THE GNANGARA PRUNING SAW.

by H.E. Quicke

When I first used a pruning saw at Mundaring Weir some years ago, I was discouraged to find how hard they were to operate. This was partly due to lack of experience and partly due to the design of the saw. The old type saw was approximately 21" long and worked on the following principle.

The teeth are designed to cut on the downward stroke while the curve is to provide thrust as the tool is forced away from the limb on the cutting stroke. The curve also facilitates working at various distances from the tree. The section A, B, provides an easy start, while the saw gradually bites in as the curve develops, becoming most severe before D.

In practice however, something very different occurs. The blade is too short, and the curve is too great. If the operator begins his stroke at "A", the blade skips to point "B" without cutting. B - C cuts well but begins to bog in after point C. Changing the angle of the blade only changes the cutting stroke to A, B or C - D.

Either way the cutting stroke is very short and on all but very low limbs the operator must work in short jerky strokes. This makes the saw insecure in the cut, (causing bouncing) and is very tiring. The teeth are cut 5 points to the inch and are too small to clear sawdust and resin efficiently and take a long time to sharpen. Several different shaped blades were tried and it was decided to apply the old principle to a longer blade, and to increase the size of the teeth. These saws are now in wide use and have proven themselves to be a big improvement. The principle applied to the design of saw no. (1) functions well and the new saw is shown in Diagram 2.

The slope at A - B provides a smooth start, but is not steep enough to skip. B - C is very slightly curved and is the main cutting section, while C - D, a sharper curve, really bites in and is useful as a last strong stroke to remove the limb, or on fairly high limbs where pressure is difficult to apply.

$3\frac{1}{2}$ to 4 points per inch is ideal for pinaster, but owing to its softness, looser bark and more fibrous structure, radiata may require smaller teeth.

MANUFACTURE:

To date some 30 - 40 of the new saws have been made at Gnangara. The following stages are followed in the making of a saw: -

1) Suitable cross cut saws selected - The shapes marked and cut out with a fibre cutting disc attached to an electric hand grinder.

2) Shapes dressed to a fairly smooth edge with grindstone and file.

3) Teeth marked and cut out on thin gulleting stone.

4) Teeth given rough sharpening.

5) Teeth set and handle holes cut -

The blade is then ready for use but it takes another sharpening to produce a really fine pointed, properly shaped tooth.

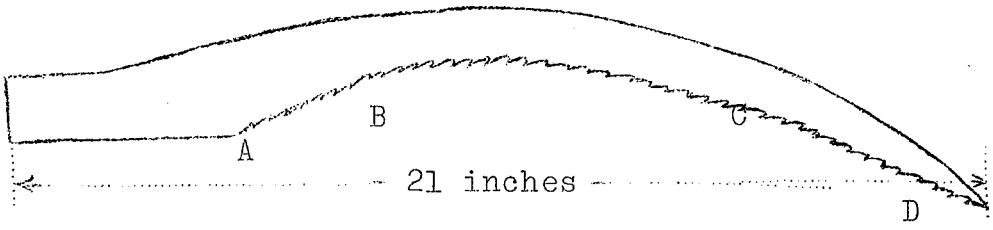
SHARPENING:

These blades are made in to a special shape, and special design of tooth. One is essential to the proper function of the other. If one is changed, this will upset the function of the other.

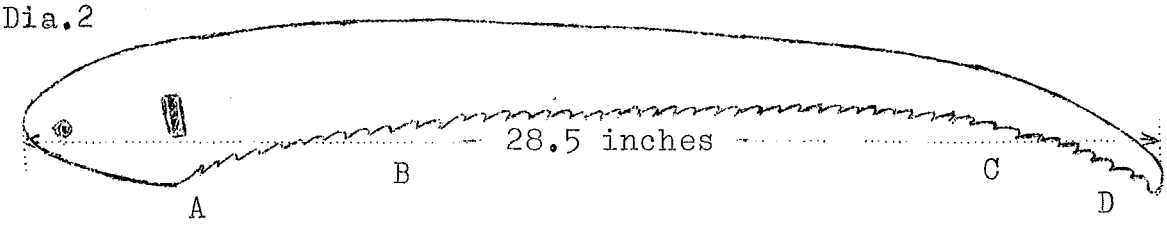
Diag. 3 shows the Gnangara saw blade shape and angle of teeth. The first few teeth "A & B" have no hook and allow for a smooth start in the cut. More hook would cause the blade to dig in before it is properly in motion. The teeth between B - C however must be maintained with the cutting edge at right angles to the face of the blade. If the hook is taken off these teeth the angle of the blade will have to be changed in the handle, and this will exaggerate the curve at C - D and cause it to jam at this point.

The teeth at C - D should be the same as A,B, but may have to be altered according to the wood being cut.

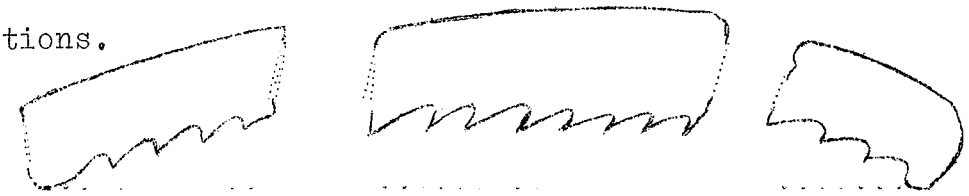
Dia.1



Dia.2



Dia 3.Sections.



As with an axe or any other cutting tool, the manner in which it is to be sharpened is the whole secret, and should never be allowed to fall in to untrained hands. The saws should be sharpened regularly by a man who uses the saw and understands the principles of saw sharpening.