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PREPARING AND USING Rawhide

By J. A. Mallett.

UNTANNED bullock or horse hide—usually known as rawhide or greenhide—has played an important role in agriculture in many countries for centuries. It needs little preparation and combines tremendous tensile strength with light weight and durability, so is an ideal material for many farm uses.

The Boer pioneers in South Africa probably used rawhide more extensively than any other community and developed considerable skill in its preparation.

They used rawhide to make ropes, whiplashes, harness, footwear, saddlebags, buckets and many other articles of farm equipment.

Rawhide thongs or "riems" were used in place of fibre ropes, and were plaited or woven to make chair-seats or laced across beds to make mattress foundations.

Apart from the heavy hides used for such purposes, the skins of deer and antelopes were often worked to silky softness. The "buckskin" of the American Indians was another form of rawhide.

DEHAIRING

In the preparation of rawhide, the first task is to "flesh" the hide to remove all scraps of flesh and tissue adhering to the inner surface. The next task is to remove the hair.

The Boers accomplished this by permitting a certain degree of decomposition to take place. If the hide had been allowed to dry after flaying, it was first soaked in rainwater until soft. Newly-flayed hides do not require soaking.

The hide was then folded, hair side inward, and buried in moist earth or in a manure-heap, being exhumed and tested at frequent intervals. The hair on the belly portion of the hide is usually the most firmly attached, and when this began to "slip" freely, the hide was taken out, scraped to remove the hair, and then washed free of objectionable matter.

The Bran Method.

A method of de-hairing recommended by "The Handbook for Farmers in South Africa" is to immerse the hide in a sloppy mixture of wheat bran and rainwater, rubbing this well into the hair. The hide is then taken out, folded and placed in a tub for 24 hours or until the hair comes away freely.

With the bran method there is less risk of damage to the tissues by rots and grubs, also the skin has a whiter, cleaner appearance and less objectionable odour than when dehaired by the other methods described above.

Dehairing with Lime.

Hides may be de-haired rapidly by the use of lime, but this method has a tendency to make the finished product too dry and reduce its strength.

About \( \frac{1}{2} \) lb. of builder's lime (quick lime) is used to each gallon of water. The lime is first slaked, then dissolved in the water. When the solution is cool, the hide is immersed and left soaking until the hair comes away freely. While in the limewater, the hide should be moved around frequently to allow the liquid to reach every part.

It should not be left in the solution an hour longer than necessary and should be thoroughly de-limed by washing in several waters. A weak acid solution such as a pint of vinegar to three pints of water is often used to neutralise the lime. A less attractive method is to immerse the hide in a solution of fowl manure.
The operation of twisting and working the hide to make it soft and supple is known in South Africa as "breying" and is usually achieved by means of a "breying block". (Fig. 1.)

This is a log weighing about 100 lb. with a curved handle lashed to it. The hide is commonly "breayed" by cutting it into a continuous strip. The thin flanks and other uneven portions of the hide are trimmed off so that it presents a roughly oval appearance, then the cut is made round and round in a spiral.

The breying block is lifted on to a box or table of suitable height and the strip of hide is passed through the handle and up over a beam or branch of a tree, then back through the handle and over the beam again until the required number of turns are completed when the ends are tied or laced together.

The box is removed so that the strip of hide takes the full weight of the block. A pole is then thrust through the handle of the block and the operator walks round and round until the hide is twisted into a tight spiral.

On withdrawing the pole, the block descends, spinning at high speed and its momentum continues the spin in the reverse direction. As it steadies, the pole is thrust into the handle again and the hide is twisted up tightly until the block is again released.

The breying is continued for many hours, the strip being moved round at intervals to ensure that the portions which were round the beam and the handle are thoroughly worked.

As the moisture is squeezed out of the hide by the twisting, the strip is liberally smeared with mutton fat and the breying continued until the hide is soft and pliable throughout its length.

The flanks of the hide are thinner than the back portions, and these are often treated separately, either in strips or in the piece. Even a whole hide may be breyed intact by punching holes in the ends which are then laced together with rawhide thongs.

Variations in the thickness of the hide make it difficult to treat a whole hide satisfactorily however and it is best to cut the hide into pieces or strips of even thickness and brey these separately.

The flank portions or thin skins from smaller animals may be breyed and softened by working them backward and forward over a blunt axe-head or similar tool, set in a vice.

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**PLAITING**

A person with a knowledge of plaiting can greatly extend the sphere of usefulness of the rawhide strips. The diagrams (Fig. 2) show the basic principles governing some of the simple plaits, taught to me many years ago by Mr. L. T. Smith, of Manjimup, a leather-working hobbyist of considerable skill.

In the diagrams, the different strands are shaded to assist in identifying them, and the plaits are shown loose and open for the same reason.

In actual plaiting, the strands should be tightly interwoven with no daylight showing between them.
Fig. 2.—A, B, C: Three, four and five-strand flat plaiting; D: Six-strand flat plait with buttonhole; F: Plaiting round a stick using simple "basket weave"; E: Four-strand chain plait; G: Method of making a three-strand twisted rawhide rope.
Flat Plaits.

Most people are familiar with the simple three-strand flat plait (A). In the four-strand plait (B) we merely follow the same principles of “over one and under one”, crossing the two centre strands first; bringing the left-hand strand over to the right and the right-hand strand over to the left.

As each strand in turn comes to the outside edge of the plait, it is bent back, over or under the adjoining strand and is carried over towards the opposite side.

Practise with the four and five-strand plaits, using fairly wide strips and plaiting loosely, until the principles are mastered, then try the six-strand and wider plaits.

One can introduce variation by switching from a six-strand to two three-strands and back again to form a buttonhole (D) or one can form a ridge down the centre of the weave with any of the eight, ten or other even-numbered plaits.

The ridge is made by crossing the strands in the centre and taking them back to their own side again instead of going diagonally over to the opposite side—in effect, we have two four-strand, or five-strand plaits that are joined by linkage in the centre.

Round Plaits.

After mastering the flat plaits, one can learn to apply the same principles to the covering of a round stick such as a whip-handle. Usually six or more strands are spaced equally round the stick or core and held in position by a wire or strong rubber band (F).

Once the “basket weave” or “under one and over one” is mastered, one can experiment with variations like “over two and under two”, “over two and under one”, etc.

To finish off the plait, the strands are tapered and turned back into the weave, paralleling the original pattern.

There are hundreds of different ornamental plaits with “Turk’s Heads” and other types of terminals and sliding keepers, but they are beyond the scope of this article.

A useful book for those who wish to pursue the subject further is “The Bushman’s Handcrafts” by R. M. Williams, which may be obtained from Perth booksellers (Price 22s. 6d.). It contains much useful information on plaiting with leather and horsehair, tanning skins, making moccasins, shoeing horses, working in horn and bone and similar information for the outback hobbyist.

Chain Plaits.

Before leaving the subject of plaiting, there is one other plait that might be mentioned as a simple method of making ropes or whips.

This is the “chain plait” using four strands as shown in Fig. 2 (E). For a whip, a long strip of rawhide is split down the centre from each end, leaving about 6 in. unsplit in the centre to form the loop by which the whip is attached to the handle. The four thongs should taper slightly towards the centre loop, then swell out wide to form the “belly” of the whip and again taper off gradually to the end of the lash.

The thongs are crossed in pairs as shown in the sketch and produce a round plait.

In all plaiting where it is necessary to splice in extra pieces to give added length, the strands should be of different lengths so that all the splices are well separated.

To splice, the thongs are tapered off and a similarly tapered thong is plaited in for several weaves.

TWISTED RAWHIDEropes

Rawhide ropes made by twisting three strands together are widely used on cattle stations in Northern Australia.

A freshly-flayed hide—preferably a cowhide as these are usually fairly uniform in thickness—is pegged out on the ground.

It should be carefully flayed, free from nicks and without scars, tick-marks and severe branding which might weaken the tissues.

Cutting the Hide.

The hide should not be tightly stretched merely held fairly firmly.

A circular piece about the size of a saucer is cut from the centre of the hide, and then, using a sharp knife, a continuous strip of hide about ¾ in. wide is obtained by cutting round and round the hole in an ever-increasing spiral.
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The strip should vary slightly in width according to the thickness of the hide. Where the hide is thickest such as on the back, the strip could be five-eighths of an inch wide. On the thinner neck and flank parts, it could be seven-eighths or more.

Unless a particularly long rope is needed, it is better to reject the thin portions of the hide. Should they be included, see that the thin portions are farthest from the terminal ring and are twisted with one or two strands of thick hide.

Preparing the Strands.

The strip of hide is now folded to give three equal lengths, one length being cut free. If the original strip is about 90 ft. in length it will twist up into a 25 ft. rope.

Take a good strong ring and tie the loose strand to it with two half-hitches, leaving a loose end about 8 in. long and tapered off so that it can be spliced into the rope. Take the remaining two strands and hitch the doubled portion over the single strand making sure that the ends are level.

Now obtain four hobble-chains or other suitable chains with swivels. One is securely lashed to a tree or stout post at a height of about three feet from the ground and the ring with the three strands tied to it is firmly secured to the hobble-chain with wire or a rawhide thong.

The other three hobble-chains are attached to three heavy weights. These can be logs, bags of sand or any suitable material but should be of equal weight (about 1 cwt. each).

The three thongs are each attached to one of the weighted hobble-chains and the outfit is set up as shown in the diagram on a piece of smooth level-surfaced ground where the rope will not be interfered with when left to dry.

We now have the anchor post to which the hobble-chain is securely tied. The ring carrying the three strands is wired to the end link of the hobble-chain, and a crowbar or long peg is passed through this ring and hammered into the ground to keep it from twisting.

The other ends of the strands are tied to their respective hobble-chains which are in turn attached to the weights. The weights are moved away from the anchor-post until there is a slight strain on each strand. The weights should be separated at regular distances apart to give the operator or operators room to work.

Twisting the Strands.

A peg about a foot or 18 in. long is thrust through a link of one of the weighted hobble-chains in front of the swivel and used as a lever to twist the strand. As twisting proceeds the weight will be drawn forward, and it is essential that the ground should be smooth so that the weight moves steadily and not jerkily.

Continue twisting until the strand begins to knot up in lumps, then ease off and secure by driving the peg into the ground.

Repeat the process with the other three strands, twisting them all in the same direction.

If extra operators are available, three strands may be twisted simultaneously and in this case a long bar passed through a link of chain on each strand will hold the rope and prevent the strands from untwisting.

Twisting the Rope.

When all the strands have been twisted evenly and secured, take a large pair of blacksmith's pincers and move up to the anchor post.

The handles of the pincers are thrust between the three strands near the ring and the crowbar is removed from the ring.

Holding the pincers in both hands by the nose and the handles, the operator then moves them slowly back towards the weights. The rope should twist of its own accord.

Should one of the strands be insufficiently twisted, it will be forced out of place at this stage and will lie on top of the other two strands instead of forming an even triple twist.

If this should occur, untwist the rope again by means of the crowbar or long peg thrust through the ring and give the defective strand a few extra twists.

Should the rope not twist freely of its own accord, the hobble-chain swivel at the anchor-post may not be working freely or alternatively the strands may be insufficiently twisted. The remedies are obvious.

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If the rope twists properly, move the pincers slowly down to the weights and then withdraw them.

Now move back to the anchor-post end of the rope and, by means of the crowbar or long peg through the ring, twist the rope still more until it is tight and hard.

Drive the crowbar into the ground again and leave the rope to dry. It will sag after a day or two but do not try to remedy this by twisting the rope any more, otherwise you will always have a rope with loose strands.

Give the rope a dressing of weevil paint to prevent damage during the drying period, and leave for three weeks or more; the longer the better. The rope should not be allowed to get wet at this stage so do not try rope-making during wet weather.

Scrape the rope with a sharp knife or piece of glass to remove surplus hair, and before using, rub in a mixture of two parts of unsalted fat to one part of Stockholm tar.

Work the rope backwards and forwards over a beam, or tie it behind a vehicle and let it drag, to make it soft and pliable. The more it is used the more supple it will become.

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**FREE BOOK ON GENETICS**

The Department of Agriculture still has a few copies of Dr. A. L. Hagedoorn's booklet "A Geneticist Talks with Australian Animal Breeders," and will make them available free of charge to farmers.

Dr. Hagedoorn, the famous Dutch geneticist, visited Australia in 1949 and gave over 80 talks to farmers and stockbreeders.

In this booklet, the publication of which was sponsored by the Commonwealth Scientific and Research Organisation, the main points of his talks have been placed on record together with a selection of the many questions asked at his lectures and the answers given by him.

Farmers wishing to obtain copies should apply without delay to The Publications Officer, Department of Agriculture, St. George's Terrace, Perth.

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