THE HUMARIMBA

A MARIMBA STRUNG BETWEEN TWO HUMANS

This is one of my favourite instruments. For ages I had wanted to make a marimba, but never got around to it. Early in 1989, I wanted to design an instrument that would be easy to make yet still a challenge and would play wonderful music. I wanted to do it with some sort of marimba, but the frame and sound resonators were a problem. One morning I woke up with the idea of suspending the marimba between the two players.

Marimba and xylophones have been around in various forms for a long, long time, especially on the African, Asian and South American continents. I've even seen a photo of a brick xylophone from Austria. Marimbas are basically large xylophones. Sometimes the bars have resonators (chambers to amplify the sound) and sometimes not.

The size of the bars can vary and the tuning is up to you. I just present a few possibilities here. The type of wood will also affect the tone and the tuning. I've used a number of different timbers. All work, though obviously some are better than others.

In Australia 3" x 1" (75mm x 25mm) verandah decking is a very common size of timber, so I decided to use this size timber to make it easier for those without access to power saws etc. As it is used for flooring it is hardwood. Ideally what one wants is a resonant dense hardwood free of cracks and knots with as straight a grain as possible.

I've used ironbark, blackbutt, jarah, and brush box and all of these work well, though Rose She Oak and a number of the acacias such as acacia rhodoxylon would be even better but are harder to get commercially.

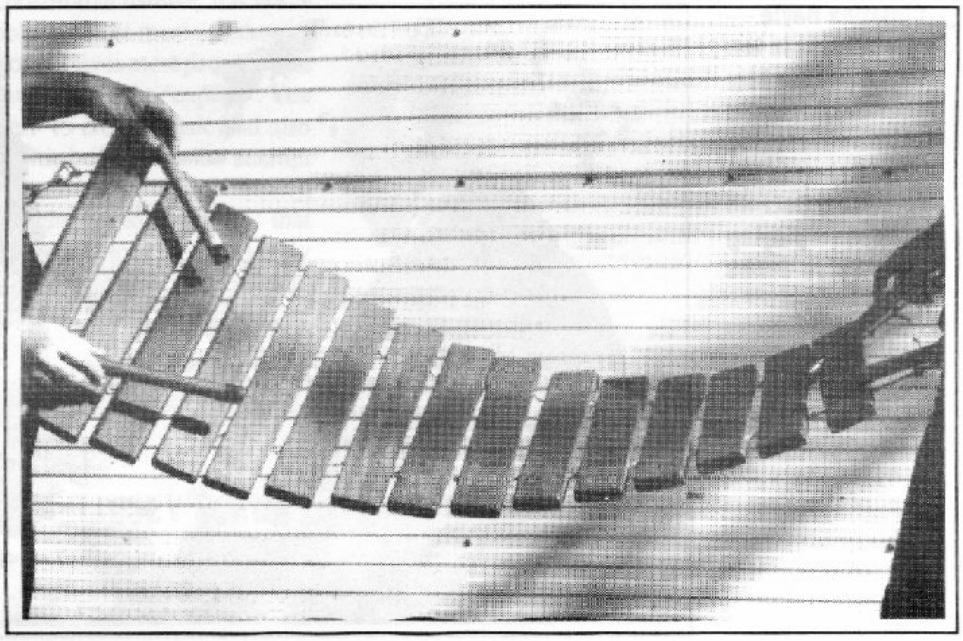
This article was part of an instrument making booklet I wrote in 1989. At that time I was using hardwoods but since about 1990 I have been using Hoop Pine in preference. This is an unorthodox choice for marimbas, however it is a perfect choice as a very resonant and light timber.

MATERIALS

7 metres of knot free 66mm x 19mm dressed Hoop pine (you can use Radiata pine, but it's not as resonant). Ask for pencil round (this refers to the way the corners are dressed).

4 mm diameter cord (about 15 metres)
4 dog clips
4 D rings
2 belts.

The Humarimba being played



TOOLS

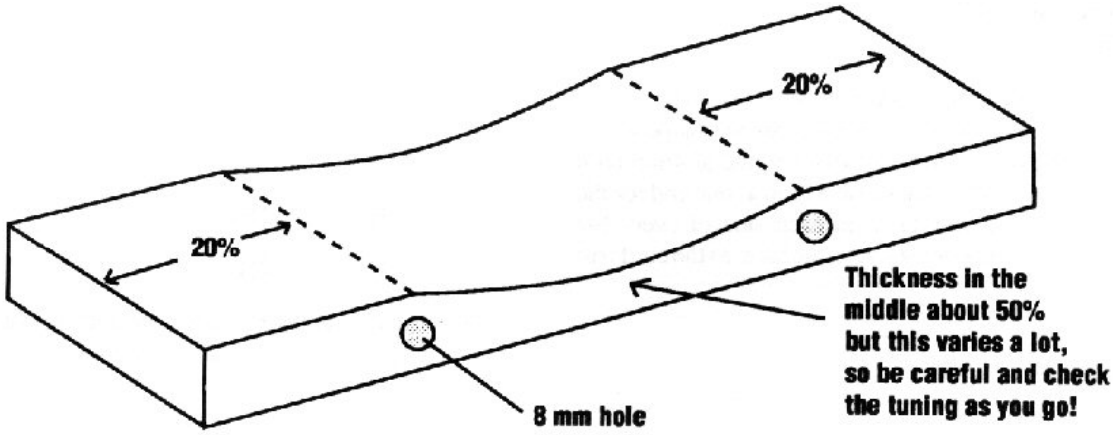
Cross cut saw
10" surform (1/2 round blade) and/or 25mm chisel and mallet
tape measure
set square
vice or G clamps to hold work
electric drill (or hand drill if not available) and 8 mm bit
coarse sandpaper

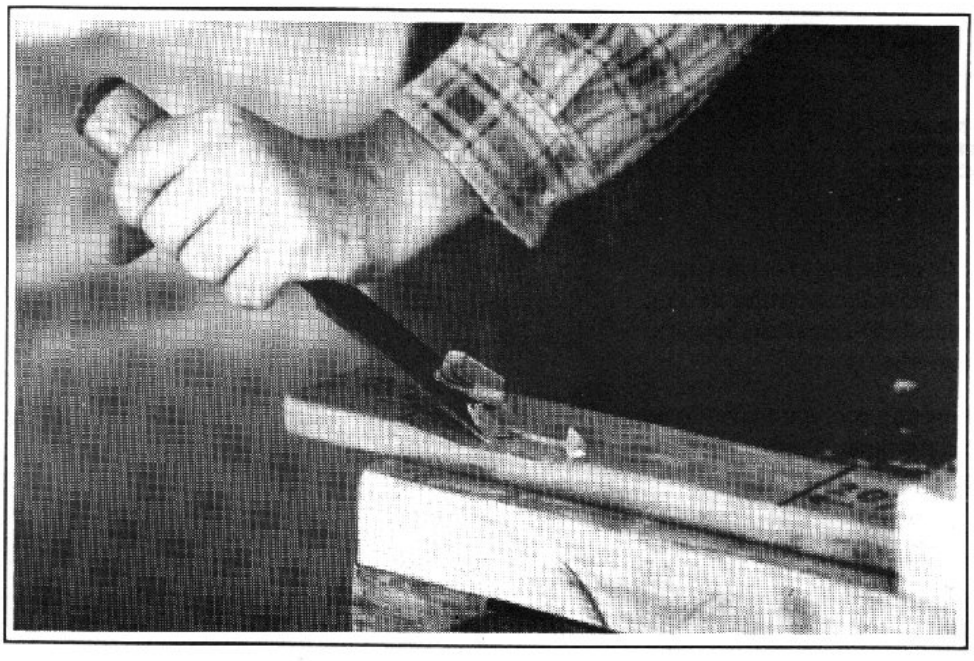
The simplicity of this instrument is wonderful. To improve the tone and to tune each bar you must carve out underneath the bar. The more you cut away the lower the note becomes. You can lower the note by as much as an octave by doing this. If you go too far then you can cut a bit off each end to make it sharper (higher) but it is best not to have to do this, and if you go too far it can't be remedied.

Therefore, the shorter the bar the higher the pitch and the more you cut away underneath the lower it becomes. In this case the length of each bar is already set and you only have to tune each bar by cutting away underneath.

The easiest way to carve out underneath is to use a 10" surform with a round blade (a surform is a sort of big rasp). If you are handy with a chisel, it is faster and you can use that instead (don't forget to work in from both ends) and finish off with the surform. Now the important point: The area you cut away is the middle 60%. You start 20% in from each end. This is also where the hole is drilled for the cord to go through. This measurement is important. Don't change it or you will lose any resonance the timber has.

Start by marking 20% of the length from each end and then begin cutting away between the 2 marks with chisel or surform. As you cut, create an even curve.



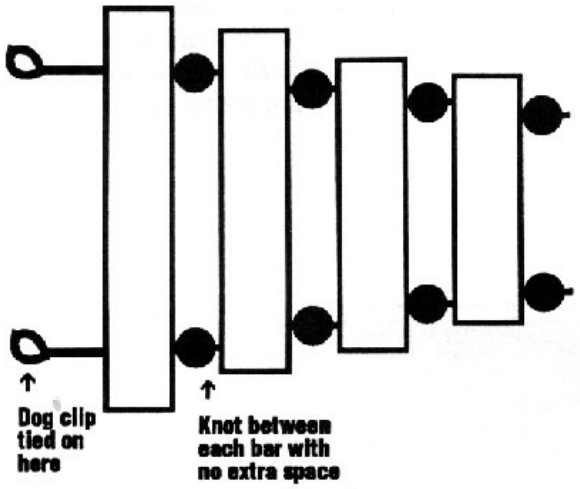


Cutting the bar with a chisel

To test the note, strike it while holding the bar between thumb and forefinger at the point where the hole is to be drilled. (This is important - if you hold it elsewhere it won't sound.) At first you may not be able to distinguish a note, the sound will be dead. As you cut away more, you will begin to hear a definite pitch which becomes lower the more you cut away. Use a tuner or recorder or piano or anything that will give you the pitch you require. Something with a similar sound, such as a xylophone, will make it easier. At first, determining the pitch will be difficult but it does get easier. Keep cutting away until the note of the bar is only very slightly sharper than the note you want (less than a quarter-tone) and then leave it until the marimba is strung up to finish tuning it. To give you a very rough guideline, you will be cutting down to about half way through the thickness at the middle point. But be careful!! This varies from timber to timber and sometimes even bar to bar.

After you have roughly tuned each bar you can drill the holes through the bars at 20% in from each end. This can be a bit tricky! If you use 4mm cord, drill 8mm holes.

Now you can string up the marimba. You may want to sand the ends and edges of each bar at this point. To string up the marimba, cut two lengths of 4mm cord each about 7 metres long. Tie a loop at one end for the dog clips then tie a knot on each side of every bar leaving no extra cord between the bars, as the cord will stretch.



When all the bars are on, tie off the last knot and cut the cord to the correct length and make loops for the dog clips. The dog clips clip onto the D-rings that slip on the belts that suspend the marimba.

Now that the marimba is in one piece, you can fine tune it very carefully with the surform, and Presto! You have the finished humarimba.

Measurements for
66mm x 19mm Hoop Pine

note	length(mm)	20%
F	300	60
E	310	62
D	320	64
C	330	66
B	340	68
A	350	70
G	360	72
F	370	74
E	380	76
D	400	80
C	420	84
B	440	88
A	460	92
G	480	96
F	500	100

The notes indicated are just one possible way of tuning and it is up to you how you want to tune the marimba. By cutting away more on the two 'B' notes, you could make them 'Bb". Or you could go from A up to E and just do a 12-note marimba (one and a half octaves). It's up to you. Just remember that the amount you cut away has a big effect on the tuning, so within reason the same length can be used for a few different notes.

Mallets

These are made from 30cm lengths of 16mm dowel using soft white rubber chair leg ends.

This article was originally part of the book "Home Made Musical instruments" (1989) which is now out of print. I have updated the measurements and timber type used. Since 1990 I have also used resonators made from 65mm polyethylene corrugated draincoil, but these are not described in this article.

There will be another book on Humarimba making and playing coming out hopefully in 2006 / 2007.

Linsey Pollak 2006