Thesis

On

A Laboratory Manual for Live Stock Management

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By

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TRIMMING THE SHEEPS' FEET

EXERCISE 1

OBJECT:
- To prevent deformities of the feet.
- To prevent breaking down of the pasterns.
- To prevent foot rot.

TIME:
When the feet have grown too long, usually twice a year, viz., spring and fall.

PLACE:
Clean dry pens where the sheep may easily be caught.

MATERIAL:
- Sheep hurdles.
- Jack knife.
- Pruning knife or clippers.

METHOD:
Always run your sheep in a small pen before catching them. Sheep hurdles are used for this purpose.

There are several different methods of catching the sheep, viz, by the head, by the leg, by the flank, or with a shepherd's crook.

In catching the sheep by the head, place one hand under its jaw and one hand on top of its head; in catching by the leg, the leg is firmly grasped above the hock; in catching by the flank, grasp it in the flank and not by the wool.
To lead the sheep, place the left arm around under its neck and press with the right hand on the dock. The pressure creates a tickling sensation which causes the sheep to move. The sheep should not be pushed along.

In lifting and carrying the sheep; stand almost to the rear and the left side. Slip the right hand back of the animal's right front leg and place the hand on the brisket between the two front legs. After this has been done, lift the sheep from the ground with the right hand in order to prevent it from going forward, then with the left hand take hold of the left hind leg just above the hock and lift the sheep up against your breast. By this method the sheep may be easily carried and struggling is eliminated.

To set a sheep on its rump for the purpose of tagging the udder or trimming its feet, work from the left side of the animal and place the left arm around the neck, resting the hand firmly on the right shoulder of the sheep, after which reach across under the animal and grasp the right hind leg above the hock. By pulling on the hind leg and at the same time shoving against the sheep with your breast, the sheep may be easily and gently turned on its rump. Never let the sheep rest on the tail head, but to one side of it. In turning the sheep loose, push it straight forward and it will be able to rise easily and quickly. Do not roll it over on its side and let it struggle in rising.
In order to trim the feet quickly and easily, turn the sheep out on a damp pasture for several hours before working with them, as this will soften the hoof. In proceeding with the operation, first set the sheep on its rump and then grasp the pastern with the left hand in order to hold the foot firm. Use the knife in the other hand and clean out the dirt from the sole which will enable you to tell how much of the horny portion to trim. Trim this horny portion level with the sole and cut away the projecting portion between the toes, square off the end of the hoof at the toe so that the hoof will not break off and turn back. After this is done the sheep is turned loose.

Precautions:

Straighten all malformed feet with proper trimming and balancing and this is especially important with young stock and show animals. Do not cut too close at the point of the toe as the blood vessels run near the surface and if bleeding occurs a source of infection is exposed.

Notes:

The clippers may be used on hard hoofs in order to remove the larger portion of the surplus hoof. The remaining horny portion is smoothed off with the jack knife.
TAGGING EWE'S UDDER

Exercise II

DEMONSTRATION AND LABORATORY

OBJECT:
To prevent the lamb from suckling a tag instead of a teat.
To prevent the work of blowflies.

TIME:
In the spring, about one month before the time of lambing.

PLACE:
In clean, dry pens where sheep may easily be caught.

MATERIAL:
Sheep hurdles.
Hand sheep shears or machine shears.

METHOD:
Upset the animal as described in Exercise I. Beginning at the flank, and keeping the skin drawn tight so that there will be less danger of cutting or injuring the skin, shear straight across the belly from right to left and down toward the udder. In climates where the blow flies are troublesome, the wool on the legs and around the sex organ, is usually trimmed off.

PRECAUTIONS:
Do not cut off the end of the sex organ.
Be careful not to cut off the end of the nipple.
Handle the pregnant ewe with care.
Never pull on the lock of wool which you are cutting because in so doing you pull the skin away from the body and it is invariably cut.
NOTES:

Save all the tags and bale separately.
TAGGING THE DOCK

EXERCISE 3. LABORATORY AND DEMONSTRATION

OBJECT:

To remove the wool from around the tail head.
To keep the animal clean, and aid in mating.

TIME:

Fall before mating
In spring before lambing.

PLACE:

In small pens where sheep can be easily caught.

MATERIAL:

Sheep hurdles.
Hand sheep shears.

METHOD:

In tagging the dock have some one hold the sheep at the head while you work. Starting high enough on the tail head so that the sex organ is well exposed, cut from the right to the left straight across the tail head. This will give the ram a better chance at the ewe. Trim all dirty wool away from the legs if blow flies are troublesome.

PRECAUTIONS:

Be careful in order not to clip off the end of the sex organ, as this may cause the ewe to be a non-breeder.

NOTES:

Save the tag and bale in a separate bale in which they may be sold.
DOCKING SHEEP

Exercise IV

LABORATORY AND DEMONSTRATION

OBJECT:
To prevent filth accumulating at the rear and coming infested with maggots.
To command a higher price on the market.

TIME:
Ewe lambs when they are from seven to fourteen days old
Ram lambs from five to seven days after castration
On the range at time of castration.

PLACE:
In the pavilion
In sheep barn
In sheep pens

MATERIAL
Sheep hurdles
Jack Knife
Two inch chisel
Mallet
Docking pinchers
Notched board.

METHOD:
Separate the lambs from the ewes. Do the docking in the morning so the lambs can be watched to prevent some from bleeding to death. Catch the lamb, hold it by grasping the two left legs in your left hand and the two right legs in your right hand.
your right hand, and bring it back against your breast. It may also be held with its back upon a rail or narrow platform at a height suitable for the operator. In holding either way the tail and testicles are exposed and easy to get at.

The knife is the best method of docking. Locate the third or fourth joint from the tail head, push back the skin, and cut the tail off at this joint. Have a sharp knife and sever with one stroke, cutting from the under side of the tail which, when the sheep is held against the breast, will be up and the stroke of the knife will be downward.

Disinfect the wound and turn the sheep loose. In using the chisel and mallet, have a block to place under the tail, then proceed as with cutting, find the joint or cut without locating it, disinfect and turn the sheep loose.

In using the hot pinchers, a notched board should be used to protect the body and determine the length of dock. Put the tail in the notch and sever it close to the board with the hot pinchers. Heat the pinchers to a redness so that three to ten tails can be cut before it requires reheating. One advantage of this method is that the pinchers sears the end of the blood vessels and thus prevents bleeding.

PRECAUTIONS:

Do not leave the dock too long or too short.
Watch the sheep after docking as they may bleed to death.
Separate ewes from lambs before catching.
If a sheep's tail bleeds badly it can be stopped by tying a string tightly around the stub. When the animal is old or the blood becomes heated up this becomes necessary. Tar may be put on the end of the dock to aid in healing and as a disinfectant.

The docking pinchers resemble the ordinary shoe pinchers and may be made by any blacksmith. The edges should be rather thin with with the back heavy in order to hold the heat, and can be made large enough to admit a grown sheep's scrotum, then when desired they can be used in castrating old animals.

When the tail is removed by the pinchers, the healing process is slower and when blow flies are present there is danger of infection from them.

When the mallet and chisel are used the bone may be crushed and when crushed it takes longer to heal.

Another method of holding the lamb is between the legs. Let the lamb stand on the ground with its rear in front of you and hold it by the pressure of your legs.
CASTRATION OF SHEEP

EXERCISE 5

OBJECT:

To prevent poor rams from breeding.
To hasten fattening.
To command a higher price on the market.

TIME:

When seven to twelve days of age.
Morning of a nice bright day.

PLACE:

Sheep barns or sheep pens.

MATERIAL:

Sheep hurdles.
Sharp knife.
Docking pinchers.
Disinfectant.

METHOD:

The method of holding the lamb is the same as for docking. Disinfect the scrotum and cut off the lower half of it. This exposes both testicles and after working back the fat and surplus tissue which surrounds them, pull them out. The lamb being young, the cord should be pulled with the testicle, while if the animal was old, the cord would be tough, in which case it would be scraped off close
to the body. The testicles are pulled easier when both are taken out at once. They are pulled with the finger, pinchers, or best with the teeth. The wound is then disinfected and the lamb turned loose.

The docking pinchers are used on older animals. The pinchers are heated to a red heat and the scrotum, containing the testicles is slowly severed off. A board is placed on the belly to keep the pinchers from bruening adjoining skin in case the animal struggled.

PRECAUTIONS:
Be sure both testicles are down.
Have pens or barns freshly cleaned and bedded with straw.
Do not put small lamb back with ewe immediately after castration.

NOTES:
Carbolic acid, zenoleum, or any good coal tar can be used for disinfecting the hands, knife, and wound.
In foreign countries and on the range the testicles are pulled out with the teeth, this method performing the neatest and cleanest job.
Castrate in the morning and do not disturb the flock during the day.
There are patent emasculators on the market which usually consist of scissor-like instruments with one blade notched. They are used to sever the scrotum containing the testicles from the body. They are made dull and little bleeding will follow the operation.
The tendency is for the lamb to lie down after being castrated, owing to the shock and if turned in with older sheep they will not get up and will be trampled on.
MARKING SHEEP

EXERCISE 6.

OBJECT:
- Means of identity for registration.
- Means of identifying individuals.
- Means of identifying herds on the range.

TIME:
- At time of birth.
- When four to six weeks old.
- When turned on the range.

PLACE:
- In lambing pens
- In sheep corral.

MATERIAL:
- Ear punchers.
- Ear Tags
- Branding liquid.

METHOD:
The small lamb when born must have some means of identity and in pure bred flocks as each lamb is dropped a string is placed around its neck until the ear tag is put on, which should not be before four to five weeks later.

The first lamb born has a string having one knot tied in it placed around its neck. The string of the second lamb would have two knots in it and that of the third lamb three, etc. In this way knots are used to mark the first ten lambs born. Loops can be used for lambs eleven to twenty inclusive.
Tassels made by cutting out the loops can be used for lambs twenty-one to thirty. Then by changing the color or kind of string a system of marking can be worked out for about a hundred lambs. A record is kept of the lamb's marking, together with its sire and dam. When the lamb is old enough a metal ear tag on which is stamped a number and a name is inserted in one ear, the name being usually that of the breeder. When the registration number is received, a metal ear tag on which is stamped this number is inserted in the other ear.

On the range, sheep are branded shortly after the shearing season with a liquid paint. The liquid is a special preparation which will not spoil the fleece. Some sort of a design is painted on the back.

PRECAUTIONS:
Do not tie the string too tight around the lambs' necks.
Do not put the metal ear tag in very soon after birth or the ear will have a tendency to droop.
Do not use paint or any material that will spoil the wool for market.

NOTES:
The registration name of the animal is usually the name of the breeder together with the number it is given.
Tattoo marks may be used, but in the sheep's ear they are hard to see and distinguish. Waterproof ink may also be used, but as the animal grows it will have to be remarked.
SHEARING SHEEP

EXERCISE 7 LABORATORY AND DEMONSTRATION

OBJECT:

So that the sheep will thrive.
For the wool annually.

TIME:

In the warm weather of spring, March 15 to June 15.

PLACE:

In a light airy place in the pavilion or sheds.
In shearing plants.

MATERIAL:

Hand shears.
Shearing machine.
Platform.
Whetstone. (Emery wheel for shears.)

METHOD:

Hand

A beginner should preferably start on a coarse wool sheep.
Each shearer has his own method, but it is some modification
of the following: The sheep is placed on its rump with the
back to the shearer, supported by the shearer's legs. The
shears are held in the right hand. The points of the shears
must be kept close to the hide, otherwise a second stroke
will be necessary. This injures the wool and takes consid-
erable time. Care must also be taken not to cut deeper in
one place than another, or the sheep will be ragged. The wool

Fifteen
is removed from the brisket and neck down to the shoulders. The fleece is then opened down the abdomen and first clipped on the left side as far around as the backbone and then on the right side in a similar manner, all the time exercising much care in keeping the fleece together.

**Machine:**

With the sheep before you and facing to the left of the machine, set it on its rump in an upright position, the shoulders resting against your knees, with the machine to the right. While shearing always turn the sheep to the right. Hold the sheep in such a position that the skin will be stretched tight over that part which is being shorn. With the sheep in position, shear the brisket with downward strokes down the left side of the belly and opening up the wool. Shear the belly and inside of the crotch and outside of the left hind leg, being careful not to clip the end of a teat or the end of the vulva. Throw this wool over to the left, then clip off the top of the head. Next run the clippers up the middle of the throat and cut under the jaw, dividing the wool. Clip the left side of the head and neck, then the left front leg. Straddle the sheep's two right legs and shear the shoulder, each time increasing the stroke and at the same time lowering the sheep until it is lying on its side. All four legs should now be between those of the operator, toward the machine, and the sheep's back should be curved. Hold the sheep's head down with the left hand in order to prevent the sheep from rising
if it should attempt to do so. Shear over the back as far as can easily be reached; then pulling its head up, shear the right side of the head and neck, shoulder, leg, side and rump. This stroke should be from the backbone around to the belly. Trim the legs, and the sheep is finished.

PRECAUTIONS:

Do not cut udder, teat, or sex organ.

Keep the skin drawn tight over the portion that is being clipped. Never place the hand in front of the shears, as you are liable to get out. Never pull on a lock of wool and try to cut it, because this pulls the skin up and you cut the hide instead of the wool.

Do not shear the sheep when the fleece is wet.

Never tie with sisal or binder twine.

Tub washing should never be practiced.

Shear on a clean board floor.

Keep the wool free from chaff, hay, and burs, if possible. Avoid unfavorable weather for shearing if possible.

NOTES:

To tie the fleece; roll in the belly and loose ends, keeping the flesh side out. Very dirty wool should be kept separate. Paper twine should be used to tie the fleece. Put the twine around the fleece, cross the strings, put around again, and tie with a square knot. Some use the wool box for tying, but the operation can be done just as well without it.
In some regions it is customary to tie the fore and hind legs of the sheep to a board in such a manner that the animal cannot kick, placing it on a low platform, and in this position relieve it of its wool. Such practice is condemned.

Separate the tags and put in a separate bale.

Separate the black and gray fleeces and pack each separately.
DIPPING SHEEP

EXERCISE 8

LABORATORY AND DEMONSTRATION

OBJECT:

To free from ticks and lice.
To free from scab mites.

TIME:

Dip in fall and spring, dipping twice with a ten days' interval. (This is especially necessary for scab). When sheep are first brought onto the place.
Bright, clear, warm, day.

PLACE:

Dipping vat near sheep pens.

MATERIAL:

(Dip) Coal tar, zenoleum, Manystholeum, or lime-sulphur.
Water for diluting according to directions.
Dipping vat.
Water heating device.

METHOD:

In dipping for ticks or lice, the water needs no heating, though it should not be cold enough to chill. In most cases one part of coal tar to 60 parts of water is used, as the coal tar is not always as strong as labeled. If the water is hard, soften it with 1/3 pound of soft soap (add no more than this as it will form suds), 1/3% spirits of tar, and if the water is still hard, add 1/3 pound of borax for a ten foot swim.

Run the sheep from the pens into the chute, thru the vat and into the dripping pens. Let the sheep step directly into
the vat or onto a trap door which will tip into the vat when
the sheep is far enough forward, and thus cause the sheep
to slide into the bath. This door usually prevents them
from jumping. As they go thru the bath, their heads should
be pushed under at least once. Let them go into the drain-
ing pens and drain until the surplus fluid has dripped off.

In small vats it is necessary to catch the sheep, put
them into the bath, and then hold them long enough to
get soaked. This method is for very small herds only.

Wash tubs may be used where it is desired to dip but
one or two sheep. Where this is used, catch the animal by
the legs, lay it in the tub, turn it on one side and then
the other, and be sure that all parts are thoroughly soaked.

Some people merely pour the dip on, first parting the
wool, and letting it run into the part, then brushing thor-
oughly with a stiff brush. This is very inadequate and a
tub is preferred to pouring.

PRECAUTIONS:

Do not let the sheep jump on going into short vats, as
they are liable to injure themselves by hitting on the oppo-
site side.

Avoid dipping in cold weather.

In dipping for scab have the water at about 100 to 110 deg.
F. and dip twice, the second time ten days to two weeks after
the first dipping.

Always see that the water is soft; if not, soften it.

In using a patent or proprietary dip, especially an arsenical
dip, the directions on the package should be carried out to
the letter.
In using home made dips, do not economize or do not use too much; both are bad and may prove disastrous.

For scab, do not put the sheep back on the old pasture unless the sulphur dip is used.

It is not best to dip immediately after shearing, but let the wounds heal for a week or ten days.

For scab hold the sheep in the bath two minutes, by the watch.

Do not use some formula picked out of a paper before consulting an experienced man. Misprints may occur and the ingredients may then be too strong.

Do not use over 33 pounds of lime to 100 gallons of water. 17 pounds is as much as should be used without expert advice.

A good formula is:

Flowers of sulphur : . : 24 pounds.

Never use stale dips (those which have stood for any length of time).

NOTES:

The diagram is the best plan for a large herd of sheep and it can be modified to suit the size of the herd.

About one gallon of dipping solution is used for an unshorn sheep, and one quart to one half gallon for a shorn sheep.

The drain shed or pen in the drawing mentioned above, slopes to the outside and this could be made to slope to the

Twenty-one
center provided with a drain gutter which should be covered with a grate to keep wool, etc., from returning to the bath.

The bath should be marked every four to six inches on the side so that the quantity of water in it could be readily determined.

Have the vat drained from the bottom so it may be cleaned.

The cost of the vat will depend upon the locality and access to material.

The galvanized vat can be constructed instead of concrete, but it is smaller and is used where it is desired to store the vat away, the vat being built on runners to facilitate moving. It is built on the same general plan, but no crushing pen or draining shed is provided. These should be constructed to save dip. Any pen sloping toward the vat can be utilized for a draining pen, although the floor should be tight and means of catching the dip provided.

This vat can be constructed by the tinner or bought from a manufacturer at an approximate cost of twenty-five dollars. See plans for small vat and equipment.

The wooden vat is constructed of grooved two-inch boards and is used the same as the concrete vat or the galvanized vat, but it will not last as long.

Water is heated in a large kettle or in a boiler. A hog scalding vat can be used to heat the water.
CASTRATION OF PIGS

EXERCISE 9 LABORATORY AND DEMONSTRATION

OBJECT:

To prevent reproduction of inferior animals.
Assist in better and early development.
Barrows command a higher price on the market.

TIME:

When pigs are from two to six weeks of age.
A cool day, preferably in the morning.

PLACE:

In a clean pen.
In pavilion
In a clean hog house.

MATERIAL:

Sharp knife.
Whet stone.
Disinfectant (Lystol, sheep dip, cresolul, 5% solution).
Needle and thread in case of hernia.

METHOD:

Get them in a small pen, separate from sow and have the pen not too small, yet not so large that it requires chasing in catching them. Catch the pig, and if small have an assistant hold him by grasping the left hind and fore feet in one hand, the right hind and fore feet in the right hand, and holding it against his breast or over a fence, the same as holding sheep. (Exercise 5) Hold the legs well apart.
Disinfect the knife and place of incision. Hold the testicle
between the fore finger and thumb of the left hand, drawing the skin tight over the testicle by pushing the testicle up against it. Now cut the two layers of the scrotum, into the testicle parallel to the septum and one half inch on either side of it, work back the fat and tissues surrounding the testicle and pull it out, cord and all. Make a separate incision for each testicle. It is sometimes better to pinch the cord off close to the body. Cut the scrotum low so the fluid will drain out and do not be afraid of making a long incision. Now put some disinfectant into the wounds and turn the pig loose in a small clean field or pen.

PRECAUTIONS:
Great care should be used with ridglings and hernia.
Do not heat the animal by running before castrating.
Let the pigs remain quiet after the operation and separate from other pigs.
Turn the pigs in a clean, dry pen.

NOTES:
If a large pig is to be castrated, the assistant can lay him on his back and sit astride his neck with the front feet as well as the hind feet of the pig in front of the assistant. The hind feet, one in each hand, are then pulled forward and the operation performed.

In castrating large hogs, they may have to be tied. In this case tie all four feet together. This puts the animal in position for the operation.

For hernia or rupture make the incision just through the skin of the scrotum and not through the membrane containing Twenty-four
the testicle. Holding the pig with its head low and rear part high, work the intestine back into the abdomen by grasping the testicle and covering, and, as the intestine is worked back, twist the covering to hold it there. After working it into the abdomen, tie the covering and cord close to the abdomen with disinfected cat gut, sever the cord and covering, and the operation is complete. It is well to watch the animal and keep the incision open. Clean and disinfect the wound in case pus begins to form.
TRIMMING HOG'S FEET

EXERCISE 10  LABORATORY AND DEMONSTRATION

OBJECT:
To prevent broken down pasterns.
To prevent malformed legs and feet.

TIME:
Whenever the growth necessitates trimming.

PLACE:
In a hog house or pens.

MATERIAL:
Fifteen feet of half inch rope, or five-eighths inch rope, with ring in one end. (See Exercise on trimming tusks).
Hoof pinchers.
Knife. Rasp.

METHOD:
If the animal is gentle, it may be handled gently and its feet may be trimmed while lying on its side. If it must be caught, slip a loop on its upper jaw well back in the mouth. This loop may be made by tying a "Tom Fool's" knot or by the rope with a ring in one end, the other end being run through the ring forming the loop.

One man can hold up on its head or tie the head up while another man reaches under the hog, grasps the two legs on the opposite side and then by pushing against the hog with his breast and pulling the feet from under the hog, it is readily upset. If the hog's head is tied up, one man can hold

Twenty-six
the animal while another takes the pinchers and trims off the horny portion of the hoof down level with the sole of the foot. The foot is then trimmed up with the knife.

The foot should be trimmed down close, but not into the quick. When getting close to the quick, the hoof will look pink, due to the presence of blood vessels.

PRECAUTIONS:

Do not trim so close that it will cause bleeding.

Do not handle sows if well along in pregnancy.

NOTES:

If the hoof is cracked, it is well to trim it out, even if it causes a little bleeding.

If the dew claws are too long, these may be trimmed up though they are usually used to tell how close to trim the hoof.
RINGING HOGS

EXERCISE 11

OBJECT:

To prevent the hogs from rooting.

TIME:

When it is desired to turn them on pasture which would be damaged by rooting.

When trimming feet.

When removing tusks.

PLACE:

In pig pens.

In pavilion.

MATERIAL:

Ten feet of 1/2 to 3/4 inch rope.

Copper rings, preferably fish hook rings.

Hog ringer.

METHOD:

Catch the hog by making a loop in the rope and looping it on the upper jaw, then draw its head up. Take the ringer (pinchers), adjust the ring in the pinchers, locate the place on the nose where it is desired to place the ring, then with a quick thrust insert the ring. Place it in the nose at such a point that it will prevent rooting and still allow the hog to feed easily.

PRECAUTIONS:

Do not insert the ring too deep in the nose.

Do not pinch the ring together so that the muscles of the nose will be pinched.

Twenty-eight
NOTES:

One ring in the center of the nose is deemed sufficient for young stock, while old stock should have two.

It is sometimes preferred to put the rings in the nostrils, one in each nostril. This allows the hog to feed around without as much injury as when the rings are on the front of the nose, but does not prevent rooting so effectively.

In winter, during freezing weather, mud or particles of feed form balls on the rings which must be removed. It is best not to ring hogs while keeping them in freezing weather, or better, remove the rings.

CUTTING THE CARTILAGE is sometimes done in lieu of ringing, but this is inhuman and disfigures the snout. Cut a slit in the center of the snout and cut off the cartilage crosswise from this for a considerable distance.
TRIMMING HOG'S TUSKS

EXERCISE 12

OBJECT:

To prevent the hogs from injuring other animals.
To prevent injury to attendant.

TIME:

Whenever the tusks are long enough to justify it.
Once annually.

PLACE:

In pig pen.
In pavilion.

MATERIAL:

Twenty feet of 1/2 to 3/4 inch rope, with or without a ring in one end.
Dental nippers.
Large nippers as used for trimming horses' hoofs.
Crowbar.
Cold Chisel.
Hammer.

METHOD:

Enclose the animal in a small pen so that he may easily be caught. In catching, use a rope with a ring in one end so that a loop can be easily made and loosened. If a ring is not provided, use a "Tom Fool's knot". Slip the loop over the animal's upper jaw and back of the tusks. After the loop is once drawn tight the hog can be snubbed to a post and the operation performed. The hog will pull back and keep
the rope tight. Work from the under side and slightly to the rear, to keep the hog from charging while at work.

In using the dental nippers, cut the tusk off even with the gum. The nippers usually have greater leverage than pliers, thereby making it easier to remove the tusks. All rough edges should be filed down with a float to prevent the hog from making his mouth sore and thus keeping him off feed.

The pliers used for trimming horses' hoofs are used in the same way, but since the cutting edge is on a different plane than the handle, it takes more manipulation.

In using the crowbar and cold chisel, it requires two men. One man puts the sharp edge of the crowbar in the mouth and against the tusk. The assistant then places the cold chisel against the tusk on the outside and on a level with the edge of the crowbar. A slight hit with the hammer removes the tusk. This method often results in a crushed tusk and must be smoothed off with a file. Either of the two previous methods are preferred.

PRECAUTIONS:

Have a good stout rope.

Get the loop well back on the upper jaw.

Do not crush the tusk, if possible to remove without doing so.

NOTES:

Hogs can be run together after tusks are out with little danger
of injuring each other.

Sows after a few years develop tusks, especially if they are non-breeders. These must be removed.

One man can perform the operation, but an assistant can render considerable help.
EXERCISE 13

OBJECT:

Means of identification of litters or individuals.

TIME:

Two weeks after farrowing.

PLACE:

In farrowing pens.

MATERIAL:

Marking punch.

METHOD:

With the marking punch, neat notches can be cut out of the desired parts of the ear.

Catch the young pig, taking care that the sow does not bite, determine the number it is to have, then cut the notches.

A good system of marking is as follows: One notch near the middle of the outer margin of the left ear means one unit. The same mark on the right ear means ten units. Two notches about three-quarters of an inch apart on the left or right ear means two and twenty respectively. One notch on the outer base of the left ear with no other notches, means three, and the same mark on the right ear means thirty. Four is made by the three notch and the one notch in the left ear; forty is the same marking in the right ear. A notch in the tip of the left ear means five, and in the tip of the right ear, fifty.
A notch near the tip of the inner margin of the left ear denotes 100 and two notches 3/4 inch apart 200. A notch at the base of the inner margin means 300. A notch near the tip and a notch at the base means 400. 500 is made by punching a hole in the ear. The thousands are made in a similar manner on the right ear.

PRECAUTIONS:

Do not cut the blood vessel close to the margin of the ear, if it can be prevented.

Be careful not to cut the stiff cartilaginous supports of the ears on the upper margin.

NOTES:

Ear buttons are sometimes used, but these may be torn out while the animals are fighting.

On market hogs three-fourths of an inch of the tip of the ear may be cut off for the three or thirty. The five can be cut in the center of this cut edge.

Other methods are used but with a system of card identification, this is about the best. Put the number of the pig with its sex and markings on the card. The card contains the dam, sire, and number of pigs (males and females) in that litter.
DIPPING SWINE

EXERCISE 14

OBJECT:
To free from lice and other vermin as well as skin ailments.

TIME:
Twice annually, or whenever animals become infested.
When first brought to the farm.
On a bright, warm day.
Pigs, soon after weaning.

PLACE:
Dipping vats.
Pig pens.
Hog houses.

MATERIAL:
Dipping vat.
Hand spray.
Brush.
Buckets.
Dip (coal tar, kerosene, or crude oil).
Water for diluting dip.

METHOD:
The best method is by means of the dipping vat or tank.
Various solutions may be used. Coal tar dips are frequently used, but are not always effective. They destroy the greater part of the lice but they do not destroy the nits and it is necessary to dip again in ten days. Also, when coal tar

Thirty-five
dips are used they must be applied frequently. Kerosene
emulsion may be used in the vat, but it is expensive and
difficult to prepare.

Crude oil gives the best results. One third crude oil
to two thirds luke warm water, and when hogs are driven through
and made to dive into this solution at one end of the vat;
swim to the other end, and walk out, they are covered with
a coat of oil which is not sufficiently strong to do any harm
to the animal, but which kills the lice.

The vat is set into the ground with a chute leading to
it from the pig pens or pasture. The vat is made of galvan-
ized iron or concrete, or two-inch boards well bolted together
and arranged so it can be thoroughly drained. It can be drained
into the farm drainage system. The vat should be perpen-
dicular at the entrance, while at the other end a gradual
incline is provided so the hog can walk out onto the draining
pens.

Have the vat wide enough so the hog will not get wedged
in, and deep enough to allow the hog to go completely under.
A platform is built at the entrance of the vat and slopes into
the tank, meeting the solution. A trap door is arranged on
the platform to facilitate getting the hog into the bath. A
door hinged from the top may be hung so it hides the vat
from the approach. The hog is pushed onto the trap door,
which is made of hard wood boards laid lengthwise of the tank
and kept greased, and when the hog is far enough forward,
the door goes down and the hog slides into the dip head first.

Draining pens are arranged at the far end of the vat so the dip can drain off the hog and back into the vat. The pens should slope toward the center with a gutter drain into the vat. The gutter is covered with grating to keep out all large dirt particles and also the hair.

Galvanized iron and wooden vats can be built on runners and can be moved to a convenient place for dipping. A chute ordinarily used for loading hogs may be used for getting them into the vat, and a pig pen may be used for a draining pen.

A force spray pump is used in some cases to take the place of the vat. The pump should be large enough to be put into a bucket and held in place with one foot and worked with one hand, holding the nozzle with the other. Spraying the animals while they are in sleeping quarters will also kill some of the lice which are not on the hogs. Kerosene emulsion can be used for this method, or sheep dips are satisfactory.

Another method is to take a bucket of dip and apply with a brush, covering all parts well.

The dip may also be sprinkled over the hog's back with an old garden sprinkler while they are feeding.

None of these last mentioned methods, however, give results like those obtained when dipped in the vat because all parts cannot be reached by these latter methods.
PRECAUTIONS:

Take great care with pregnant sows.
Do not crowd the hogs through the vat.
Do not dip in stale dipping solutions.
Do not use inadequate dips.
Keep pens well cleaned after and before dipping.

NOTES:

Dimensions of plan of vat given in Wisconsin Bulletin 243 are suitable size for medium herd. This however, can be made larger or slightly smaller, according to size of the herd.

A hog wallow, constructed near a water tank or water, 12 inches high and 10 feet square, either of concrete or wood is sometimes used. The solution is put into this wallow and used in the liquid form. The main consideration is to keep a fresh solution by changing often. This wallow can be shaded in the summer time.

Medicated posts are sometimes used. A post is set into the ground, a hole is bored down the center from the top, gimlet holes, partially plugged are bored in the sides meeting the one in the center, kerosene or any other good oil is put into the large hole, and this oil seeps through the small holes to the side of the post. When the hog rubs on the post it gets oil onto his skin. The posts may also be covered with burlap and this saturated with oil. The post is not altogether satisfactory in that the animal is not thoroughly covered with oil and they do not use the post often enough.

Thirty-eight
Patent devices are on the market, but these are usually unsatisfactory and expensive.

Small pigs not large enough to go through the vat can be dipped in a barrel or bucket.

**DIPPING TANK FOR HOGS**

**PLAN OF DRAINING PEN**
FITTING HOGS FOR SHOW

EXERCISE 15

OBJECT:
To show the animal to the best advantage.

TIME:
Beginning about three months before the fair and ending at fair time.
On a warm bright day.

PLACE:
In the hog house or pens.

MATERIAL:
Water.
Woolen cloth.
Brush.
Tar Soap.
Sheep dip.
Olive oil, sweet oil.
Prepared dressing.

METHOD:
The animal should be handled two or three months before the fair and taught how to conduct itself and become more tractable.

About three months before the fair the animal should be washed twice during the month, using sheep dip in the water. This will free the animal from any lice or vermin. The next month, the animal should be washed about twice or
three times, using water and tar soap and rubbing well with a brush. Rinse off the suds and after the animal is dry, use a cloth and put on a good coat of olive oil or sweet oil to keep the skin pliable and to soften the hair. Three to four weeks before showing, wash the hog each week. The last time, usually the day before showing and after arriving on the fair grounds, use a preparation of olive oil 1/4, pure linseed oil or machine oil 1/4, gasoline 1/4, coal oil 1/8, and turpentine 1/8. This cuts the oil previously applied, leaves a pleasing gloss, and heightens the effect of the natural "bloom". On the morning before the hog is put in the ring, it is dry groomed with a brush and all white points thoroughly cleaned. The preparation, if applied three or four days before showing and again the day before showing, will give the best results.

The feet should be trimmed and the dew claws shortened if too long.

PRECAUTIONS:

Do not let the animal get near a fire or lighted matches after applying the preparation containing gasoline.
Do not use a preparation of oil and lamp black.
Trim off the tusks, especially the boar's, before showing.

NOTES:

A good quantity of cottonseed oil with wood alcohol added to thoroughly cut and make a nice, easy-running grease, should be used.
Some exhibitors clip the hogs if they do not shed before the fair, but this is bad practice. The animals should begin to shed in August. Feeds high in protein will help in shedding.

Sometimes the tail is clipped, leaving a tassel.

Always keep the pens cleaned and separate the show animals from other stock.
OBJECT:

To prevent malformed feet.
To prevent broken down pasterns.

TIME:

Twice annually, or whenever the growth necessitates trimming.

PLACE:

In the barn, lot, or corral.

MATERIAL:

Hoof knife, or jack knife.
Hoof pinchers.
Rope, Lariat and strong halter.

METHOD:

If the animal is gentle, the foot may be trimmed while lying down in the barn or feed lot.

Trim off the horny portion of the hoof back from the outer edge of the hoof and pare off a part of the sole so that it is level with the outer part of the hoof. The pinchers can be used to trim off this heavy portion and then the hoof finished with the knife.

Another method is to fasten a rope around the pastern of one front leg, passing the other end over the back just behind the wethers. A man on the other side of the animal can draw up a foot, while another person trims it. The other front foot can be trimmed the same way. To trim the hind legs, place the animal in a small stall with upright studding.

Forty-three
at the rear. Run a pole of sufficient length in front of one leg and behind the upright, then raise the leg high enough to work on the hoof.

A third method is by throwing. Tie the animal’s head down to a post, then take a rope (lariat), put a loop around the animal’s neck, running the loose end back to the wethers, passing it around the heart girth, making a half hitch, bring the end on back to the loin, in front of the hook points, make another half hitch, then by pulling steady and hard on the loose end of the rope, the animal can be thrown by two or three men. Be sure the rope presses over the loins and does not work over the hook bones. This method is good when only a few animals are to be worked on and help is plentiful.

Another means of holding the animal is by a rack or enclosure, into which the animal is put and the work performed easily.

PRECAUTIONS:
Do not throw a pregnant animal.
Do not injure the sex organs of the male.
Be very careful with nervous and restive animals.
Do not cut into the quick of the sole.

NOTES:
The method used in throwing cattle on the range with ropes can be employed. Fasten the head to a post or tree, put a loop around the body at the rear, then, as it slips down over the hind legs, pull back quickly and hard, jerking
the feet from under the animal.

Cattle running on gravel or sandy soil seldom need to have their hoofs trimmed.
RINGING BULLS

Exercise 17

OBJECT:
To facilitate handline.
To prevent an attack of a vicious bull when leading.
They become more submissive.

TIME:
Not later than one year old.
When the animal becomes hard to handle with halter.

PLACE:
In the stall.
In the lot or corral.

MATERIAL:
Brass or copper ring.
Trocar or large awl.
Rope, Lariat or strong halter.

METHOD:
Secure the animal's head to a post or the stanchion, elevate the nose to a suitable angle, and keep it perfectly still. Locate the desired spot on the cartilage between the nasal passages, place the large awl or trocar at the cartilage, and with a quick hit with the palm of the hand punch the hole. The opening should be forward rather than backward in the cartilage. As the awl is drawn out, insert the ring, or if a trocar is used, put one end of the ring in the tunnel and insert the ring as the tunnel is pulled out.

Forty-six
Clamp the ring together, fasten with the screw, dress the sharp corners at the joints of the ring, and the job is completed.

PRECAUTIONS:

Use great care in putting in the screw. 
Dress the corners of the ring as they are liable to make the nose sore.
Never use anything but a copper or bronze ring. Iron will rust.
Never tie by the ring, as the animal might tear the nose out.

NOTES:

Bulls should always be watched and it is best to use a four or five foot staff when leading such an animal, no matter how gentle.
Rings come in two sizes, small and large. The large ring should be put in when the animal grows larger.
All show animals should have a ring put in their nose.
EXERCISE 18

DEHORNING CATTLE

OBJECT:
To prevent their injuring other animals.
They become more tractable and better feeders.

TIME:
When buttons appear on small calves (10 days to 4 months old).
At the age of one to two years old or older.
When going into a feed lot.
On a cool bright day.
In the spring before fly time or fall after fly time.

PLACE:
In the corral.
In the chute provided with a squeezer.
In a squeezer separate from chute.
In stantions where head can be made stationary.

MATERIAL:
Caustic soda or potash stick.
Dehorning gouger or dehorning forceps.
Dehorning saws, any five toothed sharp saw, as miter saw, meat saw.
Dehorning knives.
Squeezer chute.
Rope, lariat and strong halter.

METHOD:
The caustic soda or potash is used on calves when the buttons can be located. The horn is loose at this stage of

Forty-eight
growth. Locate the button, clip the hair free from the parts, and wash clean with soap and warm water, drying the parts afterward. Now moisten the stick slightly and rubit with a rotary motion on the points only—not on the flesh—on first one and then the other. Rub it on two or three times, letting it dry before applying it each time.

If the stick is too moist it will run down over the face and burn the skin.

Put the calf in a place protected from rain, as water will cause the caustic to run down onto the skin. In about a week a thick scab drops off, and if the operation has been successful, the budding horn no longer grows.

Pure caustic soda or potash may be used, but the following preparation given in Farmers' Bulletin No. 350 is good: "50% caustic, 25% kerosene, and 25% water." The caustic is dissolved in the water and raised to the boiling point, then removed from the fire and the kerosene stirred in. Apply as with caustic stick, using a stiff, short brush.

The gougers may be used at this age. Curved shears, dehorning forceps, and gouging dehorners are used. This is the most painful method used, leaving generally a good sized sore spot. Then to be successful the caustic should be applied to all remaining cell life pertaining to this germ point. Curved shears should be used on calves under 10 years old, such as ear shears which are used by horsemen. If possible it should be done at a time when the flies are gone.
but if necessary it may be done in the summer.

A little pine tar should be smeared over the wound to keep the flies away and a piece of cotton should be placed on top of the tar to keep out the dirt. The operation is usually performed by two men, one to hold the animal and the other to do the operating.

The different instruments will require different manipulations, but the general plan is to remove the budding or protruding horn entirely. This necessarily requires some flesh disturbances and injury, but this should be made as slight as possible. This method is the most unsafe and undesirable one of any.

Dehorning with a knife or saw is the most extensively used method, and it is used on completely or nearly developed horns. The saw, which resembles a meat saw, (one which is very stiff) is preferred on developed horns, as the knife usually crushes the horn.

Quicker work can be done with the knives, and in some places this method is gaining ground on the range where animals are secured by roping. The rope is thrown around the neck and one around the hind feet, then the animal is stretched out on the ground by pulling on the ropes. The horn next to the ground is cut first, so that the head will be flat. The upper horn is then cut and the animal turned loose. Always take off a good ring of hair (1/2 to 3/4 inch of skin) with the horn so that the cell-forming tissue will be removed.
In using the saw, the squeezer is employed to secure the animal because the head must be held perfectly still.

A stanchion may be used to tie the head by pulling it well up and tying the nose so that the animal cannot move the head around.

PRECAUTIONS:

Be sure to cut off enough hide to get the growing cells.

Do not turn the animal loose where it can get into an old straw stack or manure pile.

Take great care of the animal during fly time when it is dehorned.

Don't have the animal in such a shape that the ears or neck is liable to get cut. Have the head bent so that free access to it is given.

NOTES:

Bulls should be dehorned, especially if run together; though show stuff of any kind should not have the horns removed.

Dehorn all stock before confining in a feed lot.

A method of restraining is to tie the animal by the chain, well back on the neck, to a posy. A bull leader is placed in the nose and the head drawn around to rest on the shoulder or side and held there by passing the rope attached to the pull leader under the tail and held by the assistant.

On the range, branding is done at this time.
EXERCISE 19

OBJECT:

To prevent undesirable animals from breeding and to make possible feeding and grazing of males and females in the same lot.

Castrated animals make greater development in a given time and fatten more readily.

TIME:

In spring before advent of flies or fall after they disappear.

When calves have got well started in direction of robust growth and before they become yearlings.

PLACE:

In clean barn lot or corral.

MATERIAL:

Two lariats (30 feet by 3/8 inch)
Strong halter.
Castration knife or jack knife.
Disinfectant.

METHOD:

The animal is thrown and restrained as described in Exercise , or it may be operated on while standing. When thrown the animal's legs are either drawn back or forward.

The operator grasps the scrotum and after disinfecting, makes an incision over each testicle, commencing at a point opposite the upper extremity of the testicle and extending down to
the lowest point of the scrotum. This method leaves a smooth plump "purse".

The lower testicle is then pulled out as far as possible without rupturing the blood vessels, the rear muscular part of the cord cut away with the knife, and then the blood vessels and cord severed. These should be drawn out more or less rather than severed abruptly. In young calves the latter may be carried out by stretching the blood vessels tightly over the index finger and scraping them with the finger. With older animals it is better to use the emasculator. This lessens the loss of blood.

PRECAUTIONS:

If the animal bleeds too freely and it becomes dangerous, it is well to cast the animal, locate the bleeding vessel, and tie it with a sterile string. Do not leave the spermatic cord too long, and on the other hand do not go to the other extreme and cut it too short.

Crush the blood vessels and cord well before severing from the testicle.

Animals should be given close attention until they are healed.

NOTES:

Sometimes bulls are castrated while standing. The animal is restrained in stocks, or its head tied to a post, and the animal pushed against the fence and held in place by two assistants.
The operator stands directly back of the animal, seizes the scrotum with the left hand, gives it a half turn around, and draws it out between the legs. Then proceed as described previously.

On the range, a rope is thrown around the animal's head and another around its hind feet. It is then stretched out with horses while the operation is being performed.

Cattle are more resistant to infection than horses and the same care is not required. If the scrotum heals up too quickly and shuts off the drainage, it should be opened with the fingers, disinfect the hand and open the wound.
FITTING CATTLE FOR THE SHOW RING

EXERCISE 20

OBJECT:

To show the animal to a better advantage.

To present a healthy and glossy appearance of the hide and hair by the removal of dust and scurf.

TIME:

Beginning about three months before the fair and ending at the time of showing.

A mild bright day.

PLACE:

In a convenient lot.

In the cattle barn.

MATERIAL:

Warm water.

"Grand Pa's" Tar soap.

Stiff grooming brush—vegetable fiber.

Curry combs, one circular and two square.

Ordinary hair comb.

File, steel edge or glass.

Emery paper.

Sweet oil.

Strap.

Sheep dip.

METHOD:

Preliminary to showing and while feeding for the ring.

Fifty-five
the animal should be taught to lead properly and stand in position. The former is better accomplished if training is commenced about weaning time. Give the animal plenty of exercise and teach him to be tractable under all conditions.

Washings are begun about two or three months before the show and at this time sheep dip is put into the water to kill the lice. The next washing is given a month later, and one from four to seven days before the showing. After you arrive on the fair grounds, the animals must be cleaned up again by a slight washing.

The day they are to be led out into the show ring they are dry groomed and all stained spots, if any, are washed out. They are then wet down and the curl, line, or diamond dressing put on. In putting on any of the dressings, first curry the hair back and down the sides as it would lie naturally. Then comb the hair on the back bone and part it from the neck to the tail.

To put on the diamond dressing, use the square curry comb and comb the hair back toward the rump at an angle of forty-five degrees, with the back bone, then comb the hair the opposite direction at right angles to the way in which it was first combed, beginning the first line of diamonds by putting a corner of the comb in the part or just at the break of the back line, each time placing one corner of the square curry comb at the corner of the upper diamond previously made. The hair will lay in such a manner that in each diamond it will be at right angles to the hair in the
diamonds around it. Continue these diamonds down the side and then repeat this operation upon the other side of the animal. In starting on the other side, the other half of the diamond must be made to complete a line of diamonds down the back line. Then this side is worked the same as the first.

In making the line dressing, comb the hair straight down the side, then with a hair comb, beginning at the rump and starting the first line at the pin bones or a little below them, run it along the back where the back line breaks and up to the neck. Continue drawing the lines from rear to front, at intervals of two inches, until the side is covered. The other side is prepared in the same way, being sure the lines on one side are level with the ones on the opposite side.

Take a dry brush and rub straight up against the way the hair lays. This will make the hair stand out in lines.

The curl is made with a circular curry comb. Begin close to the part in the back bone, or on the break of the back line, and with the tip of the round comb go in a zigzag manner down the side, forming waves or curls in the hair. Each curl should run parallel to the one previously made in order that a line of curls along the side of the animal, each curl running the same direction, will show when it is finished.
Sometimes the hair on the belly is ruffled up with the comb. The hair on the face is parted and curled. The switch on the tail is washed and combed fluffy.

All loose skin is removed from the base of the horns, the dead outer covering of the horn is removed with a steel scraper, glass, or file, and finished with a pumice stone or emery paper. They are then oiled with sweet oil, allowing a few hours for the oil to dry in, and finally polished with a strap, followed with a chamois skin polishing.

The hoofs are trimmed and put into a neat condition. Make a clay puddle to lead the animal thru a few times a day. This softens the hoof and gives it a good color.

PRECAUTIONS:

To not wash too often, because washing will remove a great amount of oil, causing the skin to become harsh and dry.

Do not leave a lot of soap on the skin after washing. Do not expose the animal to cold weather after washing as the exposure will cause them to go off feed.

NOTES:

The rubbing while washing can be done with a good stiff bristled brush.

Rinsing may be accomplished with a hose, but should not be used to loosen the scurf and foreign substances.

Warm rains, followed up with good grooming, will be helpful in washing, though the rain lacks the alkali to loosen the foreign material.
In putting on any of the dressings, use that particular dressing which will cover up the most defects and show the animal to the greatest advantage.
TRIMMING HORSES' FEET

EXERCISE 31 LABORATORY AND DEMONSTRATION

OBJECT:
To prevent injury to the feet.
To prevent distorted and crooked limbs and ligaments.

TIME:
Any time the horny portion grows forward too far or grows down, lifting the frog from the ground.

PLACE:
In the barn.
In the farm blacksmith shop.
In the barn lot.

MATERIAL:
Strong halter.
Strong rope (lariat).
Hoof pincher.
Rasp.
Hoof knife.

METHOD:
If the horse is gentle, the feet may be lifted one at a time, trimmed, and shaped.

Cut off the horny portion level with the sole and shape the foot as correctly as possible. Never pare off any of the frog or sole.

Another method is to have the foot on a flat floor and with a wood chisel and mallet trim off the horny portion.
Be careful not to slope the chisel toward the foot too far and get into the sensitive portion.

Some animals are mean or wild, but this may be overcome by tying up one front foot or using a twitch. The animal may have to be thrown. To throw, place a double bowline around its neck so it will fit like a collar, the two ends running between the fore legs and back to the hind legs. Run these ends around the hind feet under the fetlock, crossing each rope as it is brought back up through the rope at the point of the shoulder. Two men on a side, by pulling hard and working quickly, can throw the horse. The hind legs can then be drawn forward and tied. Working from the back and having the horse on its side, trim all four feet and then let the animal up.

PRECAUTIONS:

In throwing, be careful not to brun the feet below the fetlocks.
Do not trim too much off of the heel.
Do not rasp off any of the outer covering of the hoof.

NOTES:

There are different methods of throwing horses. One is by placing hobbles on all four feet and drawing them together. If leather straps can be placed on the hind feet when throwing, by using the bowline knot, it would prevent burning.

The feet should be nearly round—not "pigeon toed" or toes turning out. Therefore trim the foot to conform with the true shape as far as possible. Sand cracks or the like can be helped by an application of oil.
GROOMING HORSES

EXERCISE 22.

OBJECT:

To remove particles of perspiration, dirt, and dust which would impede action of sweat or oil glands.

To remove scurf and worn out scales.

To give glossiness and shortness to the coat.

TIME:

After exercising.

In the morning and in the evening.

PLACE:

In the barn--either a stall or preferably open driveway.

MATERIAL:

Curry comb.

Stiff fibre brush.

Stiff bristle brush (military pattern).

Soft wollen cloth.

Wisp of straw or comb.

METHOD:

Remove all the dry mud particles around the legs and feet by rubbing with the wisp of straw. Sometimes the feet and legs are washed off before the mud dries, in some localities and especially when the feet and legs are not thoroughly washed it may cause scratches, grease, or cracked heel.

Begin the operations at the head, using the fibre brush to clean off all scurf and sweaty material. Use the curry comb only when absolutely necessary to remove accumulations.
of dirt, sweat, or scurf. Stand well away from the horse and lean with a little weight against the brush. Brush the neck, shoulders, fore leg, back, down the side and belly, then the hip, rump, and hind legs. Always work the way the hair lies. Groom the opposite side in a similar manner.

All dust, scurf, dead cells and sweat should be removed. The hair is removed when the horse sheds, and tonics or improper means should not be employed for the latter.

The mane and tail should be washed occasionally in warm water and using Grandpa's Tar Soap, Castile Soap, or Ivory Soap. Thoroughly soap the mane and tail, then rinse in enough water to get out all the soap.

PRECAUTIONS:

Do not wash the animal with water unless it is immediately rubbed dry.
Use the curry-comb vigorously.
Do not rub against the lay of the hair.
Do not use oils to make the hair glossy—it does not last long and it is not clean.

Do not leave a horse which is wet with sweat stand without blanketing.

NOTES:

If grooming is neglected the animal may lose flesh, condition, deteriorate in health, and lice as well as mange often accumulates.

The horse sheds its coat of hair twice a year—once in the fall and again in the spring. This should be helped along with a good stiff brushing.
with a good stiff brushing.

Groom immediately after exercise, as the work is easier and it helps the general health of the horse.

Dry the extremities of the body first, when the animal returns to the barn wet.

A good groom can clean a horse in the morning in about thirty minutes if the horse's coat is short. Fifteen to twenty minutes is required after work.

To clean the brush, use a glove to rub it across instead of the curry comb.

In cases where care cannot be given to the animal by grooming, it can be turned into a small pasture where it can roll and romp and receive exercise.

Use the bristle brush after most of the dirt has been removed with the fiber brush.
BREAKING AND SUBDUING APPLIANCES FOR HORSES

EXERCISE 23.

LABORATORY AND DEMONSTRATION

OBJECT:

To break and educate wild, stubborn, and vicious horses.

TIME:

Begin when a colt.

After bad management to bring the animal back under control.

PLACE:

In an open field or in the home lot.

MATERIAL:

Strong halter.

Soft lariat rope 3/8" by 40 feet.

Good buggy whip.

METHOD:

Yankee bridle: To make this bridle, choose a soft rope three eighths of an inch in diameter and about twenty feet long. Tie one end of the rope around the horse's neck, close to the head, in such a manner that the loop thus formed will not run. Pass the free end through the horse's mough from the right side and up through the loop on the left side, and the bridle is completed. The principle upon which this bridle acts seems to be that the horse obtains relief from the painful pressure of the rough rope on the corners of the mouth the instant he approaches the man who is pulling, and consequently follows to avoid the pain.
Yankee bridle modified: With the right hand take hold of the lead rope near the horse's left jaw, with the left hand pass the free end of the rope over the head just back of the ears, down the right side, through the mouth again and then up the left side and through the portion of the rope held in the right hand, and you have the bridle completed. To increase the severity of the bridle, instead of placing the latter rope in the mouth as a bit, place it just under the upper lip and on top of the teeth, then draw tight. You now have one rope in the horse's mouth as an ordinary bit and a second under the upper lip as a twitch which forms a very efficient bridle for controlling refractory horses.

War bridle: To make this bridle, choose a rope similar to the one described in making the Yankee bridle (previously described), tie a small loop in one end just large enough to go in the horse's mouth and around the lower jaw. Now place this in the animal's mouth as described, with the knot and free end on the right side, bring the free end up over the head, down the right side and through the loop at the mouth, thus completing the bridle.

War bridle modified: Pass the free end of the rope over the horse's head, just back of the ears, down the right side, through the mouth, and then through the part which passes over the head and the bridle is completed. The severity of this bridle may be increased as suggested in the Yankee bridle modified, by passing the latter rope just under the upper lip, thus forming a twitch.
Excelsior bridle: This bridle is made in exactly the same way as the wax bridle modified, except that the first rope, instead of being placed over the head immediately back of the ears, is arranged well back down the neck, almost half way to the withers. This bridle is very effective in causing a horse to lower his head in case he insists on holding it up when teaching to take the bit.

Pulley bridle: In addition to the rope, two rings and a pulley are needed in making this bridle. Secure a short piece of rope and weave the two rings in so that when completed they will be about six inches apart, and you will have a rope bit very similar to a common rubber-covered bit. With another piece of rope, weave one end to one of the rings, and the other end to the eye of the pulley, so that when completed it will be about 18 inches from ring to pulley. Perhaps this should be measured on the animal's head, as the pulley should be about even with the left eye when the bridle is in position on the head. Now weave one of the lead rope to the other ring. Place the rope bit in the horse's mouth with the lead rope on the left and the pulley rope on the right side, carry the latter over the head just back of the ears and hold the pulley on the left side of the head while you slip the free end of the lead rope through it; next pass the lead rope down through the ring on the left side and the bridle is complete. This makes a very efficient bridle for controlling stubborn horses. Sometimes this bridle is made by using a third ring instead of a pulley.
Pulley bridle modified: In making this bridle, neither rings nor pulley are used. Use a rope similar to that suggested in making the Yankee bridle (as previously stated), and tie a small loop in one end and insert in the horse's mouth as in the war bridle (previously explained). Now carry the free end over the head two inches back of the ears and down the left side just a little below the eye; with the right hand hold the rope here, and with the left double the free end back over the head again immediately back of the ears, carry the free end down the right side and through the mouth, then up through the rope you are holding with the right hand, then down through the loop in the mouth, and the bridle is completed. As with the other modified bridles, the severity of this one can be greatly increased by placing the last rope just under the upper lip, thus making a twitch.

Hackamore bridle: To make an Indian Hackamore, take a soft three-eighths inch rope about twenty feet long, tie a running loop in one end, put it around the horse's neck just back of the ears, pull the loop open, and with the part with which the loop is made take a half hitch around his nose. Now with the free end make a second half hitch about his nose. Grasp the middle of the second hitch where it passes over the nose and run it through the first hitch twice, pulling it out far enough to pass over the head. This completed the Hackamore bridle as made by some, while others pass the latter rope twice around the rope already at the top of the
head and bring it out around the forehead, making a brow band. This makes a substantial hitch, and is much used by the Indians, Mexicans, and plainmen.

Lip twitch: This is made by tying a small loop in a small rope, such as a sash cord, through the hole in the end of a stick. The loop should be about nine inches long, while the stick may be from one to five feet long, according to convenience. The loop is slipped over the upper lip of the horse, and the stick, which forms the handle, twisted until his attention is attracted. As the horse's lip is very sensitive, the twitch should not be used more frequently nor tighter than is necessary.

Noose-twitch: To make this twitch, use a small rope, such as a sash cord, and at one end tie a small stationary loop. With the right hand hold this loop on the left side of the horse's head, and with the left hand place the free end of the rope over the head just back of the ears, down the right side and in the mouth just under the upper lip and on top of the teeth, and then up through the loop being held in the right hand, and the twitch is completed. In case the horse is very wild, it will require some manipulation to get this twitch in place.

Halter-twitch: To make this twitch use any common rope halter; with the right hand hold the lead rope close to the halter, and with the left hand pass the free end
over the head just back of the ears and down the right side, through the mouth just under the upper lip, and then up around the rope in the right hand, and the twitch is complete. This makes a very convenient and effective appliance for leading and handline a refractory horse.

Headstall-twitch: This twitch is made from a common leather halter by passing the lead rope through the lower ring of the halter on the left side of the head, then over the top of the head, just back of the ears, down the right side and through the mouth under the upper lip and then up through the upper ring on the left side. This makes a very powerful twitch. In case the lead rope is not sufficiently long to go over the head, a fair twitch can be made by placing the lead rope through the lower ring on the right side of the head, then down and through the mouth, under the upper lip, then up through the lower ring on the left side of the head, and the twitch is completed, though this is not so efficient as where the rope passes over the head, and the rope extends to the upper ring of the halter.

Guy rope: This is a lead rope and is made of 3/8 inch rope about twenty feet in length. Make a small stationary loop in one end, place this loop under the left jaw, carrying the free end over the neck from right to left then down to the left side of the head, thru the loop and to the mouth, then thru the mouth back under the
lower jaw and between the jaw and the rope coming from the neck, thus forming a loop around the neck, and a half hitch around the jaw.

Rarey's leg strap: This is a strong strap used for fastening up a horse's foreleg. It should be approximately three feet long, two inches wide and at one end of it there should be attached a heavy buckle with a keeper. Now place a free running keeper on the strap and the leg strap is completed. To adjust the strap pass it around the pastern of the horse and through the running keeper. Then draw the foreleg up until the heel touches the elbow, pass the free end of the strap around the forearm, then through the buckle, and draw tight. The horse is now unable to get his front foot to the ground and must walk on three legs. As a cautionary measure, it is a good plan to put on a soft knee-pad, otherwise should the horse come down on his knee he may infure it permanently.

Rarey's safety harness: This harness was devised by Rarey for use in training wild, stubborn and vicious horses. There are two forms, the single and double safety; in the former one front leg only is under restraint, while in the latter, both front legs are under control. This harness consists of two straps about one foot long and fitted with D-shaped rings, a surcingle fitted with two rings on the belly, three on either side and one over the saddle, and a long rope. The straps are buckled around the front pasterns and the surcingle around the body.
The traps should be padded to protect the pasterns in case the animal struggles and the knees should also be provided with pads. In arranging the double safety, one end of the rope is passed through the ring at the belly, then down and through the ring at the left pastern, then up to and through the other ring at the belly, then down and through the ring at the right pastern, then up and tied off at one of the rings at the right side.

Now, by taking hold of the free end of the rope we have the harness. In case the horse is difficult to manage, put on the guy rope in addition. Should he begin to rear, bolt, or back, pull on the safety rope and restrain his forelegs. If he continues to act up, pull his forelegs up by a jerk on the safety rope, and he will come down on his knees. A few hard falls will usually teach the most incorrigible, as such is a very humiliating position.

Rope throwing: There are two common rope hitches used in throwing the horse. In one the rope only is used, while in the other, two straps, about one foot long and provided with buckle and ring, are needed. In the first method take a long rope, double it at the middle and tie a double boline knot forming a loop about three feet long. Slip this loop over the head and down to the shoulder, similar to a collar. Pass the free ends down...
between the front legs, back and around the hind pasterns from the outside, then up and through the loop at the horse's shoulder. Three men are needed to use this appliance, two to pull the rope, one at either end and one to hold the horse. When ready, let the two men holding the rope pull vigorously, which draws the horse's hind feet under him, and when he goes down let the man at the head hold it firmly on the ground, as a horse with his head flat cannot get up. The objection to this method of throwing is that the ropes may burn the hind pasterns as the hind legs are being drawn forward.

In the second hitch secure a short rope about five or six feet long, tie a large loop to slip over the horse's head and down to the shoulders as in the first hitch. Buckle the straps around the hind pasterns. Tie a rope around each fore pastern, pass the free ends back and through the loop at the hind pasterns, then up and through the loop at the shoulders, one on either side, and then backward. This hitch requires three men, as in the first two to pull the rope, one at either end, and one at the head. When ready have the men pull strongly on the ropes, which pulls the horse's fore and hind feet together and he goes down. The instant he goes down, the man at the head should hold it flat as in the first hitch. This has the advantage that there is no danger of burning the pastern joints with the ropes.
PRECAUTIONS:

Do not be too severe in using the appliances.
Never pull the guy rope steadily, give short sharp
jerks with it.
Be firm and never loose your temper.
Always conquer the animal and give it to understand
you are master.
Use good stout rope.
Always pad the knees when using Rarey's device.
One appliance may not work in all cases. More severe
methods may have to be used on one horse than another.
Many horsemen prefer the Yankee bridle to the War
bridle because it is more convenient in arrangement and
in removing.

It is well to caress an animal after performing the
desired act.

It is important to study the temperaments carefully.
Horses may be divided into four general classes according
to their temper: teachable, nervous, stubborn, and treacher-
erous.

The horse with a teachable temper is kind and docile.
He is easily taught and readily adapts himself to various
conditions. He is very seldom frightened, excited or pro-
voked to bad habits.

The horse with a nervous temperament is ambitious and
determined. He is quick to learn and acts with all his
power. If he is properly directed he rapidly develops into

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the best type of horse; on the other hand, if he is im-
properly handled he is easily spoiled. Although horses
of this class resist hard, it is easily conquered, after
which it will do anything it understands.

The horse with a stubborn temperament is willful and
difficult to conquer. It calls for patient effort and
tact as the horse is persistent and does not give up.

When excited the most severe method may be adminis-
tered and the animal will not move in the least, it is
useless to punish them further. The Rarey course of sub-
jection is used. The horse with the treacherous temper
is very restful. He may balk, fight, kick, strike, bite,
bolt, or run away and though apparently conquered, this
former viciousness may return at the least provocation.
EXERCISE: 24

OBJECT:
To prevent inferior or undesirable males from reproducing.
To make more tractable.

TIME:
In the spring before the advent of flies or in the fall
after they disappear, but before cold weather.
As a yearling, after they develop somewhat.
Better if the operation is delayed until they are two years old.

PLACE:
In a clean barn, lot or corral.

MATERIAL:
Rope—30 foot lariat.
Throwing hobbles.
Esmasculators.
Clamps.
Castrating knife or jack knife.
Antiseptics—carbolic acid, lysol, creosol.
Pans for holding solution and cotton.

METHOD:
Throw the animal as described in Exercise 25, and then
tie up the hind legs by the Figure 8 method: First, loop the end of the rope over the pastern and draw the rope back
around the hock, crossing the rope over the back of the leg
Now pass the rope back, crossing it over the back of the leg again and around the pastern. This forms a figure 8 with the foot in one end and the hook in the other. Run rope back under the loin and tie to the opposite leg.

Disinfect the scrotum and the scrotal region. Press the testicles up with one hand rendering the scrotal skin tissue, and with the knife in the other hand, make an incision first over the lower testicle about four inches long and running parallel with the septum or middle line. Cut through the outer and inner covering, then draw the testicle out a reasonable distance but not far enough to endanger rupture of the blood vessels. With the index finger pass through the thin membrane that separates the front vascular portion of the cord from the rear non-vascular portion. The latter may be severed by one stroke of the knife, being careful not to cut through the muscle of the cord but through the tendinous part, as bleeding will follow the former. It is then pulled out a little farther and severed with the emasculator or cut off after being caught in wooden clamps. This crushes the blood vessels and almost no bleeding occurs.

After removing the clamps and disinfecting the wound, the throwing harness is slowly removed and the animal is permitted to rise.

PRECAUTIONS:

Be sure no pockets remain about the wound in which scum may collect. Allow for good drainage in both sides of the scrotum. Do not leave a portion of the testicles or

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epididymis remain on the cord as it is undesirable and all
the sexual desire and bad traits are undiminished. It also
often produces undesirable results in operation.

The horse should be quiet before and after the operation.

NOTES:

The animal may be castrated while standing, but it is
dangerous and a good operation is not usually accomplished
on wild animals.

The cord is treated in several different ways to prevent
bleeding. The cord is removed entirely by pulling it out
with the testicle attached; scraping in two, crushing,
twisting, searing with a hot iron, and by ligating, that is
passing a silk or cat gut string around the vessels. This
latter method is an ideal and perfect method of stopping all
bleeding.

To castrate a ridgling or a cryptorchid proceed as in
operating in normal castration, insert the fingers in the
inguinal ring, locate the testicle, then pull it out and
remove as in normal castration.

The inguinal may be greatly enlarged sometimes and
danger of hernia will be the result. It is well to pack
the wound with sterile gauze for 24 hours, which will usually
prevent such danger.

Give plenty of exercise after the operation, but if
the animal's appetite fails and its temperature exceeds 103°
open the wound and let the pus out, then clean and disinfect it.
the wound.
FITTING HORSES FOR SHOW

EXERCISE 25.  LABORATORY AND DEMONSTRATION

OBJECT:
To increase the attractiveness of the animal.
To cover up slight deficiencies.

TIME:
Just before going into the show ring.

PLACE:
In the box stalls.
Where the animal's head can be tied up as it would show.

MATERIAL:
Small bench about 30" high and 6 feet long.
Brush,
Mane comb.
Colored yarns.
"Goff's braid," a kind of tape 5/8 inch wide and of firm weave.
Raffia.
Rosettes--small flowers.

METHOD:
Wash out the mane and tail by first thoroughly soap-
ing it and working up a lather, then rinse out the soap.
Wipe the mane and tail fairly dry and stand the horse in a
reasonably warm place.

Secure colors that harmonize, straighten out a skein,
and cut once. The yarns should be 4 or 4 1/2 feet long.
Two skeins are sufficient for one horse. Wrap a little yarn

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around the two colors and tie it -- this puts the ends of
the yarn in an attractive shape.

Stand on the bench close up beside the horse's neck. 
Suppose the mane to be combed to the right, face the same
way as the horse, begin about two inches back of the ears,
select a strand about as large as the forefinger from the
top of the mane, separate it from the rest of the mane, and
hold it up. Place this strand of hair between the two
strands of yarn and draw the yarn down until the knot rests
firmly against the strand of hair. Draw the left (yellow)
strand of yarn straight along the top of the mane. Toss
the right hand strand (red) across it, and let it hang down
on the left side of the neck. Hold all in position with
the left hand.

Next, separate another strand of hair, about the size
of the little finger from the top part of the mane just
opposite where the yarn strands cross. Draw this directly
towards yourself over the yellow strand. Grip with thumb
and forefinger of the left hand. Next, draw the original
strand of the mane back, crossing the other mane strand at
right angles and laying over and parallel to the yellow
strand of yarn. Draw all snugly so as to keep the plait
close to the top of the mane.

When all has been drawn tightly, the yellow strand is
drawn toward the body of the operator, then crossed over the
strand of mane which was parallel to the yellow yarn and
allowed to drop over on the left side of the neck. The strands are held firmly with the left hand and the right hand is passed over to secure the strand of red yarn which is drawn directly toward the operator, crossing the yellow. Draw snugly and keep the left hand holding the plait, close in toward the top of the mane. Now draw the strand of mane which lies to the left of the strand of yarn, to the right, causing it to cross the red strand. Hold firmly with the left hand, reach over with the right and gather up a small strand of mane and draw this in with the other, at the same time crowding the plait close in to the top of the neck. Hold firmly with the forefinger of the left hand below the red yarn, the thumb on top of the strand of mane which crosses it. Next draw the strand of mane which has been lying on the right, back toward the withers, crossing the other strand of mane, and thereby coming parallel to and above the red. Place the thumb on top of this, next draw the red yarn slightly to the right, then throw over to the left clear over the neck; then draw the yellow toward the operator, crossing the red yarn and continue as before.

Special care must be exercised to keep the strands of mane of the same size, approximately, as the strands of yarn. Fresh mane should be taken each time the main strand is drawn in from the left, and the plait must be kept close in
beside the top of the mane, until well toward the withers, when it should be gradually sloped down from the top, giving a graceful curve.

Diamond Roll: "Goff's braid," a kind of tape approximately 5/8 of an inch wide and of firm weave, is used. After cutting the tape to the right length, 4 1/2 or 5 feet, place the four colors side by side. For the purpose of giving directions we will assume the white to be on the left, followed by red, green, with yellow on the extreme right. The ends are drawn even and a single plain knot is turned in the tape, leaving the short ends about an inch long.

In addition to the tape a filler is needed. Strips of cotton cloth or a small rope may be used but the latter is unsatisfactory (see notes) because it is hard and inelastic. The best material is raffia. A sufficient number of the strings should be selected to make, when doubled, a strand about as large as one's little finger. The strings are usually five or six feet long. By slipping part of the strings one way, and part the other, the little bundle of raffia can be made about four feet long, (when doubled), tapering gradually to an end.

When the mane cleaned and tape and raffia ready, the operator is ready. The band of raffia is grasped at the center, when doubled, and placed in the mane from two to four inches back of the ears. One strand of mane is selected and the raffia placed over it. Small strands of mane are drawn in with the two raffia strands and the operator
braids a common plait for about two inches. This is done merely to give a solid fastening for the roll on the forward part of the neck.

Having braided the raffia and mane together for a couple of inches, the operator ties a knot, temporarily (to be untied whenever the roll reaches it) and is ready for the tape.

Briefly stated, the diamond roll is a four plait, braided around the center, or filler, or raffia and mane.

Place the tape astride of the through braid, with short ends pointed up, white and red on the left, green and yellow on the right. Stand close to the horse and keep the left hand which holds the braid, close into the top of the mane. Place the knot forward of the raffia, draw the green tape, nearest the raffia, on the right, toward the withers, holding it on top or slightly to the right side of the raffia center. Reach the forefinger of the right hand under the raffia, catch the red tape, which is nearest the raffia on the left, draw in under, and then throw it over to the left side of the neck. This causes it to pass between the green and the yellow and over the raffia center and green tape. Draw snugly to place and hold it firmly to with the thumb and forefinger of the left hand.

Next, push the yellow tape under the raffia between the white and red and then back toward the operator, over the raffia and red tape. Draw the red, green, and yellow taut, and the last two should now lie on the right side,
with the yellow nearer the withers than the green. Hold all firmly with the left hand, forefinger below, thumb above, and keep the hand in close to the top of the mane.

Next, pass the forefinger of the right hand between the yellow and green tapes, under the raffia, and grasp the white tape. Draw it under the raffia, between the yellow and green, and then pass it over the raffia, back to the left side of the mane, thus causing it to cross over the yellow tape at the same time. Next push the green tape under the raffia, and the white tape to the right side. The four colors have all been used when this last move is completed and each color appears in a little diamond shaped piece, hence the name "diamond roll".

Progress from this point is made in the same way that the first four moves were taken. Each color, in its turn, is drawn under the raffia center, between the two on the opposite side, thence over the raffia to the side whence taken and crosses each time the same color as at first.

To keep the color up on the mane it is necessary to draw in enough hair to bind the roll to its place. This must be taken in in such a way that it does not become visible. This is best accomplished by selecting a small strand from the top of the mane and drawing it beneath and parallel to the raffia, just before one of the colors (it matters not which) is drawn under from the left side. This strand of mane is held firmly against the raffia and the tape is then drawn beneath it and over in the usual way.

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binding it tightly to the raffia and thereby binding the roll down to the top of the mane. By taking a small amount of hair about every inch, which will be the case if it is taken in every time, the one chosen color is drawn in from the left, and the roll will be kept to size and will be so firmly attached to the mane that movements of the neck will not shake it free. It is unnecessary to wrap the mane strands around the raffia; if each tape is drawn as tightly as it should be, the roll will stay in place.

The roll should be kept up on top of the mane until well down toward the withers. This should then be slanted off gradually, as in the Aberdeen Plait.

FALSE DIAMOND ROLL: Another method of arranging the mane is that of using two bands of yarn and one of mane and plaiting an ordinary three braid down the top of the mane. This is quickly put in, is fairly attractive, and is quite generally used on sale horses. Many grooms labor under the delusion that this is the diamond roll, but it is merely a plait.

TAILS: In doing up the tails of show or sale horses, different plans are followed.

Mud Tie: This is a quick and easy way of tying the tail in muddy weather, and often resorted to in sale horses. The tail is first combed out with a mane comb. The operator then catches hold at the end of the tail bond and separates the long hair into three equal portions. The center portion
is pushed forward and the operator draws the portion in the
right hand across that in the left, and proceeds as with an
ordinary three braid, braiding from below. After braiding
a few inches, he rolls the braided portion up on the tail
bond and passes the ends of the braid strands around the
tail a couple of times, ties, braids again, and then tucks
the ends through the tail. This gives a neat, secure tie.

A plan in general use in the sale stables in Chicago is
to tie a loop in a stout cord and then toss one end of cord
up over the horse’s croup and draw the looped end over the
tail. Draw far enough down so that the loop hangs below the
end of the tail bone. Braid an ordinary three braid over
this cord and tail, by selecting small bands of hair from
the outside. This masking braid binds in and conceals the
cord and most of the tail. After the operator has braided
down to the end of the tail bone, all the hair is braided
in, care being taken to leave the looped string out of and
below the braid. When about six inches of the tail remains
to be braided, a small stout piece of cord, about 18 inches
long, is braided in and when the end of this cord is reached,
this cord is used to put a quarter hitch on the braid. The
braid is then tied back to the looped string, and the cord
is pulled out, drawing the braid up underneath the masking
braid, until the end is drawn out at the top. The looped
cord is then untied, the cord on the braid threaded out through
a large needle and then sewed over and under at the top of
the tail, binding the braid firmly into position. Some asking
is cut to fit and it is sewed over the tail. Colored muslin is sometimes used for the same purpose, but the sacking is preferred.

The method used in the show ring is that of fixing the tail with rye straw. Tough clean straw, about 18 or 20 inches long is needed. Select 20 or 30 individual straw, place them side by side, and trim the ends. The straws should be damp and very tough. Turn a plait knot in the band of straw, leaving one end about five inches long, the other thirteen to fifteen inches. Separate the long ends into three bands of equal size. Now place at the top of the tail and plait the three long ends into the tail by uniting a small strand of hair with each small strand of straw, and braiding the whole as a three plait (underhand). Braid down in this manner four or five inches, then discontinue braiding and break the lower ends of the straws up about six inches from the end. Now roll the braid from the lower portion of the tail up to the straw, and bind all fast with some cord and ribbon. The hairs from the lower end of the tail (referred to above) should be braided in a common three plait before work with straw starts. The ends of the straw are spread out like an open fan and the ends are trimmed with a pair of shears. It is necessary to see this work done before it can be carried out.

PRECAUTIONS:

Do not put in loose plaits or rolls.
Do not slant the roll or plait too abruptly on leaving the top of the mane at the wethers.
Do not use skirt binding.  
Keep the hairs out of the yarn when putting in either the plait or roll.  
Be sure to get colors to harmonize.  
Hold the horse still with the head up in show position.  
Do not wrinkle the tape if a good roll is desired.  
No hair or raffia should be visible on the outside of the roll.  

NOTES:  

Light horses are seldom decorated, but small plaits in the manes are sometimes used.  
Clipping and singeing of the long hairs on the breast, legs, jaws, and neck of the horse sometimes gives a neater appearance.  

"Pulling manes" is practical on road and heavy harness horses. It produces a short medium weight mane quite even in length which exposes the muscles of the neck. A short rubber mane comb is used. The mane is brushed over to one side and smoothed down, the long hairs are grasped in one hand and the rest of the mane is brushed back with the comb. The comb is then turned once around the long hairs, then by a quick jerk these are pulled out. Proceed as before until a short uniform mane is obtained.  

The tail may be treated likewise. Do not try to pull too much hair at one time. It is best to watch an experienced groom do the work before attempting it.  

Hairs must be kept out of the yarn as the beauty of the Aberdeen Plait depends largely upon the skill with which
it is put in. Roses, artificial, may be used on this plait, but this is seldom done.

"Goff's braid" comes on spools in three yard lengths. The colors found in dry goods stores are usually too dull to be used, but the desired colors can be found by ordering the braid from large Chicago firms. Four colors are usually used and care should be used to secure colors that harmonize. Red and cream yellow may be matched, and white and dark green. Four spool, one of each color, furnishes sufficient tape for two manes on horses of ordinary size. The cost is five cents per spool.

Raffia is the shredded inner bark of a species of a palm tree, and is very tough and strong. It is much used in green houses and can be secured from any firm that deals in horticultural supplies. It costs thirty cents per pound. A pound will furnish enough for thirty horses and it can be used over and over again.

Silk ribbon is sometimes used for this work, but it is expensive and wrinkles too easily to be chosen if the regular tape can be secured.

ROSES: Small artificial roses, which can be purchased at millinery stores at 40 to 50 cents per half dozen, add greatly to the general attractiveness of the roll. These have cloth covered wire stems about six inches long. About five medium sized roses are used and fastened down fairly close to the roll; the wire stems are twisted around the
roll, and as they are covered with colored cloth, they are inconspicuous. This method of attachment is to be preferred to that of braiding them in with the roll, as it is easier accomplished and if desired, the roses can be removed when the horse is left in the stall over night. A roll or plait well put in should stay for several days—the plait much longer than the roll.
OILING HARNESS

EXERCISE 26

LABORATORY AND DEMONSTRATION

OBJECT:
To clean and lengthen the usefulness of the harness.

TIME:
At any time when it is necessary, usually just before spring work.

PLACE:
In a warm room, harness room, or shed.
Warm water.
Stiff bristled brush.
Drying cloths.
Neatsfoot oil, prepared oil, or harness dressing. Blacking, (a mixture of oil and blacking—similar to shoe blacking)

METHOD:
Take the harness apart completely, all straps out of the keepers, and all buckles unbuckled. Clean each piece of harness thoroughly by using the brush and plenty of soap. Be especially sure to clean the parts around the keepers or loops. Rinse off the suds and wipe with a dry cloth. Let the harness dry thoroughly before oiling.

Apply the oil with a rag thoroughly soaked with oil, which should be warm. Dipping the harness in the oil and wipping is probably the best way. Wipe off all oil that will run off. Hang the harness in a room long enough to let the oil soak in well. It is then wiped well and a blacking,
specially prepared, is put on. It is then ready to assemble and use.

PRECAUTIONS:
Be sure all the old oil is cleaned off before re-oiling.
Have the harness thoroughly dry before applying the oil.
Have the oil slightly warm before applying.
Home made oils should be avoided, rats and mice will eat harness thus oiled.

NOTES:

Oiling and repairing is usually a routine of late winter or early spring work.

In drying, it is usually well to let the harness dry for at least 12 hours, better 24, in a warm room.
REPAIR OF HARNESS

EXERCISE 27

OBJECT:
To keep harness in a useful condition.

TIME:
Whenever the harness needs repair, usually in the spring.

PLACE:
In the harness room.

MATERIAL:
1 pair harness jacks.
1 pair pliers.
2 awls— one curved round, and one straight diamond.
Needles, 2, 3, and 4.
1 Leather knife.
1 edging tool.
1 pair punchers.
1 tongue puncher.
1 ball of hemp.
1 S hook or common hook.
Blacking— pitch, resin, wax.
Leather.
Buckles.
Snaps.

METHOD:
Preparation of thread:
In starting to sew two straps together or to put in loops or buckles, the thread must first be prepared. In unwinding
the hemp start from the center of the ball. The ball can be put in a small tin box with a hole in the center of the lid to run the thread thru.

Stand about three feet from a hook fastened to the wall or bench, take hold of the hemp thread with the thumb and finger of the left hand, pass it thru the S hook and bring it back the desired length for the thread. Unravel by rolling it downwards on the leg with the right hand and break carefully by pulling gently so as to obtain a fine tapering point. This is necessary in order to thread the needle easily and securely. From two to six strands of threads are used, depending on the class of work—whether heavy or light. Do not double the strands before breaking, but break them separately, because a tapering tip is required at each end. Twist the strands together, first one end and then the other, catching the end of the threads with the left hand between the thumb and forefinger, then rolling the threads on the leg with the right hand, catching and retaining the twist with the left hand. Repeat until the desired firmness, strength, and smoothness are obtained, then wax freely, rubbing the wax briskly down clear to the tips. The tips should be waxed as well as the middle of the thread. Hold the wax in a piece of soft leather to prevent it sticking to the fingers. The wax is applied for the purpose of retaining the twist, giving strength and smoothness, and preserving the thread.
A needle is attached to each end of the thread. The thread on leaving the eye should not be larger than the needle. If larger the thread or needle will break in stitching. To thread the needle, pass about 1 1/3 to 3 inches of the tip thru the eye (see A of figure); pass the needle thru the thread (B); draw the thread thru as far as it will go, twist the loose end which is shown well around the thread (C); draw the needle thru the thread, two or three at a place, near the point where the end of the tip has reached, but between that point and the eye of the needle (D). By drawing the needle and thread thru itself in this way, the tip is woven to the thread and kept from unraveling. The finished thread is then smoothed down with the finger and thumb (E).

Preparation of the Leather.

In preparing straps for splicing shave or bevel the ends by placing the straps on a smooth board, finished side down, and bevelling the unfinished side with a leather knife. The length of the bevel will depend on the thickness of the leather. Place the leather together in such a manner that the finished surfaces are on the same side and insert in the jack. There should be but a little bulding, but, on the other hand, the ends of the splice should be as smooth as possible.
Sewing:

In sewing, it is necessary to have the work securely fastened so it will not move while being stitched. A pair of jacks are used to hold the work. The jack consists of two pieces of 3/4" or 1" x 4 or 6" boards, 2 1/3' long, and curved at one end; these ends come together, and the strap is held in a sort of fico. The other ends are fastened together with a hinge or a block about 4 inches long and set in between the boards. About one-fourth of the way up from the bottom they have a bolt run thru so that the opening may be made tight or loose. The jack is held in position by resting one end on the floor and holding the other between the legs.

The manner of holding the awl and the work will depend on whether the worker is right or left handed. If he is right handed he would hold the awl in his right hand and the work in such a manner that the finished side of the leather faces his right. In case he is left handed, this would be just the reverse. In either case the awl should be held so that it will make a hole the long dimension of which will run parallel with the direction of sewing. Always remember to work from the finished side of the leather.

Punch a hole an eighth of an inch from the end of the lap and run the thread thru this hole so that its ends, on either side of the leather, are even. Now punch a hole at the end of the lap and run both needles thru the hold at the same time, one going thru from each side. Continue sewing in this manner to the end of the splice, punching only one
hole at a time. Now punch a hole at the end of the splice, making one more stitch, then punch a hole an eighth of an inch beyond and draw the thread of the finished side thru this. Now turn the leather in the jack, so that the other edge is up. Punch two holes at the end of the splice similar to the two on the other edge (see diagram).

![Diagram of thread passing through holes]

Thread A is now passed thru hole No. 1, then threads A & B are passed thru hole No. 2 from opposite sides, the same as in regular stitching. From this point proceed regularly, sewing one stitch beyond the end of the splice. The threads are fastened by back stitching with the thread coming thru on the finished side. Cut the threads off close to the strap and the splice is completed.

In sewing on buckles, bevel the end of the strap, cut out a hole for the tongue of the buckle (see diagram).

![Diagram of buckle insertion]

Insert the buckle properly, turn the beveled edge back and stitch the same as in sewing two straps together.

If a loop or safety is to be sewn in, cut the piece of leather the exact length to make the loop and sew the ends
together. Place the keeper on the strap as indicated by the diagram, and proceed to sew the same as in sewing on the buckle. Run a square iron into the loop to shape the same and the work is completed.

PRECAUTIONS:

Select thread of a kind and strength suitable for the work. Have the thread smooth, well twisted, and well waxed. The stitches should all be drawn equally tight and made as firm as possible without cutting the leather.

The work should be closely and firmly held in the jack. Have the stitches of equal length.

NOTES:

The length of each stitch is best regulated with the wheel pricker. This has several wheels so stitches of any desired length can be marked.

It is best to use the right awl and in the right way.

The punch is used for making a hole to receive the tongue of the buckle and for the heel of the same.

When cold the thread becomes hard and will not work well. Work in a warm place. If sticky, raw beef or mutton fat can be passed up and down the thread a few times.

By close examination of old harness and using it as a pattern, nearly all repairs can be made at home. The homemade article, after practice, can be made superior to the purchased one.
EXERCISE 28

OBJECT:
That the rope may maintain its strength and give the greatest amount of service.

TIME:
Before using.

PLACE:
Where rope is being put into use.

MATERIAL:
Rope--three or four strands.
String.

METHOD:
Rope is made of fibers so intertwined or twisted as to form a thick cord. The fibers are obtained from different material such as flax, jute, coir fiber, and others, though the most common are manila hemp, common hemp, sisal hemp, and cotton.

Rope, if segregated into its different parts, would consist primarily of fibers, there being twisted up to form yarns, which are in turn twisted to form strands and these strands are then twisted to form rope. Each is twisted in such a manner that they exert a strain on the other and they are thus held together.

In untwisting rope let each strand stay twisted—that is, untwist by holding the strand loose and retaining the twist of the yarns.
WHIPPING THE STRANDS

Whip each strand with a string to keep them from unraveling if the rope is to be used for tying several knots, or wrap the end of the rope if it is to be passed through small holes.

Put a string under a strand of the rope at a distance from the end which is equal to a turn of one strand, as shown in Figure 2, and allow several inches of string, as shown at A in Figure 2.

Give the end B one turn around the rope as shown by the arrow in Figure 2, and then fold the end A over as shown in Figure 3.

Continue whipping or wrapping the end B tightly around the rope and string A until you have reached a point about midway between the starting point and the end of the rope, Figure 4.

Fold the end A back, making a loop that will reach slightly beyond the end of the rope, the point laying back over the whipped part, Figure 4. Continue whipping around the rope and loop until the work appears as in Figure 5. Now pass the end B thru the loop, pull the end A until it draws the end B under the whipping as far as possible, then cut both ends off very close. Figure 6 shows the work completed.

PRECAUTIONS:

Wrap the string tight.

Do not make the whipped portion too short.
Do not leave the rope out in the rain.
Fix the ends before they become untwisted.

NOTES:

To relay a rope, do not twist or turn the rope, but
 twist each strand up tight and lay it in its proper place
 as shown by Figure 7, Strand A, holding it in place with
 the thumb. Next strand B, then strand C, then A again.

Ropes are made into three or four strands, when ropes
 are wound together they form a cable.

The four strand rope is about 16 per cent stronger than
 the three strand.

Tarring rope decreases the strength 25 per cent.
KNOTS AND THEIR USES

OBJECT:

To prevent rope from pulling thru a small opening.
To prevent rope from unraveling as in the end of halter ropes.
To tie ropes together.

TIME:

When wanted to use, or before using.
When rope breaks.

PLACE:

Where it is put into use.

MATERIAL:

Any rope.

METHOD:

The elements that are used in making knots, hitches, and splices are open bight, Figure 1; bight, Figure 3; and round turn, figure 3.

The strands of rope are twisted in such a manner that they run counter clockwise in the rope. Therefore, in beginning to number the strands, No. 1 is the strand nearest to you, then No. 2 is the next strand running counter clockwise and running on around in turn No. 3, No. 4, etc.

There are two general types of knots: 1st, knots to prevent ropes from untwisting, and 2nd, to tie two ropes or the ends of a rope together.

One hundred two
Knots in Ends of Rope

Wall knots with crown: Unlay the end of the rope about three turns and spread the strands out, having No. 3 back of the other two, as shown in figures 4 and 5; move the end of strand 1 as shown by the arrow in Figure 4 and form a bight as shown in figure 5; move the end of strand 2 as shown by the arrow in Figure 5 and form a bight around the end of strand 1 as shown in Figure 6; move the end of strand 3 as shown by the arrow in Figure 6 forming a bight around the end of strand 2 and passing the end of 3 thru the first bight in the right direction. The work should now appear as shown in Figure 7; draw the knot up tight by pulling the strands at right angles to the rope, as shown in Figure 8. The knot without the crown is shown in Figure 9, but must be crowned.

Crown: Hold the rope as shown in Figure 10; move the end of strand 1 as shown by the arrow in Figure 10 forming an open bight as shown in Figure 11; move the end of strand 2 as shown by the arrow in Figure 11, passing it between the bight and strand 3 and drawing it down tight as shown in Figure 12; move the end of strand 3 as shown by the arrow in Figure 12, being sure that the bight stands up straight when you pass the end of strand 3 through it, as shown in Figure 13; draw the strands up tight, starting with strand 1, and the finished work should appear as shown in Figure 14, except that the ends should be cut off quite short. It is a good plan to wet the strands, as they will hold their position better when drawn up.
One hundred three A
Fig. 11

Fig. 12

Fig. 13

Fig. 14

Fig. 15

Fig. 16

Fig. 17

Fig. 18

Fig. 19

One hundred three B
Walker knot: This is used for the same purposes as the wall knot and may be made as follows: Unlay the strands about four turns, spread the strands out as in starting the wall knot, and make a large bight with strand 1 as shown in Figure 15; move the end of strand 2 as shown by the arrow in Figure 15; forming a bight around the end of strand 1 and passing the end of strand 2 through the bight of strand 1, as shown in Figure 16; move the end of strand 3 as shown by the arrow in Figure 16, forming a bight around the end of strand 1 and passing the end through the bights of strands 1 and 2 as shown in Figure 17. In passing strand 3 through the bights of strands 1 and 2 be sure that you pass it beneath strand 2; draw the three strands up tight as directed for the wall knot and as shown in Figure 8; roll the knot towards the end of the rope by turning the rope in your hands and rolling the knot with your thumbs as shown in Figure 18; draw the ends of the strands up tight, and the finished knot should appear as in Figure 19.

Knots for Tying Ropes Together

Square knot: Cross the ropes with the proper one nearest you as shown in Figure 20, move the end B as shown by the arrow in Figure 20 until it is in the position shown in Figure 21; move the ends A and B as shown by the arrows in Figure 21 until they are in the position shown in Figure 22. Be sure the proper end is nearest you at the point of crossing in the right hand; move end B as shown by the arrow
in Figure 23 until it is in the position shown in Figure 23 and draw up tight as shown in Figure 24. Both parts of one rope should be in front or behind the other, as shown at points C. and D. in Figure 23 and not as shown at points E. and F of the granny knot in Figure 25.

Granny knot: The granny knot as shown in Figure 25 is of very little use and tends to slip under a pull. It is only tied by those who do not know the difference between it and the square knot.

Bread Box Knot: The bread-box knot, shown in Figure 26, looks very much like the square knot, but it is very apt to slip. The difference in the finished knot is in the position of the ends A and B, as you will see in comparing Figures 23 and 26.

Weaver's Knot: Hold the ends of the rope as shown in Figure 27; move the right hand in the direction shown by the arrow in Figure 27 until the rope is in the position shown in Figure 28; grasp end B with the right hand, then move it in the direction shown by the arrow in Figure 28 and hold it with the left hand as shown in Figure 29; draw the knot tight by pulling the hands apart, when it should appear as shown in Figure 30.

Bowline knot: With the right hand on the end of the rope and the left on the bight in the position as shown in Figure 31, make a loop by bringing the left hand around the end of the rope as indicated by the direction of the arrow in Figure 31 and shown in Figure 32. Now, with the left hand
hold the loop in place. Grasping the end of the rope a with
the right hand, bring it around beneath the standing part
(b, Figure 33) and back through the loop c as in Figure 34.
This is the quickest and easiest method of making the bowline
knot.

Bowline on the Bight. This knot is made in the middle
of a long rope or at the end of a rope when it has been
doubled. The steps in beginning it are the same as those
used in making the bowline (see description of bowline
knot Figures 31 to 34) except that a double rope is used.
Figure 35 shows the first step. A loop is then made about
the end a with the left hand as shown in Figure 36. The end
a should now be pulled through the loop x far enough so that
it may be drawn downward as indicated by the arrow. The
loop a is now slipped over the large loose loop b as indicated
in Figure 36, and then carefully moved back (Figure 37) until
it is in the position of a in Figure 38. In tying the knot
care should be taken to prevent the half hitch or loop x
from losing its form. This can be done by holding the ropes
together where they cross at y. To tighten the knot pull
carefully on the ropes at r and s in the direction of the
arrows (Figure 38).

Tom Fool's Knot: To tie the knot hold the rope with
the palm of the left hand up and the palm of the right hand
down (Figure 39). Now turn both hands toward the right as
indicated by the arrows in Figure 39, and shown in Figure
40, so that the palms will face each other. Holding the hands
firmly in that position, bring the two loops together as shown in Figure 41 so that they may be drawn through from opposite sides in the direction of the arrows. Releasing the hold upon the rope at \( x \) with the left hand, reach through the loop formed by \( x \) and grasp the rope \( y \); and releasing the strand \( y \) with the right hand reach through the second loop formed by \( y \) and grasp the rope \( x \) then pull the ropes through in opposite directions forming a double loop. Figure 42 shows the completed knot.

**PRECAUTIONS:**

In pulling up either the wall or walker knot, pull each strand a little at a time.

Do not try to hurry and worry with the knots—take time and work slowly.

In making the boline on the bight, hold the bight until the loop is drawn out.

Do not let the strands become unraveled and loose, whip them if necessary.

Always crown the wall knot.

Do not cut the ends of the strands off too close to the knot.

**NOTES:**

The wall or walker knots are used for the ends of halter ropes, etc., to prevent the rope from slipping thru small openings.
The square knot is used for tying the ends of a rope together or tying two ropes together. This knot draws very tight on a small rope.

The weaver's knot is used to tie the ends of lines, strap, or ropes where there is no great strain.

The bowline is sometimes called the king of knots. It is used wherever a loop is wanted that will not slip or pull tight and can always be untied very easily.

The bowline on the bight while not as important as many other knots is especially useful in throwing horses and cattle. It is safe because it will not slip nor draw tight and is easily untied.

The tom fool's knot, or double bow as it is sometimes called, is a trick knot and yet at the same time it is very useful. It is commonly used in ringing hogs, one of the loops being placed around the upper jaw. It is tightened on the jaw by pulling the standing part of the rope x and untied by pulling the end of y (Figure 42).
OBJECT:

To fasten a rope permanently or make a permanent loop as in making a halter.
To fasten two ropes together.

TIME:

When rope breaks.
When attaching the end of a rope permanently to some ring or object.

PLACE:

Where rope is being used or put into use.

MATERIAL:

Rope, three strand.

METHOD:

End or Crown Splice: The first step in making the splice is that of making the crown know which has been previously described. The second step consists in splicing back the loose ends. Strand No. 1 is passed over the nearest strand a on the main rope and under the second b in a diagonal direction, almost at right angles to the twist of the strands. Strands No. 2 and No. 3 in turn, are in like manner spliced back, No. 2 over b and under c, and No. 3 over c and under a. Each strand is tucked under but one strand of the main
rope at a time. (Figure 2). To make a smooth, tapering splice cut out a portion of the fibers after each tuck and when finished pound the splice lightly with a short stick or hammer and roll it on the floor under the foot (Figure 3).

Spliced eye: Unlay the strands about five turns, and start strand 1 under any strand as shown at point B in Figure 4. The distance from A to B should be enough to make an eye of the desired size; draw strand 1 through the rope and start strand 2 under the next strand at point B as shown in Figure 5. Be sure not to get strand 3 in the place of strand 2; pass strand 3 under the next strand at point B as shown in Figure 6; draw the three strands up tight and splice them into the rope just as you would in making the spliced crown, the remainder of the work is shown in Figures 7, 8, and 9.

Short Splice: In making the splice the ends of the two ropes are unlaid for a sufficient distance and the two ends then locked together so that those from one end pass alternately between those from the other end (Figure 10). Notice that the strands from opposite sides are in pairs. Then taking two strands from opposite sides, as the pair a and No. 1, tie the simple overhand knot in its right hand form as shown in Figure 11. Similarly, with the right hand knot tie together the strands forming the pairs b No. 2 and c No. 3. Draw the knots tightly, then passing each strand of the rope x diagonally to the left, tuck the ends under the strands of y as described for the end splice in Figures 1,
One hundred ten A
FIG. 7

FIG. 8

FIG. 9

FIG. 10

FIG. 11

FIG. 12

FIG. 13

FIG. 14

FIG. 15

FIG. 16

FIG. 17 B

FIG. 18

FIG. 19

FIG. 20

FIG. 21

FINISHING THE LONG SPICE

One hundred ten B
2 and 3. Turn the rope end for end and in the same manner splice down the strands of the rope y (Figure 12). Splice down the strands alternately, and each strand but one place each time. When the splice is completed each strand from both ropes should be spliced under at least two places (Figure 13). The length of the splice must depend upon the size of the rope and the load to be placed upon it.

The Long Splice: To make the splice first unlay the strands of the rope. A 3/8-inch rope will require a free end of about 18 inches, a 1-inch rope about 36 inches and larger ropes in proportion. Now lock the strands of the two ropes together as in beginning the short splice, in such a manner that the strands from one end pass alternately between the strands of the other end, forming the pairs a No. 1 b No. 2, and c No. 3 (Figure 10). At this point care should be taken that the strands are properly paired for a mistake here cannot be detected until the splice is completed and means that the work must be repeated.

The strands from any two of the pairs as b No. 2 and c No. 3 are now twisted together leaving the other paid as a No. 1 free (Figure 14). Unlay strand a, one turn from its rope x and follow it by relaying strand No. 1 in its place, drawing it firmly and keeping it twisted tightly. Continue until 6 or 8 inches from the end of the relayed strand (No. 1) depending on the size of the rope (Figure 115).

Turn the rope end for end and untwist either pair of the
the twisted strands as b No. 2 (Fig. 15). Proceeding as before, unlay strand b from its rope x and relay strand No. 3 in its place (Figure 16). Now untwist the last pair c No. 3. The rope should now appear as in Figure 17. The breaks should be separated the same distance and each strand coming from the left, x should be placed in front of the strand from the right y, so that they cannot untwist without uncrossing. To cross the strands otherwise, as a behind No. 1, a mistake often made, the splice cannot be properly completed.

The splice is completed as follows: With the ends properly crossed (as described in Figure 17), tie the right hand overhand knot (Figure 19), and draw it down firmly into the rope (Figure 19). The end (No. 1) is now spliced down by being passed over the first strand a and under the second b as shown by the marlinspike in Figure 19, then over the third c and under the fourth a as shown in Figure 20. Draw down the end No. 1 and cut it off leaving it 1/4 inch long (Figure 21). In identically the same manner, splice down and cut off each of the remaining strands, a, b, c, No. 2 and No. 3. When finished it looks like Figure 22.

<table>
<thead>
<tr>
<th>ADJUSTABLE HALTER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Animal</strong></td>
</tr>
<tr>
<td>--------------------</td>
</tr>
<tr>
<td>Large cattle</td>
</tr>
<tr>
<td>Medium cattle</td>
</tr>
<tr>
<td>Small cattle</td>
</tr>
<tr>
<td>Calves and sheep</td>
</tr>
</tbody>
</table>

One hundred twelve
Take the total length of rope as given in the table; make a spliced eye a little larger than the rope as directed in Figures 8 and 13 and like the one shown completed at A in Figure 23; measure off from the center of the eye A the distance given in the table; pass the eye A through the rope between B and the other end, as shown, at points C and D in Figure 24; making the loop at B about the size of the eye A; pass the end of the long part through the eye A and the loop B as shown in Figure 25; adjust the halter to the animal, and then it may be secured by passing the long end up through the nose piece and tying around the double part.

PRECAUTIONS:

In making the spliced crown be sure to put the crown on correctly.

Be sure not to run the loose end over two strands instead of one.

Be sure to keep the parts of the strands twisted up tight.

Be sure to continue splicing in the same direction as it has been started in tying the knot.

Work with three strands at a time rather than each strand separately when putting in the short splice.

When the splice is completed, do not cut off the ends too close.
The spliced crown is a very good method for finishing the ends of halter and other ropes where a slight enlargement of the end is not objectionable.

The spliced eye is used to fasten a rope permanently into a ring, in splicing one rope to another, or in making halters.

The short splice is used to fasten two ropes together where there is a straight pull and where they are not required to pass through pulleys.

The long splice is adapted to ropes that must be run over sheaves or pulleys and is as secure as any other part of the rope. The splices can be neatly finished by pounding down the uneven part and rolling the splice on the floor under the foot.

The adjustable halter is used for all kinds of stock but is especially adapted to horned cattle. The length of the nose piece may be changed. The best way to make the halters the proper length is to adjust it to fit the animal and not use the table.

A marline spike is a piece of wood the shape as shown in Figure 5 and is used to separate the strands in splicing the rope. It may have a hole in the end in which to place the whipped end of the rope while splicing.
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