

Did they really have the lathe?

by Art Burrows

In the last issue, I emphasised that my suggestions regarding the ways in which the Ancient Egyptians may have used the adze are not supported by evidence such as models of carpenter's workshops or tomb paintings. But this should be seen in perspective. Although the civilisation lasted for over 3000 years, just four of these models have actually been found and only a relatively small number of tombs provide useful illustrations of tools and their uses.

We are left with a rudimentary knowledge of the tools employed and some examples of the final results. For instance, tools already found confirm that the Ancient Egyptian woodworkers used axes, saws and adzes (all of which have been shown in photos accompanying earlier articles in this series), chisels, which differ little in shape and size from their modern counterparts and mallets such as those shown in Photos.2&3. Holes were drilled with a Bow Drill (Fig.2) though less is known about the style and variety of drill bits used.

We also know that wood was sanded using blocks of sandstone. But when it comes to discovering whether the Ancient Egyptians developed the lathe and if so, when, the information available diminishes rapidly.

It is not uncommon to hear the glib statement that *the lathe was invented in Egypt*. The proof generally cited is a carving found on a wall in the tomb of Sesostris who died about 300BCE. This carving is re-drawn in Fig.1.

There are a few problems associated

with this. Firstly, the workpiece is shown as vertical, not horizontal. It is held by two vertical shafts which might have been made from metal, though they were more likely pieces of wood.

One of the operators of the lathe was able to rotate the workpiece a few turns back and forth by pulling on a rope or cord; this was wrapped once around what may have been a piece of wood attached to the workpiece, rather than the workpiece itself. The tool was used by the second operator.

There has been some speculation that this representation of the device is inaccurate — that the workpiece might have been held horizontally, rather than vertically. The reason given for this is that the Ancient Egyptians were unable to draw objects in perspective. It is true that they often combined the side elevation of, say, a chair with a plan of its seat, showing both, but omitting their physical relationship. However it's difficult to see how such peculiarities in presentation might have resulted in such a misrepresentation of a horizontal lathe.

of what are indisputably turned items dating from about 700 or 800BCE. But even this doesn't make the lathe unique to Egypt. A fragment of a turned Etruscan wooden bowl found near Tarquinia, Italy, is believed to have been made at about the same time. That's not to say that items which have a turned appearance do not date from earlier than that in Egypt, it's just that there is not enough proof that these items were turned and not carved.

Take a look at the pieces in Photo.1. Are they turned or carved? With the exception of the one with the marked centre (see Photo.1 caption), it is difficult to be sure.

The ends of the work may have been cut off (thereby discarding the centre marks), or they may be obscured by joints with other components of the furniture of which they were part. Finally, should the surfaces be able to be examined more closely than is possible when they are in a museum display case, the tell-tale circular marks of turning may have been obliterated by sand-



Photo.1: Furniture components — Cairo Museum.

Note the small centremark on the spindle second from the right at top.

Whether horizontal or vertical, however, the device can surely be called a lathe. It is not simply a bow drill such as the one shown in diagrammatic form in Fig.2. The features that define it as a lathe are i) the fixing of the workpiece in space so that its only possible movement is rotation around its axis, and ii) the use of the right hand vertical component of the frame as a toolrest on which the tool can bear.

But lathe or not, there is still the problem of timing. The carving dates from about 300BCE at which time there is good evidence that woodturning was already being performed in other regions of the world including England.

Turning was certainly known in Egypt long before this — the earliest examples

ing or by the generous application of gesso. The latter was commonly used by the Ancient Egyptian furniture maker to form a base for painting or other decoration.

Even if it could be shown that the earliest of these spindles were carved not turned, this begs the question: *How did they come to be designed if their makers had no knowledge of turning?*

At one point, Flinders Petrie, the doyen of 19th century archaeologists, did not equivocate on the subject. He thought that the stone vessels and fragments that he found on the Giza plateau showed clear signs of being turned. Not only that, he refuted the idea that they may have been cut with a slurry since this would have produced an abraded



Photos.2&3: Mallets — Cairo Museum. ('Turned' piece not identified.)

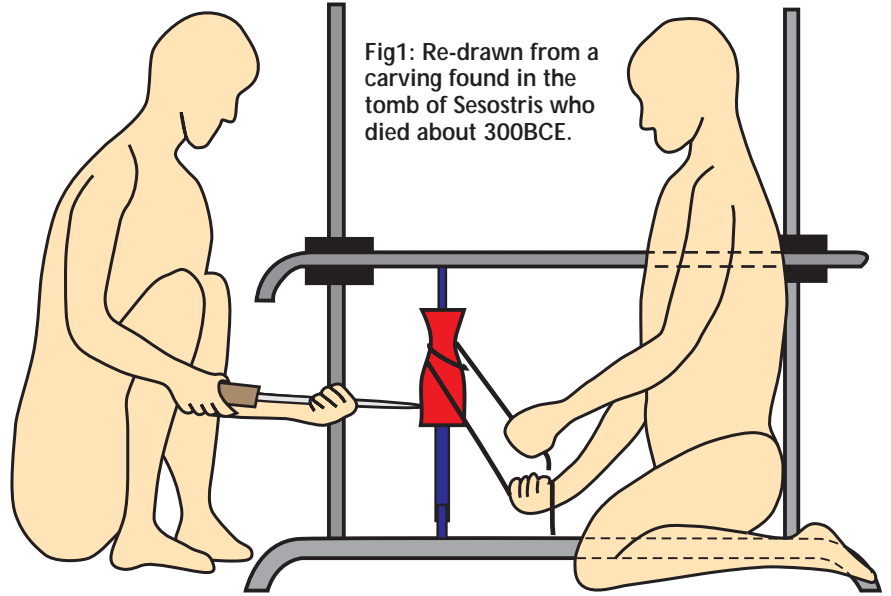


Fig1: Re-drawn from a carving found in the tomb of Sesostri who died about 300BCE.

surface, not the clear, clean and definite cuts which to him, indicated the use of a sharp cutting tool harder than the stone.

He said: *The principle of rotating the tool was, for smaller objects, abandoned in favour of rotating the work; and the lathe appears to have been as familiar an instrument in the fourth dynasty, as it is in modern workshops.*

The fourth dynasty was around the time of the Great Pyramids, so Petrie believed Egyptians were using lathes some 4500 years ago.

Or did he? His statements elsewhere on the subject of woodworking suggest a contrary point of view.

Some modern writers ignore Petrie's speculation in favour of theories which even include the use of 'ultrasonic cutting'. The problem with these notions is that they ignore the existence of technological ecology.

Technologies do not and cannot stand alone; to state that a particular technology was used is to claim the existence of many other technologies upon which it must depend.

It would all be easier to understand if we could only believe the long held, but often disputed idea that the Ancient Egyptians were able to temper copper.

In this area, as in so many others, we find a discouraging lack of real evidence.

Were their saws, adzes and chisels actually much harder than they are today? Have they merely lost their temper over the intervening years?

It would be a convenient explanation but we

have to wonder why nobody has so far re-discovered this tempering technique?

Perhaps, as Petrie suggested with respect to the tools used for stone, they may have had special tools, particularly for certain applications such as drilling deep holes or 'turning' hardwoods like ebony? But if so, why can't we find them?

Petrie has something to say on this as well:

That no remains of these saws or tubular drills have yet been found is to be expected, since we have not yet found even waste specimens of work to a tenth of the amount that a single tool would produce; and the tools, instead of being thrown away like the waste, would be most carefully guarded.

Again, even of common masons' chisels, there are probably not a dozen known; and yet they would be far commoner than jewelled tools, and also more likely to be lost, or to be buried with the workman.

The great saws and drills of the Pyramid workers would be royal property, and it would, perhaps, cost a man his life if he lost one; while the bronze would be remelted, and the jewels reset, when the tools became worn, so that no worn out tools would be thrown away.

This concludes the present series. There is, however, much left to explore — particularly with respect to the design of furniture, the use of specific features and the way in which these were integrated into a loose but definable design code that lasted over 2000 years.

Maybe next year.

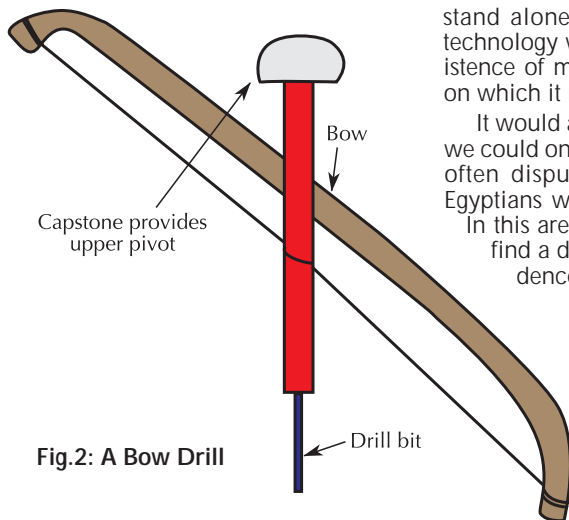


Fig.2: A Bow Drill