loose condition. In the east the wool-box is generally used in tying the fleece. A good idea of how this is made can be gathered from the accompanying illustration. Always keep the fleece as much together and as compact as possible when tying. All tag-locks should be removed and the inside of the fleece placed on the tying table. The edges of the fleece should then be folded over toward the center (the ends also) and then rolled up from head to tail or vice versa as tightly as possible.

without tearing it to pieces, and then set in readiness for the wool-box.

Sisal twine, more commonly known as binder twine, should never be used in tying wool, as it causes a good deal of trouble to

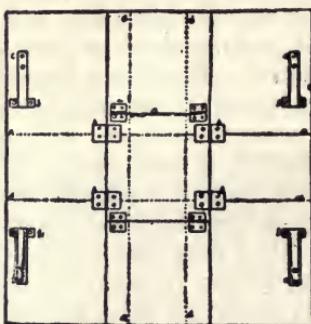


TABLE OPEN.



TABLE CLOSED.

Wool Table.

the manufacturer. Ordinary wool twine, such as number 18 hemp twine, is much better than binder twine and costs but very little more.

#### DIPPING.

The sheep breeder that expects to run his flock successfully without the somewhat boresome work of dipping is doomed to failure. It is profitable to dip once a year, and in most cases twice; even if there is no sign of vermin in the flock it should be dipped as a matter of prevention. Remember that prevention is better than cure, in this case as well as any other. The loss of mutton and wool through the inroads of vermin and parasites, such as ticks, lice, scab, etc., it may safely be said, is a hundred-fold greater than the cost of dipping. Just as long as sheep breeders look upon dipping as an unnecessary trouble just so long will our flocks be infested with such troubles as are mentioned above. Although our laws are somewhat stringent on the dipping question, the disappearance of parasitic troubles from our flock is

not yet in sight. If every sheepman in the United States would dip his sheep thoroughly at proper intervals in some good proprietary dip we should be soon free from such terrible scourges as scab, ticks, etc. Australia, whose flocks are the largest in the world and which at one time were so badly affected with scab, is now a scabless country, and with the same persistent effort shown by our Australian friends our country could likewise be a scabless country, for if it can be reduced with care with a little extra care it can be eradicated; this has been proven beyond all doubt.

Directly after shearing it is a good plan to dip the lambs, as at this time ticks leave the newly shorn ewes and make their home on them. While no doubt a good deal of good has been accomplished by the enforcement by the Department of Agriculture of the use of lime and sulphur as a dip, there is no doubt at all but what a great deal more good could be accomplished by the use of first-class proprietary dips in lieu of the lime and sulphur concoction.

From sentiment expressed to the writer by prominent western flock owners it is clear that sheepbreeders generally are depending largely upon Dr. A. D. Melvin, chief of the Bureau of Animal Husbandry of the Department of Agriculture, to bring about certain modifications in our government dipping regulations that will be to their benefit, as that gentleman is looked upon as being thoroughly familiar with the scientific and practical end of the dipping question. By his efforts in getting meritorious proprietary dips recognized, through actual tests by the Department, he has done much by way of harmonizing the interests of the Department and sheepmen generally, and his endeavors will tend materially toward bringing about cooperation in a campaign for the eradication of the scab mite that cannot prove other than successful.

As the writer pens these words he is in receipt of news to the effect that a western party has just experienced the loss of 500 head of sheep through dipping them in the pernicious concoction known as lime and sulphur dip, while other small losses are made mention of.

No breeder of first-class sheep would think of dipping his sheep or lambs in such a violent preparation, as he well knows that his pocketbook must suffer in consequence, not to mention the suffering of the animal dipped.

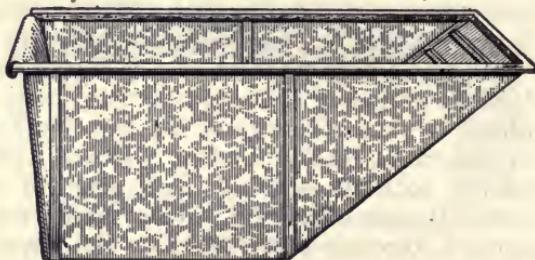
About six weeks or two months after shearing the whole flock, both ewes and lambs should be dipped, as such a course will insure immunity from scab and other parasitic troubles for a considerable time.

Fall dipping, which was at one time looked upon with considerable disfavor, is now looked upon as an annual event.

Where neglect of dipping at the proper season of the year

has been in evidence the flock becomes so badly infested with ticks and lice by midwinter that something radical has to be done to save the flock from what at times appears to be utter destruction, for, no matter how well it is fed, its members become poorer day by day and seem to do but little else than rub themselves in the vain attempt to rid themselves of their tormentors. In such cases the only way to proceed is to dip the afflicted animals in a warm dip and crowd them as closely together as possible in the warmest section of the sheep barn, to insure warmth while drying. The better way to do, however, is to make it a rule to dip at a certain fixed time in the fall and head off all such troubles.

As I have often pointed out in former writings, sheep breeders cannot afford to spend the time in preparing home-made dips so long as they can have laid down at their doors as it were, at a mere nominal cost a tried, reliable and effective dip manufactured by scientists who have made the dipping question a life study



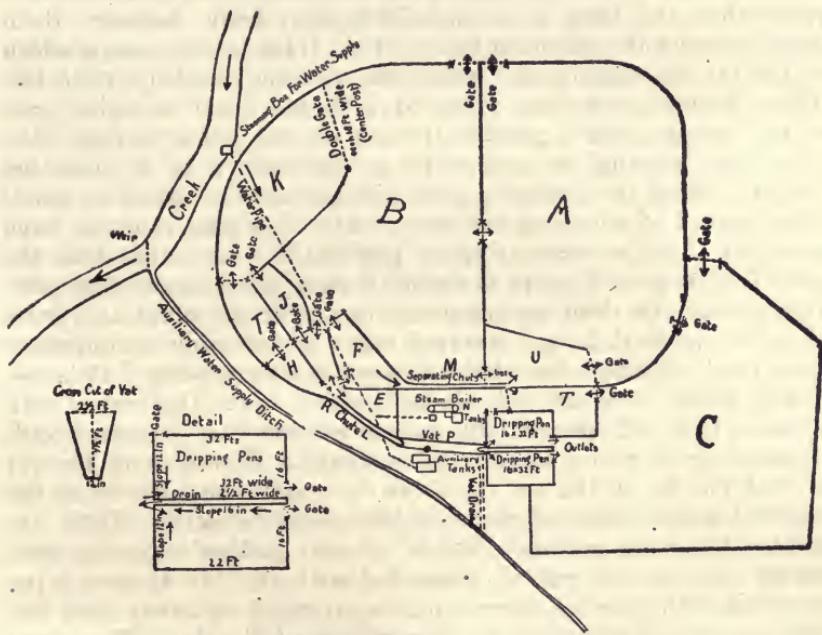
Modern Steel Dipping Tank.

both in the stock pens and laboratory. Proprietary dips are the acme of perfection so far as external parasitic destroyers are concerned. They are safe, effective and economical in the strictest sense of these terms and the day of experimenting with them is almost past. There should be no loss from dipping where reasonable care is observed. Of course, if you allow the dripping sheep to drip on nearby pastures and other sheep eat of them, trouble might follow. To insure risk from loss the sheep should be allowed to stay in the pens until dripping ceases. Every farmer with twenty-five head of sheep should have a small dipping plant. This can be bought at a small cost, much less in most instances than a home-made one can be made. A very convenient steel dipping tank is now on the market which is in every way satisfactory, both as far as utility and price go.

Since the author's aim and duty is to make this work as practical as possible, it belongs to him to give what is supposed to be the most valuable and reliable information regarding such appliances as are necessary to the successful management of the flock,

therefore, a description of the dipping plant which won for Mr. John H. Seely, of Mount Pleasant, Utah, the first prize offered by the American Sheep Breeder for a description of a plant of that kind will be entirely in place. Of this plant Mr. Seely says:

"In connection with your dipping apparatus prize I take the pleasure to enclose you hereby a sketch of my separating and dipping corral. Permit me to state by way of explanation that the plant is situated near a small creek but below its level on such a slope that the drainage can never get into the water course. A, B and C are three large corrals with a total capacity of about 10,000 sheep. B is the main receiving corral. The separating



Plan of Mr. Seely's Dipping Plant.

chute M can be used by letting the sheep directly into the pen F or else from K through J and G or I and H. In dipping, the sheep are worked from B into the tapering branch pen K until it is filled, when the wide double gates that separate K and B are closed and the sheep forced down to the mouth of the chute, L. This can be done through pens I and H or J and G, as the arrangement of the gates at T is such that it permits the connection or shutting off of any or all pens adjoining it. We find this a great help in facilitating the work as either of the two sets of pens can be used and the sheep left in the others may serve as decoys. The chute R L has a little switch gate at L which is used by gath-

erers of estray sheep to take out the stray from the flock as it passes into the vat. The mouth of the vat is screened by a curtain so that the sheep cannot see the dip until they are right against it and then it is too late for them to offer effective resistance, as the bottom of the vat at that point has a sufficient pitch and is lined with smooth tin so as to let them slide quite easily into the bath. The vat itself, P, is made of matched plank and its dimensions are 12 inches wide at the bottom,  $2\frac{1}{2}$  feet wide at the top,  $5\frac{1}{2}$  feet deep and 40 feet long. We keep the sheep in the vat two minutes by the watch, after which they pass up the usual slatted and slanted gang way into the double dripping pens, D, each of which is 16 feet wide by 32 feet long; they slope towards each other and have a common dripping drain between them directly under the partition fence. This drain is of the same width as the vat but shallow and passes the drippings back into the vat. These dripping pens are provided with the usual swinging gate at the vat end which permits the use of one pen at a time (the same gate opening one pen while at the same time it closes the other). From the dripping pens slanting outlets closed by small gates permit of counting the sheep while they pass into the large corral at C. The west dripping pen has also an outlet into the pen, T, if it should prove desirable to turn the animals that way. I think that the heating apparatus in use at my plant is worthy of notice, at least I have received many encouraging compliments from the U. S. inspectors that have seen it. I am using a 25-horse-power boiler from an old sawmill which heats the water with steam. Tanks of 600 and 300 gallons capacity are connected with it and there is also a steam pipe connection directly with the vat so that the dip in the vat itself can be quickly brought up to the required temperature whenever it has cooled below it. There are besides this two auxiliary boilers of 300 gallons' capacity each placed on rock fire pits all connected with the vat by iron pipes provided with valves. Everything is arranged so handy that one man can easily attend to the preparation of the dip. The water is conveyed to the heating plant by an underground pipe line starting from a straining box in the creek and in case there should anything go wrong with this then the water can be taken out of a small open ditch and a line of wooden spouting that runs around the outside of the corral. This small auxiliary stream can also be used to flush the contents of the vat out on to a dry flat away from the place, there to seep into the ground without danger of contaminating any stream. My plant can handle two herds per day and we have dipped 7,200 sheep in twelve hours."

#### DOCKING AND CASTRATING.

A good many flockmasters labor under the idea that there is

a great deal of skill attached to docking and castrating, especially the latter operation, an idea that has no foundation in fact. A barber or anyone else can successfully perform the operation if he works with dexterity and in a cleanly manner. A bungling operator is the cause of loss in castrating. The writer has castrated lambs all day long, and kept two catchers busy, without the loss of a single lamb.

Lambs should be docked and castrated when about ten days old. Little or no loss should attend these operations when properly performed on lambs of that age.

A professor of animal husbandry has said that lambs do not develop so strong when castrated at a few days old as at three or four weeks old, a statement which cannot be taken with any degree of seriousness. Different shepherds have different methods of docking and castrating. In some parts of England professional castrators travel the country performing these operations, generally using the clam and searing iron, instruments that have no place in sheep husbandry except it be in castrating aged rams. If our English cousins would castrate their lambs at the age of ten days there would be little demand for the professional castrator, and any good shepherd could castrate a dozen lambs while he was fixing one with the clams. The suffering and loss in castrating lambs by the professional castrator in England is entirely unnecessary, since he does not usually perform the operation until the lambs have attained considerable size. It is surprising what strange things some publications contain on the subject of castration of lambs. The following is from a so-called sheep journal: "Sometimes it is necessary to pull out the testicle and scrape the cord with the edge of a knife until it breaks off." No reason or excuse is given for this cruel operation.

Drawing the testicles is the best and safest method of castrating to the writer's mind. I have performed this operation on thousands of lambs single handed by laying the lamb on its left side, cutting off the top of the scrotum with a keen sharp knife and drawing the testicles with my teeth. I have drawn the testicles both with teeth and fingers. When castrating alone, drawing with the teeth is easier than drawing with the finger and thumb, as the operator has full freedom of the hands in holding his subject in drawing the testicles. It would seem that the drawing of the testicles must have been originated by some shepherd who was of necessity compelled to perform the operation without assistance. I have tried both teeth and fingers, but unhesitatingly must say that the teeth are better for the work than the finger and thumb for the reason that danger of bursting the testicle is less when a grip is got on it with the teeth than with the finger and thumb. It has been said that drawing with the teeth is filthy and wrong from a sanitary standpoint, inasmuch as germs from

the teeth are liable to contaminate the wound with germs or bacilli and cause trouble to the lambs. This is one of those instances where the theory of learned men does not fit in with the practical experience of the shepherd, for as I have remarked before, I have castrated thousands of lambs without a single loss except indirectly through the attack of the blow-fly or the maggot, and the remedy for this is to apply tar to the wound at the time the lamb is castrated. Newly docked or castrated lambs should not be allowed to lie on filthy ground for reasons that are obvious. Both in docking and castrating I have never used anything but an ordinary jackknife or pocketknife. Some use a chisel in docking and with success. In castrating old rams clamps should be used.

#### CULLING.

There is perhaps as much art in culling the inferior members from the flock as there is in selecting superior animals to add to it. Never mind how taking to the eye a ewe may be, if she is not giving returns, cull her, as those of her class are what lessens profits. The most successful breeders are those who cull closely, and bear in mind that sometimes scrubs come from most worthy ancestors. While shearing time, weaning time, and breeding time are thought to be good times for culling, there is really no particular season for this work, as the proper time to draw an inferior animal from the flock is when you first notice that it is inferior. A sheep that is a light feeder is usually a poor doer, and the thick fleshed ewe that hasn't milk enough for its single lamb is better property for the butcher than for the breeder. A flock well culled may be likened into a farm well tilled. There is more pleasure and certainly more profit in keeping a small good flock than in keeping a large one of indifferent quality, and close culling is the easiest way of keeping the flock up to standard. Ewes with damaged udders, broken mouths, and known to be barren, should not be allowed a place in the flock, neither should indifferent shearers. Only in exceptional cases should ewes be kept after they are four or five years old. All poor, ill-looking ewes are not culled, but, on the contrary, exceedingly good mothers, since their poor appearance is sometimes due to the drain on their system by a robust offspring. Small, late lambs often develop into good yearlings when properly taken care of.

#### SPRING AND SUMMER CARE.

From hay to grass is a trying time for sheep, especially if the spring is cold. Many flockmasters discontinue hay feeding entirely too soon at this season of the year. The shepherd should be on the lookout for cold, wet storms, and have the barn always ready for

the reception of the flock at such times. Before turning the sheep to pasture, their feet should be trimmed. They should not be allowed to monopolize the pastures at the moment a few green spears of grass are seen. Not only will the pastures suffer on that account, but the sheep also. As the weather becomes warm the shepherd should be on the lookout for the deadly work of the blow-fly and also the gad-fly. Where sheep are properly dipped the former does not cause the annoyance it does where dipping is not attended to. To prevent the attacks of the gad-fly, it is a good plan to bore holes in a log with a good sized augur and fill the holes with salt and then smear the log with tar in such a way that the sheep cannot rub it off on their sides, but yet allow them to reach it with their mouths. In trying to get at the salt their noses become daubed with tar, which keeps the gad-fly at a distance. It is a great mistake for the shepherd to think that when sheep are turned to pasture his duties cease until fall. Darkening the sheep barn during the heat of the day is a help toward warding off the persistent attack of the gad-fly. Sheep attacked by maggots are easily relieved by an application of lime or gasoline or any of the carbolic or tobacco dips. As soon as the maggot is destroyed a little vaseline will tend to heal the wound. Sheep eat a great deal of salt when on green pastures, therefore should be abundantly supplied with this necessary adjunct to good health.

#### FALL CARE.

Fall is a critical time for the flock, and a busy time for the shepherd, since mating and such-like matters have to be attended to. Unless the flock is well taken care of at this season heavy losses are likely to occur. Fall storms are bad for the flock. Warm showers won't hurt sheep, but cold rains will, and when such are in evidence the flock should be housed, but not too closely, that is, ventilation must be attended to. To house a flock when wet is to encourage such diseases as catarrh, etc. The ram needs special care at this season of the year, as the result of the lamb crop depends a good deal on how he is treated at this season. No matter how good the grass may appear to be in the fall, a little grain will not be out of place, as fall pastures are always more or less watery and innutritious. The ewes should never be allowed to run down in the fall, but should be kept in moderately good condition. A falling off in condition is one of the causes of abortion in the flock. It is important that the flock go into winter quarters in as good shape as possible. Sheep should always be kept from frozen clover, or rather when the frost is on it, as such not only injures the sheep but the clover as well. The stubble-field is not a bad place to run the ewes on at this season of the year. Fall losses are a species of ill luck for which the shepherd is often responsible.

If ensilage is fed in the fall, feed it sparingly, and never if frozen or moldy. Don't expect straw to take the place of hay at this season of the year for it will not answer the purpose.

#### WINTER CARE.

To the novice it might seem that the winter care of sheep involved a good deal more responsibility and attention than would be in evidence in spring, summer or fall, but such is not the case, since there is more system or daily routine in winter care than in that of any other season of the year, regularity in feeding and watering being the principal matters to be considered. Trouble from parasites, except where dipping has not been properly attended to and scab and ticks are allowed to run rampant, are not present at this time of the year. Of course, the proper sheltering of the sheep is important. One thing to be observed is that the sheep must not be too warmly housed, as nothing will bring on pulmonary troubles so quickly as this. Of course ventilation must not be mistaken for draft. Although warmly clothed, the sheep cannot long remain healthy if compelled to remain in a drafty building. What ventilation is given should be given either through the windows or overhead with proper ventilators. It is always best to allow the sheep to go in and out of the barn at will, unless in very stormy weather. Exercise is important to the welfare of the sheep, hence close penning is not advisable. To insure a good crop of lambs the ewe must have plenty of exercise and not be kept in too high condition during the winter. Dogs of all kinds, except it be the "old reliable" shepherd dog, should be kept out of the sheep barn. The barn should be kept well bedded. The rams should be kept in separate barns by themselves and sheep of different ages of both sexes should have separate compartments. Only the best clover hay should be fed. Timothy hay is not a good hay for sheep. An oat-straw stack is a splendid thing to have in the sheep yard, provided proper arrangements are made to prevent the fleece of the sheep from becoming damaged with chaff, etc., in pulling out the straw. An important matter in the winter care of sheep is to see that the water is always pure and abundant.

The Iowa Experiment Station gives the comparative cost of wintering ewes of the different breeds of sheep enumerated below as follows: Merinos, 1.03 cents; Cotswolds, 1.35 cents; Dorsets, 1.21 cents; Oxfords, 1.32 cents; Hampshires, 1.26 cents; Shropshires, 97 cents, and Southdowns, 60 cents per day. The hay used in the experiment in which this was determined was a mixture of timothy and clover, mainly clover of fair quality. The grain ration was made up of varying quantities of oats, corn and oil-meal to meet the requirements of the different stages of pregnancy.

These rations were just right to keep them in good breeding condition.

#### MUTTON FORM.

Mutton form is that in a sheep which tickles the fancy of the butcher, gives him the least waste, and consequently the most profit, and, at the same time, pleases his customers. While a heavy fleece usually means profit to the butcher, it is given very little consideration by those looking for quality in the mutton they handle. The twenty-pound fleece of a heavy Cotswold or Lincoln yearling would be no inducement to him to buy such class of stock where he is catering to a first-class trade, such as demands the neat joints found in the rather lighter fleeced Southdown. Of course it is important that mutton sheep carry as heavy a fleece as possible, provided that in seeking fleece mutton qualities are not sacrificed.

The butcher's ideal of mutton form is a comparatively small frame, of moderately light bone, covered with a great depth and wealth of flesh. The showmen's idea of straight back, wide, deep-fleshed loins, smoothness of shoulder, heavy, thick, round leg-of-mutton, closeness to the ground, roundness of barrel, level flanks, is also the butcher's ideal, but the excessive weight and often excessive fat, bordering on the blubber line, are not.

Naturally, in different sections of different countries, the butcher's ideal varies; especially is this true of England, the home of many breeds, where, in some parts, the heavy whitefaced breeds would receive very little recognition, where local taste and fashion calls for Down mutton. When buying stock for the feed lots, feeders should bear these facts in mind, and not lose sight of the fact that good butchers' stock cannot be expected from a poor class of feeder stock.

It may be safe to say that nowhere is the butchers' ideal found more often than in the Southdown, not because other breeds do not possess strong recommendations, but because of the Southdown's almost perfect form, handy weight and little waste. Especially is this true in this day of small, first-class, handy-weight carcasses.

#### MUTTON.

Mutton can be improved by feeding. Although hill country sheep have a reputation for the lusciousness of their flesh, it is a well known fact that where sheep, in certain localities, are fed on cake, roots, etc., they yield a better quality of mutton than those in the same locality fed only on grass. The highest priced joints of mutton are found in the hind quarters of sheep. The highest priced joints of beef are found in the hind quarters of cattle. But this does not say that the fore quarters of these ani-

mals are to be neglected. A smooth animal is the most profitable animal generally, because he is thick in flesh and thin in tallow. A wasteful animal is generally patchy, or, in other words, a steer is "cowy" and a wether is "ewie." The writer's father used to say, "a thick-fleshed steer always pushes a big shoulder." A piece of chuck out of a ripe steer is better eating than the sirloin of an ill-bred, ill-fed, aged "crittur." A smooth animal should be ripe, as it dresses neater and brighter, and, like ripe fruit as against unripe fruit, is tenderer, more juicy and palatable. It's an utter impossibility to crowd all the forequarters into the hind quarters of a sheep or a steer. The inferior joints of a steer or wether vary in price in righteous proportion, just as the price of superior and inferior animals varies, as we find when we go to a first-class store for our meat. Smoothness is not a proof of fat, but it is a proof of an even laying on of flesh. Animals that are fat are not always smooth or thick in flesh. By smoothness is not meant a smooth coat, but a smooth, well rounded body. The aristocratic butcher the same as the good breeder asks for a smooth, evenly-balanced animal. A butcher does not look for a steer with an abnormally big loin, but looks for smoothness the same as the breeder. The breeder that goes in for breeding such monstrosities as animals heavy in the hind quarter and light in the fore quarter will surely land in the bankruptcy court.

A few years ago it was a hard matter to find many who knew much about the good qualities of mutton. Today things are different, as most people know that it is one of the finest meats we have. Since the introduction of the mutton breeds into this country and the constant use of purebred rams, the quality of our mutton has risen considerably. As feeders we are scarcely up to the British flockmasters, but our methods are improving as time goes along. While our beef and pork is praised by Britishers who come to this country, our mutton does not receive very eulogistic comment from them, neither are they quite ready to admit that even our pork is as good as that raised in their country. It may not be generally known that some of the New York and Boston first-class restaurants are regular importers of high-class English mutton, for the reason that they cannot get the right quality at home. The main trouble with our mutton is that it is not properly finished. In the first place, the lambs or sheep are not treated so generously in their younger days as the young lambs of Great Britain are, where not only have they continual access to the most luxuriant pastures, but are at the same time furnished generously of such rations as oil cake, etc. Mutton is one of the most nutritious and easily digested of meats, and if more of it was eaten in the place of pork there would be fewer dyspeptics among us. On account of its size, the mutton carcass is among the handiest of all carcasses. A sheep can be killed and divided up between four

or five families on the clubbing system and used to great advantage. Of course the legs can be cured just the same as the ham of pork.

#### LAMB FEEDING.

The main features in fattening lambs are to get good lambs and good feed and then a careful feeder to feed them. Sometimes when the lambs are not thriving properly a change of rations will bring about an improvement, but of course the change from green rations to those of a dry nature must be gradual or trouble will crop up. One of the greatest errors that the novice is liable to fall into is stuffing his lambs. He does not seem to consider that it is not the amount of feed given so much as it is the amount assimilated that brings the desired results. As the author has often pointed out in his earlier writings, the lamb feeder needs to see his lambs before eating, during the time of eating and after they have eaten to know how they are doing.

One of the most important considerations in lamb feeding, where you raise your own lambs, is to keep them growing rapidly in the summer on grass, and to have them in as fine a condition as possible by fall.

Lambs, to fatten properly, must be fed regularly twice a day, morning and evening. Regularly does not mean five o'clock one morning and seven o'clock the next, nor five o'clock one evening and eight o'clock the next. Lambs, to fatten properly, must be fed by the watch.

In an address before the Missouri Improved Live Stock Breeders' Association on feeding lambs, some time ago, Jacob Ziegler, of Clinton, Ill., said:

"Lambs should have grain from the time they are ten weeks old till the following spring. A trough can be set with oats in it outside of the pasture fence, near the watering place, with an opening in the fence for the lambs to get to it. They will learn to eat by the time they are four months old, at which time they should be weaned. In weaning, give them the best green pasture you have and what oats they want to eat and plenty of good water and salt. They should be kept in that way until they are put into winter quarters; then they should have from a half pint to a pint equally of shelled corn and oats per day, according to the size and breed of the sheep, with all they can eat of good hay. Stockers will do well on good hay alone, but better on a variety with a little grain in stormy weather. A daily ration of one pound of grain, with straw stover or any kind of roughness, is a good feed for stockers.

"They can be fattened on various feeds, such as corn, peas, beets, barley, oats, clover and grass. They do well on either. But for winter feeding my best results have been from corn and clover

hay, which fattens fast and makes the best of mutton, and, when all things are considered, is as cheap as any except green clover, which produces cheap mutton, but the losses from clover bloat, and low price of sheep at that time of year reduce profits in proportion.

"I feed two bushels of corn twice a day at regular hours to 100 sheep (I am speaking of the mutton kind, averaging about 100 pounds) and as much clover hay as they will eat up clean, which will be on an average of about 200 pounds per day. They will, however, need and eat more at the start, but will decrease in eating hay as the grain ration is increased. Care, however, must be taken in starting them on grain, so as not to overfeed them. Feed a bushel twice a day to start on, then lightly increase daily till you get them on full feed; larger sheep need more and smaller less, in proportion to weight. The corn is cut an inch long with a corn cutter and fed in troughs 10 inches wide, 7 inches deep in the clear; 12 to 14 feet long is a nice length, but length may be made to suit fancy. The corn may be fed shelled, but I do not like it so well, for the reason they can eat it too fast, and some get more than they need, but in cut corn the eating process is slower and better masticated and a better chance for all to get their share.

"They should always have free access to fresh water and salt, and never be left without it. They drink a good deal of water when on dry feed. They do not drink so much at a time, but often. Good, thrifty sheep thus fed will fatten and gain from thirty to thirty-five pounds each in seventy-five days, and ought then to go to market, for it rarely ever pays to feed them longer. The gain, however, will depend largely on their condition when put up for feeding. If fairly fat they don't gain as much as if in moderate flesh and thrifty, nor do they require as much feeding nor as long feeding.

"If one has no clover for hay, then sow one and one-half bushels of oats with one bushel of field peas per acre, and cut when in dough and cure like hay. It yields big and is a fine substitute for clover hay. Corn fodder does well, but is not as good as either of the former.

"Never allow feeding sheep grass in winter. The grass is too light and soft to be of any real value to them, and the losses in searching and rambling after it and the refusal of other feed more than double the supposed gain.

"The feed lot should be in a dry place and have a shed, closed at one side and the ends, and roofed over, to keep out rain and wind, and both it and the yard should be well bedded with corn stalks or litter, to prevent mud and wasting of the manure. A timber lot or small grove well set with trees is a good place to feed in. The trees are protection enough without the shed, but

in a wet winter a shed is far better, and the manure cannot be saved as well.

"Salt and hay should always be fed under cover, hay in racks and salt in troughs; economy in feeding demands this system, for water-soaked hay is always rejected by sheep, and salt wastes much from rain.

"And, from my own experience, it pays best to feed sheep; first, they return more pounds of gain for the amount of food consumed than cattle or hogs; and mutton brings more per pound than beef or pork, and furnishes better manure than either of the others.

"My sheep have gained, from start of feeding to finish, eight to ten pounds of mutton per bushel of corn, while the gain of my cattle of equal quality and feed runs from seven to eight pounds. And my hogs eat corn, corn from first to last, and only a little grass for change, while my sheep eat grass, grass from first to last, and only a little corn to start lambs and finish them. That is the cheap feed versus high priced feed.

"And I also find from my shipping bills which I have saved for twenty-five years, from 1873 to 1898, that the average price received from my stock in Chicago during that period was \$4.93 per 100 pounds for sheep, \$4.86 for steers, and \$4.85 for hogs. And the average weight was: Sheep, 126½ pounds; steers, 1,354 pounds, and hogs, 218½ pounds. From this you can see they had to be all good stock to average that weight."

#### LIVE WEIGHT GAINS OF WETHERS.

The average daily live weight gains of wethers shown at last year's Smithfield Show as compiled by Mr. W. W. Chapman, F. S. S., were as follows:

	Ozs.
Leicester or Border Leicester Lambs .....	3      12.45
Leicester or Border Wethers .....	4      7.93
Cotswold Lambs .....	—
Cotswold Wethers .....	2      7.61
Lincoln Lambs .....	2      11.64
Lincoln Wethers .....	3      8.82
Kentish or Romney Marsh Lambs .....	7      10.78
Kentish or Romney Marsh Wethers .....	4      6.95
Devon Longwooled Lambs .....	2      11.11
South Devon Longwooled Breed Lambs .....	1      12.12
Cheviot Lambs .....	4      9.83
Cheviot Wethers .....	3      8.18
Mountain Lambs (other than Welsh) .....	5      9.35
Mountain Wethers .....	4      5.38
Welsh Mountain Wethers (any age) .....	5      4.68

	Ozs.
Southdown Lambs . . . . .	10 10.38
Southdown Wethers . . . . .	8 5.32
Hampshire Down Lambs . . . . .	9 11.66
Hampshire Down Wethers . . . . .	4 7.39
Suffolk Lambs . . . . .	4 11.00
Suffolk Wethers . . . . .	3 6.72
Shropshire Lambs . . . . .	3 9.42
Shropshire Wethers . . . . .	4 6.65
Oxford Down Lambs . . . . .	5 10.81
Oxford Down Wethers . . . . .	4 8.35
Ryeland Wethers . . . . .	2 5.09
Dorset Lambs . . . . .	3 9.97
Dorset Wethers . . . . .	2 6.36
Cross-bred Lambs . . . . .	8 12.21
Cross-bred Wethers . . . . .	5 7.82
Scotch Cross-bred Lambs . . . . .	4 12.77
Scotch Cross-bred Wethers . . . . .	4 7.30

#### SCREENINGS.

Large numbers of sheep and lambs are fed on screenings, and that they are a profitable feed there is no doubt when they are of good quality, but there is a great deal of difference in their quality. Sometimes they contain such a large quantity of foul seeds that they are really an injury to the sheep.

#### SHIPPING CRATES.

Nothing detracts from a pure sheep breeder's business abilities more than shipping sheep in crude, home-made crates. A good many breeders make a mistake in making their shipping crates out of anything in the shape of lumber that comes along. Not only do they make them entirely too heavy, but of lumber that is entirely unfit for the purpose. It is generally best to have them made at some factory in knock-down style, submitting a design of how they should be made. Of course the crates should be made in harmony with the size of the sheep to be shipped. A crate about 4 feet long, 2 feet 8 or 10 inches high, and about 20 inches wide would be about the size for a ram weighing from 150 to 200 pounds. The shipper should make it a point not to have the crates made too wide so that the sheep may attempt to turn around in them, and possibly become wedged in such a manner as to be unable to extricate themselves. The engraving used herewith shows a model shipping crate for either sheep or goats. The photograph from which this was made was supplied by Mr.

John R. Fulton, secretary of the American Angora Breeders' Association, whose headquarters are at Kansas City, Mo.

#### PORTABLE SHEEP FENCES.

Portable sheep fences are a good thing where folding on such crops as rape, kale, vetches, turnips, etc., is practiced. In England hurdles are used in certain sections of the country almost exclusively; in other sections old fishing nets which can be bought at a very low price are used, but without doubt woven wire fence is



Fulton Shipping Crate.

the material for this country. That made from number 12 or 13 wire of a height of about 35 inches makes a very handy fence for folding sheep. Of course it is important to use stakes to keep the fence in the proper position.

#### SALT.

Salt is about as necessary to the system of sheep as food. Sheep are the best judges of how much salt they need, hence it should be placed where they can reach it at all times. The old time way of regularly salting them is all right, but it is better to give them access to it at will. Where sheep are not salted regularly they

are liable to partake too much of it at a time, and sometimes dropsical conditions are the result.

The ash of the blood of a sheep contains nearly 60 per cent of salt; the ash of the urine contains fully 33 per cent. The effect of salt on sheep is to give tone to the organism. Its scarcity in the blood means a relaxation of vital energy and an opportunity for the development of parasitic organisms. It is said that in Spain where sheep are kept in the neighborhood of salt hills or sea salt they thrive better than in any other situations. In France in the neighborhood of the sea coast and the salt regions of the north the sheep give more and better wool and the mutton is more highly esteemed than that from other localities. Where sheep are pastured near the sea they naturally do not require so much salt as in more interior regions.

#### MARKETING SHEEP AND LAMBS.

There is a good deal more in how sheep and lambs are marketed than many may think. It does not pay to rush sheep to market in a half-fat condition because there happens to be a falling off in shipments at any particular time and record prices have resulted from such conditions. Sheep and lambs should be marketed either fat or as feeders. In marketing in a half-fat condition the chances are you will be losing money and giving the buyer, which, likely, will be a feeder, the benefit of your misjudgment. Rushing stock to market because high prices rule for a day or so is not wise because a glut almost always follows. It is important that sheep and lambs be properly graded before being shipped, as they make a better and more uniform appearance. Lambs of moderate quality when properly graded make a much better showing than those of superior quality when marketed in one bunch. When shipping the car should be well bedded and everything possible done for the comfort of the shipment. It is better to ship to well known commission firms than to be changing around from one house to another and falling into the hands of those of whom you know nothing. The following are the stockyard commission rules as applied to sheep in most stockyard markets: Single-deck cars containing thirty head or more, \$8. Double-deck carloads of sheep, \$12. Sheep originating in double-deck cars, but for any reason arriving in single-deck cars, where double-deck freight rates are applied, may be sold at the double-deck rate of commission, viz., \$12. Less than thirty head of sheep in a single-deck car, with no other stock in the car, shall be charged for at the rate of 15 cents per head. Sheep driven or hauled in, 15 cents per head.

## RUNNING SHEEP ON SHARES.

Running sheep on shares is no new thing, since we are told that it was practiced in South Africa as long ago as 1840. The *Farmer's Magazine* mentions where one-third of the profits of a capital of \$5,000 laid out in furnishing sheep by a sleeping partner in a sheep farm amounted, in the course of six years, to \$5,725. At the end of the six years the original \$5,000 was withdrawn from the flock and the remainder of the flock, which numbered 4,000 head, was equally divided between the partners. The active partner purchased the land, lived on the farm and attended to the flock. The practice is still common in a great many countries. In the southern part of England letting sheep on shares is much in vogue. The usual custom there is for one party to furnish the sheep and the other the equipment, food, etc., and the wool and the lambs are divided. This method, in certain instances, also applies in this country. A method common in some sections is to let the ewes for a term of years, two, three or four, as the case may be, generally three, the owner having the original number of ewes returned to him at the end of the term. No fixed rule applies to the division of the wool, since some flock owners give but a small percentage of the clip, while others share half with the renter. The division of lambs is sometimes half and half, sometimes one-third. In the latter case the owner gets the larger share of course. These methods of renting applies only to common stock. The owner of a purebred flock of sheep could not afford to lease out his flock, which originally cost him so much money, on the basis of half the wool and lambs, for one reason it takes an expert to run a purebred flock, and there is too much at stake.

Where the renter is a good farmer and knows something about the care of sheep, the renting of sheep is a profitable business, but where the farmer is not a good care-taker or has no knowledge of sheep, the profits are not likely to be very great. There is a great deal of difference in how sheep are taken care of, and no one better than flockmasters who make a practice of renting their sheep know this. The renting of sheep just simmers down to this: If they get into good hands they will return big profits to all parties concerned, but if they get into poor hands the renter is likely to receive back his flock in far poorer condition than it was when he leased it and will derive very little if any dividends from the venture.

## SHEEPSKIN RUGS.

To prepare sheepskins for rugs they should be soaked in a tub of water several days, wool side down, and weighted down with something suitable. When taken from the water they should be put into a tub of hot soap-suds, to which a little lye has been

added, and allowed to remain there until the suds are cool, after which they should be thoroughly rinsed. Next they should be tacked, wool side down, to some smooth surface, such as the side of a building, and scraped with a dull knife until smooth, after which they should be scoured with pumice stone until they become soft and pliable. The next thing to do is to trim them to the desired shape and then tack them on to some smooth surface again, wool side out. The wool should be thoroughly carded and combed, and then brushed with a stiff brush until it is very smooth, when it will be ready for dyeing. A suitable dye for this purpose, with full directions as to use, can be purchased at almost any general store. Cords should be fastened to each corner of the rug so that it may be worked backwards and forwards in the dye until the desired shade has been produced. It should then be rinsed and hung in the shade to dry.

#### IMPORTING.

Unless those desirous of making importations have unlimited time at their disposal, it is much better for them to place their orders through some reliable exporting commission house or with parties who make annual visits to England and other countries for the purpose of bringing over such sheep as their customers require. Of course the first thing to consider is the reliability of the firm and their ability as judges of the breeds they handle. There is a great deal more trouble connected with importing a small consignment of sheep into the country than many may imagine, by the time the importer has traveled over the country and visited the different flocks and shows and got mixed up with shipping companies, quarantine stations, railroad companies, etc.

#### THE FLEECE.

The finest and most valuable wool is always found on the shoulders of the sheep. This should be compared to that on the thigh, where kemp and the poorer qualities of the fleece are found. Fineness and density are the first considerations of the finewool and the Down breeds of sheep; next length of staple is to be considered.

#### PEDIGREE AND REGISTERING.

The pedigree of a sheep is a record or certificate showing its lineage or parentage for one or several generations back. The majority of record associations ask that all sheep registered trace to imported stock on both sides. Imported sheep may be registered in the majority of American sheep breeders' associations if they are from flocks registered in the country from which they originated.

In American associations ewes are registered individually as well as rams. In England the rams are usually registered singly, and the ewes in flocks. In order to bring sheep to this country, free of duty, from Canada, the pedigree of the grandsire and granddam must be produced. Members of associations can get their sheep recorded at half the fee usually charged, and, moreover, they get each volume of the record free of cost. The usual charge made by associations for registering American-bred sheep is fifty cents, and one dollar for foreign-bred sheep. If they are not registered the year of their birth extra fees are charged. When a sheep is sold to another party a fee of twenty-five cents is charged for transferring. The seller usually records the animal unless it be under one year old, in which case he provides the purchaser with the names and number of the recorded sire and dam. Breeders should always send certificates to purchasers at the time of sale. By doing this trouble usually following procrastination is avoided. The breeder of an animal is he who owns the sire and dam at the time of breeding or mating of the sheep.

#### PREPARING SHEEP FOR SALE.

When preparing sheep for sale they should not be fed too highly or fattened to the extreme. Sheep in good condition give much better results to the buyer than those in an exorbitantly fat condition, since they can not possibly give such results as they should, and as are expected of them. A little shaping up of the fleece with shears is not illegitimate as we look upon shaping these days, as most all breeders in putting their sheep up for sale try and have them in as nice and attractive a condition as possible. Where sales are conducted by auction, naturally the auctioneer should be well-versed in his business, that is, a sheep or livestock auctioneer should know something about the breed and pedigrees of the animals he is offering. There is no question but that a qualified livestock auctioneer brings far better results than the average all-round auctioneer who conducts ordinary farm sales, etc. Auction sales of sheep, of any pretension, should be largely advertised in the leading livestock journals. There is a good deal of work connected with preparing sheep for sale by auction. The catalogue of itself entails a great deal more work than one might imagine. This, of course, should give the numbers of all the sheep for sale, pedigrees, etc. The animals offered for sale should be numbered on the side or back with stencil or stamped with a proper marking fluid.

In some parts of England auction sales of livestock are held with a minute sand-glass. The highest bid made between the time the glass is turned till the sand runs out is the purchaser of the article that is being offered. A part of the up-to-date sheep auc-

tion sale is a sale ring, and numerous pens wherein the offerings may be penned in suitable numbers and convenient proximity to the sale ring.

#### SCORE CARD FOR SHEEP.

The following is a score card gotten up by Prof. W. C. Coffey, and adopted by the Illinois Agricultural College:

Weight, pounds .....	—
Weight, score according to age and breed .....	4
Form, straight top and underline; deep, broad, low set, compact, symmetrical .....	10
Quality, hair fine; bone fine but strong; even covering of firm flesh; features refined but not delicate; stylish.....	10
Constitution, chest capacious; brisket well developed; flanks deep; bone strong; movement bold and vigorous.....	10
Condition, thrifty, skin pink; fleece elastic; well fleshed, but not excessively fat; deep covering of firm flesh.....	5
Disposition, quiet, but not sluggish .....	2
Color and markings, according to breed .....	2
Muzzle, mouth and nostrils large; lips thin .....	1
Eyes, full, bright, clear .....	1
Face, short, according to breed .....	1
Forehead, broad, full .....	1
Ears, texture, fine; size and form, according to breed .....	1
Neck, thick, short, neatly tapering to head; throat clean, according to breed .....	3
Shoulder vein, full .....	1
Shoulder, covered with flesh; compact; smoothly joined with neck and body .....	3
Brisket, well developed; breast wide.....	1
Legs, straight, short, set well apart; pasterns upright; feet squarely placed neither close nor sprawling .....	2
Ribs, long, well sprung, thickly fleshed .....	3
Back, broad, straight, thickly and evenly fleshed.....	5
Loin, thick, broad, firm .....	5
Flank, full, even with underline.....	1
Hips, level, smoothly covered; width in proportion with other part .....	1
Rump, long, level, wide and even in width; not covered at tail-head with excessive fat .....	3
Thighs, full, fleshed well down to hock .....	2
Twist, deep, plump, firm, indicating fleshiness.....	5
Legs, straight, short, set well apart, bones smooth, strong, being neither coarse nor fine; pasterns upright; feet squarely placed; neither close nor sprawling .....	3
Wool, quantity, long, dense, even, according to breed .....	5

Quality, structure and color true; fine, soft, even, according to breed .....	5
Condition, strong, bright, clean, slight amount of yolk .....	4
Total .....	100



Old English Bob-Tail Sheep Dog.

## PART III.

### SHEEP MANAGEMENT IN THE WESTERN STATES.

#### SHEEP MANAGEMENT IN NEW MEXICO.

Having from time to time received considerable inquiry respecting New Mexico as a sheep-raising country and the methods of management adopted in this and other western states, the writer felt that considerable value could be added to this work by soliciting an article from the pen of some practical sheepman, and with that idea in view my esteemed friend, Mr. Harry L. Park, a well-known sheepman and writer of Lake Valley, was commissioned to do the work and the following interesting contribution is his:

New Mexico is the oldest sheep-raising state in the Union, according to the history of the old Spanish colonies. Six head of Spanish Merino sheep were brought to Santa Fe in one of the Spanish colonizing expeditions and, judging from the records of the old Santa Fe Colony, these sheep were the first domesticated sheep to set foot upon what is now known as the United States. Other importations of Spanish Merinos followed and it was but a matter of a few years before there were quite extensive flocks of sheep in different parts of the territory, which probably almost entirely descended from these original Spanish Merino importations since we have no record of any other breeds being imported up to about this time.

Although these original Spanish Merino importations were naturally wrinkly, greasy and heavy shearers, the sheep found in the possession of the natives before any fresh blood was introduced by the Americans were an entirely different class and had none of the characteristics of the old Spanish Merinos, unless it was their light bone. Instead they were a smooth-bodied, coarse-wooled sheep, with bare bellies and legs, light bone, long legs, with little flesh on them, and their wool grading almost entirely carpet. They would shear from three to four pounds per year. When full grown the fat wethers would seldom weigh over ninety pounds.

Now, whether these sheep degenerated from the original Spanish Merinos by in-breeding, helped along by the warm climate, or were slightly mixed with some breed of native mountain sheep once occupying the mountains of New Mexico, we do not know, but we are inclined to believe in the former theory.

The grasses of New Mexico are peculiarly adapted to sheep

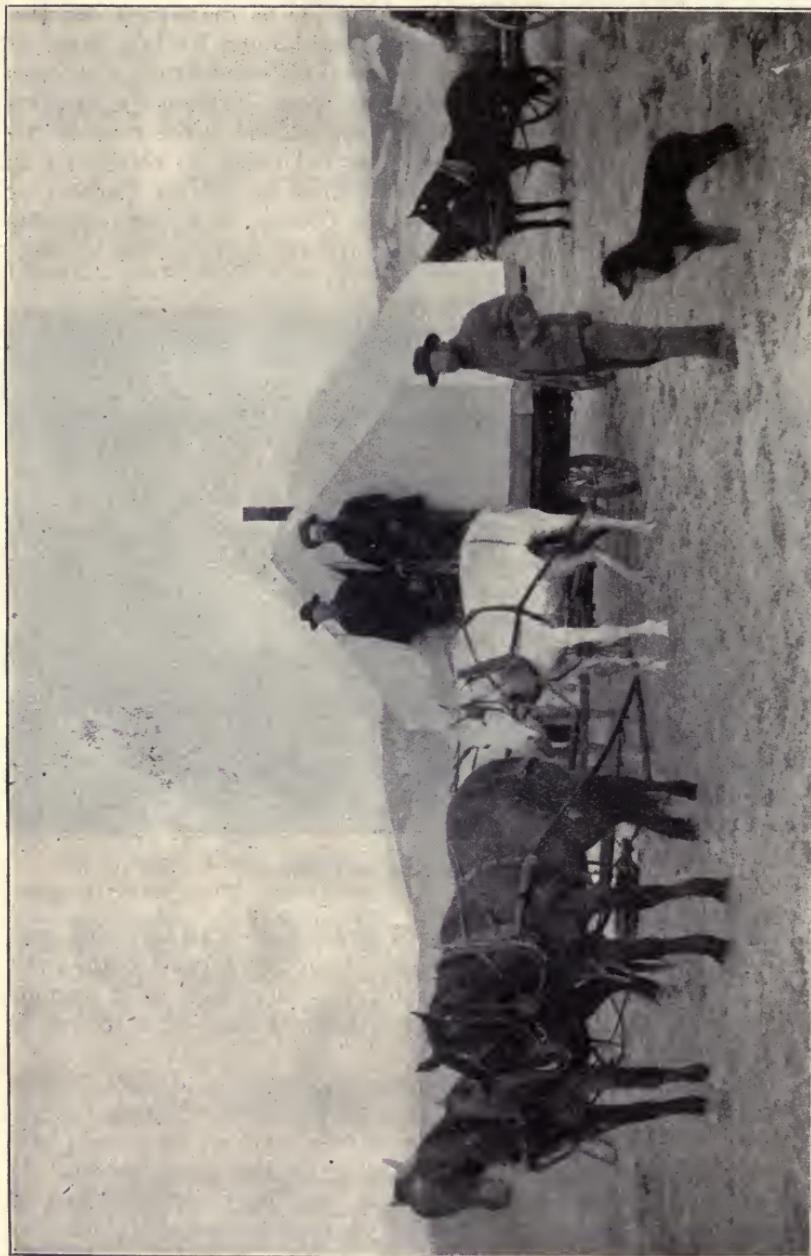
grazing, being short, fine and very nutritious. The principal grass is known as Grama grass and, so far as the writer can see, it differs but very slightly from the well-known Buffalo grass of the states further east. There are several different kinds of Grama grass, the Black Grama, the White Grama, or Tarbosa (a Spanish name), and the Crowfoot Grama. Black Grama is the most nutritious of all the range grasses, but does not come up very early in the spring and will not stand overstocking as well as Tarbosa or Crowfoot Grama. Tarbosa, or White Grama, is a very valuable range grass, although it doesn't sprout very early in the spring;



Fine Wool Sheep in New Mexico.

it grows long after other kinds of grass have quit growing and are drying up during May and June. Crowfoot Grama is the most valuable of all the range grasses for the sheepman, as it sprouts very early in the spring, will stand a great deal of cold and is also very nutritious.

There is a new kind of grass starting in parts of New Mexico called Curly Mesquite. It only attains a growth of from four to six inches in height, but is very nutritious, and, we have been told by old Texas sheepmen that it is the best sheep grass known. It grows in abundance in Texas. It is peculiarly well adapted to this country, as it does not depend on seed to spread it, but has runners something like a strawberry, and the runners send down a sprout every few inches, consequently it quickly forms a thick sod.



Sheep Camp on Wheels on Ranch of Hon. G. W. Burt.

## WILD ANIMALS AND THEIR DESTRUCTION.

Among the wild animals that prey upon sheep in this territory are to be found bears, panthers or mountain lions, wolves, sometimes called loafers or hobos (the latter being Spanish for wolf), coyotes, bobcats, or lynx, foxes and eagles. The bears, living mostly in the high mountains, are getting very scarce and do not make a regular business of preying upon sheep, but occasionally "run amuck" among some flock that happens to be in their vicinity. Panthers, or mountain lions, are rapidly becoming extinct, as they are so easily hunted with dogs. They will run up the first tree they come to when pursued by a dog; then the hunter can follow up and shoot them as they sit in the tree. They are very dangerous enemies of sheep, as they will often get into a corral or a flock and kill from one to twenty head of sheep in a single night. They are also very easily trapped or poisoned.

Some parts of the territory are thickly infested with large, gray wolves, but they tend more to prey upon cattle and burros than upon sheep, though occasionally they will get into a flock of sheep and do a great deal of damage. They are very hard to trap or poison and are a great menace to the cattle industry in parts of the territory.

Coyotes are more or less plentiful in nearly all parts of the territory, and they are probably the worst enemy the New Mexico flock owner has to contend with. They are a very cowardly, skulking animal and generally do their depredating under cover of darkness, although they often catch a sheep or lamb out of one end of a flock while the herder is at the other end or out of sight. Most of their slaughtering is done at night among small bands of sheep that have perchance got separated from the main band during the day and are roaming the hills without a herder. When a coyote or a pack of coyotes—they most generally run in packs of from two to five—finds a band of sheep alone in the hills at night he (or the pack) chases and kills till tired, taking nothing but the blood, which they suck as they kill the sheep. They are very destructive to lambs that happen to be left out on the range on account of being too young to walk to the corral.

The natural food of the coyote is the jack rabbit, and of late years the rabbits have increased wonderfully in the territory, so, of course, the coyotes are increasing in proportion, but plenty of coyotes and plenty of rabbits are not nearly so dangerous to the sheepman as a few coyotes and a few rabbits, as in the latter case the coyotes cannot get enough rabbits to eat, so they have to go to hunting sheep, while in the former case Mr. Coyote is living fat on Mr. Jack Rabbit and does not feel so much like hunting for sheep, where he is always afraid of meeting a dose of hot lead. Coyotes are very easily poisoned when they are hungry and corre-

spondingly hard to poison when they are living fat on jack rabbits. The writer has tried several different schemes for poisoning coyotes, among them the drag method, which is a very poor one if the coyotes are getting much to eat. The best method we have tried is the following: Take a gun, a 22-caliber rifle preferred, as ammunition for it is cheap, and a bottle of strychnine, and go out hunting rabbits; when a rabbit is shot, walk carefully up to it, insert good, strong baits of strychnine into each of the rabbit's legs, his neck and also his insides, cutting a hole behind the shoulder for the latter purpose, pour the strychnine in and then stir it with a small stick or the knife blade. Don't be afraid to use plenty of strychnine. Some people contend that if too much strychnine is used it will not kill, but we find from experience that the reverse is true and that too little is oftener used by the "green



The Enemy.—*Photo by Doctor Misick.*

hand" than too much. The writer generally uses about one-eighth of an ounce to every three rabbits. Be careful not to touch the rabbit with the hands or feet, and after the poisoning has been completed place the stock of the gun or a stick against the rabbit and give it a sudden toss, tossing it several steps away from where it was baited. By this means the coyote, bobcat or fox finding the rabbit cannot detect human odor and its suspicion is allayed. The coyote (pronounced coy-o-tey) is very hard to trap with common traps.

The bobcat, or lynx, is also a very dangerous enemy of the flock owner in New Mexico and other parts of the west. His methods are very much like those of the coyote, except that he is more cunning and will slip up and catch a lamb out of a flock with the herder sleeping nearby, without disturbing either herder or flock; but the bobcat seldom kills for the mere pleasure of killing like the coyote, but eats what he kills and seldom kills more than one sheep in a night. It is an easy matter to detect a bob-

cat's work, for he will always eat the neck first before touching the rest of the carcass. He is also very easy to trap with a steel trap and is easily caught by means of dogs, as the dogs will trail and tree him. Then he is easy to shoot. They are also easily poisoned with rabbits. They do not roam around as much as the coyote, but frequent one place till driven out or killed, while a coyote may travel forty miles in a night.

The small fox that inhabits this territory and other parts of the west does not bother the flockmaster only when the lambs are small. He will then occasionally catch a young lamb, but as a rule bothers but little. He is very easily trapped or poisoned and will generally take any kind of bait; he is also easily caught with dogs.

The bald eagle that makes its home in parts of the west is often very troublesome to the sheepman when the sheep are young. They are very hard to shoot, as they are a sly bird, but are easily poisoned by baiting a rabbit or dead lamb with strychnine. They always eat the liver the first thing.

#### THIRD IN NUMBER OF SHEEP.

New Mexico is at present the third state or territory in the Union in number of sheep and value of wool. The dull times from 1893 to 1897 seriously crippled the industry here, as everywhere else, but the good times since have more than recouped the loss and at present (July, 1907) our sheep and wool industry is in the very height of prosperity. The Colorado lamb feeders are fast learning the value of the New Mexico lamb as a feeder and every year the demand for our feeding lambs grows apace.

When the Dingley Tariff law went into effect there was still a large per cent of New Mexico sheep belonging to the class of bare-bellies, previously described, and known as "Navajos," but since that time there have been many car loads of fine bucks brought into the territory from the east and northwest and crossed with the Navajo (pronounced Na-va-ho) ewes.

#### MERINO BREEDS CROSS WELL.

All the Merino breeds cross very well with the Navajo ewes, about the third cross producing a very good sheep that will shear about six pounds and a sheep that is ideal in our estimation as a range sheep. These old Navajo sheep are rapidly disappearing from the ranges—that is, they are being improved by the use of good rams—but, owing to the slowness of the native Mexicans, who own large numbers of sheep, to adopt any modern ideas, it will be several years yet before they become very scarce on the ranges. Some of the Mexicans claim that the improved breeds

haven't the constitution that the old Navajos have and that they cannot live on the ranges, but this has been repeatedly proven a fallacy.

#### CATTLE GIVING WAY TO SHEEP.

The old cattle ranges of the territory are being rapidly converted into sheep ranges during the last few years wherever it is practicable to run sheep. Nature's law, "the survival of the fittest," is constantly at work in New Mexico, and as a result the cattle are being replaced with sheep. Everybody knows, who knows anything about the two industries in this territory, that



Unloading Wool at Casper, Wyoming.

from a financial point of view sheep are far ahead of cattle; but, of course, there are some sections of the territory where the natural conditions, such as grass and the lay of the country, are not adapted to sheep raising, but are adapted to cattle. Such places will always be monopolized by cattle, of course.

There are a great many people in the cattle business in New Mexico who know they could do much better with sheep, but they also know that a sheepman has to look out for his stock. He must herd it and have a range to herd it on, and he must exercise his brain to manage sheep so as to get the best possible results. On the other hand, all the cowman needs is the cattle, a few ponies to ride and a water hole that will furnish water enough for his family and stock. All the skill or ability needed is enough

horsemanship to sit on a horse and to throw a rope so as to catch a cow occasionally, either of which may be mastered sufficiently for the purpose in a short time by most any man of average intelligence. He can turn his cattle loose and let them drink at someone else's water hole and eat grass on someone else's range. A sheepman, that is, a man with a single flock of from one to two thousand head, in New Mexico must work, and at times he must work hard, while a cowman seldom ever has to work if he does not feel like it and when he does work he doesn't work very hard. This fact keeps many men out of the sheep business who would otherwise be strong devotees of the "golden hoof."

#### RANGE WAR.

As to range war between the cattlemen and sheepmen, we are of the opinion that there is less of it in New Mexico than in any other state or territory of the west. Occasionally some little local feud breaks out between sheepmen and cattlemen, but, as a rule, it does not last long and very seldom is there any bloodshed or much property destroyed, as is often the case in some of the western states. Sometimes the cattleman is in the wrong in these little squabbles and sometimes the sheepman, but we think the cattleman is wrong in the majority of cases, as he often tries to run a sheepman off the range by talking loud or bad or, to use a western expression that fits the case, they "try to run a sandy." The sheep owner has the most trouble with cattlemen who approach his herders and threaten them, but who are too cowardly to hunt up the sheep owner and present their grievances to him in person. Such men often send the sheep owner word by his herder not to graze his sheep around some certain spot, which may be several miles from the cattleman's ranch, but at the same time his cattle are running loose all over the sheepman's ranch, drinking his water and breaking down his corrals to get to his salt and often entering his house if they happen to find the door open and no one watching it. The sheepman is often sorely troubled to be able to see the fairness of this kind of a game.

Of course, when it comes to a legal right one man has as good a right to any field of government land as another, and when the cattleman turns his stock to roam at will and the sheepman herds his it is a very difficult matter to divide the range between the two in a manner fair to both. The plan by which the sheepman is allowed to graze his sheep on two-thirds of the range between him and his cattle neighbor seems to the writer to be the fairest plan that has yet been promulgated. By this plan the sheepman takes all of his flock two-thirds of the distance to the cattleman's ranch, while the cattleman turns his cattle loose and some of them go all the way to the sheepman's ranch; but drawing

dividing lines to divide up the range by this plan often becomes very complicated when there are several sheep and cattle ranches scattered in different directions in the same neighborhood.

#### "OLD BARE-BELLY" NOT PROFITABLE.

Gradually, as the ranges become more crowded by incoming settlers, and with higher prices received for wool, the New Mexico sheep owners are looking more and more to breeding up their flocks. It does not pay to keep bare-bellied Navajos that will shear three pounds of wool per year, when by purchasing some fine Rambouillet or Delaine bucks and using them carefully for three or four years one can have sheep that will easily shear six pounds of good wool.



Western Scene.—Shipping Wool to Market.

The cost of keeping the three-pound Navajo is just as great if not greater on account of their being extremely hard to herd, then the cost of keeping the six-pound descendant, and the wethers raised from the finer sheep leave a larger margin of profit than those from the native Navajos. After taking all this into consideration it is a mystery why some sheepmen insist on breeding the old bare-bellied Navajos. As a rule these men are of the native class and either don't know a fine buck when they see one or else don't know where to get fine bucks. Some of these men really want to breed up their flocks; but they will go to some large town like Albuquerque or Las Vegas to buy their bucks. There they will find possibly a few really high-grade bucks for sale, but

owners are asking from \$12.50 to \$25 per head for them and while they are debating over the advisability of buying some of them they will fall in with some little one-horse commission man who has a lot of grade bucks, probably about a third cross from the very kind of ewes that the ranchman himself has, for sale at from \$8 to \$10 per head. This commission man will tell him that the fine bucks he was first thinking of buying will not live on the range, that he will have to keep them up and feed them corn all of the time and that their progeny will inherit the same traits. The ranchman will think this all over, to the detriment of the fine bucks; then, last but not least, is the difference in price, a difference of several dollars per head, and that is the argument that appeals to the native heart the strongest, as he is generally short of money. So he finally buys the grade bucks and takes them home to be used on his flock, in most cases until they are worn out or else trade to a neighbor for others very like themselves.

The writer has had a limited experience with three breeds in breeding up in New Mexico, viz., Shropshire, Rambouillet and Delaines.

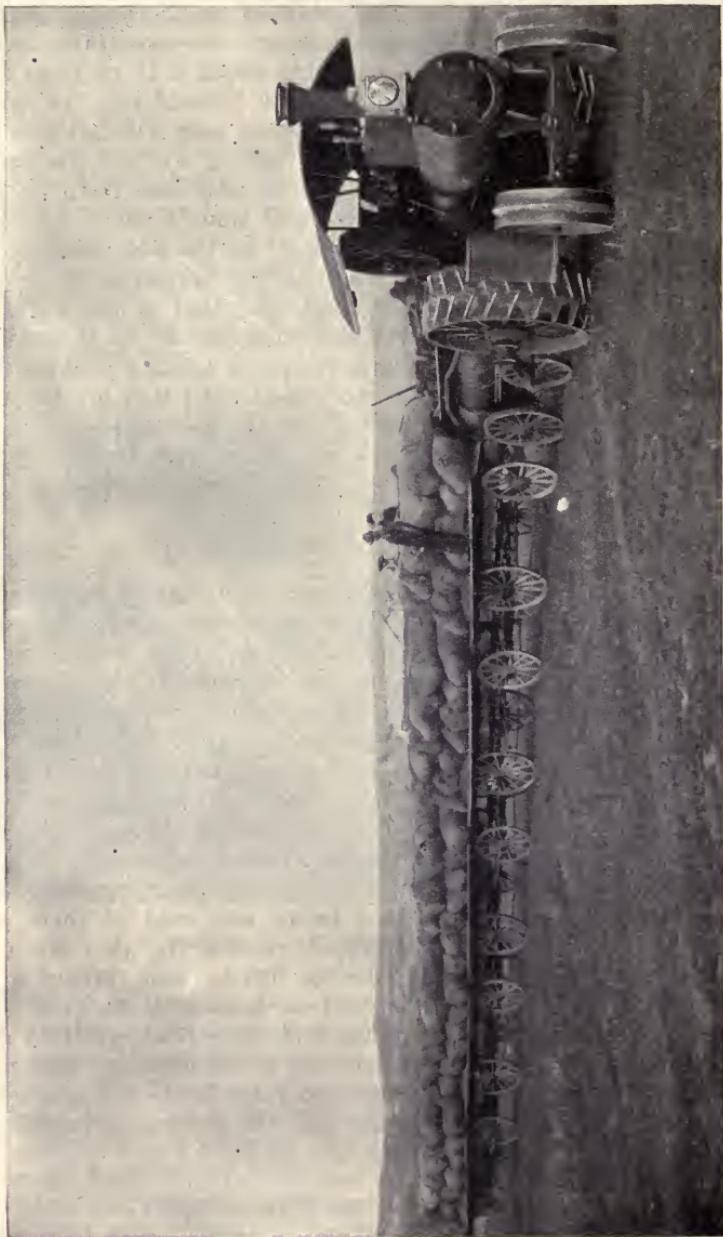
#### FINEWOOLS BEST.

Unless one is breeding lambs to sell as lambs to the feeders, or possibly on the open market, we cannot advise the use of Shropshire bucks in New Mexico, although, at the same time, we recognize their worth in other sections of the country. They are a very hardy sheep and will stay fat on the range when even native sheep are getting thin—of course we are referring to the cross from Shropshire bucks and native ewes—but it is next to impossible to hold them in a herd when the feed gets poor, and if a man cannot herd his sheep he cannot stay in the sheep business in New Mexico, for the wild animals will eat them up.

The other mutton breeds we have had no experience with, but, judging from what we have heard and read of them, they have the same fault as the Shropshire—that is, they have not the flocking qualities of the Merino breeds, and during a dry time when feed is scarce it is next to impossible to herd them. Therefore, my friends of the range and those contemplating coming to this country, unless you have an excellent range that never gets very dry or unless you intend to raise lambs for market, to market while yet lambs, ewe lambs and all, go slow in introducing mutton blood into a Merino flock.

#### DELAINES GOOD FOR NEW MEXICO.

With the Delaines also our experience has been rather limited, but we have seen enough of them to know that they are an excellent sheep for the ranges of New Mexico. They will put on



Hauling Wool by Traction Power in Montana.—Photograph from Hon. G. W. Burt.

wool, are nice and smooth, with few wrinkles, making a "chunky," although rather small wether that always sells well for his size. They also have a good length of staple, but fall down a bit sometimes in density. For use on a good grade flock of ewes the Delaine is hard to beat, but for use in breeding up a bunch of bare-bellied Navajos we would rather recommend the use of wrinkly Spanish Merino bucks for the first cross or dense-wooled Rambouillet, in order to give density to the fleece. In breeding qualities the Delaine, like all of the Merino tribe, is par excellence the sheep, but, from our limited experience with the breed we are of the opinion that the Delaine is not quite as hardy as the Rambouillet and will not stand the cold weather and dry feed as well as the latter.

#### THE RAMBOUILLET THE IDEAL SHEEP.

The Rambouillet is the ideal sheep for New Mexico's ranges. He is a large, almost smooth sheep, that produces an excellent carcass of mutton, and at the same time rubs the Delaine very close in wool production. But the first question the range man will ask is this: "Is he hardy; will he live and thrive on the ranges of New Mexico with her varying climatic conditions?" To all these questions we answer decidedly "Yes."

The Rambouillet ewe will come nearer raising a good lamb and a good fleece of wool on a diet of fresh air and mountain scenery than any sheep we have had any experience with, and, let us tell you, Mr. Rangeman, if you contemplate purchasing some purebred Rambouillet bucks, don't be afraid of getting them so fine and highbred that their offspring won't thrive on the range. The writer recently sold in New Mexico a carload of registered Rambouillet bucks out of one of the most celebrated eastern flocks, a flock that carried off the major portion of the Rambouillet honors at St. Louis in 1904, and has had abundant opportunity to observe the record these bucks have made on the range. They went into two grade Rambouillet ewe flocks and the lambs out of the bucks from one of these flocks were sold November 1st (lambs born in April) by weight. The whole bunch, with probably a dozen cut out, averaged very nearly eighty pounds and one lamb weighed 112 pounds, while several went over one hundred pounds. We think this a pretty good record for range lambs. We might add that the lambs from the same flock promise to be even better this year than they were last, as they have better feed.

In conclusion, let me say don't be afraid to tie to him, for he certainly is the sheep for our barren sagebrush ranges.

As to the wrinkly Spanish Merino, he is a very good sheep for about the first cross on bare-bellied Navajo ewes, to give them density of fleece, but farther than this we can't say much for him

on New Mexico ranges. We can't wind up this talk on different breeds without saying a word or two about greasy-fleeced bucks. It seems to be the custom among the most of our Merino buck breeders to breed a greasy, heavy fleece, and, when they start to a fair with their sheep or anticipate the arrival of a buyer, if the buck hasn't enough natural oil in his fleece they add more or less "standard oil," as the case requires.

#### ADVICE ON SELLING WOOL.

Now, Mr. Rangeman, when you go into the market for bucks we would advise you to steer clear of bucks that have so much



Range Scene in "Lonesome Valley," Arizona.

natural oil or "standard oil" in their fleece as changes them black. This is in case you are in the sheep business for all there is in it and sell your wool accordingly, but if you are in the habit of selling your wool to the first buyer who comes along and makes you an offer, and if you believe him when he tells you your wool will scour out 68 per cent dirt, when, in reality, it only scours out 63 per cent, why you had better buy the greasiest, heaviest fleeced buck you can find, for pounds of wool is all you want and the more pounds you get into your sacks the richer you will be.

If you sell your wool to an honest buyer, who will give you somewhere near its real value, or if you are lucky enough to have competition among a number of buyers for it, the buyer is going to buy it on its scoured basis. The buyers will make all kinds of talk about fineness and length of staple, but it is the scoured basis

and how much dirt and grease will scour out of it that is bothering them most, and the sooner our buck breeders learn that a fifteen-pound buck fleece that scours out 60 per cent dirt is much more valuable than a twenty-five-pound fleece that scours out 80 per cent dirt, and breed accordingly, the better off the common sheep breeder will be. Remember, Mr. Buck Breeder, that a great many of us sheepmen have to ship our wool east and have it scoured in order to get anything near its real value, and we do not relish having to pay freight on from sixty to seventy pounds of dirt and grease to Chicago or the seaboard in order to get thirty-seven or thirty pounds of wool there.

#### GOOD HERDERS A PROBLEM.

Getting competent herders is the biggest problem that most of the New Mexico sheep owners have to contend with. They use Mexicans and Indians nearly altogether for herders, and while the latter make good herders, the former are very unreliable in most cases, although some of them are unexcelled in their line of business. The principal fault of the Mexican herder is that he won't work long at a time. After he has worked from one to three months, as a rule, he wants to quit and spend the money he has coming to him. This wouldn't be so bad if he would spend his money and then come back to work, but he will not do it. He will nearly always promise to come back in so many days, but a Mexican's promise, as a rule, is no good whatever, and instead of coming back when his money is spent he will go to work at anything else he can get to do before he will come back, as he thinks he wants a change.

In the southern part of the territory the Mexican herders are paid from \$15 to \$20 per month and board, the former figure being the most common, while in the northern part, where Indians are used, the wages are a great deal higher, being from \$20 to \$30 per month and board. A herd or flock of sheep consists of from 2,000 to 3,000 head and two herders are detailed to take care of a herd. They have two or three pack burros, on which they pack their camp outfit. The burros, when packed, go into the herd and travel all day with the sheep. At noon each day if they are traveling the herders unpack their burros and cook their dinner; after dinner they repack them, turn them into the herd of sheep and proceed till about sunset, when they unpack and pitch their tent which is usually a small tent of the tepee or A kind, about seven feet in diameter and requiring but one pole—in readiness for the night. They always use one burro to pack water on, using two five-gallon kegs, one on each side. With these two kegs of water they are prepared to camp wherever night overtakes them;

the ten gallons of water being enough to last three or four days. As darkness falls the sheep gather near the camp fire and lie down for the night, unless disturbed by wild animals or by a storm, when one of the herders must watch them to see that they do not wander off or fall prey to some skulking coyote. As a rule, the herders take the herd out on the range after watering and stay out until time to water again, which is from two to four days and often longer, owing to the condition of the feed and weather. In cool weather; with some green feed, sheep will go five days without water, but in extreme hot weather they should have water every other day at the most, and ewes and lambs should have water every day in hot weather.

Mexican herders seldom camp longer than four days in one place, thereby giving the sheep the benefit of frequent changes of range. As a rule they can be depended upon to give the sheep pretty good care while with them, but the most of them will steal a mutton when they get a chance and sell or give it to a friend who happens to be passing, or take it to his family when he takes a lay-off to go home. Their diet consists principally of "frijoles" (beans), salt bacon, bread and coffee, and occasionally they will get some dried fruit or "lick" (molasses). Some of the sheep owners allow their herders to kill all the mutton they want to eat, but most of them are not allowed to kill it at all, because they are very wasteful with it, often allowing half a sheep to spoil when they could easily have saved it; and they never care what they kill—that is, they would kill a fine young ewe if she was fat just as readily as they would a wether. The Mexicans are great "chili" (red pepper) eaters and if they have it will mix it with most everything they eat. Some of them live to be very old, a hundred years or more, and we have often heard it stated that eating so much of this red pepper keeps them healthy, but, judging from its effect upon himself, the writer is of the opinion that if they didn't eat so much "chili" they could easily live to be two hundred years of age.

The Mexicans that are fresh from Mexico make the best herders. They are not acquainted with the ways of the people here and it takes them some time to catch on to how to steal mutton and what to do with it after stealing it; they are also not quite so independent as those who have been living here for any considerable time.

#### HERDERS' TRICKS.

One of the worst tricks of the native Mexicans is to wait till they catch their employer in a "hard fix" where their services are badly needed, and then ask for an increase of pay on penalty of quitting if their request is not granted; but we are not sure that

this is a purely Mexican trait, as we have known some of our white labor unions employing the same tactics. A smattering knowledge of the Spanish language is almost absolutely necessary to the New Mexico sheep owner.

In lambing his flock the successful sheep man must exercise his best efforts, for, as a matter of course, if he does not raise a large percentage of lambs whenever natural conditions are favorable he will soon go out of the business backward.

Lambing a large flock of ewes on the range is no easy matter if one is to make a success of it. The first thing that should occupy the owner's attention after he has his sheep on good feed, or the best available—for the best kind of a manager cannot raise a good percentage of lambs from a flock of poor ewes—is the question of his hired help, the number of men he needs and where he is going to get them.

#### FALSE ECONOMY.

Some sheep men make the mistake of economizing in help at lambing time, and dearly do they pay for it, for among all the ideas of false economy on a sheep ranch this is by far the worst. Some men use more help in lambing than others, and the number needed varies greatly according to the location and the amount of work the owner is willing to do himself. We might say that at lambing time the owner's presence with the flock is almost indispensable. Of course, large holders have foremen who can do the managing as well if not better than the owner, but throughout this article the small flock owner, the man with from 2,000 to 4,000 head, is held in view.

In saying that the presence of the owner is indispensable during lambing we are taking it for granted that he knows how to manage his sheep, but if he is a green hand at the business, he had better hire a sort of working manager for the first lambing season and be on hand himself in the lambing camp in order to learn to do his own managing in the future. One cannot emphasize too strongly the need of a lambing camp where there are 1,000 ewes or over to lamb having a manager who is boss of everything and who gets around and sees to details. He needs a good saddle horse, well-fed, and by means of this horse should cover his lambing ground thoroughly every day and thereby attend to all details, for it is these that count in the sheep business. He may go out to the dropping herd and find a ewe sadly in the need of help, with a couple of Mexicans standing around not knowing what to do. After giving the ewe proper attention he goes on to a lambing herd farther on, where he will probably find a herder

asleep and the herd just on the eve of mixing with some other herd nearby, and so on all day long he will find just such cases.

Reverting to the help proposition, we find it almost impossible to get along with less than seven men for 1,000 ewes, or twelve to fifteen for 2,000 while lambing. Of course, if a man has his lambing camp situated in the heart of an excellent range, with plenty of green grass, several different water holes nearby and no rough places where lambs are so hard to hold he can get along with fewer men than if his lambing camp was situated in a rough range, with poor feed and but one water hole, where all of the sheep have to be watered. In this estimate we are referring to Mexican labor.

About two weeks before the ewes commence dropping lambs all of the dry sheep should be cut out and put in a separate flock, as they are a great deal of bother if let run with the ewes during lambing, and besides, will lose a great deal of flesh, as the ewes must be held rather close at this season.

#### CORRAL PROBLEMS.

The next largest problem, after the help problem is solved, is the corral problem; having sufficient corrals and small pens erected before the lambing commences. A great many New Mexico flock owners lamb their ewes right out in the open without the use of any corrals at all; but we have no sympathy for such slipshod methods. They may claim that their sheep are too wild to work in a corral and that they get better results without the use of corrals, etc., but this is all moonshine. If their sheep are too wild to work in a corral they had better begin taming them by working them in a corral for a few seasons, and if they get better results without the use of corrals it is because they don't know how to work sheep in a corral at lambing time.

The ewes, with everything cut out that isn't with lamb, should be moved onto the lambing ground about four or five days before the time is up for them to commence dropping lambs. Thereafter this flock of ewes is known as the dropping herd. Some let their ewes run on their lambing ground for a month before lambing commences and then wonder what makes their ewes so mean to herd on the lambing ground, when if they would stop to think and observe they would see that the cream of the grass was eaten off before lambing commenced.

#### THE "BUMMING" SYSTEM.

We have very successfully used for several years a system known as the "bumming" system in lambing. The name is derived from the purpose the system is used for; that is, the raising of

"bum" lambs, lambs that have lost their mothers or been deserted by them, and are "bumming" or stealing their living off other ewes.

The principal part of this system consists of a little pen known as a "bummer" or "bum" pen. It should be built of lumber (1 ft. by 4 ft. stuff being very good) and should be just large enough to hold one ewe and her young lamb. About  $3\frac{1}{2}$  feet long by 20 inches to 2 feet wide is a general size. It should be about eight inches to one foot longer than the ewe and just narrow enough to prevent the ewe from turning around in it. The lamb is thus better enabled to suck in spite of the mother's protestations after he is several days old.

When a ewe refuses to own her lamb, or loses it from any cause, she is put into one of these "bum" pens with her lamb, or in case she has lost her own lamb with a twin lamb from another ewe or with any motherless lamb that happens to show up. Of course the attendant must see that the lamb sucks night and morning, and before the ewe is turned out to graze she and the lamb must be given a number, the number to be painted on the ewe's side, preferably with black paint, and on the lamb's side also. The first "bum" ewe of the season is marked No. 1, the second No. 2, and so on, numbering them consecutively as they come.

In cases where a large number of ewes are being lambed and the feed is dry, tending to make a great many disown their lambs, it is sometimes necessary to number all the "bum" pens, and then when a ewe is put into it she and the lamb are given the same number as the pen. This enables the attendant after catching a "bum" ewe to readily see to what pen she belongs and thereby saves time when there are a great many to catch every evening. But where the same man is attending to the "bums" regularly, in case he hasn't over thirty head, he should be able to keep them straight without numbering the pens. After the ewe and "bum" lamb become reconciled they are turned out and the next "bum" pair that shows up must be put in the same pen that the other one was just turned out of. Of course if the pen is numbered the second ewe and lamb must be numbered the same as the pen, and consequently the same number as the first ewe and lamb bore. Now, for example, we will say that a ewe and lamb numbered 24 have been turned out of pen No. 24 this morning. This evening we put another "bum" ewe and lamb in pen No. 24 and consequently number them 24. Tomorrow morning or later this ewe has owned her lamb, so we turn her out with it, thereby having two ewes and lambs numbered 24 turned out in the lamb herd. In three or four days we find one of these No. 24 lambs in the lamb herd deserted again by his mother and going hungry. We must hunt out his mother and put her back in the pen with him, and

as there are two No. 24 ewes in the same flock we will have to hunt them both out in order to ascertain which one is the mother of the lamb we have found. It can be readily seen by this example that duplicate numbering of different "bums" is not a good plan, unless one is compelled to do it with a large number of "bums" on hand to save time.

In regard to the number of "bum" pens needed, it all depends on the feed and the habits of the sheep. One man might be lambing a bunch of 1,000 ewes that were in a great many cases in the habit of disowning or deserting their lambs and he would need forty "bum" pens to properly handle them, while another man might have a like number of ewes that were good about taking care of their lambs and could get along with half the number of pens; but more depends on the feed than on anything else. If the grass is short and dry a greater number of ewes will desert their lambs than if the grass is green and plentiful.

If one has a permanent lambing ground, where he lambs his flock every year, it pays to put up good substantial "bum" pens with doors in the front. The doors can be easily put in, either to slide up and down or in stanchion fashion to open at the top and made just wide enough to admit grown sheep. Where a temporary lambing camp is being fitted out the "bum" pens can be quickly put up by making small gatelike panels about  $3\frac{1}{2}$  feet long or the length of the pen and wiring them or fastening them with hay wire between panels of regular size at intervals of about two feet, or the width of the pen.

We might add that panels make the best temporary corrals of anything we know of. They should be made of pine lumber 1x4x14, although either 12 or 16 feet lengths may be used, five boards high. Four boards high will generally hold grown sheep, but will not hold lambs, and a corral that will not hold lambs is worse than nothing around a lambing camp.

By means of this "bum" system when an ewe loses or disowns her lamb she is put into the "bum" pen and kept there nights only till she owns the lamb, which 75 per cent of them will do within a week and 50 per cent of them under three days. The ewe should be turned out to graze during the day and the lamb kept up in his pen. Where a man has as many as fifteen "bum" ewes at one time it pays to have a herder with them during the day, but where there are but a few they can be turned out with some other small bunch of sheep and caught at night.

It is a good plan to put all the numbers on one side of the sheep, as by this system they are more readily hunted out of the flock. The writer uses the left side.

In some rare instances the writer has had to keep up ewes in the "bum" pen for a month before they would own their lambs,

but they can always be made to own them if one will persevere. The author of this sketch has saved 5 per cent and over of a lamb crop when the feed was good by means of this "bumming" system.

Of course, if a ewe does not give enough milk for a lamb there is no use in "bumming" her, as she will only starve the lamb later, and if for some reason a ewe that has lost her lamb isn't discovered before four or five days have elapsed, unless she is an extraordinary good milker, there is no use to put her in the "bum" pen, for she will go dry in a very short time. At times, when we have but a few "bum" ewes up, we have tried the plan of keeping them in all the time and feeding them alfalfa hay, but have never made it work very successfully, as the ewes would often go dry eating hay and invariably it took longer to make them claim their lambs.

Some herders follow the plan of corralling their dropping herd at night and then cutting back the ewes with young lambs in the morning as the herd goes out of the gate, while others "bed" their dropping herd outside of any enclosure or corral.

We have tried both plans and think the latter the better, especially where one has a good sheltered place to "bed" his herd in; moreover, it is decidedly the best plan where there is no danger of the young lambs freezing.

When the dropping herd is "bedded down" outside they can be quietly moved off the bed ground of a morning and the ewes with young lambs left, each one with her lamb on the "bed ground." Afterward when the dropping herd has been gotten away these ewes with young lambs can graze quietly on the "bed ground." There should be a herder in charge to see that none of them stray away and to protect them from wild animals. This bunch of ewes with young lambs that were born during the night is known during the first day as the "infant" herd.

In case there were any ewes that disowned or deserted their lambs and went off with the "dropping" herd the "dropping" herd should be taken to a nearby corral and all ewes having lambs carefully searched out and put in "bum" pens. After the "drop" herd has been carefully searched over and gone out to graze for the day the motherless lambs should be picked out of the "infant" herd, which is still on the "bed ground," and put with the ewes in the "bum" pens.

With a large dropping herd, where there are from 50 to 100 lambs being dropped daily, and as many more at night, it is impossible to get all of the lambs that have been dropped during the day into camp at night, so in order to protect these lambs from the depredations of wild animals it is necessary to detail a man, or generally two men, to sleep with the ewes and lambs that have been left out on the range. These two men—as one man can't

handle them as a rule—should go out to the “dropping” herd immediately after dinner and begin getting together the ewes and lambs that have dropped during the morning. By sunset, or a little before, when it is time for the “dropping” herd to go into camp, the night herders should have all the ewes that have dropped lambs during the day pretty well rounded up, then the herders of the “drop” herd take their herd and drive it straight into camp, not allowing them to graze. Here the two night herders round up the ewes and young lambs as close as they can without confusing them too much and then make down their own beds nearby. It is needless to say that they should have brought their beds out with them when they came from dinner.

Early the next morning the two night herders should start in with their herd of ewes and young lambs and by noon they should have them in camp, where, after having any ewes not caring for their lambs properly taken out and put in the “bum pens” this bunch of ewes and lambs should be put with the “infant herd” nearby.

That night the “infant” herd should be put in a roomy corral away from any other sheep and the next morning, after being carefully inspected again to see that none of the ewes have deserted their lambs, they should be moved off a half mile or so to a permanent lamb herd camp, where a lamb herd is started.

The two night herders are sent out to the “dropping” herd after dinner and the same thing is repeated that has just been described. When the lamb herd gets up to about 200 to 250 ewes and lambs it should be moved away to some nearby ranch, if such is available; if not, to another camp, where a corral is available, so as to mark, dock and castrate the lambs. This should be done as soon after the lambs are five days old as possible, as the older and fatter the lambs get the more danger there is of loss from castration.

#### DOCKING VS. NON-DOCKING.

A great many New Mexico sheep owners do not dock their wether lambs at all, while others do, each one claiming to be right in his practice.

We are of the opinion that docking wether lambs in New Mexico is a very foolish practice. The men who practice it will say that a wether that isn’t docked doesn’t look well, that a long tail gives him a lanky appearance and that they won’t sell well on the market on that account. Now when a carload of sheep is put on the market the buyers don’t look at their long or short tails, but they look to see whether they are fat or not, and if they are fat enough, the right size, etc., to suit the buyer, he buys them and buys them by weight. So if they have not been docked there

is from a quarter of a pound to one pound of tail on them that goes in the weight, which would not have been there had they been docked. The "dockers" will say that a sheep that has been docked will put on the extra weight of the tail to his hind quarters and will look more blocky and sell better. This sounds a little "stuffish" to us. There is one thing we do know from observation and that is that when a wether lamb is docked he loses more or less blood in the operation, and every bit of blood he loses sets his growth back so much, so that in the end he doesn't make nearly the growth in the same time that a like lamb under like conditions will make if not docked.

Of course we know that ewe lambs must be docked, and wethers also, in a wet climate, where worms are bad, but we have seen thousands of long-tailed wethers in New Mexico, but have never seen or heard of a case of worms caused by long tails.

But to return to our lambing methods. After the second lamb herd has been built up to 200 or 250, moved away from the immediate vicinity of the lambing camp, marked, docked and castrated, they can safely be turned together with the first bunch of a like number. We, however, think it poor policy to put more than 500 or 600 head of ewes and lambs into one herd till they are all at least a month old, after which 1,000 head of ewes and lambs (making a herd of 2,000) is the limit that should be run together till the lambs are several months old.

#### SHEARING.

Some men shear before lambing, but we think it a poor plan in New Mexico, except it be in the extreme southern part, or unless one is going to lamb in May when the weather is warm. We neglected to state that the best time to turn the bucks into the herd, in southern and middle New Mexico, is from the first to the fifteenth of November, thereby ensuring lambing from the first to the fifteenth of April. The earlier one commences lambing, the greater the risk of loss from freezing, but the earlier the lambs come, the better show there is for grass for them, if moisture happens to be scarce in the ground, and the better growth they will make before fall. If the ewes are shorn before lambing, and cold weather is encountered during lambing, they will be much harder to handle on account of being cold, and much more liable to desert their lambs, than if they had their wool on and were warm and comfortable.

Sheep shearing in New Mexico is done almost altogether by Mexican shearers. They make very good sheep shearers, and, in the southern end of the territory, are paid from  $2\frac{1}{2}$  cents to 3 cents

per head, with board, they furnishing their own shears. In some parts of the territory they are paid more than this, but we haven't heard of any being paid over five cents.

#### FEW SHEARING MACHINES.

Machine plants are few and far between in New Mexico, although there are some plants doing very successful work, but, as a rule, the Mexicans work too cheap for the machine to make much headway in this territory. There should be more machines than there are. The best Mexican shearers clip from 100 to 125 in a day, but the average is 75 head.

Unlike most of the western states, the sheep in New Mexico graze principally on the prairies and in the valleys during the summer months, and during the winter months are held mostly in the foot hills and around the edges of the mountains, where shelter from storms is easily found. Snow seldom lies on the ground long enough to necessitate the feeding of hay. It is very necessary to get sheep out to grazing early during the summer months, as they want to lie in the shade during the hot part of the day, and have to graze early and late in order to get enough to eat.

It is never good policy to give a herder a corral for his sheep, unless it is absolutely necessary for protection from wild animals, or for some other good reason, as he is liable to sleep late at the expense of the sheep; but if on a "bed ground," they will go to rustling themselves pretty early, and thereby cause the herder to follow suit.

#### DIPPING.

The government, through the Bureau of Animal Industry, has taken up the dipping of sheep in the territory to a great extent the past year or two. They use either lime and sulphur or tobacco and sulphur. We, who have used lime and sulphur before, and know its baneful effects on wool, are very hard to convert to the Bureau's idea that lime and sulphur when properly prepared does not injure the wool. We have seen the growth of wool stopped for six months as a result of a lime and sulphur dipping, and, if it injures the wool to that extent when improperly mixed, we are of the opinion that it will injure it to a certain extent when properly mixed. It is a little cheaper than tobacco and sulphur, and some sheepmen think they are saving money when they use it.

New Mexico no doubt has a great future as a sheep country. As we have said before, she takes third place in the list of states and territories now as to the number of sheep, and we predict that, at the expiration of another ten years, she will occupy first place. Montana and Wyoming have, we think, reached their maximum

in the number of sheep kept, as the ranges there are being cut up and taken for farms more and more every year. A great portion of New Mexico's sheep ranges are of a kind that will never be fit for anything but sheep ranges, and can not be taken for farms, therefore, she will continue to raise more sheep every year for years to come, while Montana and Wyoming will be on the decline for lack of range.

Sheep can be raised cheaper in New Mexico than in any other state or territory. First, because free range is almost unlimited; second, because we can hire labor cheaper than any other state or territory, and, third, because our ranges are open nearly all winter long.

It is a rare occurrence for a New Mexico sheep man, unless he lives high in the mountains, to have to feed his sheep hay through the winter. As a rule, New Mexico's ranges are open the year around.

There is some talk of a lease law coming into effect at the next session of Congress. If it is a good law, that is, if it is made for the benefit of the small stockmen to the partial exclusion of large companies, it can not come too quickly for the small flock owners. But there is the point. It seems to us almost impossible to frame a law so that the large companies, both sheep and cattle, will not get a full hold on the greater part of the range. They may incorporate in the law that one man may lease only so many acres, but it is so easy to get around most of such provisions, that we are naturally a little bit excited as to the outcome of this leasing proposition. If it is carried out in the right way it will be an enormous benefit to the country, for every man will have his range allotted to him and will know just how much stock he can run on it, so will go to work to improve his stock, and the watch-word will then be "less stock and better stock."

#### SHEEP WAGONS.

A report of the Department of Agriculture says: The method of managing sheep on the western ranges varies greatly in different parts of the country and with different sheepmen. In some localities readily accessible, large and commodious sheep wagons follow the bands of sheep from place to place, and in these wagons the herders carry their necessary utensils, food, clothing and beds. The usual form of sheep wagon contains a cook stove, convenient arrangement for sleeping and a supply of medicines. These wagons may be hauled by two or four horses, according to the condition of the roads. In more inaccessible places, one wagon may be required to furnish service for a number of herders, who sleep in

tents, near the night camping ground for the sheep. Under such conditions each herder establishes a camp at some location, protected from storms and conveniently near water, fuel and grass.

#### AN IDEAL RANGE SHEEP.

A good deal has been written and said about the making of an ideal range sheep, a sheep that will be both a mutton and a wool producer, and at the same time herd in large numbers and meet other range requirements. The making of a range sheep has now been undertaken by the animal husbandry department of the Iowa Agricultural College. No matter what other blood may be used in the making of this breed, the Merino must be largely resorted to for herding qualities and for wool, since no other breed can take the part in these considerations that the "old reliable" can.

The basis of the start in the Ames experiment consisted of Nebraska and Wyoming range-bred ewes tending a good deal towards the Rambouillet family. They were first bred to a pure bred Leicester ram, which brought a lamb of growthier tendency with a more open fleece and longer staple than the mother ewe. The female produce from this cross were crossed back by the use of Rambouillet rams, which gave an increased denseness of fleece though somewhat shorter staple, though not any particular change so far as the weight of fleece is concerned. It is also thought that the result of this cross gave a little smoother sheep than the original mother stock. The three-quarter Rambouillet ewes were crossed back again to the Leicesters. The produce of this was a lamb of too open a fleece to withstand the western storms. Southdown rams were used on various kinds of ewes, but a uniformly small lamb was the result and inferior and greatly reduced fleece. This cross was ultimately abandoned. The present season's work will be the crossing of three-quarter-blood Rambouillet-Leicester ewes with a pure Shropshire ram with the hope of getting a better mutton sheep and possibly a heavier and better quality fleece. Seven distinct breeds of sheep are being used in trying to evolve the ideal range sheep at the college mentioned, but whether anything can be produced that will take the place of the common fine-wool range ewe crossed with the improved breeds remains to be seen.

#### PEA-FED LAMBS.

One of the more important ends of the sheep business in this country is that of feeding lambs on peas. Lambs fed in this manner are known as pea-fed lambs, and Colorado leads in this industry. From a very small beginning this business has assumed enormous proportions, and it is stated that fully a million sheep and lambs

were fed in this manner in Colorado during the past winter. The heart of the pea-feeding district is situated in the San Luis Valley in southern Colorado and around Fort Collins in the northern part of the state. The San Luis Valley is a table land situated at an altitude of 7,500 feet between two ranges of the Rocky Mountains. The valley is about fifty miles wide and one hundred miles long. The peas fed in this district are supposed to have been introduced by the Mexicans. They are noted for their length of vine, which run along the ground for a distance of ten to fifteen feet from the root. It is only a few years ago when some of the more progressive ranchers tried a few New Mexico lambs on the pea-feeding system. The lambs did remarkably well and made the ranchmen a good deal of profit out of the investment, and this fact induced others to try it with like good results. A profit of \$1.25 a head on lambs is no unusual thing. One Colorado feeder has said that a pea-fed lamb can be fattened and marketed at \$5, and that more money can be made out of them than can be made by raising corn or feeding beef cattle.

The peas are usually sown on grain stubble land and when they are ripe the lambs are turned in to harvest them. In the early stages of this new feeding project feeders used grain in connection with the peas, but they have since found that the lambs fatten just as rapidly on the peas alone. It is estimated that from eight to fifteen lambs can be fed on an acre of pea-land. The feeder lambs are purchased mostly in New Mexico, although quite a number are obtained from Idaho and Oregon.

Not only has the actual profit from feeding the lambs to be considered in this pea feeding undertaking, but also the profit accruing from the enrichment of the land by this method. The lamb raised under the pea-feeding system is considered as second to none, as it is very fat and luscious and eagerly sought by the Chicago and other large markets. Unquestionably, pea-feeding is the least expensive of any method of lamb feeding. Pea-fed lambs have sold on the Chicago market very recently at considerably over \$8 per hundred pounds.

Among the pioneers of this interesting and profitable business must be mentioned the names of Messrs. Sylvester and Kelly, of Monte Vista, Colo., who sprung a surprise on the Chicago market by a consignment of nearly 30,000 pea-fed lambs that were the sensation of the year, and an epoch in the history of the stock-yards. Since to Mr. Kelly belongs the credit, or the partial credit at least, of introducing pea-feeding into Colorado, and being a thoroughly practical man, I can not do better than quote from his article, "Pea-Raising and Lamb Feeding in the San Luis Valley," which appeared some time in the *American Sheep Breeder*. It is in every sense of the word practical and of the utmost value

to those thinking of entering this new industry. On this subject Mr. Kelly says, in part:

"When I sowed the first crop of peas I had no idea what I would do with the crop or what to feed it to. But stock hogs being cheap in Nebraska, I finally decided to let a part of the crop ripen on the ground, ship in hogs to feed it off, and cut the rest of the crop for hay. When the hogs came, they brought the cholera with them, and 170 died; and there was the crop ripened on the ground, too late to cut for hay—and nothing to feed it to. I decided to try cattle, and accordingly bought ninety-six steers, raked up the peas, stacked them, put the cattle in a corral and fed them the peas in racks—vines, pods, grain, and all. About thirty hogs, spared by the cholera, were run with the steers. All did fine, and made good money."

"Being envious of the success of the Fort Collins people in feeding sheep, I decided to feed the pea crop to sheep the next year. Accordingly, the next year, I bought 1,300 lambs and 800 wethers. That year, also, F. Sylvester & Sons bought lambs to feed their pea crop to. And thus was begun lamb feeding with field peas in San Luis Valley.

"Our practice then was to cut the peas when in blossom for hay, and then plow under the second growth of peas, 12 to 18 inches high, in preparation for a grain crop on the land the next year. Thus the only use we made of our own pea crops in feeding lambs was as hay. We put the lambs in corrals, and fed the pea hay in lieu of alfalfa, and oats, wheat and barley, in lieu of corn, after the usual methods of lamb feeding.

"That was the general situation when, four years ago, Mr. Sylvester turned a small bunch of lambs into a field of pea stubble, where he had cut the peas for hay very late, after many of the pea pods were filled, so that in the stubble there was left a considerable amount of matured pea grain. He was much surprised that none of these lambs were killed or got 'off feed,' although getting all the pea grain they would eat, and still further, that they made a little better gain than the lambs he was feeding in corrals in the usual way. This was the hint; and, like the wise man that he is, Mr. Sylvester took it. If the pea crop could be allowed to ripen on the ground, without the expense of harvesting, and lambs simply turned into the field 'to do the rest,' if they could thus be finished for market on the pea crop alone, without feeding other grain, then the whole problem of the pea crop rotation and of the profitable disposal of the crop was solved.

"With admirable and unusual courage, Mr. Sylvester, the next year, fed about 8,000 lambs in this way, and demonstrated the complete success of the plan.

"The next year a few more of us adopted the plan, and about 17,000 lambs in all were fed in that way. The next year about

60,000. Then our farmers generally began to 'sit up and take notice,' and the last year 162,000 were fed. This year sufficient peas have been raised to feed at least 300,000 head, and that number, at least, would be fed if feeder lambs could be bought at a price feeders would consider reasonable and safe. But the extremely high price of lambs is causing many to hesitate, and at this time it is uncertain how many will finally be fed. Only about 225,000 have been contracted for at this date.

"Our experience thus far with this method of feeding has demonstrated three things: That lambs can be turned into a pea field with practically no danger of them killing themselves (the reason, probably, being that as they are unaccustomed to eating grain of any kind, they begin on the pea vines and gradually learn to eat the pea grain, and, besides, this grain is less dangerous than wheat, barley or corn); that they do not get 'off feed,' but all thrive, apparently, equally well; that the losses are less than when fed in corrals in the usual way; that they can be fed to a finish entirely on the pea crop; that they ship well, the shrinkage being light; that they 'kill out' well, the percent of dressed meat being very high; and that the mutton thus made is a very superior article and is creating a distinct and increasing demand for the pea-fed lamb.

"The reason why lambs will finish when fed in this way, on the pea crop alone, when it was difficult to finish them when fed pea hay and wheat and barley, as by our original practice, is probably because of the per cent of the carbohydrate content of the pea vines is undoubtedly much increased by allowing them to cure or ripen on the ground without cutting the same as it is increased in alfalfa hay when cut late or beyond the blossom state. Anyhow, the fact has been proven that lambs can in this way be fed and finished on the pea crop alone.

"But this method of feeding lambs is not without its difficulties, as experience has shown. The experienced sheep feeder will at once perceive that it reverses the usual order; that is, instead of beginning with a light feed of grain and gradually increasing to full feed, and thus continuing to the finish, our lambs are almost at once on full feed, and that the longer they are kept in a given field the less feed there will be for them and just at the time when they should be eating the most.

"There is then the apparent difficulty either of wasting feed by turning the lambs into a fresh field before they have cleaned up the first one, or of spoiling the lambs by compelling them to clean up the first field. This difficulty has been solved in three ways: First, by having hogs (and preferably cattle with the hogs) to clean up after the lambs, and keeping the lambs going by turning them into fresh fields before feed in the first field has become short enough to check gain; second, by putting self-feeders in their

corrals, when the feed in the field begins to get short, where they will have access to all the wheat and barley they will eat at night, and, in fact, they have access to the self-feeders at all times. But they get all their roughage in the field, and will continue to glean pea grain until they finally will clean up the field, and at the same time will continue to make good gains and a good finish. Third, by keeping a herder with them, preventing them from running over the field, and allowing them to advance a little each day onto fresh feed. In this way they will graze back and forth over that part of the field fed over and clean it up, and they will also have all the feed they will eat all of the time, and make the usual gains, and at the same time the field will be cleaned up without waste when they are through with it.

"In all cases the lambs are corralled at night. The corrals are usually made of movable lock board panels, and the corral moved onto fresh ground once a week.

"Of the three methods above mentioned, the last is the one so far generally used, and in most cases is to be preferred when good herders can be obtained. But the trouble is to obtain good herders, for there is a great difference in the herding, and in the results thereby obtained. It would almost seem as if some herders hypnotized the lambs, for they will quiet down at once, stop traveling or running over the field, feed quietly and lie down, and consequently will make the best possible gains. With other herders, they will be nervous and restless, traveling over the field, and do not fill up quickly and lie down; and while they have all they will eat and apparently eat as much, they do not make as good gains.

"The difference in herders was illustrated last year in my own experience with two bunches of lambs of about 2,000 each. The lambs were of the same grade (the original herd cut in two), and the feed the same; yet one bunch made in a given time an average gain of four pounds more than the other.

"Some feeders will try the plan this year of cutting their land up into 40 to 53-acre lots, and of putting smaller bunches of lambs—400 to 600 in a lot, and dispensing with herders altogether, and of either using movable fences of some sort, so as to give them access to fresh feed as needed, or else allow them to run at will in the lot as long as advisable, and then turn them into fresh fields, and clean up after them with stock sheep or hogs and cattle. But, without doubt, experience will finally solve in some way all the difficulties which develop in this method of feeding.

"It would naturally be supposed that there would be great waste of feed in this method of feeding lambs; that, as the lambs run over the feed and thresh out most of the pea grain, there would be a large part of it they would never get, and which would not be recovered in any way. And experienced sheep feeders (who know how disdainfully a lamb, when fed in a corral, will refuse

to eat a bit of anything after they have once run over it) would expect that after the lambs had run over the pea feed a few times at least, they would cease to eat it until starved to it. But neither of these suppositions is true. It would seem that the soil keeps the feed sweet as long as there is any feed left, and the lambs will feed over and over and over the same ground as long as there is any feed there; and the pea grain which becomes covered up in the loose dirt, by their running over it, as some of it does, they will dig out and eat. And it is not a rare or unusual or accidental thing, but a general and constant practice. They all learn quickly; and it would seem that they like the grain better after it has been buried, for they will frequently dig for it when there is plenty above ground. And it is surprising how clean they will eat up the feed in a field and still make the usual gain. So long as they get 'full as ticks,' and are quiet and contented, and lie down, it is safe to conclude that they are getting plenty to eat and are doing well, although the field, to the casual observer or inexperienced feeder, would seem to be almost bare of feed.

"As suggested above, whatever grain the lambs may leave hogs will get, and cattle will clean up the vines, so that, by one way or another, there need be no waste of feed, practically, in this method of feeding lambs.

"It should be noted that throughout the greater part of the valley artesian wells are obtained (at from 130 to 400 feet), so that most of the feeders have flowing wells in their fields, to which the lambs have access at will at all times during the day. The temperature of the water is 50 to 53 degrees, so that the lambs drink it readily in the coldest weather.

"Our present lamb feeding methods having attracted wide attention, it is frequently predicted that they will become general over quite wide regions of the west, especially of the intermountain regions. It is very doubtful if this will prove to be the case. The success of the methods depends upon certain climatic conditions, and which are probably found here in San Luis Valley in greater degree of perfection than they are known at present to exist elsewhere, or in any considerable area.

"These conditions are three in number, any one of which being absent will render success very doubtful, if not impossible. These are: First, a climate sufficiently cool for the peas to thrive. Field peas are a cool climate plant. They thrive in Canada, and in some places in the United States along the Canadian border, but in few other places in this country. It is doubtful if they will thrive in regions sufficiently warm to grow such fruit as peaches.

"Second, the vines must continue to grow or remain green until after summer or fall rains have ceased, so that they will ripen or cure down, like grass does in the 'short grass country.' If

rains occur after the vines have ripened or dried up, it will blacken and rot them, spoiling them for feed; and will also sprout the pea grain.

"Third, a light snowfall during the fall and winter. And the snow must be dry, and the air dry enough to evaporate the snow as fast as it melts, so that the ground will remain dry.

"As to gains: Average gains have varied greatly, as would be expected where so many entirely inexperienced feeders have gone into the business. Experienced feeders will understand how seemingly small errors in handling fattening stock will make a great difference in results. Many of our farmers last year did not get satisfactory gains, obtaining an average only of four to five pounds a month. Others obtain gains of six to nine pounds a month for the whole feeding period. I got an average gain of eight pounds in twenty-nine days, during the worst weather we had last winter. A neighbor's lambs gained nine pounds during the last month of feeding. But, during that time, he fed barley in self-feeders, in connection with the field grazing as described above. The best experience seems to show that, with proper handling, we should get an average gain of seven to eight pounds a month during the whole feeding period. Most of the lambs fed are Mexicans, and averaging in weight from fifty to fifty-five pounds at the beginning.

"On account of overstocking, many farmers were forced to market their lambs last year before they were finished, and thus tending to create an unfavorable opinion of our lambs and our methods of feeding. But, fortunately, the greater part of our lambs were well finished, and that unfavorable opinion was corrected.

"There is no question now but what our present method of lamb feeding possesses all the essentials of the highest success, and that lamb feeding here will be a permanent feature of our farming. Its peculiar merits are the saving of all the expense of harvesting the crop, and much of the expense attending the feeding of lambs; the raising of a crop upon which lambs can be wholly fed and finished—that is, growing both the hay and grain on the same land, and the production of superior mutton.

"The general effect of the pea rotation in farming and successful lamb feeding has been very marked in the increased prosperity of the valley. Population is rapidly increasing. Land, also, is increasing in value; and, while it is still cheap, the best pea land selling now at \$50 to \$60 an acre, it will probably not long sell at such prices. When land, after taxes and water assessments and expenses of all kinds are paid, will pay ten per cent net on a valuation of \$150 an acre in average years, the question is, What is such land really worth?"

### "LOCO" POISONING.

It is claimed that livestock on the western ranches is "locoed" to the extent of \$40,000 yearly, and sheep make no small contribution to this great total. "Loco" is not a disease, but is the result of poisoning by a plant of that name, which affects the animal much in the same way as a continued use of alcohol or morphine affects the human race. There are those who credit the trouble to an animal parasite, but scientists do not subscribe very largely to this opinion.

The "loco" weed is probably the *Astragalus mollissimus*, a stout, silky-haired plant with oblong leaves, whose pods, when ripe, have incurved ends. It grows from eight inches to a foot high, and very much resembles wild sage. When ripe, the seeds of the loco weed rattle in the pod, and on this account it is known under the name of "rattleweed." The first case of loco-poisoning appeared in 1886, when a band of horses became "locoed." Loco-poisoning has caused a great deal of trouble in Butte county, Montana.

It is said that sheep and other livestock do not die immediately after eating the weed, but in from six months to a year after acquiring the habit. Stockmen claim that the weed is eaten in early spring before the grass gets started and that when stock have tasted it they refuse all other food and persist in hunting out the poisonous plant. In the course of several months, the animal becomes blind crazy; and generally dies during the summer or in early fall. So far, no specific cure of loco-poisoning has been discovered, although hundreds of thousands of dollars have been spent by the different states with a view to finding one.

In all cases of poisoning by injurious plants, the first thing the experienced shepherd does is to sustain vital action by giving strong hot coffee and then rid the system of the poison by some active cathartic, and it would be worth while for those having "locoed" sheep to experiment along similar lines.

In a report on this troublesome plant in Montana, the government specialist offers the following on the treatment of "locoed" animals:

"No specific remedy for the loco disease has ever been discovered. The one definite statement concerning any poisonous principle which may be contained in loco weeds is that made by Dr. Carl Ruedi, who claims to have isolated an acid, which he called 'loco acid,' from *Astragalus mollissimus*, the common loco weed in Colorado. This work has not been corroborated, and it is not at all certain that the same substance will be found to be the active principle obtained in the loco weeds of Montana. In the present state of knowledge on this subject the only treatment to be recommended is that of confinement and feeding with nutri-

tious diet. It is sometimes possible for the sheep raiser to move the band of locoed sheep to a range where none of the plants grow. When sheep are unable to obtain the loco weeds a large majority, even of chronic cases, may be fattened and will produce good mutton. In horses which have had the loco habit for a year or more, and which are then kept in stables or pastures where the loco weed does not grow, an apparent recovery takes place, but such animals are apt to show the effects of the loco in various vicious habits, such as kicking or running away without apparent cause.

"Since the loco disease is due to habit it is obviously impossible to apply any such treatment as would be given to a disease which has a definite course or to a case of acute poisoning from death camas or other plants. In the case of poisoning from death camas, water hemlock, or larkspur, the result of treatment depends upon the amount of poison which has been eaten and the promptness with which the remedy is applied. In locoed animals, on the other hand, the stockman has quite difficult conditions to contend with. He may be able, as in the two cases just cited, temporarily to counteract the effect of eating the loco weed. Such cure is, however, only apparent. The habit is formed and the animals will at once begin to eat the plant again if turned out upon the range. A permanent cure therefore, in the ordinary sense of the word, seems to be practically impossible, the loco habit being comparable, as already indicated, to various injurious habits of men, such as habitual drunkenness and the morphine habit. For chronic cases it seems hardly reasonable to expect that any remedy will be devised. Then treatment must apparently proceed on the same principles as the treatment of vicious habits of long standing in man."

#### ALKALI POISONING.

Alkali poisoning is somewhat akin to loco poisoning. This trouble, as its title denotes, is caused by eating undue quantities of alkali. It is generally thought that if sheep are salted regularly that they do not take up the alkali habit. It has been contended by some that eating alkali predisposes sheep to the loco habit, therefore, the importance of regularly salting the flock. Sometimes sheep are seriously affected by drinking water highly impregnated with alkali. Especially is this so when they have been without water for any considerable time. It is claimed that as yet no serious experimental study has been made by scientists of this trouble.

The common symptoms of alkali poisoning are fermentation of food in the alimentary canal, severe bloat and congestion. But a short time elapses after sheep have partaken of alkali before they become stiff in the legs, very stupid and lose the use of their limbs

entirely. They foam at the mouth and usually a deposit of alkali is noticed adhering to their nostrils. The period between the eating of the alkali and the death of the victim varies considerably. Sometimes it dies within an hour; in other instances it lingers for two or three days or even longer. Alkali districts should be avoided as much as possible. Especially is this true where the waters are known to contain the alkaline salt to excess.



Head of "Pig-Mouthed" Sheep.

## PART IV.

### FITTING FOR SHOW.

A show flock is among the most interesting exhibits found at our state and county fairs, and shows the world over, and to the shepherd and many others it is a fascination. As the writer has often remarked, the fitting of stock for exhibition often



"Looking Backward." Showyard Scene at the Pan-American Exposition.—Photo by "Shepherd Boy."

means a sacrifice of the cream of the flock or herd, but, nevertheless, were the practice of showing discontinued it would be a source of loss to the livestock industry for the reason that breeders would lose one of their best guides to type. Hence the showyard is a necessary evil. That there are a very large number of animals that do valuable service in the breeding pens, after going through a successful tour of the shows, is above question, but such have been handled by skillful hands who do not permit of their charges forming too close an acquaintance with the grain bin. Our best authorities agree that when an animal is in the height of show-

yard condition that succulent rations in plenty and variety and a sparse grain ration, by way of luxury principally, is the proper thing. Grain is too heating for a very fat, ripe animal during such weather as prevails through our summer shows, and only a very little is necessary to hold it up to concert pitch under such conditions. Succulent rations have a cooling and purifying effect on the blood of the ripe animal and tend to ward off that condition known as "blubbery and breakdown."

To properly feed and fit sheep for exhibition requires considerable skill. Where indifferent methods of fitting are employed not only are the animals' chances of victory poor, but their reproductive organs are liable to suffer in consequence. When feeding for exhibition the shepherd feeds, besides concentrated foods, such



A Reminiscence of the Louisiana Purchase Exposition Showyard.—Photo by "Shepherd Boy."

as grain, oilmeal, etc., the most succulent, appetizing, nutritious and cooling rations, such as cabbage, rape, kale, turnips, vetches, etc., and these with the utmost regularity. After the preliminary, or outdoor fitting, the showyard candidates are housed during the heat of the day and allowed out in the yard or paddock only during the early hours of the morning and in the evening—chiefly for exercise. Some little time previous to starting for the shows they are "blocked out" and "trimmed." That is, they are shaped and smoothed with the shears until they are symmetrical, smooth and very pleasing to the eye. After "blocking" and "trimming" they are blanketed, with the two-fold purpose of keeping the fleece clean and making it compact and smooth. Some shepherds color their sheep, but this fashion has become somewhat antiquated.

Most shepherds are artists in their particular calling, and when their exhibits are in full dress ready for the frays of the arena they may be not improperly called "things of beauty."

That eminent English authority, Prof. Wrightson, gives the following charming effusion on showing: "A master might as well try to take prizes without sheep as without a shepherd, and it would not be possible to commit all the store of knowledge, possessed by a competent shepherd to paper. Neither possible nor yet desirable; and if it could be done, the written directions would not ensure the same success in other hands. First-rate shepherds are not so uncommon as they are difficult to find, because they are not given to changing their situations often. A pleasant feature of sheep-farming is that mutual regard of master and shepherd, both men appreciating each other's value. Training is carried on with some little affectation of secrecy, and much undertoned and almost whispered consultation. The attention is constant and the daily care extraordinary. The trimming of show sheep is a matter of importance. There are those who object to trimming, but it is impossible to show sheep in the natural unkempt and rough state. It is really cruel to ask a breeder to exhibit his sheep in a great show, before ladies and gentlemen, without dressing them. What would a horse-breeder say to a regulation insisting that his hunter or his thoroughbred should appear ungroomed and rough, with long tail and uncombed mane? A sheep-breeder has similar feelings, and similar failings. Besides, the public like to see animals well turned out of hand, and even the pigs appear with their hair curled and oiled, and their skins blooming as if they had been immersed in a bath composed of toilet vinegar. Trimming may be overdone, or unfairly done, but to the legitimate use of the art there can be no objection. The methods vary with every breed. The Leicester appears, like the parson, all shaven and shorn. The Lincoln is smeared over with some mysterious unguent, which makes the hands feel very disagreeable if they are allowed to touch the fleece. The Cotswold comes out curly in coat, white, and redolent of soap and water. The Southdown appears as like a plum as a sheep can possibly be made, and bears evidence of the shears over his entire carcass. A very snug gentleman indeed is the Southdown when in his war paint. Trimming is carried to the greatest perfection in the Down races, and they certainly reward the artists who have accomplished their tasks so deftly."

#### STARTING ON THE CIRCUIT.

After the finishing touches are put on the show flock the shepherd should set about making provision for its comfort during transit to the showyard and during its sojourn in the show-yard. He should select some of the very choicest clover or alfalfa

hay the farm affords, as this is one of those necessities which are sometimes hard to find at the feed barn of the showyard. Of course the experienced exhibitor provides, in abundance, such important succulent delicacies as turnips, kale, rape, cabbage, etc., and mixes his grain previous to loading his car. The lantern, trocar, shears and the medicine chest must not be forgotten, and on no account must the water barrel and buckets be overlooked.

A large, well-ventilated car should be chartered, and properly fitted with separate pens for the rams and the ewes, and a section apportioned for the storage of feed and the shepherd's sleeping quarters. A ladder of two or three steps should be nailed to the side of the car to enable the shepherd to get in and out of it easily. I have found it to advantage to have a smile for the yard bosses and another kind of "smile" for the freight hands. It is important that your shipping contracts are made out early and correctly. Don't think your widow will receive big damages if you get killed on a show circuit freight car, since you usually sign your claim away when signing the shipping contract that effect showyard shipments. If you want to take a friend along impress upon him the importance of keeping out of sight and keeping his mouth shut when the freight conductor or his undergraduates are around, for your contract allows but one man, as a rule, for one shipment.

#### COLORING.

What is the object of coloring? To many it appears a useless custom. Culley says in regard to coloring: "The practice of rubbing into the wool red or yellow ochre in the month of September was intended to qualify the perspiration, which would otherwise give an asperity to the wool, and to form a coat impenetrable to rain or cold." Evidently the motive of coloring in Culley's day was different to what it is today. Some say that coloring was introduced with the idea of guiding the judge to the identity of the owners of the various exhibits. That would hardly hold good these days, since so many different exhibitors use similar colorings. It has been further stated that the custom originated with the Spanish. I have used coloring extensively, but in my later days showyard career used no coloring outside of a pinch of ochre with a little sweet oil to add a richness and uniformity to the fleece, and then only on sheep whose fleeces have undergone a thorough washing somewhere about six weeks previous to exhibiting the animals.

I have never found any coloring mixture to give such pleasant and satisfactory results as yellow ochre and burnt umber mixed with olive or palm oil. Of course the matter of shade must be left to the colorer, that being regulated by the quantity of ochre

and umber used. My experience has been that coloring about a week or ten days before the finishing touches are put on the sheep is the best method to adopt. It is well to mix the coloring matter in bottles or cans ready for use, but to all this miscellaneous advice I would add don't color; put up your sheep in as clean a way as possible in their natural condition to insure the most pleasing results. Many of our most skillful shepherds are now following this plan.

#### TRIMMING.

To those of artistic temperament trimming is not so difficult as might be imagined. Of course there is trimming and trimming, just as there is drawing and drawing, and painting and painting. Those having in their eye an outline of what true mutton conformation is usually make the best trimmers.

In "blocking out" showyard subjects of the Down breeds, that is, cutting them out in the rough, the back and flanks should be carefully levelled, the breast and lower parts of the barrel and thighs carefully rounded, and the whole subject converted into an object of straight lines and graceful curves. The Longwools are not trimmed so closely and smoothly as the Downs, but blocked out and left in a more natural condition. They should be carefully washed early enough in the season to allow of the yolk returning to the fleece by the time the shows come on. A dry, lifeless fleece should not be found on exhibition stock.

In trimming the Down breeds the fleece should be dampened with water, or, where colored sheep are considered, with water colored with ochre or something of that sort, and thoroughly combed with a curry comb or carding comb and gradually trimmed into form. Don't expect to trim a dozen sheep a day, or even one sheep in a day. Showyard candidates should be gradually brought into shape by frequent trimmings at intervals of a day or two rather than commenced and finished in a day.

#### EXERCISING SHOW SHEEP.

To keep your show animals in best possible condition they must be regularly exercised unless the weather is particularly hot. Early morning and late evening is the best time to attend to this work. No show sheep can keep healthy without proper exercise, but of course this must be of a gentle kind. Little trouble is experienced in exercising sheep after they have once become accustomed to the daily program. Of course the rams and the ewes should be exercised separately. Where exercise is neglected sheep often become "groggy," that is, weak on their legs. It is just as important to exercise show sheep, which, of course, are

very highly fed, as it is to exercise show horses, and everybody knows that a horse that is not working could not long keep in good health where his bill-of-fare is the same as when he is working hard.

Rarely do show sheep, after a long railroad journey, take kindly to their feed for some time after being unloaded. This is due to broken rest attending such journeys. As soon as they have become well rested they take readily to their regular meals again. It is poor policy to drive them from the station to the fair grounds in very hot weather, especially if it be a long distance between the station and the grounds. On no account should they be driven any considerable distance in the heat of a mid-summer day.

#### CLASSES.

An aged ram is a ram two-years-old or over. A yearling, or shearling ram, is one that is over a year but under two years of age. He is a yearling from the time he gets his first pair of incisors, or permanent, front teeth, until he gets a "two-year-old mouth," or four permanent incisors. A ram lamb is one that has not yet lost any of its milk teeth. An aged ewe is a ewe two-years-old or over. A yearling, or shearling, ewe is one that is over a year but under two years of age. She is a yearling after she gets her first pair of incisors, or permanent, front teeth until she gets a "two-year-old mouth," or four permanent incisors. A ewe lamb is one that has not yet lost any of her milk teeth. A pen usually consists of three individuals, either rams or ewes, a pair, of two animals of one sex. A flock generally consists of an aged ram, yearling ram, ram lamb, aged ewe, yearling ewe and ewe lamb. "A special" means a special prize offered in addition to the ordinary list of premiums. "Specials" are usually put up by the breed associations. Champion means the best animal of a given breed. Both the male and female classes usually have champions. Sweepstakes, or grand champion, means champion over all competing breeds.

#### OVERHEATING.

This is a trouble which is more common than it should be, and if the damaging influence of too much grain was better understood there would be less of such troubles. When a sheep is once in good fit it needs very little grain, but an abundance of succulent rations. Especially is this true of sheep traveling our show circuits which occur in the warmest season of the year. An overheated show sheep shows symptoms of great weakness in its hind quarters and is otherwise very much distressed. When a show sheep can not stand upon its feet but for a few moments at a

time, pants violently, and drinks a good deal of water, it is overheated or foundered.

Shearing a show sheep on the circuit is not a very pleasant thing to do, but it is about the only thing to do with sheep that have become overheated. After shearing it should be dosed with some cooling medicine such as Epsom Salts. Of course all grain rations must be cut off and nothing but cooling, succulent rations fed. This is not quite in harmony with ordinary rules of good feeding, but it is the only hope of saving the afflicted animal.

#### TRAINING.

Prizes are often lost on account of the different entries not being properly trained. A sheep that "stands out" properly certainly appeals more to the judge, all things being equal, than does that which "stands out" indifferently, therefore the importance of thoroughly training your exhibition animals. The animal that stands "all of a heap" certainly does not show at its best. While most of our showyards have regular exhibition rings, some do not, and the exhibits, consequently, are taken outside of the building and arraigned for the inspection of the judge, on what sometimes is anything but level ground. Where such is the case, care should be taken that the animal is stood as level as circumstances will allow and on no account should the fore-end of the sheep be lower than its rear end. Vice versa would be much the better position. Of course we have to have a good sheep to win where competition is keen, but, nevertheless, there is a good deal in how a sheep is shown out.

Show sheep should be handled as much as possible, as handling makes them tame and manageable. Although sheep are supposed to be a very dumb animal, there are a good many things that they learn very rapidly, and one of them is how to stand out properly and how to follow their shepherd. The writer has seen show sheep follow their shepherd through dense crowds to and from the show ring and pen much as a lamb would follow its mother.

A sheep is best made to stand squarely and naturally by putting the left hand under its lower jaw and the other on its loin and gently pressing it. As a natural consequence, it spreads out its feet with a view of supporting the extra weight on its body. Of course violence or force must not be used or injury may result. It takes but very little time for a sheep to learn what is expected of it and to acquire the proper pose.

#### REDUCING EXHIBITION SHEEP.

There is just as much skill in reducing show sheep to normal condition as there is in fitting them for the battles of the show-

ring. Of course, to avoid injury to their constitution, show sheep must be reduced very slowly. Sheep that are reduced too rapidly will lose their fleece, either in patches or entirely, especially if they have been at any time near the overheating mark. Bloom must be preserved as much as possible, but of course we must not expect as much bloom on the sheep that is being reduced as that found on one that is growing toward the show yard mark. Superfluous fat must be reduced more by exercise than by any great decrease of rations. A good second growth clover pasture or a rape field is a good place to reduce the condition of show-yard veterans. The grain ration should be greatly but gradually reduced until it gets back to almost nothing. Ewes whose days of usefulness for show-yard purposes are gone should be reduced as rapidly as possible so as to allow their being mated at the same time as the main breeding flock.



#### BLANKETING.

Show sheep are blanketed for the double purpose of keeping the sheep clean and for bringing the fleece into a compact, solid, and attractive condition. Some shepherds may tell you in a humorous vein that they are for keeping the flies off the sheep, and others that their mission is to keep them warm, reasons of course without foundation. While traveling on the cars show sheep should be covered with rough blankets so that the show yard blankets may be in the best possible condition for the show yard. It is well to keep the exhibits blanketed until they have been passed upon by the judges, as danger from mutilation by the fingers, walking-sticks, and umbrellas of the casual show-yard visitor is to an extent prevented.

Blankets are usually made of burlap, ducking or something of that kind. Ordinary bran sacks make a very serviceable blanket for home use or for use on the cars. The accompanying illustra-

tion shows how a blanket should be made. The heavy line shows the outline of the blanket. Some Shropshire breeders make a detachable hood to protect the head covering of their sheep. This is shown in the illustration before alluded to.

#### JUDGING.

Good judges of sheep are not so common as some imagine, judging by the way some of those who officiate in that capacity are sometimes scored<sup>d</sup> by exhibitors and the agricultural press. One might handle a breed of sheep a lifetime and not be a really good judge of that breed. To become a good judge of a breed one must study that breed with an infatuation bordering on crankiness; and, moreover, must have that unerring eye and hand which mean so much to the expert rifle shot.

To insure anything like satisfaction to exhibitors and for best educational results, only practical judges should be selected to pass on a ring of sheep. The selection of judges at some of our fairs is little less than ridiculous. It would seem that some people think they are qualified to judge anything they are asked to judge, just as some writers write on every conceivable subject of which they have no practical knowledge. Some day their children or their grandchildren will hold them up to ridicule. It is unfortunate that there is a dearth of good judges. A prominent breeder recently remarked: "The man who is simply a theorist and does not know how to handle sheep in a practical way and manner had better leave the judging to other parties." It would seem that some so-called judges do not realize that exhibitors have the right to be considered and that nothing is more discouraging to a breeder of good animals than to see his animals wrongly placed by an incompetent judge.

When Charles Colling reached old age he remarked that if he had his eyesight and the use of his fingers he would have no fear of success in establishing another Shorthorn herd. Bates considered handling or "touching" stock of vast importance, and delighted in giving lectures to his friends with his own cattle as object lessons. Even the Romans knew what "touch" meant and avoided rough animals.

Of course it is understood that a purebred animal must fill the eye as to type before "touch" counts for much. The defects of conformation of cattle, horses, swine, etc., are more easily detected than those of sheep, since they are usually clothed in fleeces which, whether manipulated by the deft hands of the shepherd or left in their natural state, bar one from determining with any degree of accuracy the perfection or imperfections of the body that lie hidden beneath the woolly blanket. George McKerrow, the senior member of the well-known Wisconsin firm of Oxford

breeders, recently expressed his opinion that all sheep shown at the International, where any serious difficulties were experienced in properly placing them, should, like the sheep shown at the Paris Exhibition in 1900, be shorn, as such a course would readily reveal their respective defects.

It is pretty safe to say that sheep judges as a rule give less satisfaction than any other class of livestock judges, and it is not to be wondered at when the large number of breeds of sheep are taken into consideration and the pitfalls that judges who are not perfectly familiar with their work are liable to fall into. A well-trimmed fleece will sometimes deceive the young judge, but of course has no influence on the veteran. Blubber is sometimes overlooked, and obese, broken-down animals often receive a rating they should not get above useful young animals of ten-fold value. A judge can never please all parties, so long as breeders' opinions differ so much as to type. The vagaries of the show ring are many, and one of the most peculiar is that where a sheep gets a bad start under a so-called good judge he is liable to have an unfortunate showyard career unless he should happen to fall into the hands of a capable and fearless judge. There seems too much precedent-following in showyard circles today. How often do we see a champion, especially in the cattle classes of our agricultural exhibitions or fairs, taking ribbons which belong to younger and more deserving entries, long after he has closed his real days of usefulness. Referring to this question some time ago, the author took occasion to say:

"The judge who has courage to take the initiative in turning down a 'has been' champion for justifiable reasons is worthy of universal respect. Many an animal which should have found an honorable position on the retired list and others which at certain times would have been more in place in the conditioning paddock than in the show yard have taken honors which belonged to more useful candidates simply because the halo of 'imported' or 'champion'—dim as that sometimes in reality is—had hovered over its head for a long unbroken period; or, may be, because the judge, fearing that by turning down such a too-much-vaunted champion, he might injure its owner's feelings, and thereby risk incurring his ill will, preferred that others should take the bolder step of placing the animal where it belonged. Some judges fear so-called press reports, which in many cases mean nothing more or less than a reiteration of the words used by the owner of the animal in condemnation of the judge, and are not, as they should be, those of a reporter qualified by practical experience in the feed lot and show yard to give a weighty, critical and impartial opinion, and who is willing to give reasons why a certain animal should or should not have met defeat. Too often when a judge has the courage to turn down a worn out show animal the reporter describes the

judgment as criminal, etc., but entirely forgets to mention that the champion from long touring had become stale, 'hadn't a leg to stand on' and was generally out of condition. It is an undisputable fact that many a champion is a 'has been' and of no practical use and consequently valueless outside of what he would bring for meat and tallow, and strange it is that the owners of such rarely consider that, as with man, time works havoc with animals—show animals especially—and that 'every dog has his day' and that there was never a good man or a good horse but what there has been or will come a better. A pugilist is not often looking for an encounter when out of condition. The horseman that would race his record holder when out of condition would be adjudged a lunatic. Why then should an honest judge of cattle or sheep be scored for turning down an animal that is practically out of the race? It should be, not what an animal has been, but what he is today. Let the judge put the ribbons where he would put his money. He that would put either on a broken-down, un-serviceable animal is a novice or a fool. The wise exhibitor retires his show animals by choice, when their stars shine brightest; the unwise retires his by force, after having been vanquished. The latter are they who, as an only hope and subterfuge to recoup the honor of a champion that is irretrievably lost, take occasion to roundly abuse the judge who dares to do right."

Considerable difference of opinion has been expressed in regard to the single, double and three-handed system of judging. The writer's opinion is the same now as it always has been, viz., that to employ two or more men to do the work which one man can as easily, quickly and efficiently perform is, to state the case mildly, not strict economy, and where opportunity offers itself to either of these men to shift blame onto their co-workers' shoulders it is not sound policy. Such is the status quo in regard to two-handed or three-handed judging. A man who places the awards in a class of exhibits is a judge or he is not a judge; or in other words he is either competent or incompetent. It is not an easy matter to find even one really good judge of any given breed of animals who is willing to officiate in a show of importance and as a matter of course it is still more difficult to find two men who are competent and still more so to find three. Then it is not often that three men are likely to be unanimous in their selection of an animal where competition runs close between the three best individuals in a class. Consequently the result means a disagreement that means delay in awarding the prizes. It is possible that one of those judges has a friend's entries in the ring and even assuming that all judges are honest, is it not probable that his inclination would unconsciously lean toward his friend's exhibit, and on that account prevent what might have otherwise proved a speedy award of the prize? If we are at all familiar with

human nature it would. There is a good deal of truth in the adage which says: "A man convinced against his will is of the same opinion still," which applies to the double-handed system of judging, as there is no doubt many a judge has given way to his partner's stand to get through more speedily with the work. It is true that where the single judge system is employed sometimes a judge is undecided as to the merits of the two leading contestants and refers the matter to a referee, but in such instances it is safe to say that no matter which animal he placed in the premier position there would be little room for complaint from any one. The double-handed system of judging has no serious considerations to recommend it, while the single-handed system has several, among the most prominent being dispatch in placing the awards and nullifying the chance of a judge screening himself behind a co-worker.

It has been asserted that unless a judge is pretty much in practice his hands lose the "touch" or "feel" of an animal, which may be more or less true. A judge should be able to detect readily a "hard-doer" from the thrifty animal, and the blubbery one from that in full bloom. An animal in full bloom is alert, firm in flesh, yet mellow and elastic to the touch, against that which is overdone and consequently blubbery, stupid, "weak on the pins" and useless. In regard to mellowness of touch the following from the Journal of the Royal Agricultural Society of England is of interest: "Another point very much insisted on by the feeder is that the animal should have a mellow feel. This 'mellowness' is a kind of softness and elasticity perceived in pressing the skin, and is considered a favorable sign of the aptitude of an animal to fatten. Fat consists of little vesicles lodged within a modification of cellular tissue, to which the name of adipose tissue has been given; but it is, in fact, cellular tissue. This cellular tissue consists of elastic fibres, and is distributed through every part of the body, so completely, indeed, that, could we conceive that all the remaining parts of the body were removed except this, a complete model of it would be left by the cellular tissue. The resiliency of the skin, or mellowness, as it is termed by farmers, is due to the proper condition and amount of the cellular tissue. In the healthy state of an animal the interstices of the cellular tissue are filled with a fluid secreted from the blood. Hence, on pressing the skin, this fluid is pressed out of these interstices into the adjoining ones which by their elasticity immediately return it on the removal of the pressure. But when an animal is not in a thriving state, the fibres of the cellular tissue lose their elasticity and the skin pits on pressure. The resiliency of the skin, therefore, indicates the state and amount of the cellular tissue. Without an abundance of this tissue a sufficiency of fat cannot be formed, and hence we find farmers examining the resiliency or mellowness

of the skin in those parts where fat is most desired. This, then, is to ascertain whether the receptacles for fat exist, and if they do, the farmer may be pretty confident that they will become filled when he proceeds to fatten the animal."

Some of our best judges of sheep are found among our common everyday shepherds, as is natural, when we consider that they are handling and comparing the different individuals of the flock more or less every day in the year. The change in type of some of the breeds during the past few years is such that only those continually handling would seem justified in judging them in fairness to the exhibitors.

Entirely too often are judges appointed to judge classes of sheep of which they know very little or nothing. A Shropshire should not be judged through an Oxford breeder's eyes. Why such conditions prevail in this twentieth century is a little mysterious.

#### TYPE.

While type is not everything in a breed, it is the first thing to be considered in passing upon a ring of purebred sheep. Let a class of sheep be arranged so that only their heads are visible to the judge and if he really is a judge he will tell at a glance where the tail-enders are, for without type we have nothing.

When we speak of type we mean primarily bred type in contradistinction to mutton type or general mutton conformation. For instance, in regard to the Shropshire we want Shropshire type or an animal that has distinct and unmistakable facial and other characteristics that marks it as a representative animal of this popular breed. While not unlike some of the Downs in the novice's eye, this breed has distinct characteristics from the Southdown, Hampshire or Oxford, especially where first-class specimens of the breed are concerned, and no one, with ordinary sheep sense could possibly confound it with the less covered, larger-eared and somewhat longer-faced, but no less meritorious, Hampshire or Oxford. So far as mutton conformation or type is concerned, there is little or no difference in the required makeup of the body of any of the mutton breeds. In every breed is sought the short, thick neck, long body, straight top and under line, broad, smooth crops and loins, heavy twists, thick flanks, spring of rib, and accompanying heart girth.

#### ON FOOT AND ON BLOCK.

It would seem that the judging of fat sheep on foot or on the block is an entirely different proposition. Tabulated results of the carcass and ring awards at a recent Smithfield show, show that on the block five prizes out of twelve went to animals that

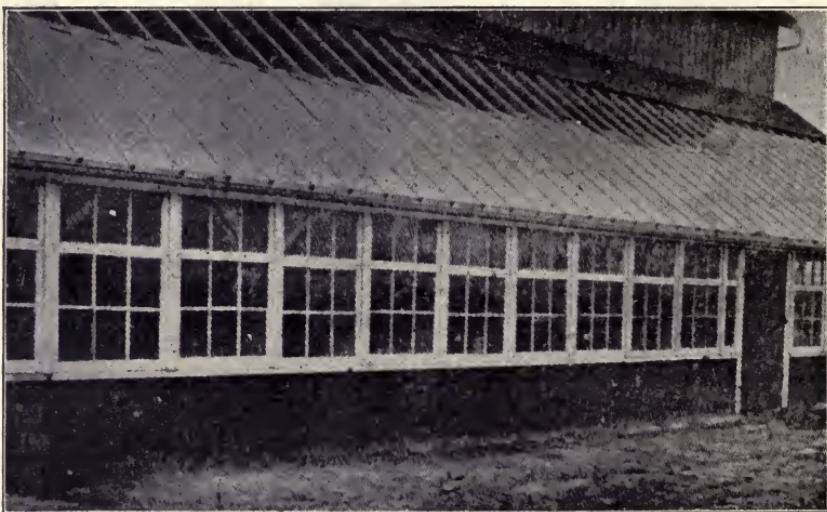
stood first in the ring and five first prizes on the block went to animals that were clear out of the money in the show-ring; and this at one of the greatest exclusive fat stock shows in the world. The tabulated statement of the sheep classes at this show will be read with much interest. They are as follows:

	Carcass Award.	Ring Award.
Long wool wether lamb.	1st 2d 3rd 4th hc	— 2d 1st 3rd —
Long wool yearling wether.	1st and r ch 2d 3rd 4th hc	— 4th 3rd 1st 2d
Short wool wether lamb.	1st and ch 2d 3rd 4th hc	— 4th hc — hc
Short wool yearling wether.	1st 2d 3rd 4th hc	hc 1st — — 3rd
Cross-bred wether lamb.	1st 2d 3rd 4th hc	— 1st 4th hc 2d
Cross-bred yearling wether.	1st 2d 3rd 4th hc	1st c — 3rd 2d

## PART V.

### THE RAISING OF HOTHOUSE OR SPRING LAMB.

Spring, Easter or Christmas lamb is a much sought delicacy of very limited supply, consequently the profits from raising same are large where the business can be carried on under proper conditions. Unless one is well equipped with the right class of ewes and proper housing facilities, he had better keep out of the business. It is easy to see that where as much as \$10 or \$15 per head is realized for lambs of, say, ten weeks old, weighing around 50 or 60 pounds alive, or in the neighborhood of 20 pounds dressed, that there must be money in this branch of the sheep industry.



An Ohio Early Lamb-Raising Barn.

It has always been a wonder to the writer that the early lamb business has not made more headway in the Virginias, the Carolinas, Maryland and Pennsylvania since the climate of those states augurs well for the success of such an undertaking, not to mention the nearness of the markets of Philadelphia and New York, where top prices for this class of product are realized.

There seems to be market for spring lamb almost everywhere. Only very recently \$13 per hundred pounds, live weight, was paid in Chicago for this toothsome article. Sometimes we hear the cry that the early lamb raising business is overdone, but facts do not prove this to be the case.

The main consideration in the early lamb business is, of course, selection of the right class of ewes. To start with any other would mean failure from the very beginning. Although several breeds have the early lambing trait, it may be safe to say that none have it to a more intense degree than the Dorset-Horn, and those having this breed, with the proper early lamb raising equipment, and who are prepared to give the flock proper attention, cannot fail to make money out of their venture. Another breed which has proven itself a first-class producer of early lambs is the Devon Longwool, a breed to which reference is made under a proper heading elsewhere in this volume. The Rambouillet, Tunis, Hampshire, Delaine, and some other breeds in this country, have proven themselves worthy of the consideration of the early lamb raiser. No matter what breed of sheep is selected, for early lamb raising purposes, only choice, deep milking ewes of that breed should be considered as suitable for the business, and, as a rule, it is better to select middle-aged ewes than yearling or older ewes for the undertaking.

When the ewes should be bred is a matter to be governed by the time the lambs are required for market. At all events they should be bred as early as possible in the season, from, say, the middle of May on. Naturally nothing but very deep fleshed sires should be used in the production of early lambs. To secure the best results in early breeding the ewes should be "flushed," that is, just prior to the time of mating, they should be taken off comparatively poor pasture and put on to some good succulent ration, such as clover, rape, etc. That will insure a more regular or uniform lambing. Should a ewe not prove to be a good breeder or good milker she should be culled at the proper season.

It is best to shear the ewes early, or, rather, just before lambing, for the reason that they find more comfort in the barn and are less liable to troubles from external parasites, and, further, the lambs are better able to find the fountain of sustenance and there is no danger of their getting wool-balls in their stomachs, which are the cause of so much trouble at times. There is not nearly so much danger in shearing a ewe heavy with lamb as there is when she just begins to show signs of pregnancy, as when she gets heavy she seems to take better care of herself.

He who goes into the early lamb raising business must be a thinker, of a patient turn of mind, and of prompt business habits. His buildings must be adapted for the work and its appliances up-to-date. The buildings must be warm, even if artificial heat be employed, which is generally unnecessary. The water troughs should be on the automatic system and everything should be kept spick and span. To obviate grain and other products of food falling from the sheep's mouths to the bottom of the water trough, which of course fouls it, a board should be nailed on one side of

the trough so as to form a kind of V-shaped auxiliary trough that would catch these particles of food and thereby save considerable trouble in cleaning out the trough proper so often as otherwise would be necessary without this auxiliary trough; moreover, its introduction allows of the covering over of the rest of the trough,



Spring Lambs at the Wisconsin Experiment Station.

and thereby preventing the lambs from falling into the trough and coming to grief. The trough proper should be cleaned out at regular intervals of not less than once a week and the auxiliary trough every day or oftener if necessary. The shepherd should see that the water is always as fresh as possible, as no sheep can thrive

on water that is foul. Lamb creeps, lambing pens and such like appliances are indispensable. Somebody once remarked that a lamb creep' is better than a dispensary, if only there be plenty of easily digestible food in it, and is worth all the sheep doctors "that ever come over high waters." There is nothing like crowding the little fellows if you want to make big fellows of them. The one object of the early lamb raiser should be—fat lambs at any cost.

Sheep do not have nearly so delicate an appetite as some imagine. They will eat the commonest of rations, provided they are clean and fed in a cleanly way, but, nevertheless, the food used in the early lamb raising barn must be of the best. Foul feed troughs are a sure precursor to failure in the early lamb business. Variety of grain and roughage in abundance is what makes early fat lambs. Both ewes and lambs in the early lamb barn should be fed by the clock, and not at the shepherd's convenience. Self-feeders have no place in the early lamb raising barn. A crying sheep cannot raise a fat lamb, and irregularly fed sheep are always crying sheep. The shepherd must be on the best terms possible with his flock, and feed with a view of stimulating the ewes' milk supply, in order to insure success with the early lambs.

There should be very little loss in the early lamb business where proper shelter and care are employed, unless the ewes are too fat at breeding time. The early lamb raiser should make it a point to be well supplied with roots, clover hay, etc., and not forget to build the barn facing the south. One enterprising early lamb raiser has had recourse to glass artificially-heated barns for early lamb raising. Different breeders of early lambs have different methods of management and feeding. The following is a plan of feeding that has given good results: Supposing the lambs have commenced to eat, get out early in the morning and feed them their grain rations; composed of about equal parts of finely crushed oil-cake, corn and bruised oats with a little bran as a flavor rather than as a food, and while they are eating this fill their hayracks with the choicest clover hay the haymow affords. Then feed the ewes their grain ration composed of about equal parts of bran and oats with a dash of oil-meal. If roots are used, the grain ration and the cut or pulped roots should be mixed together. After the ewes have cleaned up their grain ration, hay should be given. Whatever grain or hay the lambs do not eat up at the regular meal should be reserved for the ewes. On no account should young lambs be expected to eat stale food, that is, food that they have "nosed over." At noon the lambs should receive the same treatment as they received the first thing in the morning, but all that is necessary for the ewes is to give them what the lambs left at breakfast time and which was reserved for them.

In the evening the treatment for both ewes and lambs is the same as that given in the morning. As soon as the lambs get well onto the feed they should be given cut or pulped roots in conjunction with their grain rations. It is one of the most interesting sights imaginable to watch the young lambs greedily devouring the sliced or-pulped roots. Common sweet turnips or Swedish turnips are better for the young lambs than beets or mangels. They are less liable to cause bowel troubles. Of course an abundant supply of salt and worm powders should be accessible, notwithstanding that the hot-house lamb is less liable to worm troubles than those born under other conditions. It is unnecessary to dock or castrate spring lambs, as they are ready for market long before they get "bucky."

At a recent meeting of the Ohio Live Stock Association at Columbus, Ohio, Dr. H. P. Miller, the well-known Ohio early-lamb-raiser, gave a talk on "Feeding Hot-House Lambs," which is reported in Bulletin No. 8 of the association as follows: "He said that the fact that many people are studying how to spend their money was responsible for the market for these lambs and the good prices they bring. They generally bring 45 to 60 cents per pound retail. For this purpose the lambs must come in October or November. A few in the latter part of September can be disposed of on the Thanksgiving market. There is not much general call for them after Easter, although some growers close to the market continue to send in the young ones all summer. They are marketed when 8 to 12 weeks old, at 45 to 55 lbs. live weight. They must be fat and pleasing in appearance, and of attractive form. The first problem is to get the lambs in the proper season. The sire is not so important, but ewes must be selected that will lamb in the fall. There are other sires just as good as the Dorset. The Southdowns, Oxfords, Shropshires and Hampshires have all been used successfully. The longwool breeds are not so good, as the lamb must look young. The Dorset ewe is pre-eminent, but the Tunis is also good. Few, if any, of the Downs will do. Use high grades, whatever the breed. Single lambs are preferred over twins. Have the ewes improving in condition after mating. He advised having two rams to the flock, using them alternately. They keep in better condition. Furnish good clover, rape or pasture. Warm weather knocks the prices. Get the lambs to feeding as soon as possible. They will gain 3 to 6 lb. per week. Feed them whatever they want, but corn is the best grain since it is fat that is sought. Wheat bran is all right, but don't like oats or linseed meal. Alfalfa is fine and clover good. Soy beans, corn and clover is his standard combination. He has special apartments for feeding. No feeding or special treatment of the ewe after the lamb is born will make up for poor treatment and feeding before. The instinct of the good

shepherd is necessary. Cow's milk is used for nursing, and with a good, quiet cow the lambs can run right to her. Feed a variety. The lambs will not eat as much from a self-feeder as when fed three times a day."

Prof. G. S. Humphrey, of the Wisconsin Experiment Station, records that six grade ewes, four of which showed a mixture of Dorset blood, pastured during the summer and bred to a Dorset ram, gave birth to seven lambs. At lambing time the ewes were kept in a warm pen. They were fed on bran, oats and oilmeal 2:10:1 with clover and alfalfa hay, cabbage, roots and silage.

The lambs were fed on alfalfa hay and a mixture of bran, oats, cornmeal and oilmeal, 4:2:2:1. The average weight of the lambs at birth was 10.7 lb., the average age when marketed 75.2 days, and average weight before shipping 60.4 lb. The calculated net profit per lamb was \$6.43.



Making Early Lamb.—Photo by "Shepherd Boy."

## PART VI.

### DRESSING SHEEP AND LAMBS FOR MARKET.

The old adage that "a fat lamb dresses itself" contains a good deal of truth, for no matter how careful or skilful a butcher may be he can not make a neat carcass out of a poor lamb any more than a tailor can make a first-class garment out of poor material. It does not always follow, however, that a thick-fleshed lamb is always a fat lamb or that a thin-fleshed lamb is always a poor lamb so far as condition is considered, for no breed of lamb carries a better caul or kidney fat than does the Merino lamb, nor does any breed of cattle carry a thicker caul or fuller kidney than the little Jersey, but, nevertheless, neither can be classed as prime mutton or beef, for the reason that both sadly lack in wealth of flesh. Even in one and the same breed animals vary very much in this respect.

Front and Rear View of Caul-Dressed Lamb Ready for Shipping.

To send a poorly finished or poorly dressed lamb, no matter how heavy, to a commission house is to invite failure, as it is not weight so much as quality that counts in the early lamb business.

A lamb with a fat tail is invariably fat, although it may not be particularly heavy or thick in flesh, therefore handling the tail or dock is a safe criterion as to how the lamb "will die inside," and the inside caul and kidney fat count for a good deal in spring lamb. All lambs should be fasted for a while before killing. The meat is the better for it and danger of rupturing the intestines in dressing is reduced to a minimum.

No elaborate appliances are necessary in the home butchering of a sheep or lamb. A sticking knife, a skinning knife, a small hoisting pulley, a bundle of skewers and a few home-made backsets are sufficient.

Sticking with a sticking knife is the best way of killing a lamb. The broad axe is not just the proper weapon for this work, as the head can not be taken off so cleanly or neatly with it as with the knife at the latter end of the dressing.



Shipping Crate.

Washing the carcass inside and out shows the butcher to be a novice, as it is unnecessary unless the work is being done at the hands of an indifferent butcher. The proper way to proceed is to dip the wiping cloth in water (hot preferred), then wring it out thoroughly and the lamb can be wiped and made to appear as clean and bright as a dollar instead of cloudy, as would be the case where the carcass was subjected to an unnecessary washing.

It has been pretty well conceded that the wool coming in contact with the flesh in dressing is the cause of "woolly" mutton, but it is doubtful if it is not proper to charge the "woolly" taste to slow dressing. The wool coming into contact as it does only at the opening of the stomach can not possibly impregnate the whole carcass with the undesirable flavor of "woolly" mutton. The cause of "woolly" mutton is unquestionably gas accumulating in the stomach after the death of the lamb or sheep. It takes but a very short time for decomposition to set in where the entrails are left in a dead animal and the "woolly" taste and smell of mutton very much resembles that of decomposition, in a slight form.

In the case of old sheep, their mutton carries a "woolly" taste, due, no doubt, to the presence of excessive yolk in the skin. "Woolly" mutton is more in evidence during summer months than at other seasons. The starting of the yolk has, no doubt, something to do with this.

Rapid butchers are usually the cleanest butchers, and they who dress their lambs in the usual time of less than fifteen minutes rarely have cause to complain of woolliness. Of course the time mentioned is not very rapid dressing.

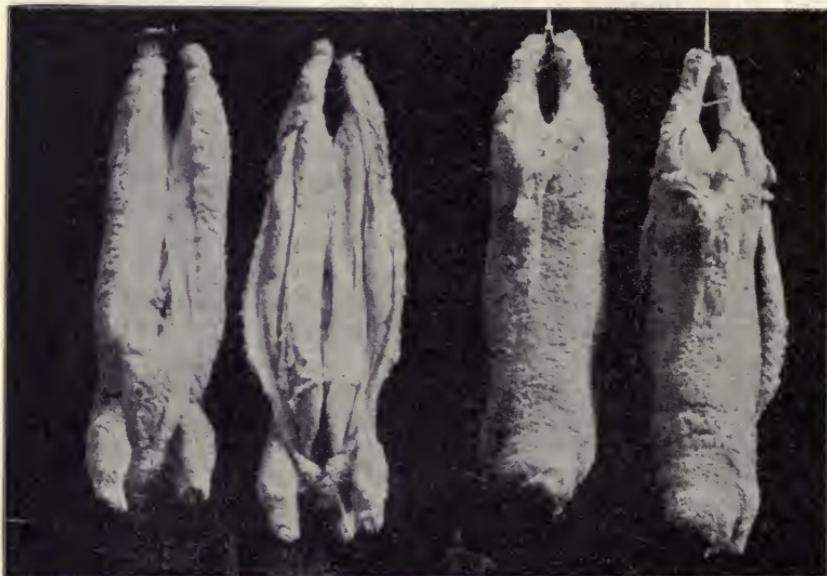
A sheep dressing match for \$50 a side between R. Addy, of Barnsley, England, and J. Thomas, Sheffield, England, took place some time ago, when Thomas won by twenty seconds. He completed his animal in two minutes and fifteen seconds. The peculiar part of this contest was that the contestants had to walk a distance of five miles after which they were allowed ten minutes in which to change their clothes for the killing contest.

In large, well-equipped slaughter houses, lambs are hung by their hind legs and stuck. In small ones, they are either stuck on a sticking bench or placed on their left side in such position over the slaughter house gutter so that it receives the blood of the victim. The head, or nose rather, is taken in the left hand and the knife plunged clean through the neck just back of the ears and as close to the jaw as possible and the jugular vein severed by cutting towards the vertebrae. It is entirely unnecessary to cut the windpipe or food channel in sticking.

A great deal of unnecessary suffering is saved by "pithing" the victim; that is, severing the spinal cord by inserting the

finger between the disjointed vertebrae. It is not wise to kill more than one lamb at a sticking unless you have help in dressing, especially in winter, as the carcass will become stiff long before it can be dressed, and a well dressed carcass can not be obtained from a stiff subject.

In "legging" a sheep or lamb, it is laid on its back and its left foreleg placed between the knees of the operator, and the skin on the forepart of the shank taken between the thumb of the left hand and pulled away from the shank bone so that it may be easily loosened with a single cut of the knife. The skin is then opened from the knee to the jaw. In opening the skin, the knife should be turned a little sideways. This will prevent its dipping into the



"Hog-Dressed" Spring Lambs.

flesh and marring the carcass. The hind legs are next attended to by being opened from the gambril joint to the tail. The less the knife is used in skinning, the better, as danger of cutting the skin is less, and, moreover, it is much more rapidly removed by pounding with the fist or handle of the knife than with the blade of the knife.

All sheep and lambs should be "wizzled;" that is, the gullet or tube that conveys the food from the mouth to the stomach should be loosened and tied so that the stomach may be removed without its contents escaping and damaging the carcass. This tube is found directly underneath the windpipe. The dead ani-

mal should now be hung up and the knife plunged into the breast to insure a thorough draining out of the veins. The skin should be next pulled off the hind legs, care being used not to pull off the "veil," or second skin, with the outer skin. Should it start to pull off, it should be loosened from the outside skin with the knife and a new start made. As soon as the carcass is skinned and properly wiped, the entrails should be removed, the breastbone being first divided. This is easily accomplished in the case of lambs by cutting with a knife upward just as if the breast was nothing more than gristle, but in the case of older sheep it is necessary to pound the knife with a hammer or something of that sort or to use a saw in dividing it. As the knife approaches the gristly part near the diaphragm, care must be observed that it does not slip through and cut the stomach or intestines. The breastbone divided, the carcass should be opened, either by continuing the upward cut through the "aiche" bone or by commencing at the "aiche" bone and working towards the divided breastbone. In the case of older sheep, it is sometimes advisable to divide the "aiche" bone, but in the case of lambs it is not common to do so. The "pluck," or "henge," (liver, lungs, heart, etc.,) are easily removed after loosening the diaphragm. As soon as the entrails are removed, the carcass should be carefully wiped and all undesirable matter removed. The carcass is now ready for fixing up in Boston, New York or one of the many styles of dressing in vogue.

Skewering up the shanks adds beauty to the carcass, but is not desirable in hot weather unless the carcass is put into cold storage.

In the case of black-legged lambs, a trademark of the breed is introduced by leaving a little skin on the foot or shank of the hind leg.

As has been intimated, different markets demand different styles of dressing sheep and lambs. Sheep, other than lambs, are usually dressed plain, similar to style of dressing hogs. Lambs should be dressed in a more tasty style, with "backset" and caul. Only one backset is required for dressing lambs for Boston, while the New York style of dressing calls for double or crossed backsets.

Backsets can be made out of such lumber as is used in making common store boxes. They should be from an inch to two inches in width and from one to eighteen inches long; according to size of lamb, and sharpened at both ends. Such appliances should be provided before killing time. Before inserting the backset, the back should be broken. To perform this operation, place one hand directly back of the kidneys and the other on the breast of the carcass, pulling hard with the one and pushing hard with the other. Care should be observed that the backsets are not too long, for if they are they will spread the loins too much, and conse-

quently do the very opposite to what they are expected to do, viz., contract the loin instead of spreading it. The idea of using backsets in breaking the back is to give the carcass a full, round, thick appearance. The kidneys should be skewered up so as to give them as full and rotund appearance as possible. Care must be used not to break the kidney fat. The caul should be fixed in position while warm and should be taken off the stomach, just as soon as the lamb is first opened, and placed inside the lamb where it can be kept warm until required for use. As soon as the backsets are inserted and everything ready, the caul should be spread over the entire front of the lamb and around the hind legs. The kidneys should protrude through the caul in the manner shown in a preceding illustration. It is very important that the caul be kept warm until it is required for use, as a cold caul adds little beauty to the carcass. Putting the caul into hot water is a poor method, as such causes it to lose its gloss or lustre.

Spring lambs are usually dressed with their pelts on, whether dressed plain hog style or with backsets. The lungs and heart should be removed, but in some instances the head and liver left intact.

Lambs, hog dressed, with their skins on, need little or no packing for shipment, but those dressed with backsets should be wrapped carefully in cheesecloth or something of that kind, and shipped in a specially made shipping crate.

My thanks are due to Dr. H. P. Miller, of Sunbury, Ohio, the well-known early-lamb raiser, and sheep authority, for the pictures used in illustrating this article.

#### DRESSING PERCENTAGES.

How English Sheep Dress.—The block test of the sheep shown at the Smithfield show shows some very high dressing percentages. The highest percentage of carcass to live weight was 74.07, made by a Suffolk lamb 300 days old. The next highest was 69.28 per cent, made by a Southdown lamb of the same age, but of lighter average weight. The average percentage was above 60 per cent. The lowest was 55.66 per cent, made by a Devon lamb 270 days old.

At a recent International Show slaughter test the highest percentage of dressed carcass was 66.50 and the lowest 58 per cent, the average being about 65 per cent. These percentages were of warm weight, like those of the Smithfield tests.

The following table gives the breed, age in days, live weight, average daily gain and percentage of dressed carcass to live weight of the sheep slaughtered at a recent Smithfield show:

Breed—	Age, days.	Live wt., lbs.	Av. daily gain.	Per ct.
Suffolk . . . . .	300	180	.63	74.07
Southdown . . . . .	300	140	.47	69.28
Cotswold . . . . .	621	290	.46	66.78
Oxfordshire . . . . .	667	336	.50	66.78
Lincoln . . . . .	644	347	.54	66.25
Cross breed . . . . .	300	180	.60	66.11
Suffolk . . . . .	644	289	.45	66.09
Southdown . . . . .	638	205	.32	65.36
Hampshire . . . . .	307	195	.63	61.54
Oxfordshire . . . . .	307	179	.58	60.33
Cheviot . . . . .	937	165	.17	58.78
Hampshire . . . . .	311	196	.63	58.67
Devon . . . . .	270	181	.67	57.46
Suffolk . . . . .	291	155	.53	56.77
Devon . . . . .	270	194	.72	55.66



"Huntlywood," Champion Wether International, 1906.—Photo by "Shepherd Boy."

## PART VII.

### PASTURES AND FORAGE CROPS.

#### PASTURES.

One of the great secrets of successful sheep farming is change of rations and pastures. The exercise of moving from one farm to another has its benefits. To turn sheep into a field and allow them to remain there until the pasture is exhausted is wrong. From clover to rape and from rape to permanent pasture is relished and tends to growth and size. No matter if a sheep seems filled on one pasture if changed it will commence eating with evident relish. An English shepherd says a change of pasture is absolutely necessary to successful sheep husbandry. It is not advisable to pasture too closely. When drought comes along auxiliary rations should be fed or the rape patch resorted to. Sheep should be kept out of low wet pastures; they are the forerunner of footrot and kindred troubles. Sheep require about the same acreage, weight for weight, as cattle; sheep thrive on shorter herbage than cattle will. Brush is good for sheep by way of variety, but purebreds that will make history cannot be raised on such fare. The Norwegian farmer collects supplies of young birch twigs for his sheep in winter.

In his "Essay on the Agriculture of West Cumberland," bearing date of 1850, Dickinson says: "Some have approved of giving the fresh cut branches of the Scotch fir to sheep on turnips; and it may reasonably be concluded that the powerful diuretic effect of resin contained in the leaves and small branches of any of the fir tribe may act beneficially on the system of animals confined to such watery diet as the turnip. The fondness of the sheep for the branches of the fir, when on turnip, may be no criterion or indication of its benefits; for they will gnaw every twig of any kind within their reach to the very stump when so confined. Even the coir and untarred cord of the netting used sometimes instead of hurdles is not safe from them, so justly urgent are they for a change of diet."

#### DESIRABLE CROPS TO RAISE.

Forage crops, such as turnips, rape, kale, vetches, etc., for feeding sheep might be grown to great advantage in this country and should be more universally cultivated than they are.

Only in favored sections does our climate allow of our flocks grazing in the open during the winter months, and on this account we should raise roots in abundance for their benefit. No

matter how large our hay mows or how full our grain bins might be, without sufficient succulent rations our flocks cannot be kept in that pink of condition or bloom which is noticeable where roots form a part of their rations. It seems that the more succulent rations sheep partake of the more bloom they carry. It is indeed a most careless observer who does not notice with what readiness the flock wintered on dry rations takes on bloom as soon as it is sent to pasture in the spring. Not only are roots a good ration, but a tonic as well, and an almost perfect regulator of the digestive system.

The raising of roots is not nearly so well understood in this country as in Great Britain and some of her possessions. In Canada and Australasia they are raised in abundance and of good quality. That they would be raised more universally than they are in this country there is no doubt did we make the growing of them more of a study. In some of our low, rich, loamy soils great quantities of turnips, beets, rutabagas, etc., could be raised at comparatively little cost. The one most serious disadvantage with us in regard to the raising and feeding of roots is the expense of building root cellars and the filling of them as against feeding them off on the ground on which they are raised, as is done in milder climates. Of course, the root cellar should be built in connection with the sheep barn, not only for convenience sake but to prevent the daily ration from freezing before the sheep have time to eat it up. A great deal of danger accompanies the feeding of frozen roots to sheep.

From experiments conducted by Prof. G. E. Day of the Ontario Agricultural College we learn that lambs make better gains on roots than on ensilage. Twenty lambs were divided into two groups of ten lambs each. One group was fed roots, hay and grain and the other ensilage, hay and grain, the hay and grain being the same for each group. Two pounds of roots were fed for each pound of hay in one group, and two pounds of ensilage for each pound of hay in the other group. The lambs were fed one and one-half pounds of mixed grain each per day in addition to the roots, ensilage and hay. The experiment lasted fifteen weeks. In this experiment the lambs fed roots made decidedly larger gains and required less dry matter for a pound of gain than those fed ensilage. Ten lambs on roots gained 318 pounds, requiring eleven pounds of dry matter for each pound of gain. The ten fed ensilage gained 272 pounds at a cost of nearly thirteen pounds of dry matter for each pound of gain.

An experiment conducted sometime ago in England indicates that the best results are obtained from sliced turnips as against pulped turnips, apparently because the mastication involved in their assimilation is more thorough than in the case of the pulped article.

At the Ohio Experiment Station, where corn, ensilage and field beets have been compared in feeding dairy cattle, the beets have caused the best gains in weight of cows, size of milk flow and production of butter fat. In the feeding of sheep also they have proved highly satisfactory.

In 1789 an English baron—Sir Richard Sutton—described what Arthur Young, the great agricultural writer, pronounced an exceedingly curious method of feeding sheep. He said: "There is almost every year a very pinching time for sheep, particularly when the spring is cold and dry with a long continuance of easterly winds. In this case, when the turnips are eaten off and the grass seeds not yet come in, there is a great distress for feed. It occurred to me that this interval might be supplied by sprouts of anything of the kale kind. Accordingly, I set with my cabbages some rows of brown and green broccoli and chouy de Milan. We cut the hearts of them in January, which, as they grew to a large size in the strong loam, yielded a great deal of feed, and left some of the outer leaves to draw on the sprouts. In the latter end of March, a very sharp time of frost and snow, my bailiff turned in the ewes and lambs upon the sprouts and found them of great service."

#### RYE.

It seems a little strange that rye is not raised to a greater extent for sheep than it is, since it furnishes one of the most appetizing and succulent rations early spring affords. Sown about the same time as wheat or a little later, it makes a good growth and furnishes a more tempting bite than almost anything found on the farm in the spring. Rye can be easily grown without much special preparation of the ground if sown in the cornfield right after the corn is shocked and lightly harrowing it in. Rye is a rapid grower and should not be permitted to get old and woody before being cut or pastured. Care should be used in turning sheep on rye when they are very hungry or the rye heavily charged with moisture, as bloat is likely to result. It will be found better to fence off a portion of the rye field at a time for the sheep, rather than allow them to run over it at will.

#### CABBAGE.

There are few sections in the United States where cabbage will not grow. Of course, in some sections it is grown to greater perfection than in others and it could be used to a greater advantage by American flockmasters than it is at present. Cabbage must be rated among the best foods for sheep of all ages. It is a splendid thing to raise for show sheep, especially when on the circuit. Cabbage has the advantage over rape in that it can be

stored for late fall use, when it is somewhat dangerous to allow the flock to run in the rape patch on account of frost. One of the great troubles in raising cabbage is the cabbage worm. Their attacks may be prevented by taking flour and salt, equal portions, mixing well and applying to the heart of the plant with a dredging box. A novel remedy for ridding rape of cabbage lice is to saturate soft bricks or burnt clay with lamp oil and fire them at night. The originator of this remedy declares it will kill the millers that lay the eggs and thus make an end of the lice.

#### THOUSAND-HEADED KALE.

This is a plant which is not yet very well known in this country, but should be better known than it is. It is one of the greatest croppers among the many desirable forage crops known to the British flockmaster. It belongs to the cabbage family, grows to an enormous size and furnishes one of the most appetizing and healthful rations for sheep known. It grows to a great height and is covered with numerous small cabbage-like heads of a very succulent and nutritious nature. The writer has grown it in this country with great success, and where the land is rich it is not unusual to see a kale stalk fully as tall as an ordinary man. It has another great recommendation outside of those enumerated and that is that it is safe to feed under almost all conditions, whereas in wet weather some of our most valuable forage crops are dangerous to feed on account of bloat. It is grown very extensively in England and is thought a great deal of for bringing along young stock, but it is not to be recommended for in-lamb ewes.

#### ENSILAGE.

Ensilage may be fed to sheep with advantage when fed with moderation and discretion. Bad results follow too heavy feeding at the start. Moldy ensilage should on no account be fed. Frozen ensilage should not be used, as it is sure precursor to trouble. Once a day is often enough to feed ensilage to the breeding flock no matter how good it might be. Ensilage must not be fed to sheep without some roughage. Sweet, sound ensilage, fed in moderate quantities, is a very good sheep food, especially where no other succulent rations are available. It is a little too heating and fattening for breeding ewes for best results, especially when fed in unreasonable quantities. There is no doubt but what it has a very valuable tonic effect and aids the digestion where roots or such like succulent rations are not provided.

### MANGELS.

Although mangels furnish one of the best rations for ewes when fed toward spring, they are not a very safe ration to feed during cold weather, since they cause derangement of the digestive organs of a very dangerous character. Toward spring, when they are comparatively dry and free from water, there is no better ration for the ewe that is suckling her lamb. Mangels or beets are a very dangerous thing to feed to rams and many a good animal has been lost through their use, since they have a disastrous effect on the urinary organs. The mangel seems to grow much more rapidly in most parts of this country than turnips or rutabagas. They might be used more largely than they are by sheepbreeders generally.

### THE SPRING VETCH.

The spring vetch should be included in the list of forage crops for the flock, since it is very fattening and eaten with great relish by sheep of all ages, much more so than the sand vetch. As a starter for show sheep it has no equal. Peas, oats, rape and spring vetches, when sown together, make a splendid early spring ration for show sheep. The spring vetch has a considerably more fleshy leaf and stem than its cousin the sand vetch.

### THE SAND VETCH.

The sand vetch or winter vetch is a very useful fodder crop to raise for the use of the flock, provided it is fed early before it gets hard and woody. Sown with rye or any other nurse crop in August or September, it makes a good stand for early spring use. It can be fed almost continually from spring until fall by continual pasturing or cutting. It is scarcely of as good a quality as the spring vetch, but has the advantage of wintering over, which the spring vetch will not do.

### WHITE MUSTARD.

English flockmasters raise a good deal of white mustard for the use of their flocks. It is a plant of very rapid growth, making a good crop within a month from the time it is sown. It is considered to have a peculiar stimulating effect on the genital organs of the ewe and, therefore, is valuable in this respect, especially where the early lamb-raising business is considered. After being pastured on mustard sheep seem to fatten very rapidly when put on ordinary pastures. The writer has wondered if it has not a tendency toward eradicating internal parasites from the flock.

There is a good deal being said regarding mustard seeding itself and becoming a pest on the farm, but the author's opinion is that such ideas are groundless, since he has proven by experiment that it would do nothing of the kind in this country, since the least touch of frost seems to destroy the plant itself and likewise the germ of its seed. The domestic mustard and wild mustard are very different plants so far as reproducing themselves to the disadvantage of the farmer is concerned.

#### KOHL RABBI.

This is a root that might be grown to great advantage by American sheepmen. It is extensively grown in some parts of England and it is especially suited for the dry hot seasons experienced in some sections of this country. The writer has grown it in Indiana and found it to do very well there. It is a deep-fleshed root of the cabbage family or perhaps a hybrid between the rutabaga and cabbage. It is not unlike the rutabaga, or Swede, but instead of the leaves growing in a tuft as in the case of the Swede they are scattered all over the top part of the bulb. Kohl Rabbi originated in Hungary, where it is used for table purposes as well as a food for stock.

#### THE TURNIP.

Where succulent rations are not provided for the flock in winter, stretches and other forms of indigestion are generally more or less prevalent. To avoid such troubles and to raise heavy-boned sheep roots and such like succulent foods should be provided. As someone has aptly remarked: "Roots carry summer succulence into winter quarters." They make the dry rations more appetizing and nutritious. Given in proper quantities they are both a tonic and food. Roots play a most important part in British sheep husbandry and could be used to greater advantage than they are in this country. The prime of English mutton is from sheep that get little by way of roughage other than that afforded by the turnip, to which they have unlimited access when hurdled or penned in the field in which the turnip is still growing during the fattening period. Feeding wethers for market and feeding a flock of breeding ewes is an entirely different proposition and such treatment as the former receives would prove highly disastrous to the latter. One of the chief causes of abortion in the flocks of Great Britain has been traced to the excessive use of the turnip and the common saying of the English shepherd, "a full turnip crop, a slow lamb crop," has more truth than many think. Turnips in a frozen state should not be fed to sheep, especially in-lamb ewes, as they will surely cause trouble, but if

thawed out quickly and fed they make a very good ration, but not as good, of course, as if fed in normal condition. The following from an English agricultural journal gives us a good idea of the importance of turnips in English sheep husbandry:

"A good crop of turnips will maintain 400 sheep one week per acre, and a moderate crop 250 sheep per week. In the first case it is evident that 2,800 sheep are kept one day on one acre and in the second case 1,150 sheep. We have seen it stated that 1,000 sheep will manure one acre in one day. The fold is over half an acre and if they remain one week upon it you will have had 700 sheep on half an acre or 1,400 on one acre, which appears reasonable."

An experiment was recently carried out in England to determine the value of turnips when fed in connection with oil meal and clover hay in comparison with oil meal and clover hay without the addition of succulent food. The sheep receiving roots made gains of forty-two pounds, while those fed on dry food alone made gains in the same time amounting to only twenty-six pounds per head.

The land for raising turnips should be rich, well drained and of fine texture. It is best to plow the ground early in the spring for such crops. After plowing it should be harrowed and allowed to remain until the weeds get a start, say about a week or ten days, and then should be well harrowed again. By this method the turnips get a start of the weeds. It is a good plan, just as soon as the seedling turnips can be seen in the row, to cultivate them as corn is cultivated. It is a great mistake to postpone cultivation too long, as when this is done not only do the weeds get a start but the thinning of the turnips when they have reached considerable growth is very bad for the seedling that is left to mature. It is very important that root crops should be kept very clean, especially the first six weeks or two months of their lives. For early feeding the purple-topped or white-fleshed varieties are the best. For late use, that is toward spring, the rutabagas or Swedish turnips are undoubtedly superior to the other varieties. Turnips sown ahead of the cultivator at the last time of cultivating corn sometimes make a very good crop, especially if it should be a wet season. The tops from turnips that are to be stored should be cut off, but not too close to the bulb; and fed to the sheep. Of course, if one has a good cellar that is the place to store them. If not, they may be stored in pits or caves near the barn and covered with earth, straw, stable manure, etc., to protect them from frost.

#### ALFALFA.

Alfalfa is indeed a wonderful plant and one that is doing a good deal for the agriculture of our different states. Somebody

has said, with a good deal of truth, that alfalfa is a gold mine to sheep feeders. Another party has said that it must be regarded as the king of forage crops, red clover not excepted. Alfalfa is very rich in protein. It is a plant which is somewhat fastidious as to where it grows, but nevertheless it grows more or less freely in most of our states. Alfalfa is not an ideal crop for pasturing, but notwithstanding this there are few sheep feeders who have tried this plant for hay but what swear by it. Alfalfa delights in lime, therefore lands deficient in this agent should not be chosen for alfalfa fields. Alfalfa is a very deep feeding plant. It is a very heavy yielder, giving three cuttings a year, and in some states even more. In some sections from four to six tons of hay per acre may be cut annually. To grow alfalfa successfully the ground must be put in good condition by a thorough harrowing after plowing. It seems as if alfalfa is finding favor, not only all over this country, but in foreign countries as well. Sir Samuel McCaughey, the Australian sheep king, has 3,000 acres under cultivation and expects to double this in the very near future. For short periods he stocks his paddocks at the rate of 100 sheep to the acre and is quoted as saying that the carrying capacity of irrigated alfalfa is twenty sheep to the acre for six months of the year. An Arizona sheepman leased twenty acres of alfalfa some time ago and ran 900 sheep on it for thirty days, the sheep fattening very rapidly. Alfalfa makes a very good ensilage. It is best to cut it between early bloom and half bloom and not allow it to develop into full bloom. Where alfalfa is pastured great care must be observed that the sheep do not become bloated on it, as is sometimes the case where it is pastured too young or when heavily charged with moisture. Where sheep are attacked with bloat heroic measures must be resorted to at once. The most satisfactory remedy is tapping, which is done by making an incision where the swelling is most prominent on the left side, thus allowing the gas to escape from the stomach. The best instrument for this operation is the trocar and canula. The trocar should be inserted about half way between the point of the hip and the last rib. If a trocar is not handy a knife will answer the purpose. There is little danger in performing this operation provided the instrument is not inserted in such a manner as to injure the kidneys. The shepherd should watch that flies do not bother the wound. Turpentine is a good remedy. It should be given in half-ounce doses. Hyposulphite of soda, dissolved in water and given as a drench in quantities of two drachms, is another good remedy. Common soda in one-half drachm doses is also valuable. In giving these medicines they should be well diluted with water.

## RAPE.

Rape is a native of Northern Europe and Asia. It is only in comparatively recent years that it has been grown to any extent in this country. Rape is not, as a good many suppose it is, a grass suitable for hay, but a plant of the cabbage family, with leaves somewhat different to the ordinary cabbage. There are several kinds of rape. The proper kind for fodder is Dwarf Essex. It is important in securing rape seed that it be secured through reliable seed houses, since a good deal of common bird rape seed has been sold for Dwarf Essex. The value of a rape field cannot be overestimated for sheep; especially is this true in dry seasons, when our ordinary pastures are bare and brown. The flockmaster with a field of rape need have no fear of being short of pasture during the hot, dry days of July and August. Possibly, with the exception of thousand-headed kale, nothing furnishes more feed per acre than rape. An acre of rape to every dozen sheep is a splendid thing to have. If the rape field is pastured before the plant has reached a respectable growth it should be fed by means of movable fences to avoid waste. Where it has reached a good growth this is not necessary, as the sheep practically eat their way into the field as they go. Rape seed should not be sown too thickly. Some use as much as four or five pounds of seed per acre, but two is much better where the soil is rich. It is a very vigorous grower on rich ground and requires room for best results.

This plant can be sown as soon as danger of frost is over and frequent sowings made up to the end of August. Rape sown in the corn field ahead of the cultivator at the last cultivation of corn gives fairly good crops in dry seasons and in wet seasons the crop is all that the most sanguine could expect. It is not a bad idea to sow rape next to the regular sheep pastures and leave openings in the fences so that the lambs can go through while the ewes are confined to the ordinary pastures.

Lambs are easily weaned where they have been running in the rape field with the ewes by simply leaving them there and removing the ewes to some poor pasture out of their hearing.

Rape sown in the open field is generally ready to pasture about six weeks from date of sowing. Rape, sown with oats, peas and vetches, makes a good combination for show sheep.

## RAISING RAPE IN THE STUBBLE FIELD.

A good deal of valuable fodder in the shape of rape might be raised in the stubble field. An address delivered before the South Dakota Sheep Breeders' Association by Mr. W. F. Kelly contains the following on this important topic:

"South Dakota is placed in the semi-arid belt. We in the

eastern part of the state resent being placed there, but we must admit that it gets very dry here sometimes.

"In the early part of the growing season there is a very rapid growth of all kinds of grasses, both native and domestic, but too often it happens, in the latter part of the season, that our pastures wither and dry under the burning suns of July and August. Then, and from that time on clear through the autumn months, it seems a positive necessity that we should have some green, succulent food to take the place of our withered pastures, if we get the growth on our lambs that we should.

"In the eastern states during this period they practice a system of soiling. In the spring they sow oats and peas together; later they sow or drill in corn or sorghum, and go out each day and mow sufficient for the needs of that day, thereby tiding them over the dry period.

"But that plan seems too slow for the farmer of South Dakota; our farms are too large. Farm help is too scarce and high priced to admit of us trying that plan. South Dakota will undoubtedly come to that, but the time is not yet ripe and for the present we think there is a better and an easier way, and that is by sowing rape seed in our grain fields in the spring, to be pastured off after the grain is harvested and stacked. We have been practicing this plan for some years with the best results. I presume many of my hearers have already tried sowing rape with grain. I do not presume to teach these people anything on this subject, but to those that have not tried it, with their permission, I will give them my experience with rape in stubble.

"I would choose a grain field and let it be a large one, that I intended planting to corn the following year. Then you need not plow until spring, thus giving the sheep the run of the field the entire fall. I would sow ten acres of that field by mixing the rape seed with the first grain that is sown in the spring at the rate of two and one-half to three pounds to the acre, but do not sow it this early with barley, for if you do so the chances are that you would harvest more rape than barley. I would sow the rest of the field anywhere from the 15th to the 25th of May, going over the field thus sown with a light harrow.

"Do not be afraid of damaging the grain by harrowing it, for I assure you you will not, but the very opposite will be the result. You will benefit your grain, you will kill very many weeds and cover your rape seed at the same time. That's killing three birds with one stone. I will admit that after harrowing your grain your field will look bad. It will look as thought it had lost its last friend and you will probably curse Kelly for advising you to try such a plan, but just you wait a few days and see that grain field get right down and hump itself and grow. If it does not do this, if I were you, I would never buy a Rambouillet ram of Kelly.

"My reasons for sowing ten acres with the grain is this: That acreage will make a rapid growth and furnish an abundance of feed, even if the late summer should prove to be very dry, but I would not care to risk sowing the whole field then, because if the season should prove favorable for the growth of rape it might make such a strong growth that it would be nearly as high as the grain and bother like everything at stacking time.

"I remember once, some years ago, I sowed some rape with oats and I was obliged to go over the field and knock down every shock so the wind and sun might dry out the rape that was in the butts of the bundles, but that oat straw with the dried rape in it was, next to alfalfa hay, the finest sheep feed I ever fed.

"The rape seed sown in May will usually be from four to eight inches high at harvest time. The sickle will sometimes snip off a few leaves, but not enough to make any difference with stacking the grain, and unless the season be very dry will make a rapid growth after the grain is cut, and by the time stacking is done will be one solid mass of green, the finest sheep pasture in the world. My friends, your sheep will feed upon this in preference to the earlier sown rape, but will attack that later in the season. With this pasture you need have no fear of stunting your lambs, but they will swell and grow and your heart will be glad at sight of them.

"In first turning in the sheep in the rape you will need to be careful, but there is not so much danger of bloat as is generally supposed. Before turning in I would fill them on some kind of food they will relish. They must not be turned in when they are hungry. I would leave them in the rape an hour or an hour and a half the first day. I would follow the same course the second and third days, only the third day I would let down the bars and I would not put them up again the entire fall. I would give them free access to the rape field all day and all night too, for that matter, if the wolves or dogs do not bother. I have not lost but one sheep by bloat since following this plan.

"I believe there could be a large profit made by the farmers of eastern South Dakota by sowing their entire grain fields to rape in this manner, then go out on the range west of the Missouri and buy a carload or two of lambs, according to the rape you may have. I would buy in August, let them feed on the rape in the stubble the entire fall, then as a supplement I would have a few acres of rape sown in the corn field, turn in the lambs and let them harvest rape and corn together, load them and take them with you to the International and sell them for Christmas mutton. If there was a premium on the best carload of lambs you would stand a good show of capturing it."

## STOCK FOODS AND CONDITION POWDERS.

There has been a good deal of discussion of late as to the benefits to be derived from the use of stock foods and condition powders. The writer was recently asked his opinion of their merits by a young sheep breeder, whose questions were answered as follows:

"We should not look upon stock foods as a food in the strict sense of the word, although their bulk may be made up of, say, linseed meal, locust-bean meal, cornmeal or what-not. We must consider them more in the light of a regulator and toner of the system; more as a preventive than a cure of disease, and as a handy proprietary article whose chief virtue lies in keeping the animal's digestive apparatus in normal working order. No rational thinking man expects stock foods to wholly take the place of grain. As an adjunct to the grain ration, however, they are of almost inestimable value. Show sheep which have become dull and inactive, whose appetites are poor and fleeces lifeless, resultant of impaired digestive organs, seem to gain a new lease of life after being fed a few feeds of such condiments. In herds of young cattle we usually find more or less of their number unthrifty, although they may not be suffering from any specific disease. Such animals are almost invariably benefited by stock foods and sometimes inside of ten days after using a marked improvement in their condition is apparent. Whether such foods destroy the internal parasites with which they may be infested or not it is not within my province to say, but I do know that in a very large percentage of cases the animals to which they are fed are benefited. For stale show animals, sickened by long "circuit" touring, nothing equals a good stock food as a "freshner." Where stock foods are fed to exhibition animals there is little danger of their being overfed, for they seem to act as a safety valve in minimizing the effect of too luxurious living. Where a show animal's stomach is kept active there is very little danger of its feet becoming inactive. Spices when taken in correct proportion tone the stomach of man or beast. Stock foods contain spices and herbs which help very materially in the proper assimilation of an animal's food. Where stock is housed and highly fed, such foods, in a measure, take the place of exercise. I do not mean by this that animals furnished stock foods need no exercise. If experiments were made with two lots of housed cattle or sheep the one to be fed as highly as possible on rations in whose composition a good stock food had figured and the other on similar rations in whose composition stock food had not figured it would be safe to predict that the animals composing the second lot would be the first to break down, for the reason, their stomachs would more readily lose their normal tone. While it would be unreasonable to feed stock food to a breeding flock of

Highland Blackfaces while roaming in their semi-wild state over the heath-clad Highlands, it would not be unreasonable, but profitable, to feed such a tonic to those under course of fitting for such shows as the English Royal or our International. In the great stables, herds and flocks of England stock foods are largely fed and the same is true of this country, but Great Britain pays considerable more attention to the matter of stock foods than we do, for besides having stock foods which come under the category of appetizers and correctors of the digestive system, there are special lamb foods, special calf foods, etc., which are expected to give, and do give, better results than the ordinary grain rations compounded by the average stockman. If they did not they would be very little used by the careful, conservative Britisher. "Do you think all stock foods are what they are claimed to be and have they the merit claimed for them?" I was further asked. To this question I could only answer that like other proprietary articles they varied in quality and effectiveness according to the cost of their production and the honesty of their manufacturers. That there are fake stock foods on the market there is no doubt, but such are short-lived. I have used two different brands of stock food in this country, both of which have given me entire satisfaction. Where stock foods are scientifically prepared I have no hesitation in saying that they are a boon and a blessing to stockmen.

#### EAR TAGGING.

All purebreds must, of course, carry an ear-tag or label, as a guide to their identity so far as pedigree, etc., is concerned. It is not wise to put the labels in the lamb's ear too early in life—that is, not before the cartilage of its ear has hardened sufficiently and become strong enough to carry the label properly. If the label is inserted before the lamb has some growth, the ear will droop. Very little bleeding will result from the operation of punching the ear if the operator guards against perforating the principal vein of the ear. A very good way of ear-marking sheep is by tattooing. Instruments and ink, both black and white, are made for this purpose and can be purchased at a nominal price at any store carrying sheepbreeders' supplies.

#### PHOTOGRAPHING SHEEP.

Nothing makes a more fascinating picture than pastoral scenes, but how few amateur, or even professional, photographers have the proper idea of how a picture of sheep, especially individual show sheep, should be taken. How often do we see sheep "snapped" off in utter disregard as to how they stand or so far as shadows and lighting are concerned. If would-be photographers would only

take the time to consider that the finished picture will be a faithful reproduction of the subject as it appears before them, there would be fewer poor pictures. The greatest mistakes the amateur makes is to photograph his subject with the shadows from other subjects partially overshadowing it, having the shadows in the foreground instead of receding from it, and "snapping" it without due consideration as to how it is posed. If it stands in an awkward position when "snapped" it will certainly appear in exact relative position in the picture. Sunlight pictures are scarcely ever as satisfactory as those taken in the shade on a sunlit day, or when the sun is slightly obscured by clouds. Lighting and the lens has most all to do with a good picture, but still one must be something of an artist, no matter how good his camera or the lighting may be, to make a really good picture. High-priced lenses are not always better than cheap lenses, although as a rule they are much better. I use a 4x5 five-dollar camera, that \$100 would not buy, for the reason that I think I understand my instrument and it does good work. I have used higher priced instruments with less satisfaction. In taking advantage of thunder clouds I have made some very good landscape pictures. The picture appearing in the article under the heading of "Aristocracy and Sheep," in this work, was taken on a bright August day, but when the sun was obscured by a huge black cloud. Note the lighting and fine studio effect. This picture was taken by my favorite five-dollar camera. In taking a picture of show sheep on a very bright, sunshiny day, I would recommend placing the subject in the shade, such as that which the barn or house affords, but not that of a tree, since the shade would be spotted with the sun glimmering through the trees. In taking sun pictures always have the sun behind you. One-fifth of a second exposure, with a wide open diaphragm, usually gives an excellent picture, under such conditions. Where objects are moving swiftly the exposure must be of less duration, of course. The animal must be properly posed before "snapping" to insure a pleasing picture, no matter if it takes an hour to pose it.

#### SHEEP AT EXPERIMENT STATIONS.

Notwithstanding that some agriculturists do not look upon the work being carried on with sheep at our experiment stations with any great degree of favor, the fact still remains that these institutions are accomplishing some very good work, and, moreover, a good deal of it. Especially is this true so far as experiments in sheep and lamb feeding are concerned, the results of the majority of which have been given in bulletin form to those seeking such information as would aid them in feeding sheep and lambs for the market, and which no doubt have saved many from pitfalls into

which they would likely have fallen had they worked in the dark and upon their own initiative.

There are those who cherish the idea that the experiment station that does not enter into competition and win honors galore at our leading shows is not "in it." This is a great mistake in the writer's opinion. Were I asked my opinion as to the advisability of experiment stations competing at our great shows, I should say that such would be out of place, especially so far as showing in competition with the livestock breeder is concerned, but that if an experiment station could see its way clear to make an honorary exhibit, not for competition but for strictly educational purposes, then all well and good.

It is no wonder to those who have had the privilege of visiting the different agricultural colleges and experiment stations of this country that more intensive and elaborate experiments have not been carried on with sheep than has been the case, since it is very easy to see that this is the one end of such institutions that has been sadly handicapped for lack of funds and, perhaps, in some instances, want of interest. Matters, however, are undergoing a change, as those interested are becoming cognizant of the fact that the sheep industry is one of the most important features connected with American Agriculture. Professor W. C. Coffey, of the University of Illinois, recently expressed himself to the writer in the following words in speaking of the present and future of sheep at our experiment stations:

"Each of our state agricultural colleges and experiment stations is necessarily governed to an extent in the active attitude it takes toward a certain line of work by the relative importance of that work in the state where each particular college and experiment station may be. Through statistics we learn that the valuation of sheep in nearly every state outside of the great range region is lower than that of horses, cattle or swine. From the foregoing statements we can readily understand why some of our sheepmen have felt that sheep have received too little attention at our agricultural colleges and experiment stations. In behalf of these institutions let us remember that the limited means have often prevented them from working along certain lines as they would wish and that they have been obliged to give first and chief consideration to the more urgent questions.

"It is probably true that most of our colleges have endeavored to live up to the possibilities in the work of sheep husbandry, but it is undoubtedly true also that in many cases the amount of work done was very meager. Where such was the case we choose to believe the retarding cause was the lack of funds to procure suitable specimen sheep, equipment and men trained in this branch of animal husbandry. Instances have been known where the instructor

in animal husbandry in conducting the sheep work had something like six wethers and numerous pictures with which to demonstrate the different sexes of and the various breeds of sheep. It seems to the writer that the work of agricultural students and instructors as sheep judges at our livestock expositions has received more criticism from breeders than those in any other class of livestock, and largely because the equipment and time allowed for the work at the colleges were not sufficient to make the men as proficient in sheep judging as in the other classes of livestock. Today I believe students receive much better instruction in sheep and sheep judging than formerly. On account of larger means our colleges are able to place more and better specimen sheep before their students. The instructors are learning each year, and literature is gradually though slowly appearing, which gives the student an opportunity to get information aside from the lectures of the instructor. It is our hope that in the future instructors in sheep will have in them a feeling of preparedness for presenting the work. It is also to be hoped that the future will bring us an abundance of sound, wholesome and usable literature which can effectively supplement the work of the instructor. We believe these things will come to pass because our agricultural literature is rapidly accumulating and our agricultural people are awakening to the need of thorough instruction in whatever the work may be.

"We are pleased to note that a few of our experiment stations have given sheep husbandry a larger place than the importance of the industry according to statistics would seem to justify. After all, we cannot get at the exact importance of an industry with no other guide than the valuation set upon it by statistics. We owe much to the very few stations that have made valuable contributions in sheep experimentation to agricultural literature. Through them sheep investigation has secured a foothold in general experimental work and henceforward I think it will receive the consideration it merits from nearly all of our experiment stations. As already stated, today our agricultural colleges and experiment stations have larger means than formerly and they have secured the confidence of the people so that they are more nearly free to pursue chosen lines of investigation. The exceedingly high price for sheep during the past few years has caused the question of sheep feeding to appeal strongly to the farmers and there is therefore a strong call for experimental work in sheep to which I think our experiment stations will respond with thorough scientific effort. Just now experiments are being conducted very largely upon the methods of feeding and the testing of various feeds available for fattening sheep and lambs. These are questions upon which information is desired and our stations, for the present, can probably do more good in taking up these practical questions than in any

other way. It is not safe to predict what future investigations will be like because it is difficult to determine the form and the extent of our future sheep husbandry in the various parts of the country. The range is being encroached upon by small land holders and as yet we cannot tell whether or not the extensive range operations are going to cease. At the present time the Central and Eastern states do not know whether they will take to growing a greater number of sheep regularly and, if we were assured that they will, we do not know how intensive this growing will be. Whatever direction future operations may take, I feel that it will be the mission of the experiment station to aid in the working out of the best methods for the systems practiced. That the experiments of our stations may aid in establishing certain systems of sheep farming is a possibility."

It is not the author's intention to attempt to chronicle in this volume the work done along experimental lines with sheep by our experiment stations, but to mention a few of those connected with them who have done and are still doing good work in their particular field. The merest allusion to sheep experiments causes the writer's mind to revert to the great work Professor Wrightson, the famous English experimenter, has done along this line, and certainly the world at large owes much for what he has done, especially when it is considered that his experiments have been carried out from pure love of such work and at his own expense. Were all of his experiments and those made in this and other countries incorporated in a single work what a valuable addition to the pastoralist's library such would make.

Among those who have done, and in most cases are still doing good work in the field of which we are treating, might be mentioned Professor Curtiss of the Iowa Experiment Station, Professor Plumb of the University of Ohio, Professor Dalrymple of the Louisiana Experiment Station, Professor Coffey of the University of Illinois, Professor Craig of the Texas Experiment Station, Professor Skinner of the Indiana Experiment Station, Professor Humphrey of Wisconsin, who is ably assisted by one of the strongest men in his line of the day (Instructor Frank Kleinheintz); Professor Carlisle of the Colorado Experiment Station, Professor Skinner of the South Dakota Experiment Station, a self-made man, who rose "from the ranks" to his present honorable position by sheer hard work. Professor Mumford did good work when at the Michigan Experiment Station, but since taking charge of the livestock department of the University of Illinois he has given more attention to cattle and left the sheep department to the care of Professor Coffey, who, by the way, is undoubtedly one of the most practical men to be found at any of our experiment stations, as previous to his entering his present field of work he was in charge of one of

the best flocks of pure-bred sheep in the country and more or less interested in sheep all his life.

A name that in justice should have appeared earlier in this article is that of Prof. Thomas Shaw, whose pen and experiments have done inestimable good for the sheep industry of this country and Canada.

Among those who are doing good work in the interest of the sheep industry at Canadian Experiment Stations the names of Professor Day of the Guelph Agricultural College, Professor Cummings of the Nova Scotia Experiment Station and Professor Grisdale of the Ottawa Experiment Station come to mind.

Professor George Rommel of the Department of Agriculture is deeply interested in sheep experiments and we are looking to him to do some good work along that line. Professor E. L. Shaw, who takes our late lamented friend, Prof. George F. Thompson's, place at the Department of Agriculture, will turn his attention toward work in connection with evolving a new breed of sheep to meet the demands of the western range. This gentleman as I write (July 11, 1907) has just returned from Michigan and Ohio with some of the choicest finewool rams to be used in this experiment that money could buy. The "boys" interested in sheep in our experiment stations are of a very intelligent and enterprising class, some of whom are going through "fire and water," as it were, to acquire their education, some starting as low as doing janitor service to accomplish their ends. These are the boys that make great men.

It's a wonder that some of our experiment stations do not take up the study of goitre in sheep and lambs. This subject offers a wide open field for investigation and will make undying fame for those who solve the mystery that hovers around this insidious disease.

## PART VIII.

### DISEASES.

There are those among enthusiastic sheep breeders and fanciers who claim their favorite breed to be immune to certain diseases, but the writer is not in a position to verify their contention, but rather shares the opinion that many diseases that play havoc with our flocks would be less common were better methods employed in their management, for in nine cases out of ten such troubles may be traced to neglect on the part of the shepherd. While this work would be incomplete without a chapter on the more common diseases of sheep, in describing and prescribing for same the author will be as brief as possible, but at the same time not so brief as to introduce vagueness.

#### FOOTROT.

Footrot is a highly contagious disease, although at times it makes its appearance through other channels than by direct contagion. Low wet land, filthy yards and barns, neglect in trimming the feet, are all causes of footrot. Where footrot breaks out spontaneously, as it were, the first symptoms that attract the shepherd's notice are limping of the sheep and a soreness between the digits of the foot. This is commonly called "foot-scald," which in reality it is. Foot-scald, however, if neglected, will turn into the most virulent type of footrot, but treated properly at its first appearance it is easy to cure. Footrot is far harder to deal with than scab for about three thorough dippings with a properly prepared dip will usually eradicate the latter, but when footrot has once got a thorough hold on a flock the shepherd has fearful odds to contend with. Where the feet become so bad that they are almost entirely rotten, time has to be reckoned with in curing this terrible scourge, time enough, in fact, after the first treatment to allow of a new foot growing.

Of all the diseases that the flock is heir to, in the author's experience, footrot is the one to be most dreaded, for when it has once established a footing it means long, faithful and hard work on the part of the shepherd to bring the flock back to its normal standard of health. The most serious and annoying problem of this trouble is that although we are always curing it, apparently, it is always breaking out anew. For instance: Today we might have effected a cure of one or more feet of a diseased animal when in a few days after we find to our chagrin that what a few days before appeared perfectly healthy are now affected, and

so it goes on and on unless the most strenuous effort is employed to annihilate the disease. It will be noticed that in dry weather the malady seems easy to deal with and the shepherd will be congratulating himself upon the mastery of the trouble, but when wet weather again sets in he is very liable to find almost every member of the flock affected again. There are two essentials necessary in the cure of a very bad case of footrot. The first is a hard working faithful shepherd, one who will cast sentiment aside and use the knife rigorously, and the second a piece of land upon which foot-rotten sheep have never been pastured. It is absolutely necessary that in treating footrot that the shepherd cut deep down into the very foundation of the disease. This does not mean that he must practice unnecessary acts of cruelty on the unfortunate animal, but that he must cut away all dead and diseased parts of the hoof. Bleeding will not be in evidence only when the live flesh is cut and a careful operator will avoid this. As soon as the afflicted individuals that have been treated are free from lameness they should be run through a trough containing a solution of blue vitriol or carbolic acid together with those that have not yet become affected, and removed to the new field or farm before mentioned.

After proper trimming and cleansing of the diseased feet they should be dressed with either of the following dressings: Butyr of antimony, muriatic acid and blue vitriol equal parts, mixed; or blue vitriol, nitric acid and red lead equal parts, mixed. One or two dressings of either of these prescriptions will affect a cure, but it must be remembered that, in long standing cases, unless the sheep which have been treated are removed to an unaffected area, the most heroic effort of the shepherd to annihilate the dread disease will be futile.

#### THE STOMACH WORM.

The stomach worm is one of the most destructive parasites which the American shepherd has to deal with, and evidently our flocks suffer more from their intrusions than do the flocks of the British Isles; at least this has been the author's experience. The stomach worm is a small thread-like parasite about an inch in length whose habitat is the fourth stomach of the sheep or lamb. It causes greater mortality among lambs than adult sheep. American shepherds lay blame to old infected pastures for a good deal of the destructive work of this insidious pest. While no doubt old pastures are in a measure largely responsible for the prevalence of same in some flocks, too much weight should not be given to this idea, as flocks that have depastured on such grazing grounds for centuries and which have not been molested with the plough in that time are known to be entirely free from their ravages, while

in other instances, where sheep have been pastured on unlimited range, they have been known to die by the hundred from their attacks. It is noticeable that where sheep are highly fed and well taken care of, especially where oil-cake and roots are a part of their rations, that the lambs seem invulnerable to the attacks of this pest, while those on an adjoining farm, that have not been treated so generously succumb to its ravages, which is a palpable proof that care or neglect, as the case may be, has much to do with its presence or absence. A practical illustration from the author's experience in which he had charge of a large flock of Shropshires may not be out of place here. The farm on which it was kept was situated in close proximity to other breeders whose flocks were known to be badly affected with the stomach worm and whose lambs were being fast reduced in number by their attacks, while those in the writer's charge were robust and healthy. The only reason or explanation for such a condition of affairs seemed to lie in the fact that the former flock received no supplementary rations, while the latter had a small allowance of grain and oil-cake for the first ten months of their lives, which is not only a profitable way of feeding so far as the prevention of the attacks of the stomach worm is considered, but so far as the extra growth of the lambs is considered, also.

The seasons have, no doubt, much to do with the presence of worms in sheep. A hot, stormy season seems to be an ideal one for the propagation and welfare of the stomach worm, since it is noticeable that in dry seasons the prevalence of the pest is not so marked. Lambs that manage to pull through until being put on winter rations seem to recuperate and in many cases regain a new lease of life.

There are many supposed-to-be remedies advocated for the destruction of this pest, but whether any of them are as effective as their endorsers claim is a question. There are those who are converts to the benzine and the turpentine treatments but the writer has found these by actual experiment to be little better than useless.

A few years ago the writer secured four lambs that were suffering from the ravages of this pest, to two of which he administered a dose of benzine, according to the directions of a believer in the efficacy of the treatment, and after allowing a reasonable time for the effective working of the medicine killed them. A post-mortem examination dispelled the theory, to his mind, of the effectiveness of this treatment so far as he was concerned. However to be fair and allow for any possible mistakes, extended experiments and more severe and critical tests were made, by treating the two remaining lambs with a double dose of the remedy with the expectation, of course, that they would succumb to such heroic treatment, which, however, they did not. They became

badly intoxicated and reeled and fell similar to a human being under the influence of alcohol and remained in this condition for several hours. After they had gotten over the effect of this dose they were killed. Upon examining the contents of the fourth stomach what appeared to be millions of the deadly little pests could be seen squirming and twisting for dear life but all seemingly in perfect health. Can a drug so volatile as benzine ever reach the far distant fourth stomach of a lamb in sufficient strength or quantity to dispel or destroy a parasite so tenacious of life, after considering with what quantity of juices and liquids it becomes mixed before reaching the desired spot? No matter if the afflicted one is deprived of both food and water, there is bound to remain a certain quantity of fluids in the stomach in answer to the call of nature on the saliva glands.

Time was when turpentine was considered an effective vermicide for stomach worms. This theory, however, has been exploded, and not only has it been proven to be not an effectual remedy but also to be a direct injury to the patient. That worm powders are a benefit, especially as a preventive of stomach and other worms, when fed judiciously and regularly before the worm has taken a firm hold upon its victim, there is no doubt. There are a number of worm powders upon the market but which has the most virtue it is difficult to say.

It might be reasonable to suppose that worms are created in the stomach and bowels in consequence of a morbid state of those organs, for where flocks are properly fed and cared for this morbid state of those organs does not usually exist, and the worm is conspicuous by its absence. That skilful feeding is the best preventive of trouble from the stomach worm the writer is fully convinced.

Vetches is not only a first-class forage crop for sheep but undoubtedly is one of the best preventives of stomach worms that we have. One of the most eminent veterinarians of his day, James White, gives us an instance of a horse so reduced in flesh and weakened by worms that he was thought incurable, which, after being turned into a field of vetches became perfectly sound and well. Powdered tin has been recommended for worms in horses, made into a ball in connection with flour and honey and given in doses of from three to four drachms. Such a preparation might be tried with benefit on sheep, since every grain of the tin must necessarily find its way into the fourth stomach, the habitat of the worm.

#### THE GRUB WORM.

The grub worm is the offspring of the gadfly. It is responsible for grub in the head and sturdy or gid in sheep. All sheep suffering with grub in the head do not necessarily show symptoms

of their presence. The writer, in his experience in the slaughterhouse, has found grub worms in the heads of sheep which, to all appearance, were in a perfect state of health. Especially has this been true in the case of the Dorsets. It is customary to chop the horns from horned sheep prior to skinning them and it is in the cavity of the horn where these worms are usually found. That the disease known as gid, which is almost always attributed to the grub worm, should not be so charged in many cases the writer is convinced, since he has killed many sheep that were suffering badly from "gid" which had no signs whatever of grub in the head, but on the contrary had what is known as "cysts" (small bladders containing water) which, on account of pressure brought



Grub Worms.—Natural Size.

about by direct contact with the brain, cause the giddiness. A sheep attacked with gid should be slaughtered for mutton, if in good condition, as it rarely recovers from the attack. This trouble does not interfere with the wholesomeness of the meat.

The most effectual remedy or preventive, rather, for the attack of the gadfly is to rub tar on the sheep's nose. A time-saving way of applying this is to bore a number of holes in a log and after filling them with salt cover with tar. The sheep in trying to get the salt will unconsciously do the work of smearing their noses in the most perfect manner. Care should be taken that the holes be bored not too much on one side, as the result will be that the sheep will get their fleeces instead of their noses daubed with the tar. Some authorities on sheep husbandry recommend the ploughing of a portion of the field in which the sheep are pastured so that when dry it acts as a dust bath for the sheep, which will effectually keep the fly from them. Careful, observant, shepherds must have noticed that, when the gadfly is around, the sheep will make for any dusty position that conditions afford, and will continue to stamp and raise a dust until their tormentors leave them. There is, however, little need for the dust if tar is brought into use.

#### TAPEWORMS.

Large numbers of sheep die annually in this and other countries from the ravages of this deadly parasite. Although one of

the most deadly of internal parasites to the sheep they are by no means the most difficult of eradication. A dram of oil of male shield fern given in two ounces of castor oil will remove the worm, provided the affected animal has been fasted for not less than twelve hours—twenty-four would be better. An injection of warm water given a few minutes before the administration of the vermicifuge would materially help in dislodging the pest. To remove a tapeworm it is necessary that the medicine be rapid in effect, as only in rare cases does it do more than stupefy it, therefore the reason that the bowels and stomach should be as empty as possible. The most prominent symptom of tapeworm is a rapacious appetite without any response by way of thrift becoming apparent, but on the other hand a wasting of flesh. Sheep infested with tapeworms void excrement in which segments of same may be found. These segments are white, fleshy looking particles of an oblong shape and about a quarter of an inch in length. It is claimed by scientists that each segment if picked up by an animal will germinate and mature into a perfect tapeworm.

#### CONSTIPATION.

Where the flock is not provided with succulent rations during the winter season the shepherd is liable to experience considerable trouble from constipation, especially among the lambs. There is usually a very heavy death rate among lambs due to this derangement of the system. The symptoms of constipation in very young lambs are a dull sleepy appearance and a positive refusal to take nourishment. Sometimes lambs will thrive for several days and then show symptoms of constipation, and if the afflicted one is not promptly treated his existence must necessarily be a short one. Lambs that have been chilled at birth are very liable to this trouble. As soon as a lamb is noticed to be constipated it should at once receive an injection of soapy water or raw linseed oil which will promptly relieve it. After this treatment the lamb should receive a dose of castor oil and the ewe's rations should also receive attention. If roots are not available a small quantity of oil-meal or oil-cake daily will prove a valuable agent in warding off this trouble. Constipation is often brought about by feeding the ewe too much concentrated food the first few days after lambing.

#### WHITE SCOURS.

This is a disease that is quite common among lambs and calves. It is rare that we find this trouble existing in the flock in anything like epidemic form, excepting in instances where the grossest errors in feeding have been made. The presence of scour or curdled milk in the lamb's stomach is the primary cause of

white scours. An unhealthy condition of the ewe's milk is also responsible for the same disorder. Before relief comes to the afflicted one the contents of its stomach and intestines must be removed, and before this can be accomplished the curd in the stomach must be dissolved. The following treatment will be found valuable for white scours in lambs: Ordinary cooking soda, one-fourth ounce; sulphate of magnesia, one ounce; ginger, as much as can be taken up on a dime. This should be mixed with a little flax seed gruel for administration. This dose should be divided into halves for very young lambs. Four hours after the administration of the above remedy the patient should receive two ounces of linseed oil. Of course the age of the lamb must be taken into consideration and the dose regulated accordingly, and this must be left to a certain extent to the judgment of the shepherd. The dam of the lamb suffering from white scours, or any other trouble for that matter, should receive rations that will to an extent offset, through her milk, such derangements of the system. She should be provided with succulent rations of some sort, and if nothing more handy is available potatoes are splendid for the purpose.

#### LICE.

It is surprising to learn what a number of sheep raisers there are who do not know what ails their sheep when they are pestered with lice. When they notice their sheep scratching and rubbing themselves they usually charge it to ticks, when there may not be a tick found on them. Great loss of feed is sometimes occasioned from the impoverishment of the flock by the common red louse, which infests the sheep's body. Lice are equally as destructive to the flock as the tick. As soon as any member of the flock is seen rubbing itself, and otherwise showing signs of distress, the whole flock should be dipped.

#### STRETCHES.

This is a disease that attacks sheep that are confined on dry rations, or, in other words, which attacks those that are not supplied with a sufficiency of succulent rations. It is a species of indigestion. The symptoms of this trouble are so similar to those of a case of yearning that sometimes even experienced shepherds mistake it for a case of premature yearning. For immediate relief melted lard in doses of a quarter of a pound, is a well-known and effectual remedy. As a preventive of this trouble in winter, when the disease usually prevails, roots are to be recommended. Not only are they valuable as a preventive of stretches and the ills attending that complaint, but they are also very valuable as a creator of a healthy milk flow in the ewe and aid considerably in making strong healthy stud sheep where they are fed gener-

ously. Our best flock masters would not think of attempting to raise stud sheep without the help of roots, such as turnips, rutabagas, mangels, etc.

#### COLIC.

The symptoms of colic and stretches are very similar, but colic is distinguishable from stretches in that where the animal is suffering from the former named trouble it lies down and grinds its teeth, whereas in an attack of the latter named complaint it acts as if it desires to make itself longer than it really is. While stretches are caused through want of succulent rations, colic is caused by the reverse condition, viz.: too much succulent feed, such as rape, clover, etc., especially when either has the least degree of frost on it. A sheep suffering from colic must be quickly relieved or inflammation will set in and death quickly follow. One drachm of laudanum, mixed with one drachm of powdered ginger, will generally relieve the sufferer from an attack of colic in a few minutes. Administer in a little flaxseed tea.

#### SCAB.

Although scab is a terrible scourge, if treated promptly it is not of so serious a nature as footrot, or the attack of the stomach worm. Scab may be called a universal disease, since it is found in almost every country where sheep exist. Happily, this troublesome and annoying disease is at present well kept under in this country, thanks to effective legislation. With the help of first-class proprietary dips and the right of sheepmen to use such as they wish in the place of lime and sulphur, there is no reason why it should not soon disappear from the United States entirely. Australia and Argentina both have had a taste of this disease and well know what disaster follows the trail of the little scab mite, although, through the combined determined effort of the government and the sheepmen, Australia is now a scabless country. Scab generally attacks the side of its victim and from that point quickly spreads all over its body, if not promptly arrested. A scabby sheep presents a most abject appearance, as it rubs, bites and scratches itself unmercifully in its endeavor to free itself from its agonizing enemy. The only hope of curing an attack of scab lies in the dipping tank. The infected sheep must be dipped thoroughly at least three times in some reliable standard dip, and intervals of ten days or a little longer should elapse between the first and second dippings and the same time between the second and third. Every sheep should remain in the dipping tank at least one minute, by the watch. To effect a cure all fences, feed racks, troughs, etc., should be thoroughly disinfected with some strong and reliable disinfectant. The same decoction in which the

sheep are dipped makes a very good agent for this purpose. This can be best distributed with a spraying pump. As soon as the disease has disappeared the sheep barn and fences around same should be again thoroughly sprayed with a whitewash in which a liberal quantity of carbolic acid has been put.

#### BROKEN LIMBS.

When a sheep suffers from a broken limb it should be isolated from the flock and the limb carefully set. Setting is performed by bringing the broken parts of the bone into as near normal position as possible and wrapping a piece of cardboard around it. Then a linen or soft leather bandage which has previously been dipped in starch should be wrapped around the cardboard. After a few days of rest, except in cases of very bad fractures, the patient may be allowed out with the flock as it will manage to keep the injured limb from harm and it will be but a matter of a short time before the bone becomes set.

#### NAVEL ILL.

This trouble is generally peculiar to very young lambs. Cases of navel ill in this country are generally conspicuous by their absence, no doubt on account of our yards being well bedded, which protects the umbilical cord from coming in contact with mire and filth. In England, in wet seasons particularly, navel ill is quite common. Should the shepherd notice anything abnormal with the navel of the lamb he should at once apply flour of bluestone to same, which will bring about a quick cure.

#### WOOL BALLS.

No doubt the presence of wool balls in the stomachs of lambs are in many cases due to the tormenting of the tick and other parasites with which their bodies are sometimes infested. The irritation causes the infested ones to bite themselves with the consequence that the wool is transmitted to the stomach. Another cause of the presence of wool balls in the lamb's stomach is the presence of loose wool around the udder of the ewe. Still another cause is a depraved appetite due to derangement of the digestive organs, probably brought about through the lack of some necessity, such as salt. A lamb suffering from this trouble appears dull, stupid and refuses food. For some reason the long wool breeds seem to suffer more from this trouble than the medium wool or fine wool breeds. Linseed oil will frequently relieve a lamb afflicted in this manner but it is not often that a cure is brought about.

## CAKED UDDER.

A trouble common to the great milkers of the flock but exceptionally rare among the poorer members. There is no doubt but numerous cases of caked udder are directly traceable to neglect on the shepherd's part, through not giving his ewes due attention at particular seasons of the year, notably weaning time. Nothing equals lard and turpentine for caked udder. This should be mixed to the consistency of cream and be well rubbed into the udder directly after it has been thoroughly bathed with hot water. The ewe should have shelter during treatment.

## GARGET.

Garget is more prevalent in some seasons than in others. It generally attacks ewes which are noted for their great milking qualities. Sometimes it is brought on by colds, chills, etc., due to the ewes being compelled to lie on the cold wet ground. As soon as garget puts in its appearance the ewe should be given a dose of Epsom salts and her udder thoroughly bathed with hot water to which one ounce of cooking soda has been added. It should be thoroughly dried with a towel after which it should be well rubbed with a dressing of camphorated oil, or a mixture of lard and turpentine, as recommended for caked udder. Should an abscess form it should be carefully opened and well washed out with a weak solution of carbolic acid.

## "QUIDDERS."

When a sheep habitually drops a small ball or wad of partially masticated food from its mouth it is said by shepherds to be a "quidder." Sometimes the animal's teeth are responsible for this, but more often it is due to indigestion. It is a trouble that is rarely cured and no doubt it is more profitable to consign animals suffering from the ailment to the butcher, should she be worthy his notice. Sometimes a "quidder" will get into fairly good condition when provided with an unlimited supply of succulent rations and a little grain, while in other cases it is a mere waste of feed to attempt to fatten such stock.

## DIARRHOEA.

One of the most common causes of diarrhoea is the over-feeding of succulent rations before the system of the sheep has adapted itself to same. It is especially common in early spring and late fall. The remedy is to put the sick sheep on dry rations of a poor nature and administer a dose of castor oil, to be followed by a dose made up of the following: Twelve drachms of prepared chalk, one drachm of powdered ginger, and one drachm of laudanum.

## ABORTION.

When a ewe is about to abort she appears dull, stupid and listless, loses her appetite and is wont to isolate herself from her companions. There are numerous causes for abortion, prominent among which may be enumerated crowding through narrow doorways, being "thrown" for the purpose of having their feet attended to and eating of frozen rations such as rape, turnips, cabbage, kale, etc. Great losses have been chronicled through abortion being brought on from the effects of overdoses of salt. As soon as a ewe shows symptoms of aborting she should be relieved of the dead lamb without delay; this is necessary to avoid blood poisoning. When performing this operation the operator should be careful that his hands are free from wounds, as more than one good shepherd has lost his life through carelessness in such matters. In any and all cases it would be well, as a precaution, to lubricate the hands with an antiseptic agent such as carbolized oil or carbolic soap. When removing a dead lamb from a ewe the patient should be placed on her back, as when placed in this position the work is more easily performed. The task of removing the dead lamb is usually slow and tedious, therefore it becomes necessary for the comfort of the ewe to change her position occasionally. No undue strain should be brought to bear upon the ewe during her deliverance and the shepherd should not pull only in sympathy with her straining. Sometimes it is found almost impossible to remove the lamb without first dissecting it. In no case is it so easy to remove a dead lamb as it is a live one. Sometimes abortion appears in the flock in epidemic form, but this is more often due to errors in feeding than to any contagious disorders. It is advisable to remove all aborting animals from the flock and the dead foetus should be destroyed by fire. The ewe should receive an injection of warm solution of carbolic acid twice a day for several days after the lamb has been taken from her. Care should be exercised that the placenta be removed from her or the chances are she will succumb to blood poisoning.

## DERANGEMENT OF THE URINARY ORGANS.

One of the most serious troubles that rams are liable to fall victim to is a stoppage of their water. Among other causes of this trouble is over-feeding of rations of a nitrogenous nature, such as peas, corn, etc. Another promoter of this trouble is the mangel, the sugar from which forms into crystals and lodges in certain sections of the urinary organs, with the result that a stoppage follows. A ram attacked with this trouble is a most pitiable object and one that suffers the most intense pain. Symptoms of "stoppage of the bladder," as it is generally called, is a positive re-

fusal of the afflicted animal to take food, continual straining and a continual stamping of the feet. When uremia, or urine poisoning, sets in the sufferer foams at the mouth. Of course the most important factor in relieving the animal is by removing the obstruction and allowing a passage of the urine. Sometimes the stoppage is caused by crystals of sugar accumulating around the point of the animal's sheath and in such cases the crystals should be removed with warm water, when the urine will escape and relief follows instantly. When the trouble is in the bladder a very fine catheter can be inserted and relief obtained. The author once succeeded in curing a very valuable ram of this trouble by administering a dose of Epsom salts, followed by a dose of sweet nitre given in gruel and after the elapse of three hours the administration of eight grains of belladonna.

#### TUMORS.

Sheep are often afflicted with tumors. They are more often found in the throat than in any other party of the body. Notwithstanding the fact that scientists have only recently admitted that sheep are sometimes victims to tuberculous troubles, shepherds have long contended that sheep died of "consumption." Neither rams or ewes suffering from tumors should be used for breeding purposes. Tumors can be quickly cured by being opened with the knife and thoroughly washed out with a strong solution of carbolic acid or some other antiseptic agent. The wound should be kept running by insertion of a small ball of wool or cotton wool which has previously been well saturated with tar.

#### INFLAMMATION OF THE EYES.

Inflammation of the eyes, or ophthalmia, at times breaks out in epidemic form among lambs, the whole flock sometimes suffering more or less from it. It is generally brought about by exposure to storms or draughts in an ill-planned or ill-managed sheep barn. In some cases the afflicted one becomes totally blind. There is a species of ophthalmia which arises from a derangement of the stomach and digestive system generally, brought about by eating too freely of grain of a too heating nature. Lambs suffering from this trouble rapidly lose flesh and assume a very emaciated appearance. The first thing to do by way of relieving the sufferer is to administer an opening dose of medicine, after which the eyes should be treated carefully and thoroughly with a good eye lotion which your druggist will know how to prepare. The ewe's rations have considerable to do with bringing on an attack of this kind; therefore, it is advisable that a change of diet be made as soon as the disease first appears.

## BLOAT.

That there are a great many sheep sacrificed to bloat through the ignorance or carelessness of their owners there is no doubt. To turn a flock of sheep into a clover field, rape field or alfalfa field when very hungry is to court loss from this trouble. When a sheep becomes a victim to bloat its stomach becomes very much distended—in fact, so much so that its body seems to belong to a larger set of legs than its own. A bloated sheep is best relieved by tapping. Tapping is performed by making an incision directly into the stomach at that point on the left side of the afflicted animal where it is most distended. A trocar is the proper instrument for tapping, but in the absence of this instrument the operation may be performed with a common pocketknife. When tapping an animal care must be used that the tapping instrument be inserted in such a way as to avoid striking the kidneys, especially where the sheep is very fat. After tapping the patient should be given a heavy dose of linseed oil. One of the best medicinal agents in an acute attack of bloat is three drams of hyposulphite of soda and one dram of ginger mixed in water. This should be administered as soon as the first symptoms of the trouble are observed.

## NODULAR DISEASE OF THE INTESTINES.

Although this disease has received but little notice until within the past few years, there is no doubt but that it has existed as long as most diseases from which the flock suffers. The author in his boyhood days well remembers having noticed the lumps or nodules of the disease on the entrails of sheep which he was dressing for market. It is considered by some to be one of the most deadly diseases that affect sheep, which is questionable in the writer's mind since those animals upon whose intestines the nodules were noticed could not possibly attain such bloom and such heavy weights at such an early age if they had suffered intense pain or experienced any great loss of vitality at any time during their existence. Notice to this disease was first attracted in a somewhat novel way. As may be generally known, the smaller intestines of the sheep was, before the introduction of the artificial article, used as sausage casings. Through a deficiency in their elasticity and strength an investigation started which showed that the defect was due to the nodules from which the nodular disease takes its name. The disease is not confined to any one section of the universe, for the writer has noticed evidence of the work of the nodular parasite in America, Great Britain and other countries. Whether there is a remedy or not for the disease is problematical.

## EVERSION OF THE WOMB.

When the womb, or "withers," as the English shepherds call it, of the ewe is cast it is said to be suffering from eversion of the womb. This is a trouble that generally follows a bad case of yeaning and cases of this nature have been known to follow the removal of a dead lamb from the ewe. This is not such a dangerous ailment as the novice might imagine it to be upon meeting his first case of the kind. If proper care is employed in cleansing and returning the womb to its proper position and the treatment hereafter given faithfully carried out there is no reason why a cure should not be effected. The operator should have an assistant, who lays the ewe on her back and grasping her hind legs gently lift her hind quarters about a foot from the ground. By this method the organs can be readily replaced. The operator should next take a pint of lukewarm water and put into it two teaspoonsful of sugar and one of pulverized alum and inject same into womb twice a day. In stubborn cases where medicinal treatment will not of itself bring about a cure a surgical appliance in the shape of a leather band should be placed in such a position as to prevent the womb from coming out.

## GOITRE.

Goitre seems to be one of those mysterious, insidious and deadly maladies that has long and successfully baffled scientists so far as its cause is concerned. Sheep of all ages are subject to this trouble, but young lambs more especially so. It seems to be more prevalent in some seasons than in others. Sometimes the greater part of the lamb crop is lost or severely damaged by this disease. Many reasons have been advanced for the prevalence of goitre among new-born lambs. Insufficient exercise, an excessive fat condition of the ewe, the use of highly-fitted show rams which have been improperly reduced from showyard condition to breeding condition, in-breeding and the drinking water are among them. The writer believes that the trouble is due more to insufficient exercise and to high feeding than to any other cause. A few years ago I had charge of a large flock of Shropshires, which to all appearance were in fine breeding condition; that is, if full flesh and good condition of the ewe is any criterion. All were bred to imported prize-winning rams, and their rations consisted of roots, clover, bran and oats, to which was added just previous to lambing a small quantity of oil cake. The promise of a strong lamb crop was met with a large proportion of fat, swollen-necked, hoofless and almost boneless freaks, covered with a thin covering of hair rather than the natural curly growth of wool. These prodigies generally squirmed and struggled around for a few hours

in their endeavor to gain their feet, which in only very rare instances did they succeed in doing, and then died. On the same farm was kept a large flock of well-bred grade ewes, which carried in a very marked degree the blood of the Leicester. They were bred to high-class Shropshire rams; their rations consisted of clover hay, oat straw, pea straw and a moderate allowance of roots and their drinking water was from the same spring as supplied the Shropshire flock. Now, while not a goitred lamb made its appearance in the grade flock fully 50 per cent of the Shropshire lambs died of goitre without ever gaining their feet. The next year this same Shropshire flock under similar treatment to that given to the grade flock gave pretty close to a 150 per cent increase with only one case of goitre to record.

My experience tends but little to encourage a belief that the water the sheep drink has much to do with goitre, although it is well known that the human race acquires goitrous troubles in certain sections through the water it drinks. Especially is this true of Derbyshire, England, where people attacked with goitre are said to have "Derby neck." Where sheep have unlimited exercise and have to work a little for their living, as it were, goitred lambs are generally conspicuous by their absence. Goitre is very readily cured in full grown sheep, but not so easily with the young lamb, as its constitution is not sufficiently strong to undergo the severe treatment necessary for the destruction of the growth. In the treatment of strong animals suffering with this trouble the cure is cut into the growth quite deeply and just as soon as it has stopped bleeding inject with a small syringe a small quantity of full strength tincture of iodine. The enlargement should also be painted with iodine at regular intervals, say once in two days.

#### STURDY AND GID.

This is a species of paralysis brought about through hydatids or bladder worms in or around the brain. The parasite is supposed to be the young or larvae of the tapeworm which infest dogs. There is but one cure for this and that is by the removal of the hydatid or bladder. The fact is that when a sheep once suffers with these troubles the best thing to do is to kill it and make mutton of it, for no sheep after it has been operated on, as would be necessary for these ailments, is worthy a place in the flock, and any recommendation of veterinarians or others to tamper with a sheep suffering with this trouble is simply a waste of words. We are living in a twentieth century age and should be twentieth century people. There are a good many methods advocated by old-time veterinarians and writers that are not worthy of countenance in our day. All sheep that are attacked with the trouble in question are not always seriously affected thereby. The writer has met

many cases in the slaughter-house of sheep having hydatids on the brain, but the sheep as far as could be seen had never suffered from its presence. Whether it would ultimately lead on to trouble is of course speculative. The animals most frequently attacked by this trouble are lambs and shearlings. It also attacks goats, cattle and other ruminating animals. The symptoms in sheep when affected are great excitement, timidity when approached, or, on the contrary, a very dull, stupid attitude. The animal attacked usually absents itself from the rest of the flock, walks about unsteadily and frequently turns around in a circle. It is seldom at rest and moves helplessly around in one direction, often with its head carried in a peculiar position and a little to one side. In advanced cases of the trouble the sheep becomes blind. If the cyst is on one side of the head only the animal walks around in that direction, which would suggest that it was chasing the trouble. If it exists on both sides it will circle around from one side to the other. If it is at the top of the brain the sheep raises its nose and walks forward and only stops when some impediment happens in its way.

Other diseases which may, from time to time, draw the attention of the shepherd are:

#### THRUSH IN LAMBS' MOUTHS.

*Cause*—Derangement of the digestive system of the ewe.

*Symptoms*—Disinclination to eat, excessive salivation.

*Remedy*—Change ewe's diet and give her twenty-five grains of saltpetre daily. Apply to sores a saturated solution of alum to which a little glycerine and borax has been added.

#### ANTHRAX.

*Symptoms*—Dullness, prostration, working of the jaws, salivation, tremors and diarrhoea, with blood-stained discharges.

*Remedy*—There is none. Kill animal and burn carcass as soon as discovered. A deadly and highly infectious disease, which may be transmitted to the human race.

#### BLACK MUZZLE.

*Cause*—In most cases poisonous weeds.

*Symptoms*—Scabby eruption on nose and lips.

*Remedy*—Lard., 12 oz.; powdered burnt alum, 1 oz.; powdered zinc sulphate, 1 oz.

#### SORE TEATS.

*Cause*—Wet, frosty weather, derangement of ewe's digestive system and a deficient supply of milk, encouraging lambs to bite them in their eagerness to satisfy their appetites.

*Symptoms*—Endeavor of the ewes to get away from lambs when they are anxious to suck.

*Remedy*—Equal parts of olive oil and glycerine applied several times a day.

#### SHEEP-POX.

*Cause*—A poisoned condition of the blood.

*Symptoms*—Discharge from eyes and nose, considerable fever, extreme salivation, refusal to eat, diarrhoea and a most peculiar and nauseating odor. The body becomes covered with pimples which ultimately become mattery and purulent. The disease runs its course in about twenty-eight days.

*Remedy*—Kill every affected animal and destroy its carcass by burning.

#### RICKETS.

*Cause*—Supposed to be due to in-and-in breeding and general debility of the ewe during pregnancy, but no doubt exposure to cold east winds is a prevalent cause for this trouble.

*Symptoms*—A weakness of the hind parts and a frequent reeling and falling down while endeavoring to walk.

*Remedy*—Protect both dam and lamb and feed generously and as soon as the lamb is fit for the butcher dispose of same.

#### CATARRH.

*Symptoms*—Cough, dullness, loss of appetite, discharge of mucus from nostrils and watery discharge from eyes.

*Cause*—Exposure to cold and wet.

*Treatment*—Keep the animal sheltered, give flaxseed tea three times a day and 1 drachm sweet spirits of nitre and 15 grains powdered digitalis twice a day.

#### RUPTURE.

*Cause*—This trouble is caused by any undue strain brought upon the ewe when heavy in lamb.

*Symptoms*—A distention on one side of the abdomen.

*Remedy*—Fix a broad band around the abdomen. A piece of perforated tin makes an ideal support. After the weaning of her lamb the ewe should be fattened and sent to the butcher.

#### PARALYSIS.

*Cause*—Long continued exposure to stormy weather.

*Symptoms*—Inability to stand and general debility.

*Remedy*—Keep patient dry and comfortably warm. Give

linseed gruel in which a little ground ginger has been added and a tablespoonful of brandy.

#### INFLAMMATION OF THE LUNGS.

*Cause*—Exposure to cold, wet weather, especially directly after shearing.

*Symptoms*—Rapid breathing, feverish cough, loss of strength.

*Remedy*—Keep the patient warm and give in flaxseed tea 2 drachms sweet spirits of nitre and 2 tablespoonfuls of whisky. Repeat in six hours if no improvement is noticed.

#### INFLAMMATION OF UDDER.

*Cause*—Exposure in story weather, inattention to ewes after weaning the lambs, neglect of sore teats.

*Symptoms*—Ewe refusing the lamb the teat and walking with straddling gait.

*Remedy*—Remove ewe to warm quarters, give purgative and foment udder with warm water and rub same with turpentine, 1 oz.; lard, 8 oz.; twice a day, and draw off watery fluid after fermenting and before applying the turpentine and lard.

#### JOINT EVIL IN LAMBS.

*Cause*—Cold wet land and changeable weather.

*Symptoms*—A stiffness of joints similar to rheumatism. Abscesses sometimes form.

*Remedy*—Keep the patient well sheltered and give stimulants such as whisky.

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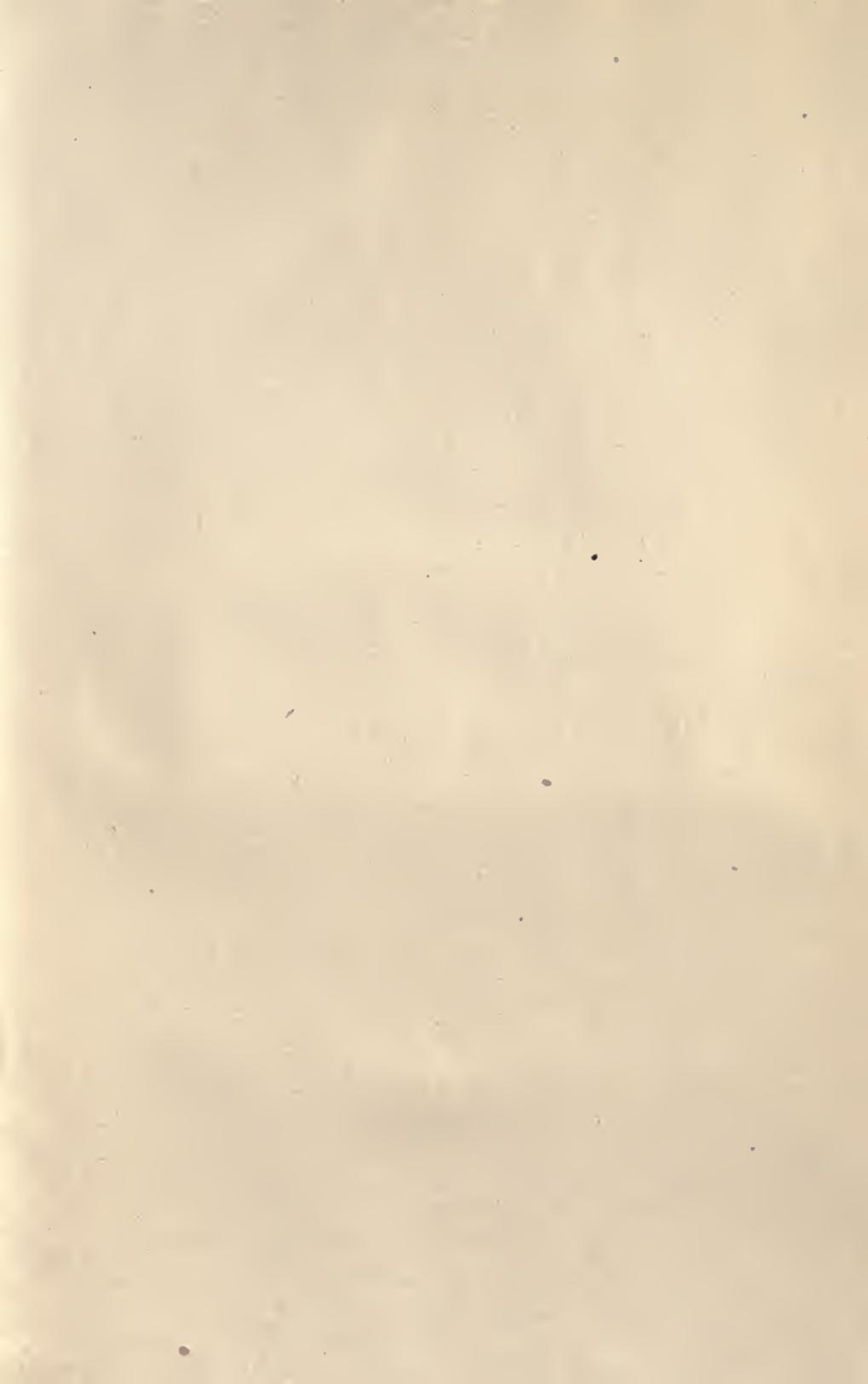
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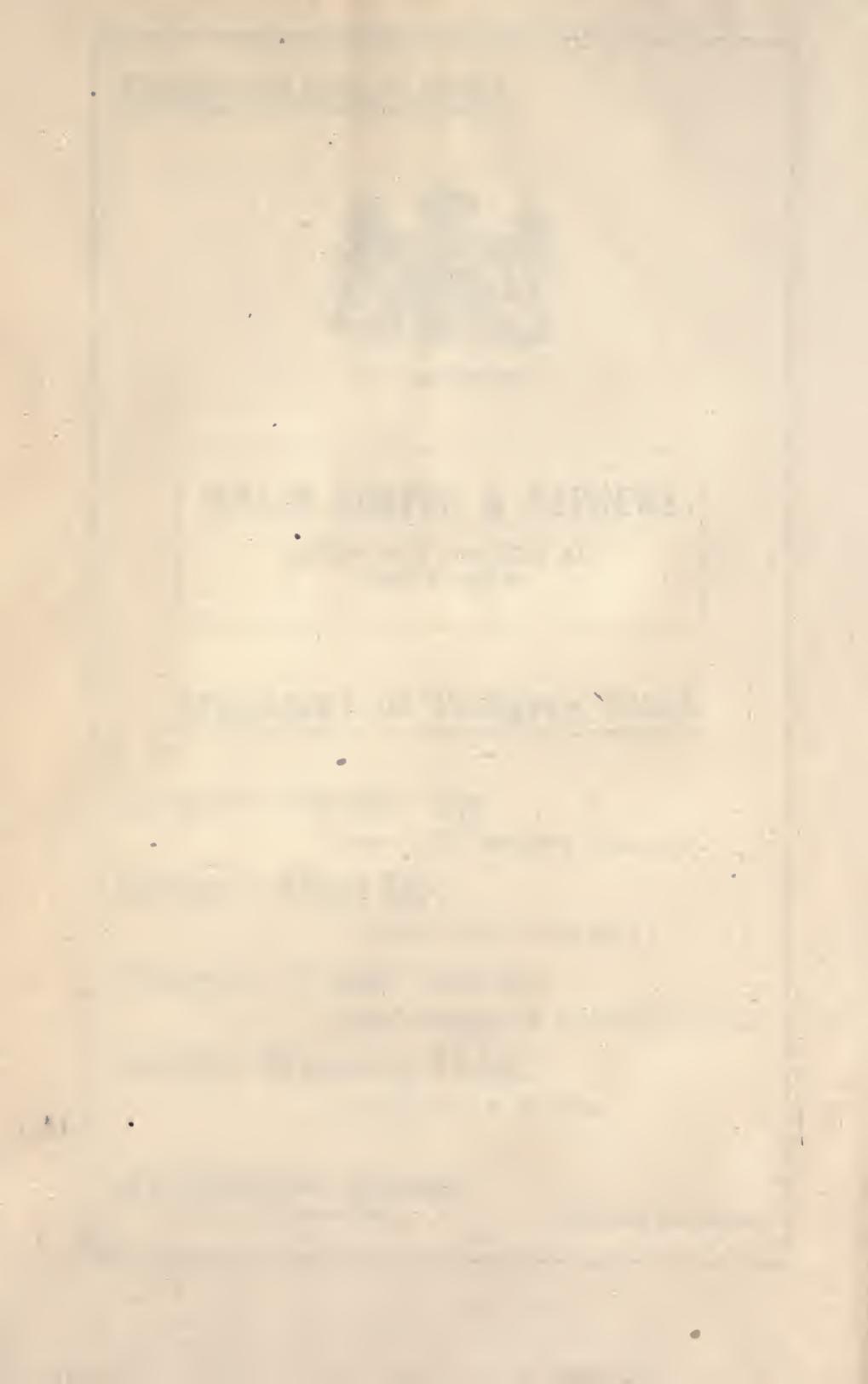
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