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LUTHIER'S LUTE

Woodworker and luthier **Shaun Newman** presents the first of a three-part guide to building your own iconic Renaissance instrument

Photographs by **Dave Hutton**

More than 12 years ago I began making a lute. Somehow, I got blown off course, and despite successfully carving out the intricate rosette in the soundboard, and making a few of the 11 ribs to construct the back, the job got shelved.

Recently, however, I was able to offer some workshop experience to a young student from the International Lutherie School in Antwerp, Belgium. He spotted the work I had done to date on the lute and encouraged me to continue. I feel like I should have been the one encouraging him, but sometimes these things work in reverse. One suggestion he made was that I look at the work of an English lute maker, Stephen Gottlieb,

which can be seen in a video clip on Vimeo (see sidebar at end of article) and is one of a series made for BBC 2 in the 1970s called *In the Making*. Truly inspired, with some hope in my heart I decided to continue.

A little history – the early days

It is thought that the lute is derived from the mediaeval 'oud', which came to Europe in the 15th century from North Africa. The Arabic name 'l'oud' means 'the wood', and as the name was absorbed into European culture it became 'the lute'. From the late 15th century until several decades into the 18th, almost all of the great European lute makers were German or Austrian. 'The wood' seems an appropriate name, given the plentiful supplies of such timbers as spruce and maple in that area. History shows that a number of well-known makers emigrated to Italy, and workshops appeared in cities such as Venice, Padua, Bologna and Rome.

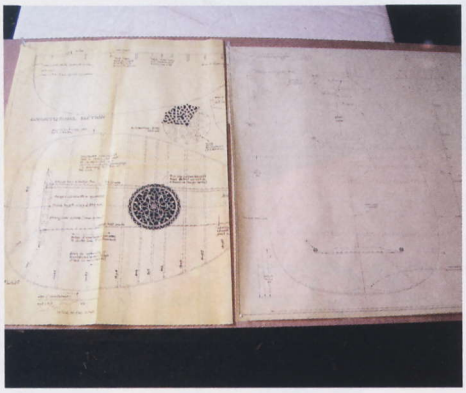
The lute dominated the musical scene for several hundred years across Europe, both as an accompaniment to song, and later as a solo instrument in churches, courts and just about everywhere. The lute itself changed from just seven courses (a 'course' is either a pair of strings, or a single one) with 13 strings right up to as many as 19 strings in 10 courses. The body almost always appeared similar, with the characteristic bowl shape, but the neck and fingerboard were often changed by almost unrecognisable proportions. From the simple seven-course lute to the 'chittarone' or 'theorbo', the instrument grew in size from under 1m in length to more than 2m.

Playing techniques also changed over the years. The earlier instruments were played with a plectrum, probably made from goose quill, but the lute was later plucked in a similar way to the modern classical guitar, although the convention was to hold the hand with the fingers pointing slightly upwards, rather than down. Written notation would frequently be in the form of diagrams showing where the fingers of the left hand should be placed onto the fingerboard – an early form of 'tablature' (more commonly known as 'tab'). Once solo playing became accepted some very beautiful pieces were written, for example by Sylvius Leopold Weiss and even by Vincenzo Galilei, father of the astronomer Galileo Galilei. The compositions are truly sublime.

Recent times – relatively speaking

After around 1600 the demand for lutes declined, and it is felt that this was the result of the rising popularity and hence demand for violins. The few lutes that were made hardly conformed to convention (i.e. extreme lightness and traditional construction) and it was not until great makers of the 20th century, such as Stephen Gottlieb and Robert Lundberg, were working that techniques used by Renaissance and Baroque makers returned. As the instrument came back into favour, there were few craftspeople with the traditional skills, so most lutes began to be made by guitar or violin makers. Open peg heads began to become more widespread, and the soundboards were braced more firmly.

I would like to think that I had the skills and ability to emulate the fabulous and traditional techniques of Gottlieb and Lundberg, but alas,



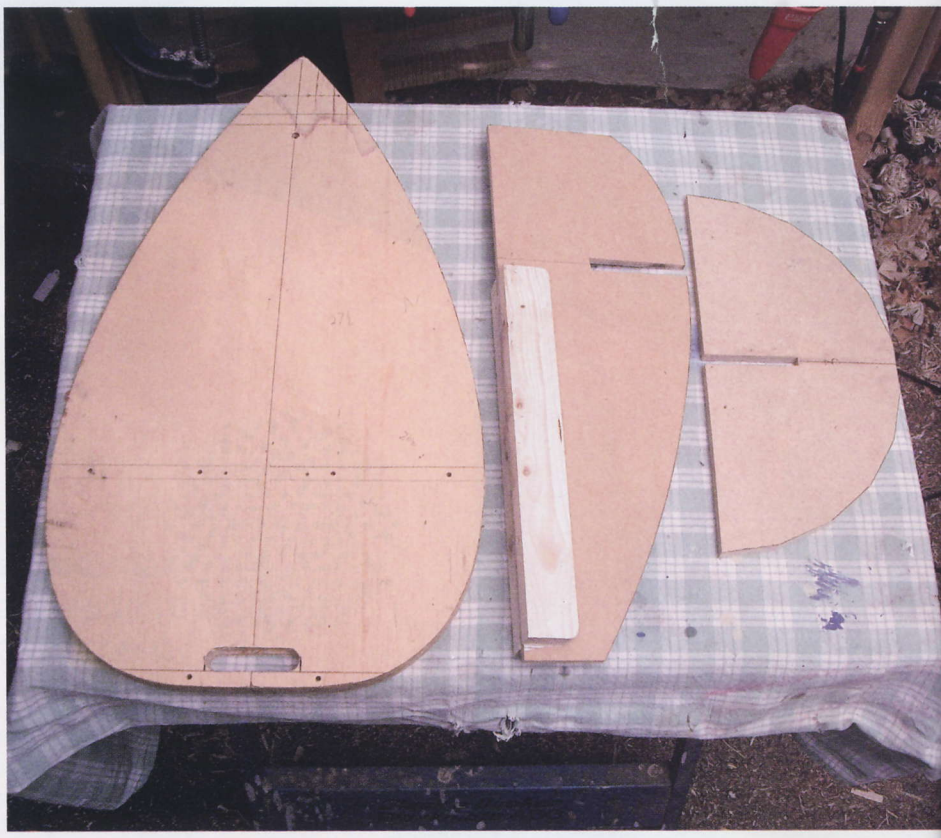
1 Typical line drawings of the lute, these from the Lute Society

my lute is somewhat 'in the style of', rather than conforming exactly to their approach, so as a guitar maker myself, the instrument described here has, for example, an open peg head.

Work, plans & jigs

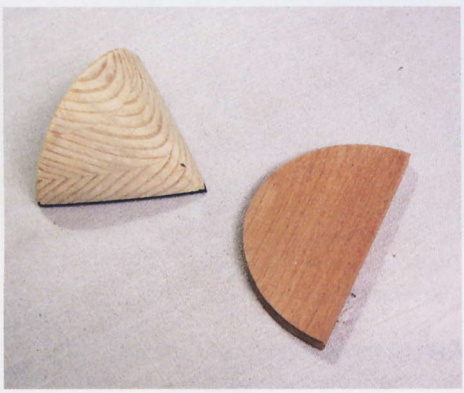
It would be very difficult to make a lute without reference to a plan, and there are many available. R.Z. Taylor's book *Make and Play a Lute* has plans and instructions, including full-sized templates and is easy to follow. Line drawings are available from a number of suppliers not least The Lute Society or The Guild of American Luthiers (see suppliers list) (**photo 1**).

Once a suitable plan has been found it is time to source the timber. As a classical guitar maker, I am used to working with rosewood so chose that wood for the back of the instrument, while spruce was bought for the soundboard, cedar for the neck, and maple for the peghead. Given new CITES regulations on the use and movement of all species of rosewood, I would recommend maple, or walnut (or even a combination of the two with alternating ribs) for the bowl.

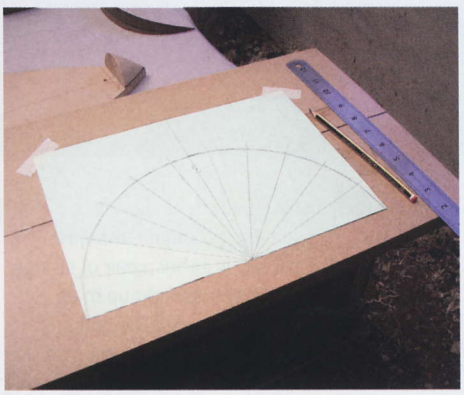


2 The components of the bowl former

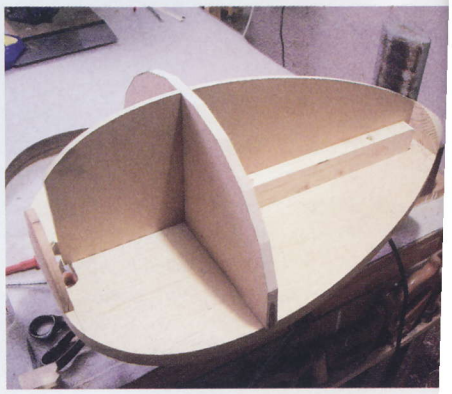
As with all stringed instruments a mould, former, or workboard is needed to create the correct shape and to hold the work in place during construction. For a lute it is common to see solid formers made from wood or compressed polystyrene. An alternative, which is very simple to make, is rather more a jig than a solid former. It is made from pine and MDF and has a plywood baseboard around 22mm thick (**photo 2**). The jig is made with a block at either end. The one nearer the neck end of the bowl is a half cone, while the



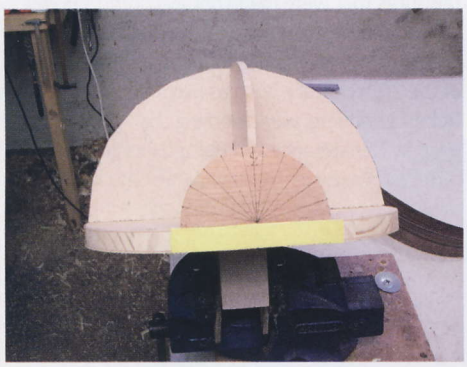
3 The tail disc and neck cone



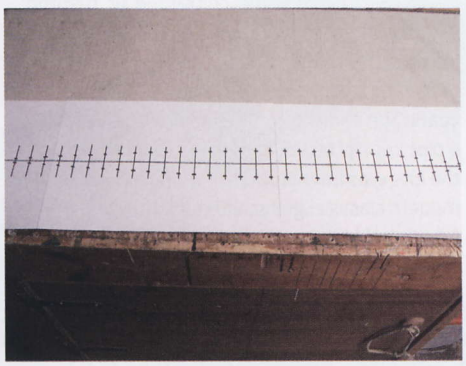
4 Working out where the ribs will sit



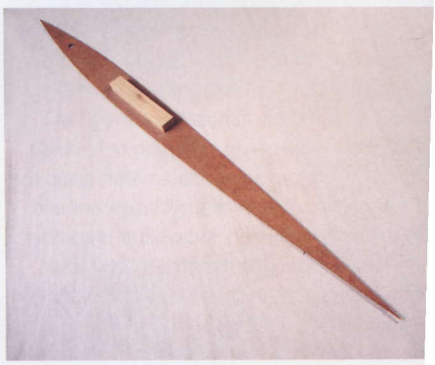
5 The former assembled with tail and neck blocks in place



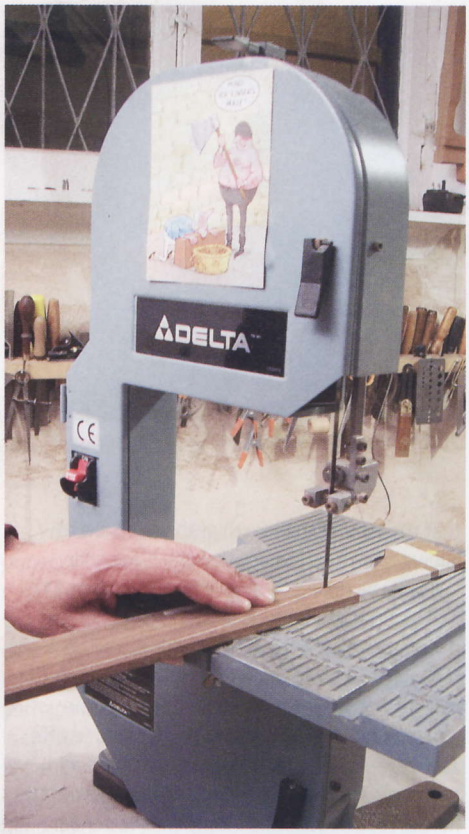
6 The tailblock is marked out ready for the ribs



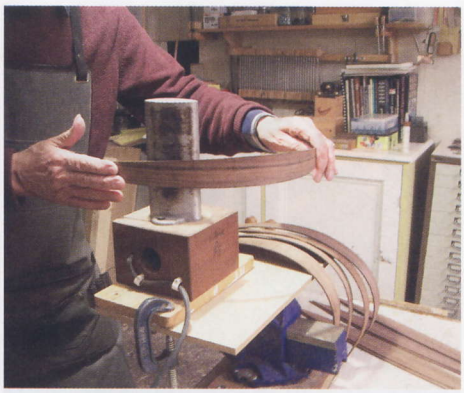
7 The rib template is first marked onto card



8 The rib template ready for use



9 Cutting the ribs out on the bandsaw, two at a time



10 The ribs are bent on a hot iron

11 A slight angle is cut into the edges of each rib

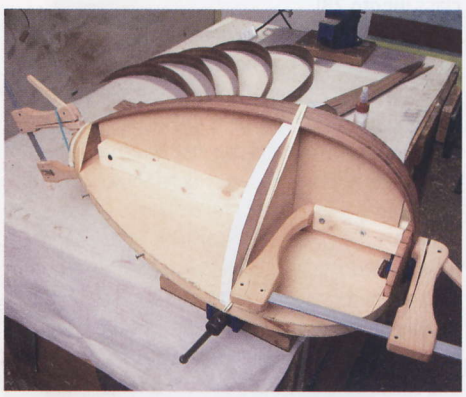
one at the tail end is a half disc, curved to the shape of the lower end of the bowl (**photo 3**). Later, flats will be cut onto the disc and the central support arch with a razor file to allow the tapered ribs to be attached. The positions of the flats are located by first drawing a diagram onto card, which will later be cut to the same size as the disc and the positions marked in pencil (**photo 4**). Flats are also filed into the top of the central arch. The blocks are screwed to the baseboard of the jig from below and when the bowl has been completed, the screw holes are covered by the soundboard (**photos 5** & **6**).

The ribs & bowl

To achieve the perfect shape, the ribs must be made with great accuracy. First a template is made to ensure that all 11 required turn out with exactly the same dimensions. The neck end of each rib reduces to a very fine taper, while the tail end less so. Each rib is 655mm long × 45mm wide. The tapers each begin 410mm from the narrower end (**photos 7** & **8**). Once cut out on the bandsaw (**photo 9**), each rib is bent on the hot iron to the exact curve of the jig (**photo 10**). To ensure good adhesion between the ribs, their edges should be sanded at an angle so that when any two ribs are brought together there is no gap between them. This task is easier than it looks, provided they are sanded on a flat surface. I found that a piece of plate glass covered with abrasive held in place with double-sided tape did a good job. The plate glass had originally belonged to a coffee table from the 1970s, and is around 12mm thick, measuring 800mm × 550mm (**photo 11**).

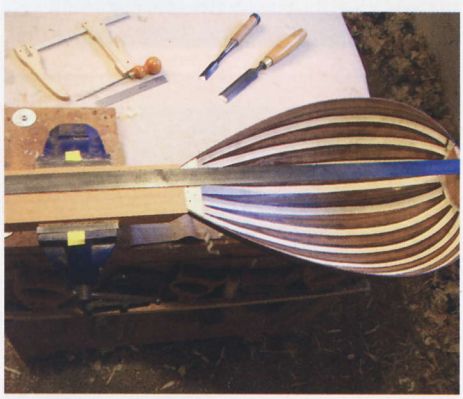
To create the bowl, the ribs are glued to the two end blocks, starting with the centre one and held in place both with clamps and very strong masking tape. They tend to lift away from the jig, so it is as well to hold them down with strong elastic bands as the rib edges are glued together (**photo 12**). When the last two ribs are fitted they should sit neatly on the baseboard of the jig; any slight discrepancy can be corrected by sanding the entire bowl face down on the glass covered with abrasive (**photo 13**).

As it is taken from the jig the bowl is pretty strong, but to add strength, linen tapes are glued over the inside of the seams. The tapes are soaked in Titebond and smoothed into place with a fingertip (**photo 14**).



12 Keeping each rib in place is a challenge!

13 Ensuring the outer rim of the bowl is dead flat

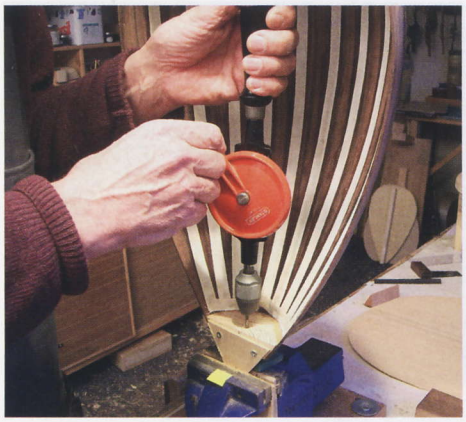


14 Linen tapes strengthen the joins

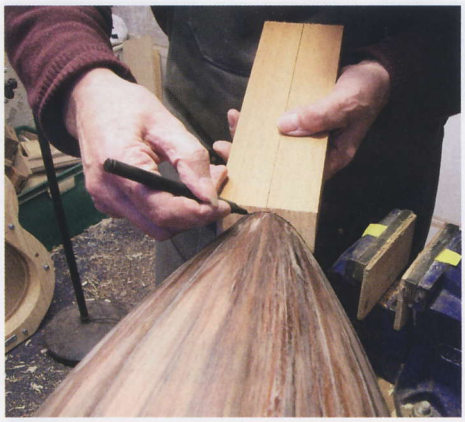
15 Preparing the cedar neck

16 Hold your breath while you cut the neck angle

17 A small ply block prevents the neck join from sliding as the glue cures



18 A hole is drilled ready to receive the screw that will hold the neck to the bowl



19 The outer curve of the neck is scribed following the line of the bowl

20 The neck inlay in place

The neck

This part of the lute is made from a billet of cedar 250mm long, 70mm wide and 25mm thick (**photo 15**). One end of the billet needs to be attached to the bowl before the neck can be properly shaped. The join between the two parts is a simple butt, cut at an angle of 72°. The first cut is made into the neck end block of the bowl. At first daunting, this task is also less difficult than it looks. The secret is to place a piece of masking tape around the neck block, which gives a pathway for the dovetail saw to follow (**photo 16**). A sliding bevel can then be used to ensure the exact angle is transferred to the end of the cedar billet. These two surfaces are glued and held with a nail or screw. Many older lutes had a flat-headed nail to hold these parts together. I prefer to use a screw as it is easier to control the join as it goes into place. To avoid the two surfaces sliding apart, a small triangle of plywood is attached to the block in the bowl and held in place with two small screws (**photo 17**). A hole is then drilled down into the neck billet through the block to accept the screw that will hold the neck in place (**photo 18**). Before any glue is applied, the neck must be shaped. The back of the neck conforms to the curve at the upper end of the bowl. First the shape is scribed onto the end of the billet and the waste wood removed with a spokeshave or small plane (**photo 19**). A little inlaid decoration can be added to the back of the neck before finally shaping it, although it is not necessary (**photo 20**).

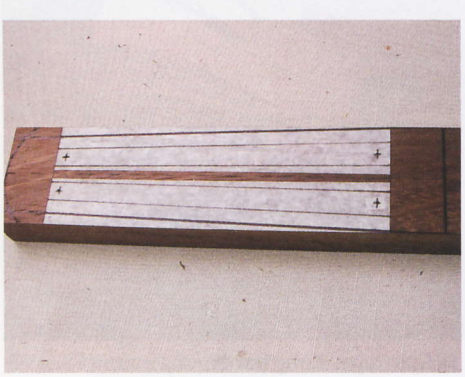
The peghead

The traditional approach to this part of the lute would have been to make a 'pegbox' rather than a 'peghead'. The box would be closed on three sides, the top being left open and it would taper both along its width and its depth. I have worked on several lutes and the closed box does present some problems for the owner. First it is rather more difficult to string the instrument with a closed box, and frequently the box gets messy with dust and the odd dead insect. It is surprising what luthiers find in various instrument parts – I once found a cigar butt in a 19th century German guitar! The open peghead that I am illustrating here is a popular way of constructing a lute, and is of course similar to the slotted headstock of a guitar.

To begin with, a billet of hardwood such as maple or mahogany is chosen 250mm long, 65mm wide × 25mm thick. For illustrative purposes, the headstock depicted for this part of the operation is mahogany. The peghead may be faced and edged with a rosewood veneer and will have holes first drilled and then reamed into the edges to accept the tuning pegs. The slots that run almost the length of the head are to allow the strings to pass through holes that will later be drilled through the pegs (**photo 21**).

A gentle taper is applied to the edges of the peghead, which is 61mm wide at the neck reducing to 53mm at the end. It is also tapered along its depth from 25mm to 20mm at the end (**photo 22**), and is then simply rounded off. The peghead can have a veneered face to add to the variety of timber used; the one illustrated here is rosewood. If the intention is to veneer the peghead, it is of course advisable to address this before drilling out the string slots. To make the face veneer, two pieces of 2mm thick bookmatched rosewood are planed and sanded true along the edges that will form part of the centre join, and before placing it into the jointing jig, a strip of purfling can be run along the inside. This is purely decorative, and although not necessary does add a touch of interest, and even class (**photo 23**).

To help prevent splitting in the peghead, it is as well to drill the peg holes before cutting out the long slots. However, to work out the pathway of the slots, a 16mm hole is drilled right through the head at the end of each slot, which will later help to guide their exact position (**photo 24**). The next step is to mark out and drill the peg holes. There are seven on the treble side, and six on the bass (**photo 25**). As each has to be tapered later with a reamer, they should be no wider than the thinner end of the peg. Most lutes made with an open peghead can have viola pegs fitted, and these normally have a 1:40 ratio taper. If the pegs are turned on the lathe rather than bought commercially, they must conform to the taper

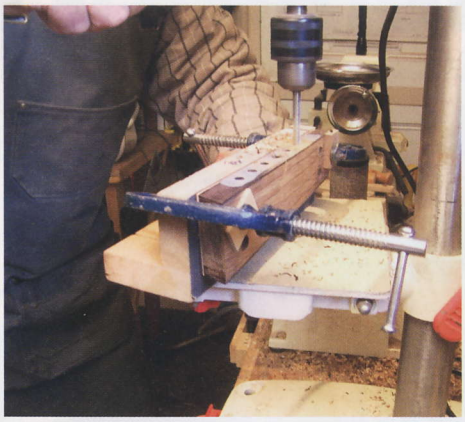


21 The peghead marked out

22 Tapering the peghead with a No.5½ plane

23 The peghead facing in a simple jig

24 Drilling out the string slots...



25 ... followed by the peg holes

26 Some of the pegs that can be fitted: viola, vihuela, lute and baroque guitar

ratio of whatever reamer is chosen. For this project I chose ready-made viola pegs made from ebony with the 'Parisian eye' inlay in the end of the button. These came from Dictum in Germany (see suppliers list). For a rather more decorative look, it is possible to fit ready-made lute pegs, or perhaps baroque guitar or vihuela ones. Whatever is chosen, it is important to ensure the reamer has exactly the same taper as the pegs (**photo 26**).

Once the initial peg holes have been drilled the headstock slots can be cut out using a jigsaw. Strips of masking tape are useful to indicate the edges of the slots (**photo 27**), and any slight discrepancies can be removed using a sanding stick, measuring around 6mm thick. It is best to leave the final reaming of the peg holes until after the slots have been cut, which means there will be a lot less resistance due to the amount of wood removed from the middle section of each half of the peghead.

27 A jigsaw cuts out the string slots with ease

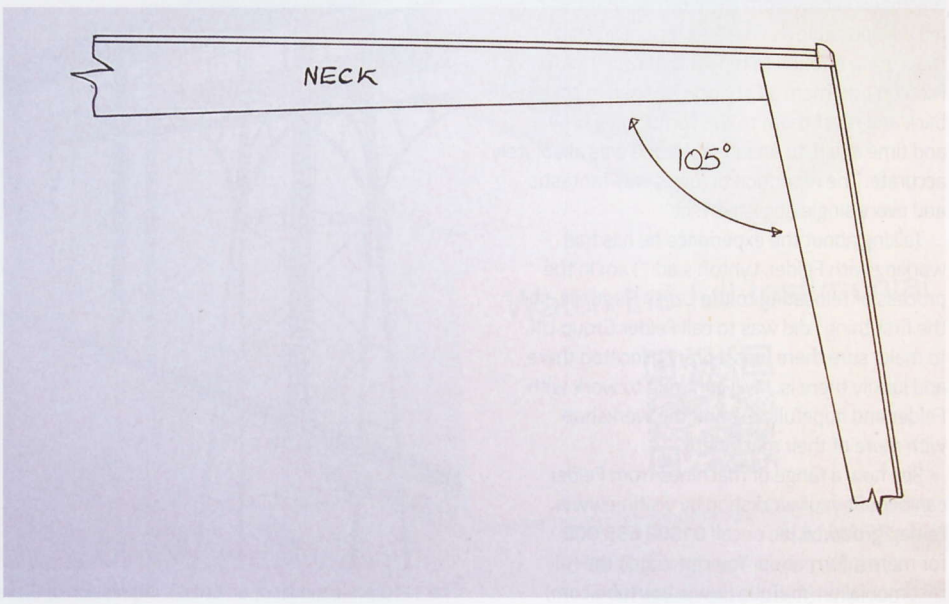
Attaching the peghead to the neck

After the peghead has been fully prepared it can be fitted to the neck. This is achieved by a lapped housing cut at an angle. The peghead leans back almost at right angles and I am often asked why. It seems simply that to avoid it from flying off, the angle increased over the years to compensate for the pull of the strings, particularly as more and more were added as the lute developed.

The first part of the join is cut into the end of the neck at an angle of 105°, but is of course not cut right through. The cut leaves a ledge of around 4mm in thickness on the face that will accept the fingerboard. This angle is transferred to the wider end of the headstock and the waste wood is removed with a dovetail saw. As the face of the neck will be covered by the fingerboard, the headstock can be pulled into place at the join by two small screws. These will not be seen when the fingerboard is glued on or can be removed once the Titebond has cured (**photo 28**).

When the peghead is in place the final curve of the neck can be completed. Some players prefer a 'D' shape to the curve, and others a 'C' shape. The lute described here has a 'C' shaped neck.

By now things are beginning to look like a lute, and it is surprising just how light the partly completed instrument feels.



28 The neck angle at 105°

SUPPLIERS & SOURCES OF HELP

- The Lute Society for plans, sheet music, literature and lists of teachers – **www.thelutesociety.co.uk**
- Touchstone Tonewoods – for timber and tools – **www.touchstonetonewoods.co.uk**
- Tonetech – as with Touchstone – **www.tonetechluthiersupplies.co.uk**
- Stewart-Macdonald – for plans, tools and all manner of luthiers' supplies – **www.stewmac.com**
- The Guild of American Luthiers – for plans and literature – **www.luth.org**
- David Dyke – for timber and tools – **www.luthierssupplies.co.uk**
- The Early Music Shop – for specialist strings, cases and pegs – **www.earlymusicshop.com**
- The Luthiers Nook – for pegs – **www.luthiersnook.com**
- Madinter Wood – for music, pegs and timber – **www.madinter.com**
- Keystone Timbers – for exotic timber – **www.tonewoods4luthiers.co.uk**
- Strings Direct – for all manner of strings – **www.stringsdirect.co.uk**
- Dictum – for pegs, timber and tools – **www.dictum.com**
- 'In the Making', Vimeo, a film about the work of Steven Gottlieb – **https://vimeo.com/96809354**
- *Historical Lute Construction*, Robert Lundberg. Published by the Guild of American Luthiers, 1972 – possibly the most comprehensive book on lute construction available
- *Make and Play a Lute*, R.Z.Taylor – published by Special Interest Model Books, 1983

NEXT MONTH

In the February issue, Shaun moves on to discussing the making and attaching of the soundboard and fingerboard