

## PINS IN MORTISE-AND-TENON JOINTS

I remember that at our Society's Inaugural meeting at St. Fagans there was some discussion about the wooden pins, used to secure old joints, and in particular about the way they often stand proud to an extent that no amount of shrinkage of the mortise sides can account for.

Since then, I have handled many such pieces and have come to the conclusion that the reason for this lies mainly in the tendency for the pins to work out, because they were driven under compression into holes which were often slightly tapered; the racking movement of a table or chair frame would in time cause them to ease very slightly outwards.

We should consider how they were made and fitted. In the type of furniture where they occur (Joined pieces of the 17th century and earlier type, though often made much later) the pin holes would have been bored with a "Shell" bit, making a round hole, often with a very slight taper. The pins were split and "shaved with the Paring Chisel" (Moxon. 1700) to a size suitable for driving into the holes, but with a slightly irregular section, often visible on ends left protruding inside the rails. These angles bit into the sides of the holes, giving a firmer hold. Often they were driven on the "draw bore" principle, by which the hole in the tenon was fractionally closer to the shoulders than the holes in the sides of the mortise; when the pin was driven, this "drift" caused it to draw the joint up tight. This would give a very strong grip on the pin, but shrinkage would have had a significant effect in this

case because in time it would reduce the width of the mortise sides, bringing the pin-holes back in line and relaxing the grip on the pin.

Recently, I have dealt with an early 18th century chair with pins so loose that they were dropping out. They were all perfectly round in section, all  $1\frac{3}{4}$ " long and all tapered precisely from  $\frac{3}{8}$ " to  $\frac{1}{4}$ " over their length. It is unreasonable to suppose that the maker would have needed to make pins with such precision, although they may have been shaved to a round section after splitting out. It seems evident that this form resulted from driving compressible (green wood?) pins into holes bored with a tapered bit.

It is interesting to compare pins of rough, early type with those found in the joints of lighter, more "fashionable" Regional pieces of the late 18th and early 19th centuries. Because the supports of these latter pieces were thinner and the mortise sides more delicate, the old rough-shaved pins would probably have split them; perfectly round pins were used, which fitted accurately into straight holes.

Traditionally, such pins were made by driving the split pieces through a succession of holes in a steel plate, which shaved them down to the desired size. I use such a "dowel plate" myself for this purpose.

Luke Millar