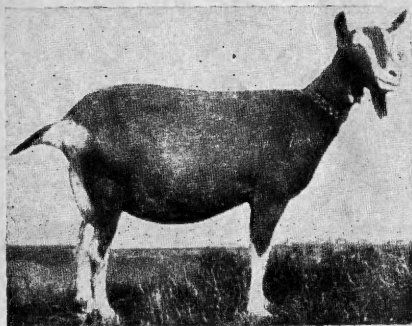


Profit and Pleasure
in Goat-Keeping



THE MODERN MILCH GOAT

By

Fred C. Lounsbury

PRICE 35 CENTS



Profit and Pleasure in Goat-Keeping

A PRACTICAL CONSERVATIVE TREATISE PRESENTING
IN CONCRETE FORM THE ADVANTAGES OF

The Modern Milch Goat

THE VARIOUS BREEDS, THEIR CARE AND MANAGEMENT

By

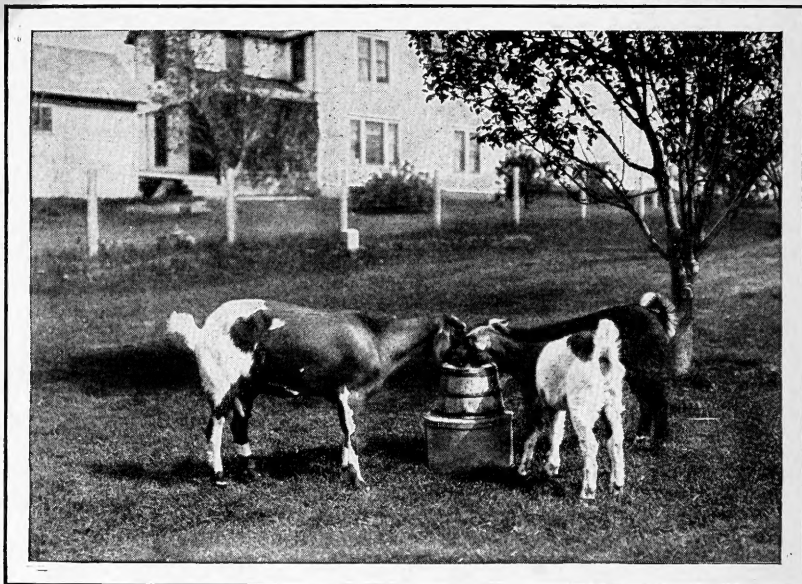
Fred C. Lounsbury

Plainfield, N. J.

PRICE 35 CENTS

PUBLISHED BY THE AUTHOR

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A THREE-QUARTER NUBIAN DOE AND KIDS.
(Owned by Messrs. Gillespie & Son.)



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no. 1.

INTRODUCTORY

From time immemorial, the milch goat has been an important factor in the life of mankind. In the Bible, we find it mentioned frequently as a source of supply of both meat and milk. King Solomon, the wisest of all men, said:

“And thou shalt have goat’s milk enough for thy food, for the food of thy household, and for the maintenance for thy maidens.” Proverbs xxvii, 27.

In many sections of Europe, goats are now found in large numbers, Spain alone being reported as having 3,680,000 and France nearly 2,000,000. In this country, they are rapidly becoming more popular as our people learn of their good points. They are used effectively for converting brush land into superior pasturage at little or no cost, while to the suburbanite or farmer they furnish meat and milk of superior quality and free from tubercular taint at lowest possible cost. *

The milk is not a cure-all; neither is every one so situated or constituted that they would care to undertake keeping goats; there are, however, very many people whose health would be greatly benefited by the use of the milk, and there are also many who could find both “profit and pleasure” in keeping a few for their home use or in breeding them for sale to others. It is for the benefit of such that this little book is written, and in it I will endeavor to state facts and conditions as I have found them through actual experience and careful investigation. *

Articles upon this subject which I have contributed to various publications, have brought many enquiries for further information, and herein I have endeavored to make suitable reply to same, realizing from my own experience, that beginners are anxious to get at the start, detailed information on many points that to the experienced breeder, may seem superfluous.

VARIOUS REASONS FOR KEEPING GOATS.

Those who keep goats are frequently asked why they keep them, and the following are among the answers given:

To obtain a regular supply of pure, rich milk, free from all danger of tuberculosis, at minimum cost.

To save the life or benefit the health of my child, myself, or some member of my family.

To provide myself a pleasant and interesting occupation for spare time.

To add to my regular income by selling the milk or by breeding and selling good stock.

To ride an attractive hobby, same as breeding fancy poultry, dogs, etc.

WHY MORE DESIRABLE THAN COWS?

This is another question frequently asked, and in reply I would say:

First—Because of their freedom from tuberculosis. Goats are practically immune from tuberculosis, while a very large percentage of all cows are affected. The U. S. Department of Agriculture in Bulletin No. 68, states as follows:

"It will probably never be known, just how many people contract tuberculosis by drinking the milk of tuberculous cows, but it is well known that the number is considerable.

"Doctor Schwartz, medical counsellor from Cologne, in an address at Frankfurt (1896) before the Association of German Naturalists and Physicians, directed the attention of the Convention toward goat's milk as a food for children, because goats rarely have a tendency to tuberculosis, and even when they have it, become infected by coming in contact with tuberculous cattle."

According to the Annual Reports of the Bureau of Animal Industry (U. S.), covering federal inspection of animals slaughtered for food, there were inspected during the eight years of 1907 to 1914 inclusive, 579,617 goats, of which not a single animal was condemned for tuberculosis. On the other hand, it is a well known fact that the condemnation of cows on this account is astonishingly large, 29,738 having been condemned during the single year of 1914.

Second—Because more available and more desirable to the average family.

In figuring the comparative costs and benefits of cow's milk and goat's milk it is safe to assume that on the average, one cow would equal eight goats, in both expense and production. In either case, the unit is one animal. He who would provide his own source of cow's milk, must keep at least one cow, and if the supply is to be continuous, he must keep two (as nature demands a rest between lactation periods), or trade in his dry cow at a greatly reduced price for a fresh one. If he adopts the former plan and keeps two, he will find at certain times he will have more milk than his family can use economically, while if he adopts the latter

plan, he will discover the difference between the value of a dry cow and a fresh one is so large as to greatly increase his expense account. In either case the care of the animals is a factor of considerable importance; however, if this can be provided for and the product consumed to an advantage, either as milk or butter, and the danger of tuberculosis combated by frequent tests of veterinarian, the proposition is a good one, as I know from actual experience. There are, however, many, yes, very many families where the cow proposition is impossible or impractical and where the desire for a supply of pure, wholesome milk is still present; and it is to this class that the goat proposition appeals. The single unit of one cow is too much for them, the goat makes it possible for them to divide this unit into eight parts; almost any family would gladly assume one-eighth the care and expense of a cow in return for one-eighth of the product, and the goat makes it possible for them to do just this thing; they can have one-eighth, two-eighths, or any number of eighths they may find desirable; by keeping the equal of three-eighths of one cow they can maintain a continuous supply, which with cow's milk, will require two cows or more than five times the units necessary with goats.

Eight good, fresh goats would cost more than one good cow, but on the other hand, many a man can afford to buy one goat, who could not afford a cow, and in a comparatively short time, the natural increase will provide additional animals at slight expense.

After the first expense is provided for, maintenance costs depend entirely upon the number of animals kept and will bear the ratio of eight adult goats to one cow. In the foregoing I have figured both milks on the same basis, which is hardly fair to the goat, as her milk has twice the food value of cow's milk and in cooking, our folks usually use half the quantity with an equal amount of water.

Third—Because of the comparative ease with which they can be cared for. The cow at best is a cumbersome animal and except on the farm, is unwieldy and not easily handled; her stable accommodations must be much more extensive; her droppings are very offensive and when her tail and flanks become fouled, she is a disagreeable proposition. On the other hand, any one can easily handle a goat; she will thrive in space too small for a cow; her droppings have no odor and may be swept away with a broom; her tail is short and her flanks do not become fouled, and with just a little care she always looks neat and tidy. In the summer she may be pastured or tethered almost anywhere and easily shifted from place to place. When only one or two are kept, the weeds and waste from the garden and scraps from the house will be almost sufficient for them.

The gentler sex are numerous in the goat industry and as a rule are very successful breeders.

HEALTH GIVING PROPERTIES.

Goat's milk needs but a trial to demonstrate its wonderful efficiency as a health builder. Testimonials in support of this statement from scientific men, physicians and laymen in all parts of the world could be furnished without limit, if necessary. The case is put so concisely by Dr. Knox of Danbury, Conn., that I take pleasure in quoting the following from a letter written by him in 1913:

"I have practiced medicine over forty years, as a general practitioner and consultant. In the past twenty years, office practice mostly. During that time I have had hundreds of babies and children brought to my office in all stages of malnutrition. Most of them had been treated by skillful physicians with all the generally approved foods and medication in vogue without benefit, and death seemed inevitable in many of the cases. Dr. Knox was the last resort of many anxious parents. All these little sufferers were put upon goat's milk whenever it could be obtained, as soon as possible and to their great benefit. The milk was sucked from a bottle, warm, and direct from the goat, not drank but sucked to insure more perfect digestion. Drugs were cast aside and in their place hygienic surroundings, sunlight, air, bathing, etc., was the only treatment. I wish to state that in every case improvement and good health followed. The milk of the goat is nearly identical in its composition to human milk, and makes the most perfect food for all invalids and children, particularly those having weak digestion or those recovering from disease. To get the full benefit from milk, it must be sucked through a nipple for children, a glass tube or straw for adults, as the saliva is its most active and principal solvent previous to its digestion and assimilation. By drinking it we are deprived of the saliva upon which success greatly depends. I can give many, many instances of chronic dyspepsia, gastritis, malnutrition, etc., in adults that are today in perfect health by its use alone, through my recommendation. In my own family, I keep Guernseys for their butter, but for fifteen years goats for milk that is wholesome, clean and free from tubercular deposits. It is most gratifying to me today to see prominent medical men in most all the medical journals of Europe and America recommending the use of goat's milk for the identical purposes that I have just referred to, also frequent articles in all the great daily papers and magazines of recent date calling people's attention to the manifold service to humanity that can be derived from our most valuable little milking-machine, "The Goat."

"Yours most respectfully,

"LOUIS G. KNOX, M. D."

A large majority of those now engaged as breeders became interested because of the fact that the milk had proven beneficial to them or some member of their family. My personal experience with it has been most remarkable. Suffice it to say that after suffering from indigestion for many years, I took to it as a last resort and decided to make myself "like" the milk, but to my surprise found that all the traditions which had been handed down about the milk being "strong" and of an objectionable flavor were pure fiction. The taste was delicious and while always fond of cow's milk, although unable to digest it, I found goat's milk much more

to my liking. For nearly two years it has furnished me my breakfast and supper without a single intermission. I have discarded all "aids to digestion," I eat a regular dinner at noon with a variety of food that I have not known for years and have had less stomach trouble in all that time than I had previously experienced in a single week.

Naturally I became greatly interested in the little creatures and have studied them closely. The statements which are made herein are based upon my own experience as well as that of other breeders of longer standing and the best known authorities on the subject.



EXPECTATION

REALIZATION

(Copied from a French Publication)

THE ANGORA GOAT.

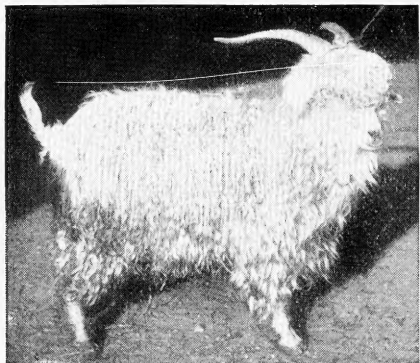
This is not considered a milch goat for although its milk is of good quality, the quantity is usually small. Its flesh is considered very good eating and many thousands are slaughtered annually in Kansas City and other western centers. They are excellent destroyers of brush-wood but are raised principally for their fleece, which is known as mohair and which when of fine quality and good length, brings very high prices.

They were first introduced into this country from Asia Minor, about 1848, but were bred only in a very small way until the past twenty-five years, during which time they have grown to be a very important factor among our animal industries, especially in the Southwest and on the Pacific coast where the climate is most suitable for them and where there are many large and profitable herds. It is said that there are at the present time over 2,000,000 Angoras in the United States and the number is constantly increasing. They are not desirable for crossing with milch goats, the short-haired common goat being preferable.

Some authorities claim that the Angora is more like the sheep than the goat and may be the result of a cross, while others of experience deny this and claim it is a perfect goat with all the essentials of that species, but in most refined form.

THE AMERICAN OR NATIVE GOAT.

A lady who had just been looking over my little herd, turned to me and said, "Why! I never had any idea there were goats like these; I always thought 'a goat was a goat.'" So it is with the great majority; when they hear or read of goats, their mind at once reverts to the common, coarse featured, bearded goat which one meets with in the suburbs of our cities and which is apt to be



A TYPICAL ANGORA FROM MRS. ARMER'S HERD

a non-descript animal of uncertain value. Of course, it sometimes happens that among them are found fairly good milkers, but as a rule they have been bred without any regard to the records of Sire and Dam and an investment except after the most strict investigation is more or less of a lottery. Most of these are kept by people of foreign birth, and if they happen to have an animal that is a good milker they naturally advance the price

accordingly, the usual charge being from \$10.00 to \$20.00.

SWISS GOATS.

Switzerland has long been noted for its Milch Goats, and Mr. F. S. Peer, who visited that country in 1904 for the purpose of selecting and purchasing for import to the United States the best animals to be obtained, remarks as follows:

"The goat of Switzerland is the Swiss peasant's cow, the Swiss baby's foster mother, a blessing to sanitariums for invalids, and a god-send to the poor."

Mr. Peer imported at that time some thirty animals of the Toggenburg and Saanen breeds and these, together with a few previous small importations furnished the foundation of the present supply of pure breeds in this country—all importations since 1905 having been prohibited by the U. S. Government.

It has been definitely proved that the Swiss Goat is superior to the ordinary American breed and while the pure Swiss is necessarily scarce and high-priced, there has nevertheless been incorporated much Swiss blood with that of our best American or native goats and these "grade" or "cross breed" animals are freely sought for by people who realize their advantages.

The Toggenburg is the most popular and numerous of the pure breed Swiss goats in this country and is a very attractive

animal. Mr. H. S. Holmes Pegler, Secretary of the British Goat Society and a recognized authority upon the subject says:

"This breed is said to be the result of a cross between the White Appenzell and the Chamoisee. The hair is usually short although with some of the bucks it is quite long and shaggy. Most specimens are hornless and in color they are uniformly of a light or occasionally rather dark drab, best described as mouse color, with white or grayish markings. There is always a streak on each side of the face and on the legs between the thighs and from the knees downward. It is of medium size with slender neck. The average height of the doe is from 28 to 29 inches at the shoulder, although exceptional specimens are somewhat larger. It is generally a good milker, quiet and docile. As a set-off against the liberal production of milk, it must be observed that the quality is poor, the milk of this breed and indeed of most Swiss varieties being deficient in butter fat."



Dr. Gordon's Toggenburg Buck "Ali Baba" No. 412 Champion and First Prize at Rochester Exposition, Sept. 1913, Age 3 Years, Height 36 inches at shoulder, Weight 175 pounds.

The U. S. Gov't Bulletin, previously referred to, says regarding the Toggenburg:

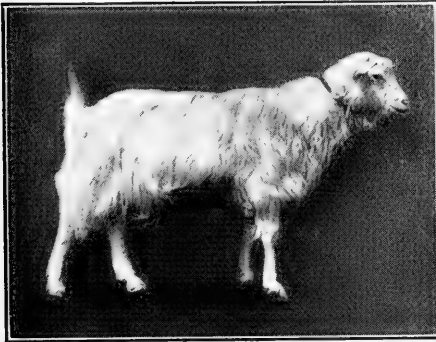
"This breed is called the aristocrat of the milch goat family; there are some breeds that are more hardy perhaps, some that are more prolific, some that will show occasional individuals of greater milk production, and several that present a more robust appearance, but the Toggenburg seems to combine in itself more of these characteristics in high degree than any other breed."

The Saanen, which is really the only other pure breed Swiss goat represented in this country, is much more scarce than the

Toggenburg. It is either pure white or creamy white, usually hornless and considerably larger than the Toggenburg.

Regarding them Mr. Peer says:

"As compared with the Toggenburg family, my observations lead me to say that, as a family, there are probably more large milkers among the Toggenburgs than among the Saanen, but that the best of the Saanen goats are superior to the best Toggenburgs. In other words, taking a given number of each breed as they come, I would expect the Toggenburgs to show the largest total yield, but among the best of each breed I would expect the Saanen to win."



Mrs. A. W. Lee's Celebrated SAANAN
BUCK VICTOR NO. 224; Sire of doe
with record of 13.4 lbs. Daily.

There are several other good breeds of Swiss goats but they are not freely represented here, and so far as the records show those that are here are not pure breeds. In fact, the entire stock of **absolutely pure breed** Swiss goats in the United States is very limited and the prices very high. On the other hand there is quite a liberal supply of cross breeds or grades in which, as previously stated, there is to be

found a liberal percentage of Swiss blood.

NUBIAN OR ORIENTAL GOATS.

In England the term "**Nubian**" was generally used to describe the Oriental lop-eared breed whether it was a real Nubian, Egyptian, Chitral or other similar Indian variety, and all of these Oriental breeds were more or less used in building up in England what is known as the Anglo-Nubian, which is a breed very highly prized there and which has become recognized as a separate and distinct breed and is now recorded as a pure breed there and also in the records of the American Milch Goat Record Association. Unfortunately, however, there are but very few in this country, and the kids command very high prices.

THE ANGLO-NUBIAN.

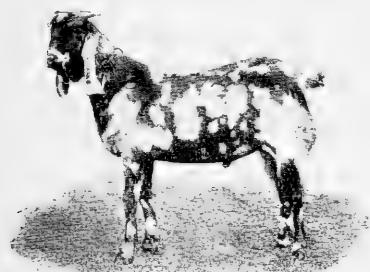
As stated, this is an English cross which has become a distinct breed, and according to Pegler, was built up by crossing the Oriental lop-eared buck on the native English does. He says:

"The points of a typical specimen of the Anglo-Nubian are as follows: Coat short, color preferably black and tan or reddish brown with or without black or black and white markings. The horns, if any, should be small; the ears long, wide and pendulous

or semipendulous. The facial line should be somewhat arched, the head neat, with a slight taper toward the muzzle, which is small, and in the female without beard. The eyes should be large and full and the forehead wide."

THE NUBIAN-SWISS OR AMERICAN NUBIAN

The Nubian, Anglo-Nubian, Nubian-Swiss or American Nubian all have the same general characteristics which are exhibited in the various animals according to the percentage of Nubian or Oriental blood and the good points of the foundation does. In general the description the Anglo-Nubian answers for all. They are the largest of all milch goats, bucks weighing from 200 lbs. up, and matured does from 120 to 140 lbs. There is no fixed coloring, black, tan and red with or without white predominating. Occasionally solid color is shown, making a very attractive appearance and they are sometimes spotted or piebald, which produces a very striking effect. Their ears are long and pendulous or semi-pendulous and frequently peppered with small white spots. They are both horned and hornless, but the true Nubian never has large horns. I have a three-quarter Nubian doe whose horns are thin, flat and ribbon-like similar to elongated finger nails. They can be trimmed close to the head without bleeding and are shed at intervals and replaced with others of similar nature. They are short haired, although the bucks sometimes have longer hair on neck and back. They have no beard and no wattles or bells on neck and have a very sleek general appearance; forehead is somewhat conical or convex with nostrils delicate and



SEDGEMERE CHANCELLOR
Imported from India to England
and largely used in building up the
Anglo-Nubian.

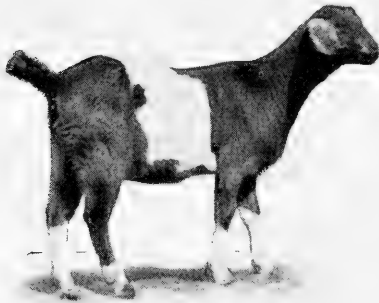
somewhat depressed. They are liberal producers of very rich milk, grow rapidly and mature much younger than the Swiss breeds. **A distinctive and very important characteristic** is that the objectionable odor so prevalent in the bucks of other breeds is almost entirely absent in the Nubian bucks, making it possible for the small breeder with limited space to keep his own buck if desired.

REGARDING CROSS-BREED GOATS.

On the question of cross breed goats, Mr. Pegler in his "Book of the Goat" states as follows:

"From my own experience, excepting the Toggenburg, I do not consider that for practical purposes a pure specimen is always the best. As far as milk goes, a cross breed goat, so long as it possesses a good milking pedigree, is quite equal to one of pure

blood. There is no doubt that by a combination of Nubian or Anglo-Nubian and the Swiss breeds handsome animals and splendid milkers are to be obtained. The poor quality milk, as regards butter fat, which is the one failing of Swiss goats as milkers, is compensated for by the Eastern blood, the milk of the Anglo-Nubian being much richer. The crossing of the Nubian with the common short-haired goat has been practiced in France with the same degree of success as in England. The Nubian goat, like the Mamber or Syrian has the character of giving milk very rich in butter fat, and this quality is shared by the Anglo-Nubian as a rule, while the Toggenburg and other Swiss breeds yields a milk that is usually poor in this constituent. A good illustration of this fact which has been proved by repeated experiments is shown by the Analyst's Report of the milks of goats competing for the milking prize at the Dairy Show of 1907, in which it is clearly demonstrated that the Anglo-Nubian leads all others."



A $\frac{7}{8}$ NUBIAN DOE KID 10 months old from author's herd.

The author and a pair of NUBIAN-SWISS KIDS, 4 weeks old.

PEDIGREE.

Pedigree should always be carefully considered, whether one is purchasing pure breed or utility stock, for the reason that all pure breed does are not necessarily heavy producers and utility stock ceases to be such if not continually bred from the best milkers; the term "best milkers" applies with equal force to both sire and dam, and a sire that is all right in every other way and yet out of a dam with a low milking record should be discarded. Our Am. Milch Goat Record Association affords ample facilities for tracing the purity of registered stock, but unfortunately we have as yet no way in which one may ascertain from the records the milking qualities of any breed or strain, whether pure breed or utility stock. The purchaser must rely entirely upon the word of the seller and for this reason it is advisable to deal only with breeders of known reputation and reliability.

PURE BREED STOCK.

To him who has ample funds to invest, pure-breed stock must appeal strongly; among them are many animals of great beauty and some wonderful milkers, and to produce in one's own herd a

few prize winners must afford unlimited satisfaction. On the other hand pure breeds of any variety are scarce and high priced, extra good animals exceedingly so, and the production of prize winners is a slow process. Every breeder, however, is interested in pure breed stock and will naturally aim to build up the quality of his herd, and in doing this nothing is more necessary than a pure breed buck or one as nearly so as circumstances will permit.

UTILITY STOCK.

The great majority of people, when purchasing a goat, consider first the milk pail; what they want is milk and then more milk and from their standpoint this is the natural and correct attitude. It makes no real difference to them whether the goat is registered or not, whether she is Toggenburg, Saanen, Nubian or Cross-breed, so long as she produces the fluid. It costs no more to feed a goat giving two or three quarts than one that gives only one quart, and the buyer is quick to see that such a goat is well worth the additional price charged. Many of the best milkers are cross breed or grade does and when Mr. Pegler speaks so highly of this class of stock, he is but voicing the opinion of our English cousins in general, who are generations ahead of us in the industry and who with every opportunity to select the best, built up the cross-breed Anglo-Nubian strain, which for many years has captured practically all the prizes for best milkers in their goat shows.

To the beginner, two courses are open. First: to start in with pure breed stock and stick closely to it.

Second: to purchase utility stock and improve it as rapidly as circumstances will permit. Each must decide for himself; most of us adopt the second plan.

THE DOE.

Whether pure breed, cross breed or common native stock, there are certain characteristics which distinguish the female capable of good milk production and which the purchaser will do well to consider when making a selection. The head should be neat and feminine (not coarse and rough looking) with forehead broad and tapering toward the muzzle. The body should be long and deep with ample room for a large stomach. Authorities seem to agree that a heavy milker is generally wedge-shaped, that is, much deeper at the hind quarters than at the chest. Thinness is no fault if the goat is a good feeder; the skin should be loose, with hair rather soft and fine. Regarding the udder, Pegler says:

“A goat may have an immense udder and yet give a comparatively small yield, for the simple reason that it is composed mostly of flesh instead of milk. It should not only be large but thin in substance and soft to the touch. When quite full, it will be greatly distended, but after milking should shrink to a very much smaller size. Such an udder when the goat is dry would appear very small.

The teats should be situated fairly well apart and point forwards, the nicest being those that are long and tapering and of a size easily grasped in the hand. The udder should by preference be round rather than long and narrow, though it must be admitted that many heavy milkers possess bags of the latter shape."



ANGLO-NUBIAN DOE

Bred by Rev. D. C. Mayers, Va.
Pegler refers to this goat as having perfect udder.

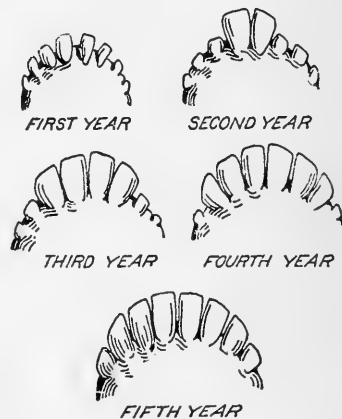
Always avoid a goat that appears dull and languid. When in good health they are alert and very active, with eyes bright and snappy, nose dry and nostrils moist, with mouth and gums a bright red.

HOW TO DETERMINE AGE.

It is not difficult to determine the age until after the animal is 5 years old. The accompanying illustration from Bryan Hook will be found helpful. During the first year of a kid's life its teeth are small and even and sometimes separated as shown. The second year the two front teeth are much larger and higher. The third year adds two more large teeth. The fourth year two others and the fifth year two others yet, which completes the set. After this time, the only way to know a goat's age is from the records and from general appearance.

THE BUCK.

The buck is an important factor; if milk is the **only** consideration, one may secure at a nominal expense the services of any buck which may be within easy access, but if it is the intention to raise the doe kids as milk producers, it is important that they be sired by a buck of known qualifications, one that is out of a dam with a good milk record. This may necessitate shipping the doe by express to party owning such a buck. I am of the opinion, however, that when three or more does are kept, a more satisfactory method is to keep your own buck. This may seem objectionable and so it is with most bucks



How Goat's teeth indicate age.
(Copied from Bryan Hook.)

(unless you have a separate

building for them) especially after the first season, when their odor becomes much more pronounced. With the Nubians the odor is almost entirely absent, and with proper care they can be kept in the same building with the does, although this is not desirable if it can be avoided. If kept in the same building he should be removed as far as possible from the does and given a good sized box stall and separate run, as exercise is very essential; if broken to drive to wagon the light exercise will keep him in good condition. Be careful not to overfeed, especially when not in heavy demand for breeding purposes. An occasional bath, when not too cold, and thorough grooming is good for all goats, but especially the buck. Bucks mature early and kids born in the Spring can be used for light service in the Fall.

Most breeders of thoroughbred stock, advocate the use of thoroughbred bucks only, and while this is desirable, it is not essential; a good grade buck kid can be purchased for much less and it is a good plan to purchase such an one in the Spring or Summer and after breeding him to your does in the Fall, dispose of him and purchase another the following year, getting a pure breed as soon as you can afford it. Another good plan is to purchase a doe that has been bred to a pure breed buck and if she should produce a promising kid, raise him for your own use. The expense of keeping a good buck is more than compensated for in the increased value of the kids produced.

MATING OR BREEDING.

This is a question that should receive careful consideration, especially if several goats are kept with an idea of a continuous milk supply. Probably ninety per cent. of all female goats come in season for breeding in the Fall and Winter, say between Sept. 1st and Feb. 1st., and will not mate at other times. A good plan for the beginner is to purchase a doe that is due to kid in the Spring and later on purchase another due to kid in the Fall. Those that freshen in the Fall are hardest to obtain and command the highest price, but it is necessary to have at least one such if the milk supply is to be maintained. My first purchase was two young does and a buck; both does had kidded about March 1st, and one had been bred for the second time and kidded Oct. 26th, and this doe has regularly come in season three months after kidding, without regard to time of year and kidded every eight months, producing first, one kid, then two, then three, and then three more. She is not a heavy milker but as a breeder she is a wonder.

If not mated when first coming in season, a doe usually repeats every three weeks until successfully mated, especially during the Fall and Winter; at other times it is more uncertain and may not continue more than 24 hours, while during the Fall and Winter it usually lasts about three days. If one has a buck on the premises, mating is often possible, which would not be the

case if the doe had to be sent away. Breeders who have stud bucks usually hold does over one term of three weeks.

When in season (or heat) the doe becomes very restless, wags her tail rapidly and bleats in a peculiar plaintive way (which is quickly answered by the buck if within hearing) her milk supply slackens and the vulva shows signs of excitement.

If breeding is desired she should be placed in the pen with the buck and they will quickly make friends; after one or two services, she should be removed; if breeding is not desired she should be kept as far away as possible until she becomes normal again.

REGARDING EARLY BREEDING.

Much has been written regarding the proper age for breeding does and there is a wide difference of opinion upon the subject. To my mind much depends upon the individual animal and breed. It is well known that human beings reach maturity much younger in warm climates and it is not surprising to find that goats from warm Oriental countries mature more rapidly than those from the snow-clad mountains of Switzerland. It is true that Swiss does born in the Spring can usually be bred the following Fall or Winter, although much smaller than Nubians of the same age. Breeders of experience with Nubians claim that early breeding makes no difference so far as quantity of milk is concerned and only about 20 per cent. in the weight of the matured animal. As an example of early breeding, I would mention Wigmore Brownie No. 464, a pure breed Anglo-Nubian, who kidded for the first time when thirteen months of age and before she was five years old, had kidded six times, in the months of May, April, January, September, March and January. Another case is that of a Nubian-Swiss doe (3-4 Nubian) that was born Feb. 15th, mated July 28th, (right in the middle of Summer) and kidded Dec. 24th, when only 10 months and 9 days old. She was almost as large as the average goat at maturity and produced an extra fine kid. While not especially advocating such a course, these cases are mentioned to show that breeding can be regulated to suit the wishes or requirements of the individual breeder.

Mr. Pegler in replying to the question as to what he considered the proper age for breeding does (as published in "The Case For The Goat" London, 1908) says:

"This greatly depends on whether the goat is to be reared for exhibition or only as a milker. In the former case, it should not be allowed to have kids until two years old. In the latter case, I see no objection in putting a kid born, say, in February or March to the male in the succeeding December, so that she brings forth when about fourteen or fifteen months old. Her growth may be somewhat sacrificed and she may not attain the size she would in the former case, but her milking qualities are certainly not likely to be impaired."

From the "Barbados Advocate" giving an account of the an-

whether the milk is used or not, Personally, I do not care for this plan, principally because I do not care to use the milk for ten days or two weeks, (the same is true with a cow), and it is much more convenient to have the kids do the milking, and by allowing them to continue until three or four weeks of age, they can then be killed and dressed for the table and make the finest kind of a roast.

If the kids are to be raised, the simplest method is to allow them to run with the dam all the time for six weeks (longer if milk is not required), then separate entirely or separate them during the day and put them together after the evening milking; after two to four weeks on half rations, they can be separated entirely. The other method is to separate the kids from their mother when two or three days old and bottle them, milking the mother night and morning and giving the kids such quantity as necessary, gradually shifting over to cow's milk or calf or lamb meal, which is prepared for this purpose. If the kids are to be bottled, they should be started promptly, as after a week or two it is much more difficult to break them to it. Kids will nibble at hay, grass, etc., when only two weeks old and at six weeks, will be eating bran, bread, etc., and can be fully weaned if desired. Each one must handle the matter according to their own requirements, giving the kids or the milk the preference, according to which may be the most valuable.

FEEDING, ETC.

The notion that goats require no care and thrive on any old thing in the way of feed is of course ridiculous. If compelled by necessity, they will pick up a living under adverse circumstances, but if results are desired, proper care and feeding must be given. I kept cows for over twenty years and know by experience how quickly they respond to proper treatment and so it is with the goat. Goats, however, will do well on a diet that would hardly do for a cow. They prefer leaves and twigs of trees, bushes and weeds rather than grass and will eat with great relish all ripe or unripe fruit, vegetables, parings, bread crusts, etc. All food must come to them clean as they will eat nothing that is dirty or greasy. While giving milk, they should have about one pint of grain morning, noon and evening, and if confined should have all the hay they will eat; alfalfa, clover or mixed hay being much better than timothy and cheaper. They stand confinement well if allowed a small yard or enclosure for exercise. This winter I am stabling 10 goats in one building (3 of them in milk), and find it requires about 45 minutes morning, noon and night to properly care for them and the cost for all feed is about \$1.25 each per month.

The cost of feeding will vary according to conditions. In the foregoing, the figures are based upon cost of feed in Plainfield as follows:

3 Bags of Oats, at \$1.50	\$4.50
100 lbs. Bran	1.60
100 lbs. Cracked Corn	1.90
	\$8.00

This supply was sufficient for ten goats for two and one-third months or \$3.43 per month or \$4.12 per annum for **each** goat for grain only. During the same period they were fed clover hay, which was purchased at \$22.00 per ton delivered and which carefully figured averaged ninety cents per month for each goat or \$10.80 per annum. Adding this to the cost of grain makes the total \$14.92 per annum for each goat. Please remember that **these figures are for winter time** when the goats were confined and stall fed. During this period they had but little in the line of roots, the party from whom I had expected to get mangels having disappointed me. Of course if these had been used less hay would have been consumed and the net cost would not have been increased.

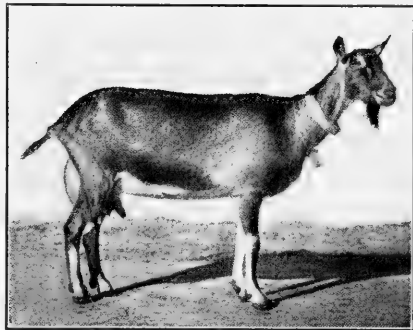
I use principally oats and bran, changing occasionally to corn and have a tin measure holding one-half pint. A goat in full milk receives one measure of oats and one of bran three times a day and all receive all the hay they will eat. It is much better to under-feed than to over-feed. If they do not eat their allowance of grain quickly, remove it and feed less or change to cracked corn. Any cereals cooked or uncooked, bread crusts or crackers will be relished, provided they are kept clean and not mixed with table scrapings. During the summer they may be pastured, tethered or kept in an enclosure and their green food brought to them. If pastured or tethered, remember that by nature they are browsers and do not graze like cattle, preferring twigs and leaves of trees, bushes and weeds and passing by good grass. The hedge rows along fences and roadsides provide most excellent feed and it is wonderful how quickly they will improve the appearance of such places. If kept in an enclosure, they can be fed cuttings from trees and bushes, weeds from the garden, pea vines, beet tops, waste lettuce, cabbage, corn stalks, etc. Roots and vegetables can be fed in season and stored for winter use; mangels, turnips and carrots are perhaps most desirable. They are very fond of pumpkins or squash, eating seeds and all with great relish. Be careful, however, not to feed frozen roots especially to does with kid as it may result in abortion. If obtainable, good sweet silage will be found an economical feed. All roots should be clean and cut into small pieces or run through a root cutter. Windfall apples or pears treated in the same manner are an especial relish. Last summer I fed quite a few small peaches that dropped from the trees and it was amusing to see the goats pick them up, squeeze out the pit and smack their lips in evident pleasure as the juice trickled from their mouths.

From the figures I have given it will be observed that in winter the main item of expense is the hay and as this is largely eliminated during at least six months of the year, the actual cost for the full year will be found **much less than \$1.25 per month**. When good browsing is plentiful, a herd of goats can be kept in good condition without other feed and at practically no cost.

Good drinking water is essential and though but little will be consumed when green food is plentiful, it should be offered them at least once a day and they should be encouraged to drink as much as possible. A heavy drinker and a hearty eater is likely to be a good milker. All vessels used for water should be kept scrupulously clean. I use crocks entirely for both food and water, (the size made to hold five pounds of butter) and find them much superior to tin pails and wooden boxes. They fit in the mangers nicely and can be cleaned readily .

I place a piece of rock salt in a small receptacle built in a corner of each stall. It is one of the simplest and best methods of keeping your stock in good condition. It is really a necessity and should always be accessible.

Study your goats. You will find individual likes and dislikes for various articles of food, some refusing what another will eat with a relish, some requiring more and some less to keep them in condition. Young stock must be kept growing and it requires sufficient foot and plenty of exercise. Give them a chance to run and jump and watch them grow.



SCHWARZENBURG-GUGGISBURGER
Excellent milkers but scarce in the U. S.

Right here it may be well to advise caution in starting goats on pasture after a winter of confinement. The green food tastes good and they are apt to eat too much. Let them have only a short time, (say half an hour) the first day, and increase gradually until they become accustomed to the change. The same pasture lot should not be used continuously unless it is large or the number of goats small so as to afford constant change. While one acre would be sufficient for two or three goats for two seasons, it should not be used after that as there is danger of their becoming infected from fouled ground. Move them to another lot and have the first one ploughed and planted—in other words rotate.

Goats will not thrive on low marshy land. Rough land suits them best, but it should be dry.

If proper pasturing cannot be obtained, it is much better to keep them confined to a run just large enough for exercise and bring their green food to them.

Autumn leaves gathered and stored when dry make excellent winter feed and very economical bedding which, however, is not necessary except in very cold weather, goats preferring bare wooden floor, if dry and elevated above the regular floor. Goats usually refuse plants that are poisonous to them but sometimes when hungry for green food may "take a chance." It is well to keep them away from Privet and Rhododendrons.

HOUSING.

The editor of a popular agricultural journal recently wrote me on the goat subject and from his letter I quote the following :

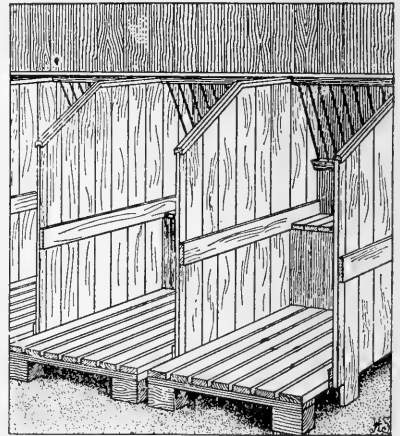
"The trouble is that the average person thinks that he can get a goat that will live in a piano box, yet will subsist on old rubber boots, sand and tin cans and give as much milk as a small cow and at the same time be bought for \$5.00."

Now, absurd as this appears, it is nevertheless true to a great extent. The average American has obtained his impressions of the goat from those which he has seen wandering around the streets on the outskirts of our cities, picking up a scanty living on what they could find and resting at night in the chicken coop or woodshed and naturally when he hears or reads of goats his mind reverts to these early impressions, the "**Modern Milch Goat**" being entirely unknown to him.

I well remember a case that came to my notice some years ago, where a man kept two goats in a very small shed with about a dozen fowls. There was no window in the building and an over-abundance of fresh air was admitted through numerous cracks where the boarding failed to connect. The owner complained that he "did not get much milk during the winter although they did well in summer."

All food producing animals will repay their owners in strict proportion to the care given them up to the limit of their ability.

Hens that are improperly housed and fed will lay the minimum number of eggs and cows or goats treated in similar manner will respond with a minimum supply of milk.



Goat stalls built against the wall of building
(Copied from Bryan Hook)

nual show of the Barbados Goat Society held Dec. 16th, 1914, I quote the following:

“The indications are that in the near future the goatling class will be dropped entirely as the experience of a number of goat keepers in Barbados has taught them that after the age of eight or nine months it is not advisable to postpone breeding their young stock. When kept back until after they have cut two broad teeth they often start yielding milk, and are not so likely to produce kids. Full growth and development of the milking habit may be given time for, between the first and second litters of kids.”



The late Mr. Fuller and his 3 Spanish Maltese Does. Mr. Fuller kept goats and used their milk for ten years and found it exceedingly beneficial as a health food.

KIDDING.

The period of gestation is from 147 to 154 days (usually 148 or 149), and does seldom need any assistance, but had best be left to themselves while kidding. The milk should be dried off five or six weeks before kidding, if they do not naturally stop the supply before that time. They should be kept in a box stall, separate from other goats and under no circumstances tied up. Their grain rations should be gradually diminished and discontinued entirely a week before kidding; care should be taken not to allow over eating of green food and for the last few days they are better off in the stable with a supply of good sweet hay; the drinking water should not be real cold and should not be left in the stall. I make it a practice to give immediately after kidding a drink of oatmeal

water, made by pouring boiling water on a half pint of common oat meal and straining after it has cooled to luke-warm; the oat meal itself can be saved and fed to the other goats. Goats usually



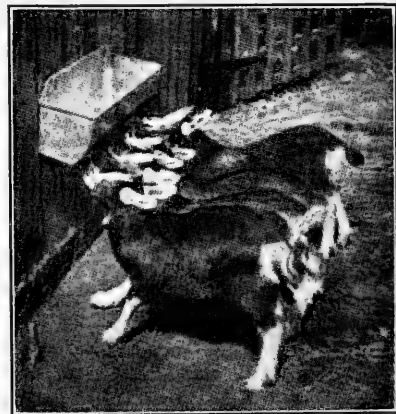
The kids soon become accustomed to the bottle and attached to the person who feeds them.

kid during the night and I prepare the oatmeal water as soon as I discover the kids and then follow with a bran mash, made by pouring boiling water over a quart of bran and covering same with a cloth or blanket and allowing to stand for several hours when it should be fed just as it is; this has a good effect on the bowels and at the same time is very good feed. Do not begin to feed grain again for several days and then start in with a small allowance and see that the drinking water is not real cold. It sometimes happens that the udder becomes over-distended **before** kidding; in such cases a portion of the milk should be withdrawn.

CARE OF THE KIDS.

The kids are usually on their feet in an hour or so after birth and soon find their mother's teats. If they fail to nurse in three or four hours, it is well to give them a start; usually one lesson will suffice. It is very essential that they get the first milk or colostrum, which while unfit for human consumption, is very helpful to the new-born kid, starting his digestive system off in proper shape. The flow of milk at first is usually no more than the kids require, but if the udder indicates a surplus, it is a good plan to milk it out once a day until the kids consume it all.

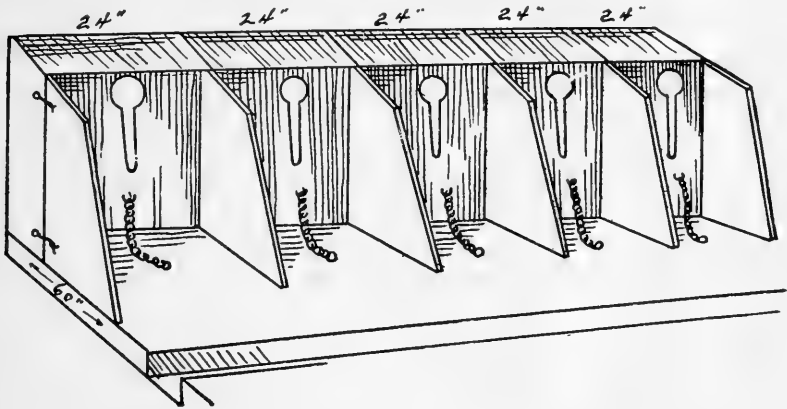
When milk is the primary consideration and the kids are not considered worth raising, they may be killed before starting to nurse, when the mother will miss them less, and the goat milked regularly,



Feeder for rearing kids by hand
(From an English publication.)

USING OLD BUILDINGS.

'Tis true that almost any building will answer for a goat house, but if best results are to be obtained, it must be made comfortable. It must be absolutely dry with a tight roof that will keep it so. A floor of earth will not answer; at least a portion should have a tight board floor elevated a foot or so upon which the stalls (if any), should be built. If concrete floor is used, care should be taken to see that it is higher than the surrounding ground and unless a board platform is built over it, the bedding in cold weather should be at least six inches deep as concrete floors are cold. The building should be papered and boarded on both the outside and inside to insure warmth. The door and windows



Stalls with mangers in front, as used by Rev. D. C. Mayers, and shown in *Am. Standard Milch Goat Keeper*. The openings enable the goats to feed from mangers without drawing hay under foot. I have same plan with openings cut square instead of circular; the bottom portion should be $3\frac{1}{4}$ inches wide and the upper 7 inches for most goats.

should be on the warm side and the latter should be large enough to admit plenty of sunlight in winter and air in summer. There should be a small opening for ventilation, near the top, which should be covered with wire netting on the outside and fitted with a slide so that the size of opening may be regulated according to the temperature. A coat of whitewash, spring and fall, and an occasional sprinkling of any good disinfectant will keep it in good sanitary shape, provided of course that it is cleaned at regular intervals and is not over-crowded. If they eat the lime, it will do no harm and is rather beneficial. Most places have a barn or out-building that with a few changes can be converted into a goat house. Poultry houses are frequently used but under no circumstances should the same building be used for both at the same time as chicken lice will be apt to attack the goats and prove a serious trouble. For this reason, if a poultry house is used, it should be thoroughly cleaned and disinfected before introducing the new

occupants. If the ceiling happens to be high, a temporary covering of light boards or an old blanket over the tops of the stalls will do wonders toward making it snug and warm where the winters are very cold. For summer use, nothing is better than an open shed facing the south, tight on the north with tight roof, free from draughts and a sleeping platform in the rear.

MAKE IT CONVENIENT FOR KEEPER.

Whether an old building is used or a new one erected, it will pay to plan it carefully before proceeding with the work, taking into careful consideration not only the comfort of the goats but the time of the one who is to care for them. A little forethought will save many steps and make the work more agreeable all around. As aids to the goat keeper, I would mention the following:

First—Milking stand. This is almost indispensable and will repay many times the small cost of making it.

Second—A small feed box close to the stand, provided the main supply is not conveniently located.

Third—A convenient opening through which the manure and litter may be broomed, or a small wheelbarrow (that may be passed through the doorway) in which same can be removed: if only one or two animals are kept, a covered galvanized iron pail may be used.

Fourth—An opening for the goats to pass from house to run independent of the regular door.

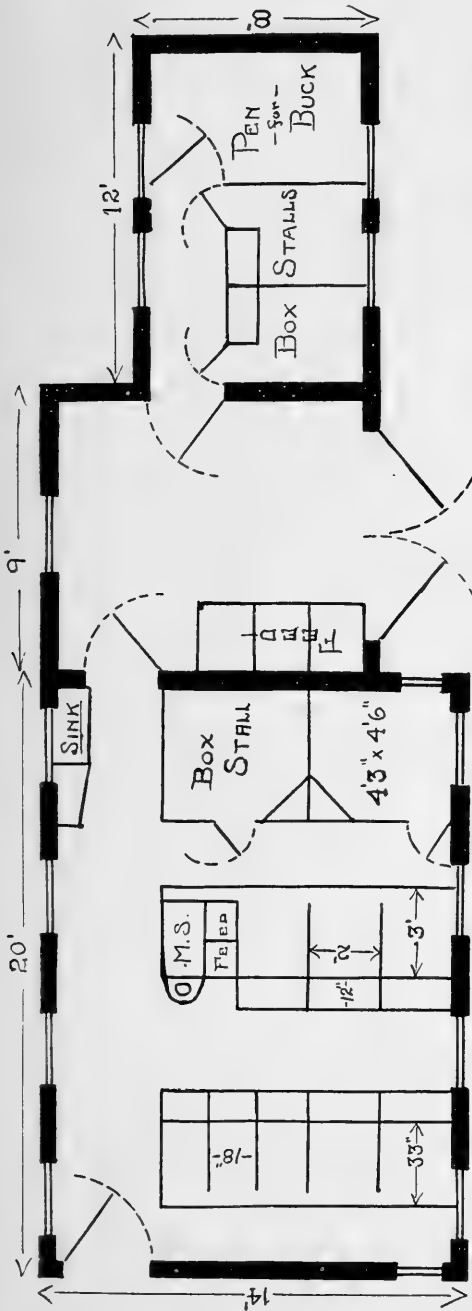
Fifth—Each goat should have a strong collar and ring. This is necessary, if fastened in stall, and will be found very convenient in handling the animals.

Many other minor conveniences will suggest themselves to the thoughtful keeper, varying according to circumstances.

Where only a few goats are kept, separate stalls are not absolutely necessary as they can be allowed to run together in one large stall. In fact, two does in a nice box stall is an ideal arrangement, if they agree, as they are fond of company. However, there may be difficulty in feeding the grain, as one may insist upon having both portions.

From the illustrations, a general idea will be readily obtained of how separate stalls may be arranged; personally, I do not care for the stall where the goat faces the wall of building with hay-rack against same. The arrangement whereby the goat may be fed and watered from a manger to which the keeper has access from the front is much superior and if properly located will give the occupant more air and sunlight and be found very much more convenient.

I have studied the plans of a number of buildings arranged to accommodate from 6 to 30 goats, but so far I have found none



THE AUTHOR'S GOAT HOUSE

The main building is 14 ft. x 20 ft. outside measure, with concrete foundation extending 16 in. above the ground except at doorway; frame of 2x4 paped and boarded outside and inside; the ceiling is 7 ft. with small loft above; floor is concrete; stalls are built on wood platforms 9 in. high at front and 7 at back; floor of platform is of matched boards and at the back extends 6 in. over the frame on which it rests; partitions between stalls are solid and 3½ ft. high at front with slope toward back.

Front window sills are 4¼ ft. from floor and windows extend to ceiling, being hinged at top to open in and have screens on outside; beneath the windows are drop doors opening to runs of which there are three, two at front and one at end of building. Windows along aisle are lower and arranged to slide and are provided with screens in summer and tight shutters in winter.

Covered feed box (for grain) with two compartments is built on platform between stalls and milking stand and is a great convenience; milking stand is 16 in. wide and 15 in. high from floor; it is built on the platform which forms step at back; it is level and space beneath is convenient for curry comb, brush, etc. The stand is provided with stanchion and shelf in front to receive food crock.

We use crocks for food and water; they are style made to hold 5 lbs. butter; are 7 in. in diameter and 5 in. deep; they are much more sanitary than wooden boxes.

The mangers extend over the floor and the bottom of same is 17 in. above floor; in this space beneath mangers a shelf is built to hold empty crocks, etc., also closet for tools and small articles.

Hay is thrown down in space between mangers whence it can easily be distributed. Sawdust or litter is kept on floor in rear of stalls to absorb moisture.

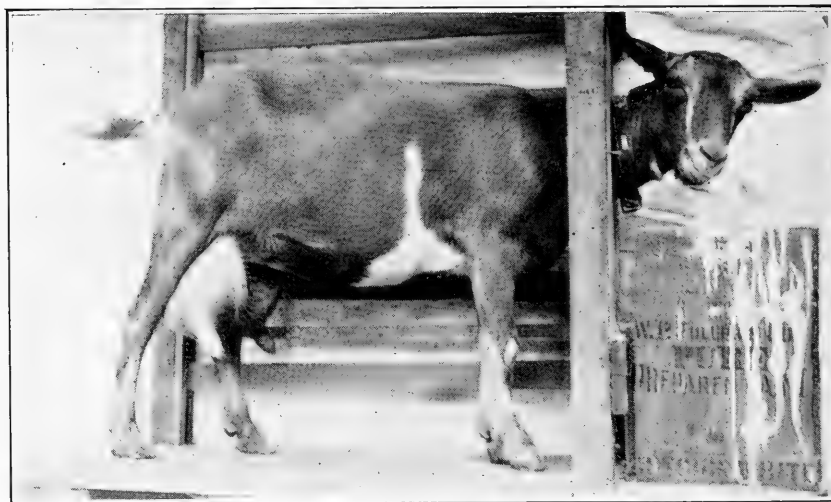
When weaning kids, we put them in box stall, with their dam in regular stall in front of same; as they can see each other they make but little noise; one stall is provided with removable top to prevent extra active youngsters from jumping out.

A lump of rock salt is kept in small box in corner of each stall. The main building is designed for 5 goats and 3 goats; the box stalls being reserved for kidding time and for growing kids; the annex is used for buck and young stock when necessary. We are running the main building full with 10 goats and find it very convenient in every particular. It is rat proof, sanitary, easy to keep clean, cool in summer and warm in winter. The buildings face the south-east and get the early morning sun.

that I thought quite as good as my own, the illustrations of which are shown herewith. This building was originally built for a brooder house for young chicks and as such did service for many years. The original building (14x20) was later added to by linking on to it another poultry building 8x12, making a feed and workroom 9x11 between them; the floor plan and description will, I believe, convey a very good idea of how it is arranged.

MILK

The city girl who asked the farmer which cow gave the butter-milk, displayed no greater ignorance than many others who seem entirely unaware of the why and wherefore of the milk question. They have the idea that a cow begins to produce milk as soon as she is grown and continues to do so without interruption, during the rest of her life.



Mrs. L. O. Rhodes' VERDA NO. 704 A young Toggenburg Doe from unregistered parents. Produced 82 lbs. 15 ozs. milk in 7 consecutive days.

As is generally known, all mammals produce their young in a dependent state, so far as food is concerned and their only supply is from the mammillary glands of the mother, which are excited into action by the process of reproduction and the birth of the offspring. Nature provides this supply (which we call milk) only so long as it may be necessary for the young, or until such time as they are in condition to thrive on the natural food for the adult of the species. If the young should die before being weaned, the milk supply will soon cease.

Man early discovered that the milk of certain animals was excellent food for human beings and usurped the place and priv-

ileges of their young; he also discovered that by continually exhausting the milk stored in the udder, a demand was created for further supply, which Nature endeavored to furnish, until all tired out, she went on strike and shut down to recuperate the exhausted organs. After a rest, a second birth produces a second lactation period and so on to the end. Man, ever anxious to get the most from nature, found that certain animals in each species, excelled in the quantity of milk produced and in the length of lactation period and by carefully breeding from these individuals, has gradually evolved the Modern Milch Cow, which is so different in all essentials from the original stock as to constitute almost a distinct species. All this applies with equal force to the **Modern Milch Goat**.

ARRANGE FOR AN EVEN SUPPLY.

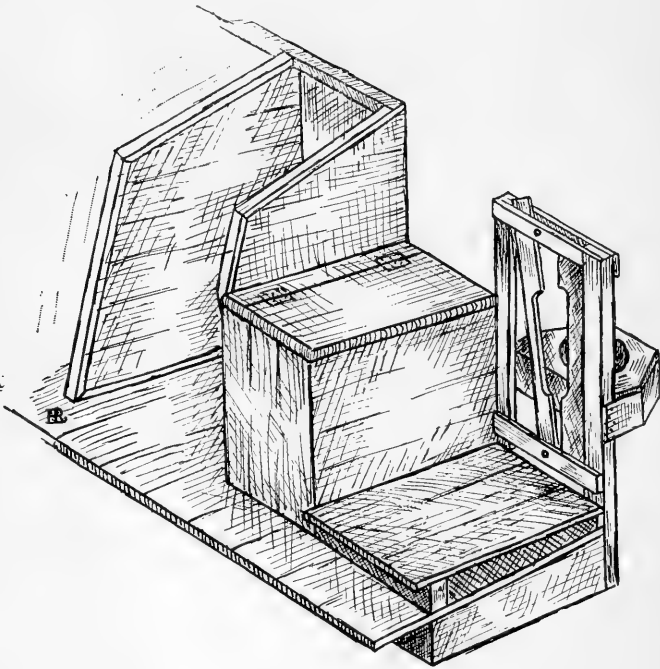
The gestation period of the cow is nine months and the lactation period from eight to eleven months; the next gestation is usually begun about three months after the birth of the calf, so as to avoid too long a "dry spell" between lactation periods. The gestation period of the goat is a little less than five months and the lactation period from six to ten months, the succeeding gestation being started about six or seven months after the birth of the kids, although with some goats it is possible to breed them about three months after kidding, getting three sets of kids in two years; however, as a rule it will be found more satisfactory to have them kid once every twelve months. Each breeder must regulate this according to his own requirements, but when an even supply of milk is desired, care must be taken to see that the does are bred at proper intervals, so far as possible. I know a man who had seven does and concluded to take chances and let them run with the buck. The result was, that during the first nine days of the following March, every doe kidded; he had a surplus of milk during the Summer and none in the Fall. This season I had ten does coming fresh as follows: one each in December, January and February, three in March, two in April and two in May, yet all except the first were bred during the regular breeding season, but of course some were held over and not allowed to breed at the first opportunity. Those that freshened first will be bred early, to freshen in the Fall.

MILKING.

As the production of milk is a maternal function, so also is the giving up of the supply produced. Remembering this, we should treat the does with the greatest kindness and consideration, not only while milking but at all times. This is not only humanitarian, it is profitable also.

The young does should occasionally be fed in the milking

stand and they will quickly develop the habit of going there in search of feed every time they are loose; this is a good habit to encourage and avoids trouble in the future. Does usually have more milk than the kids consume for the first week or two and if the surplus is milked out once a day it affords an opportunity for breaking them in gradually. The far side of the stand should be solid and the platform not too wide so that the goat cannot move too far away from the milker. In Europe it is quite the custom to sit behind the goat while milking, and goats that have been broken to that practice are not easy to milk from the side, but I



PERSPECTIVE VIEW SHOWING END SECTION OF STALLS WITH FEED BOX AND MILKING STAND.

Our stand is 15 inches high, 17 inches wide and 30 inches from front to back; the opening for the goat's head is 14 inches high and 3 1-4 inches wide, and begins 15 inches from the floor of stand; the left bar swings on a bolt at the bottom and is held closed with a peg at the top. The shelf in front to hold crock is double, the bottom part being solid and the top having an opening just large enough to receive crock.

do most of my milking in that position, although I must admit the other plan has its advantages, especially if a goat is restless, as there is much less chance of her upsetting the pail.

I always feed my milkers in the milking stand because while feeding, the goat is more contented and stands better; the oper-

ation should be commenced as soon as she is fastened in the stand I find it a good plan to stroke her back or head a few times, while calling her name and gently rub her underneath with the back of the right hand, moving it toward the udder and at the same time introduce the left hand between the hind legs and the udder, with palm on the udder, holding a small pail between the knees or allowing it to rest on stand, if goat is reasonably gentle. A young doe, not yet broken to being milked, may be depended upon to do one of two things: she will either raise her foot and endeavor to push away your hand, same as she pushes away the kids, or she will jump frantically, lifting her hindquarters well into the air. This is when the milker wants to keep calm and not lose his temper, but stick right on the job and she will probably soon become more quiet. If she persists in raising her foot to push you away, the left hand in the position mentioned will act as a shield and prevent her stepping into the milk pail. If she insists on the upward jump, grasp her right hind leg below the joint with your left hand, and hold her foot up and slightly back, while pressing her against the stand with your head, held just forward of her flank: she may continue to struggle for a while, but you must proceed to milk her with the right hand while she is thus jacked up and after a few lessons she is likely to learn better manners. Keep cool and when finished give her an extra handful of feed and a little extra petting and in a little while she will become as quiet and docile as an older goat.

An entirely different plan, practiced by some, is for the milker to straddle over the goat's hindquarters, and reaching down, hold the pail with one hand and milk with the other. I do not like this plan because it is very uncomfortable and is apt to induce "squatting" on the part of the goat, which is a very objectionable habit and hard to overcome when once formed.

HOW AND WHEN TO MILK.

There are two methods of milking, the one called nivaling and the other stripping: the former is the method usually followed in milking cows and may be used with goats where the teats are reasonably large, but the latter method is followed by most goat milkers, and after a little practice will be found fully as satisfactory. It consists in grasping the teat, close to the udder, between the first finger and thumb and drawing down the entire length, exerting considerable pressure, thus causing the milk to flow freely; milk quickly and be sure the udder is completely emptied before leaving; after exhausting one teat, go to the other and then return and continue this until there is none left; a quick punch into the udder, following the practice of the kids, will frequently bring down a reserve supply; this should be done while the teat is grasped in the hand ready to empty.

Regularity in milking is just as essential as regularity in feeding, and both should be punctually done at the regular hour: it does not matter much what that hour is, but if the milking is done twice a day, as it usually is, the time between milkings should be as near twelve hours as possible. A heavy milker should be milked three times a day, so long as the flow continues large. Irregular hours and failure to completely empty the udder will surely reduce the supply and shorten the length of the lactation period.

HOW SOON CAN MILK BE USED.

Many milkmen claim that cow's milk is fit for human consumption the second or third day after the cow has calved, but I have never found it so. One of the largest milk companies in the country, that contracts with farmers for their entire output, have a clause in their contract, that no milk shall be delivered to them that is drawn from the cow in less than ten days after calving or sixty days prior to that event. The peculiar quality of milk when the cow or goat is fresh, leaves it very gradually and is not entirely absent in less than ten to fourteen days. I test mine frequently but seldom use it until two weeks after kidding. It is for this reason that I do not favor killing the kids at birth for the sake of the milk. If the milk is good for the kids, let them have it and then by continuing them on for a week or two more, they are ready for roasting or at six weeks can be weaned.



A TYPICAL TOGGENBURG DOE

The winner of many prizes in England. Gave five pints daily five months after kidding

I maintain that in figuring the cost of the kid, it is wrong to charge up the milk from birth to the date of killing or weaning for the reason that for a considerable portion of the time the milk is not fit for any other use.

CARE OF MILK.

It may be well at the start to remind the reader of the absolute necessity of keeping all milk utensils scrupulously clean. Pails, pans and bottles should not merely be washed clean, they should be rinsed in scalding water and allowed to drain dry. They should never be washed in same water with dishes.

I milk into an ordinary tin pail holding 3 quarts and having

a diameter of 7 inches. I have several agate pails (of varying capacity) with small neck and tight-fitting covers and into one of these pails the milk is poured as soon as milked and measured. I have several straining cloths, made of fine cheese-cloth, which is folded to six or eight thicknesses, wet in cold water and laid over the neck of the pail; this strainer is kept over the pail until the milking is finished, when it is replaced with the cover and the pail immersed in a larger pail and set under the water tap, the cold water flowing in and out and cooling the milk. After being cooled it is put into the ordinary milk bottles, pints and half-pints, with card tops, and set in cool closet or refrigerator. I like the idea of bottling it, as you can see at a glance just what you have on hand and it is always in most convenient shape for either sale or use. It should never be bottled or tightly covered until it is quite cold.



HALF TOGGENBURG DOE.
A prize winner in England; an excellent illustration of great improvement in first cross.

It is generally said that the cream does not rise on goat's milk, and this is in a great measure true, the particles of butter fat being so small that they do not readily separate and rise to the top, as with cow's milk. This makes the milk comparatively thick and very rich "all the way through" However, when allowed to stand for a full day or more, some cream will be found on the top.

CHEMICAL COMPOSITION OF GOAT'S MILK.

This varies considerable in different animals and breeds. The following table, taken from Pegler's "Book of the Goat" shows, according to the author, a fair average sample of the milk from a cross-bred goat, compared with other milk of average quality:

	Goat	Ewe	Cow.	Ass	Human
Casein	4.06	5.37	4.48	1.82	1.52
Butter-fat	5.14	3.65	3.13	0.11	3.55
Sugar	5.28	5.46	4.77	6.08	6.50
Salts	0.58	0.79	0.60	0.34	0.45
Total solids	15.06	15.27	12.98	8.35	12.02
Water	84.94	84.73	87.02	91.65	87.98
	100.00	100.00	100.00	100.00	100.00

"The Nubian goat has the characteristic of giving milk very

rich in butter-fat, and this quality is shared by the Anglo-Nubian, as a rule."

BUTTER AND CHEESE FROM GOAT'S MILK.

It is possible to make butter from goat's milk by allowing it to stand until sour and removing the cream for churning, but most writers seem to think it inferior to that made from cow's milk: with this I cannot entirely agree and know from experience that with proper care a very fair product can be obtained. The milk, however, cannot be separated in a separator.

On the other hand, cheese made from goats' milk is considered superior. Owing, however, to insufficient supply of milk, it is not made to any extent in this country, as in Europe, where large herds are kept for the purpose and where the makers have been trained for generations. Anyone having a surplus of goat's milk would do well to try any good recipe for cheese from cow's milk.

(See Page 39)

GOAT DAIRIES.

The fact that goat's milk would be very beneficial to many who cannot keep their own goat, naturally raises the question of the desirability of establishing dairies for the purpose of supplying the demand. There are many indications that such a demand exists in many of our principal cities, and by proper effort could be greatly extended, and the milk sold at a satisfactory profit. The milk when sold usually brings from twenty-five to forty cents per quart, and so far as I have been able to ascertain those who are located close to cities have little difficulty in disposing of their supply, the greater difficulty being the obtaining of a **regular** and **sufficient** supply. In England, several attempts to establish dairies failed for that reason, and while I understand there are a few in this country, still they are so small or have been in operation so short a time, that the question of ultimate success is still undetermined.

It ought not be difficult to get together a sufficient number of good does to supply the milk in paying quantities during the Spring and early Summer, but the trouble is to maintain the supply throughout the year. Cows can be and are bred every month of the year and the regulation of the supply is comparatively easy, but for reasons heretofore given, this cannot be done



HALF TOGGENBURG HALF
MILLENAYES.
Color bluish gray, an excellent
milker; note size of teats.

with goats in general and it would seem as if the permanent success of a goat dairy depended upon the gradual building up of a herd in which the Fall and Winter milkers would be in proper proportion. Those considering this branch of the goat business would do well to proceed slowly and determine by experimenting on a small scale what can be done.

RENTING GOATS.

It often occurs that a person is desirous of trying goat's milk for an infant or an invalid and yet does not want to purchase for fear the results might not warrant their retaining the goat permanently. When it is impossible to purchase the milk, the plan is sometimes resorted to of renting the goat at so much per month. The advantages of this plan are at once apparent, and it can easily be made very profitable to the goat owner who has a few extra does for the purpose and who advertises accordingly. The price charged would naturally depend upon the amount of milk the goat gives, and should be arranged upon a sliding scale, decreasing month by month.

REGARDING PRICES OF STOCK.

The majority of people fail to realize at first the true value of a good milch goat, but a little study of the subject and comparison of values will show that the prices generally asked are not excessive. The breeder who succeeds in producing good stock is entitled to a reasonable reward for his efforts and the supply is so far short of the demand that he seldom has difficulty in getting it. Kids that are not good enough to be raised can usually be sold alive in the vicinity of our large cities at from \$2.50 to \$3.00 each, when three to four weeks old; they are used for roasting and are considered a great delicacy, but are not desired for this purpose after being weaned. Many buck kids are sold for cart goats or pets for children and at six weeks of age bring about \$3.00 each. If the owner kills the kids for his own table, the skins can usually be disposed of at twenty-five cents each. Where much of the food must be bought there is no profit in raising kids from common stock, whether they are bucks or does, and the profitable plan is to sell them as soon as possible for the best price obtainable, or kill and dress them for the table.

If the kids are grades their value depends upon their individual markings and the percentage of pure blood. If inferior, they should be disposed of, same as common stock and only the best retained or offered for sale. Swiss grade buck kids sell for \$5.00 to \$15.00, according to age and pedigree, and doe kids from \$10.00 to \$20.00. Nubian grade kids from \$10.00 to \$30.00. Good Swiss grade does, giving 2 to 4 quarts per day, that are fresh or with kid, sell for \$25.00 to \$50.00, according to pedigree, age, and milk record, while Nubian does bring somewhat more.

Common native does, fresh or with kid, sell at \$15.00 to \$20.00, and can, as a rule, be depended upon to give a quart to a quart and one-half per day, while some will go two quarts, but their lactation period is apt to be short. A common doe that is dry, or nearly so, and not with kid, is worth little or nothing, for the reason that the expense of boarding her until she again produces milk, and the cost of services of buck will amount to about as much as she would then sell for.

Pure bred stock sells at greatly varying prices, according to pedigree, actual record made by the animal, and the reputation of the breeder. Pure Toggenburg kids bring from \$25.00 to \$75.00 each, Saanens somewhat more, and Anglo-Nubians from \$50.00 upward, in most cases the bucks being cheaper than the does. Mature animals bring from \$100.00 to \$500.00 each. Dr. Knox has four Toggenburgs that cost almost \$1000.00. Dr. Schmidt had two prize winners at the Rochester show in 1913, for which he refused \$300.00 each, his price being \$500.00 each. A buck of good pedigree will often earn from \$200.00 to \$300.00 stud fees in a season, while the kids from a doe with high record will soon pay for her.

REGARDING HORNS AND DEHORNING

Some consider horns an ornament and an evidence of constitutional strength; others prefer the hornless animals. If both kinds run together the latter are at a disadvantage. It is an easy matter to dehorn goats same as cattle, but this should not be done until they have matured, as they are almost sure to grow again. The growth of horns may be prevented by the use of caustic potash, which may be purchased in any drug store. It comes in stick form and must be handled with great care. It is a good plan to wrap it in heavy paper or tin-foil, leaving one end exposed. When the kid is four or five days old, the horn knobs, or buttons, may be felt, and should be moistened with water, and the potash gently, but firmly, rubbed over the spot; do not make so wet that it will run, because, if it reaches the eye, it will destroy the sight, and, if applied too heavily, may effect the brain temporarily. A moderate dose, and repeat in a few days, is best.

DISEASES OF GOATS.

The goat, though hardy as a rule, is nevertheless subject to disease, same as all domestic animals, and the old proverb, "An ounce of prevention is worth a pound of cure," applies with full force.

My experience with various forms of animal life has demonstrated to my entire satisfaction that in nine cases out of ten a serious illness either results fatally or unfits the animal for further usefulness, and that the only practical aid to the breeder is **prevention**. There are exceptions, but they are few and far be-

tween; of course this does not apply to the minor ailments which usually result from errors in feeding and are easily cared for.

As previously stated, goats will not do well on low, wet or clay soil, and if obliged to remain on same continually, trouble will follow. Neither should they be kept for more than two seasons in the same pasture, if at all crowded. According to Pegler, the ground becomes fouled and the goats contract a disease which results in loss of appetite, great emaciation, diarrhoea or dysentery, general debility and death, although none of the vital organs appear affected. Though not positively determined, it is probably a germ disease, and no cure is known. It can, however, **be prevented** by using fresh pasture every year or two and ploughing and planting the old. If this cannot be done, the goats will thrive and do well if kept housed and their green food brought to them. In this case they should have a small yard or enclosure for exercise, which, however, should not be large enough for grass or weeds to get started, as they convey the germ to the animal's stomach.

Foot and Mouth Disease is most prevalent among cattle but sometimes affects sheep and goats when exposed to it. The symptoms are loss of appetite, ulcers or vesicles forming on the membrane of the mouth, causing long strings of saliva to dribble therefrom; when the feet are affected the ulcers form on the exposed portion, usually just above the hoof and lameness results. It is very contagious and should be reported to the health authorities without delay. The following disinfectant may be used and is recommended by the Dept. of Agriculture, with the statement that it will destroy the virus in one hour: Milk of Lime, one per cent; Carbolic Acid Mixture, two per cent; Formalin, three per cent; one per cent each Bicarbonate of Soda and Hydrochloric Acid.

Catarrh or Influenza—The symptoms are discharge from nose and eyes with sneezing; with bronchitis there is difficulty in breathing and a wheezing cough. Pegler says, "The treatment consists in keeping the animal warm and quiet, feeding gruel and mashes, with a few doses of Epsom salts and ginger (the proportions for one dose being one ounce of salts to one drachm of ginger) which will usually effect a cure."

Mr. Robert N. Riddle, the first to import Swiss goats into this country, and a man of wide experience with animals, recommends cod-liver oil for coughs and colds—use the plain oil and give one tablespoonful three or four times a day. I have found this very helpful. **Prevention** consists in keeping the goat house dry and well ventilated, free from draughts and sudden changes of temperature.

Constipation occurs principally with kids after weaning, with change of food, and is seldom dangerous. One ounce of common salt or one-half ounce of Epsom salts in a quarter of a pint

of warm water will effect a cure; it is usually **prevented** by keeping rock salt before them.

Diarrhoea and Dysentery—These are similar, so far as outward appearance, the latter, however, being accompanied by fever and bloody evacuations—a change of food will usually correct a simple case of diarrhoea, which, if neglected, may result in dysentery. The remedy suggested by Pegler is one-half ounce Epsom salts and one-half drachm ginger mixed together and adding one-half tablespoonful of brandy and same of sweet spirits of nitre, to be given if the evacuations are yellowish, while if dark green or black give an ounce of castor oil with a tablespoonful of oil of turpentine. Kids that are hand-fed frequently have diarrhoea, while those that suck are seldom afflicted. It can usually be **prevented** in adult animals by changing from dry food to green food gradually, and not allowing overeating.

Foot-Rot—Sheep frequently have this disease and goats are liable to it if kept on wet ground or if the outside, or horny part of the hoofs are not kept trimmed. Once started it becomes very loathsome and is disagreeable to treat; thorough cleansing, with antiseptic dressing and careful attention, will usually effect a cure, if not too far advanced. It can be **prevented** by occasional trimming of the outer shell of the hoof—in other words, manicure your goats.

Inflammation of the Udder, or Garget—The udder becomes hard and hot, and if there are kids she refuses to let them suck. Frequent applications of warm water and a dose of Epsom salts are the first things to do, keeping the udder milked out. If improvement does not show promptly, better call in a veterinary, as the disease may result fatally. Black Garget is a more severe form and in it the udder turns black.

Lice—If goats are properly fed and cared for, with an occasional grooming, they will not be troubled with lice. However, if they should become afflicted, they can be quickly eradicated with Creoleum or any similar preparation, or any of the standard sheep-dips.

Malta Fever—This disease affects goats, sheep, cattle and horses and can be communicated to man by using the milk of infected animals, although very rarely fatal. It has been known in Texas and Mexico for twenty-five years. It does not extend north of latitude 36. **Has never been known among goats of any variety above the frost line.** It does not and cannot exist in our Northern States.

Sore Teats—These are generally caused by the teeth of the kids; they should never be neglected. The goat should be gently and carefully milked and the kids fed from the bottle, if unable to care for themselves. Apply carbolated vaseline freely after

milking, and wash in warm water just before milking again.

Poisoning—Goats seldom eat anything that disagrees with them, but should they become thus affected give promptly liberal dose of linseed or castor oil.

Abortion—This is of rare occurrence with goats. It may, however, be caused by injury or sudden fright, by exposure to cold or moving from a warm to colder climate. It is very seldom followed by serious results to the goat, which should have same treatment as when kidding. Both stall and goat should be thoroughly disinfected, and if there are other goats near that are with kid they should be separated, if possible, for three weeks, as the complaint sometimes proves contagious.

HOW TO ADMINISTER MEDICINES.

The best way to administer oil or any liquid is to place same in a heavy, thick bottle (four or eight ounce size) and grasping the upper jaw of the goat in your left hand with thumb between the jaws at the place where there are no teeth, elevate the head and insert the bottle near your thumb, letting contents gently trickle down the throat. If poured in too suddenly it may cause the goat to choke.

Veterinarians as a rule, have had but little experience with goats, which approach sheep more closely than any other domestic animal, and in administering remedies it will be safe to use same quantities as for them.

CHEESE FROM GOAT'S MILK

To make cheese from goat's milk, heat the fresh milk to about 90 degrees, and add 1 teaspoonful Extract of Rennet to each quart of milk, stirring it well for 3 to 5 minutes (the Rennet should first be diluted by 20 times its equal of cold water). Set the milk aside and leave until thoroughly coagulated. I let it stand for 12 hours, as a rule, when it should be cut into small cubes with curd knives, or sliced at right angles with ordinary knife, and stirred with the hand for 10 or 15 minutes, when it should be strained through cheese-cloth, and the curd packed in perforated tin molds, placed on straw matting. The perforated cups used in small fruit presses, or potato ricers are very good for the purpose, if lined with cheese-cloth. The molds should be turned every half hour, for several hours, until all whey has drained off and the cheese is firm; slight pressure will be helpful. When the cheese is firm, remove the cloth and sprinkle salt freely over the upper surface. In 12 hours turn the cheese and salt the other surface and edges. They should then be ripened

for about three weeks in a cold cellar (temperature about 60 degrees) when they become mellow in texture, with a flavor resembling sweitzer. Four quarts of milk will make 2 cheese 3½ inches in diameter and about 2 inches thick, weighing about 10 oz. each.

The foregoing has been found very satisfactory by the author, after personal experiment with several recipes, of which it is a combination. Ripening for a longer period improves the cheese still further.

The author has also produced a very fair quality of butter in the summer, when the cream rises more rapidly. The milk should be set in pans until sour and then skimmed, when a considerable amount of cream will be obtained. If small churn is not handy, it can be churned in an ice cream freezer or in a fruit jar, which can be vibrated by hand if cover is fitted tightly; when butter shows signs of forming add cold water and continue same as with churn.

SUNDRY ITEMS OF INTEREST.

Goats like company; it is but little more trouble to care for two than for one, and if handled right, the returns will justify it.

Dr. Franklin W. White, in a recent address at the Harvard Medical School, stated that a glass of milk was equal in food value to twenty glasses of soup or broth and a slice of bread and butter to a large plate of beans or a dozen oysters. No wonder children thrive on bread and milk!

The goat pasture should be enclosed with a wire fence (48 inches is good height) and fruit trees protected with shields made of poultry netting. If allowed free range they may damage shrubbery and garden same as cows.

A few goats with a flock of sheep will protect them against dogs—if too many are put with them, the goats will separate and keep by themselves. A big horned wether is good for this purpose.

A young wether makes a fine pet for the children, but don't allow either children or adults to tease or worry any goat.

Unless the goats have free range on rough land, their hoofs should be trimmed occasionally.

In building partitions, mangers, or fences, avoid openings which present a possible trap where the goat or kid may get caught and choke themselves. Never tie in stall with chain long enough to permit goat to jump over manger or partition, for same reason.

If doe with kids is in box stall cut a small opening to allow kids to run out and play, each soon learns its own home, same as chicks. When weaning, provide separate compartment.

Weigh the kids at regular intervals and keep the records for reference. Keep records of milk production and other matters; it will be found beneficial.

Are goats noisy? Some are and some are not. Young goats are more apt to be. Most does will bleat more or less for a few days when separated from the kids, especially if left within hearing. I think they get over it quicker if shut in the goat house especially if there are other goats there.

When tethering a goat, always use a chain with two or more swivels; let the iron bar be driven through a ring in the end and close to the ground; otherwise the chain will wind around the bar. Another plan is to use two stakes with heavy wire between them and a short chain with ring, to slide on the wire. If a large ring is inserted in the wire two or three feet from each end, it will prevent the sliding ring from reaching the stakes and getting fast there.

A lady living in Massachusetts, who has kept goats for ten years, writes me as follows:

"I have always used goat's milk in my cooking, finding it far superior to cow's milk. I use it clear and in the same proportion I should cow's milk, except I use less shortening.

"A custard made in the proportion of two eggs and two level tablespoonfuls sugar to a pint of goat's milk, baked very slowly, is delicious, and we think that goat's milk in tea, cocoa and coffee, gives a much better flavor than cow's milk or cream. My daughter makes delicious fudge, using goat's milk and leaving out the butter. Ice-cream is smooth and rich made from the goat's milk."

Frequent grooming is beneficial and will help to make the goat more friendly.

A mature American doe weighing eighty-seven pounds, was mated to a large, mature Swiss buck and produced one doe kid which at thirteen weeks of age weighed twenty-five pounds. The following season the same doe, weighing exactly the same, was mated to a very young Nubian buck, not fully grown, and produced one doe kid which at eight weeks weighed twenty-five pounds. In each case the kid received all the mother's milk until weighing time. A $\frac{3}{4}$ Swiss doe, mated to same Nubian buck and kidding for first time produced twins; one doe and one buck, which at eight weeks weighed 23 and 28 lbs., respectively. This

would seem to indicate that the Nubian buck, being a heavier breed, imparts the element of size, even before he himself has attained it.

Rubbing the udder or rolling it between the hands, frequently induces flow of milk, being held back.

Milk your goats in the same rotation—they soon learn when it is their turn and grow restless if passed by.

In purchasing a goat to supply milk for a young baby, get if possible, one that kidded about time baby was born and do not breed her while baby is using the milk.

It is best to separate the sexes when about three months of age—the young does and bucks will do better apart.

Goats do not like either the hot sun or a hard rain, and proper shelter should be provided.

When tethered, frequent change is appreciated and beneficial.

A goat is at her best when four to eight years old, but often breeds up to ten years: they seldom live more than twelve years.

DEFINITIONS OF GOAT TERMS.

Buck, the perfect male.

Doe, the perfect female.

Kid, the young, either sex.

Wether, a male which has been castrated.

Yearling, either a doe or buck between one and two years old.

Farrow Doe, not with kid.

Springer, a doe soon to kid.

Barren, infertile, incapable of reproduction.

Sire, a male parent; Grandsire, the grandfather.

Dam, a female parent; Granddam, the grandmother.

Pure Bred, when both parents are registered or entitled to registry as pure bred.

Grade, a goat with a pure bred parent.

Cross-bred, having pure bred parents of two different breeds.

In-bred, having parents that are related.

Line-bred, the repeated use of sires from one family, to fix and preserve a family characteristic.

Pedigree, the record of a goat's ancestors.

Gestation period; the time between service of the buck and birth of the kid.

Lactation period; the time after birth of kid, during which the flow of milk is maintained.

REGISTRY ASSOCIATION.

The American Milch Goat Record Association was incorporated in 1905 for the purpose of establishing and improving milch goats, and especially to provide for the registration of same. The present Secretary is Mr. J. C. Darst, Dayton, Ohio, to whom all communications should be addressed. The one association covers all breeds and up to August, 1914, when the first volume of the Record was published, they had recorded 900 goats. Prior to December 1st, 1914, when the rules were changed, they admitted to registry the offspring of any registered buck and doe, and as any doe giving two quarts or more per day could be registered, this resulted in the registry of a number of cross-breed and grade animals, hence the mere fact that a goat is registered is not proof of its purity. The pedigree alone will determine that.

Since December 1st, no buck has been or will be registered that is either cross-bred or grade, although does of any kind, giving two quarts or more per day, are eligible. Registry, to count, should be backed by pedigree and performance. Presumably there are some pure breeds that are not registered and it is certain that there are unregistered cross-breeds and grades that excel similar registered animals.

GOAT PUBLICATIONS.

The American Standard Milch Goat Keeper, published by Mr. Elmer F. Dwyer, at Lynn, Mass., is a bright and interesting little monthly, the only publication devoted exclusively to Goats. The price is fifty cents per annum.

The Angora Journal, published in Portland, Oregon, is devoted primarily to Angora Goats, but incorporated with it is the Milch Goat Bulletin, which gives items of information regarding Milch Goats. Price \$1.00 per annum.

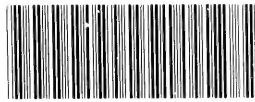
The American Sheep Breeder and Wool Grower, published in Chicago, also devotes space to both Angora and Milch Goats. Price \$1.00 per annum.

The author maintains a small herd to supply milk for himself and family, also for purposes of experiment and observation, and occasionally has surplus stock for sale.

In writing for information to the author, or others whose names are mentioned herein, please enclose postage stamp for reply.

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