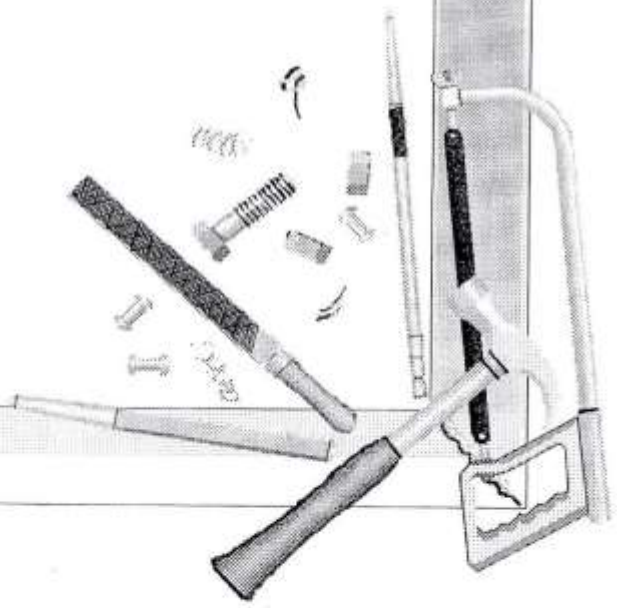
So you want to be a wood turner

by

"Chuck Turner"



This Booklet is intended to try to pass on to those who are contemplating taking, up **Wood turning, some** of the things which should be considered....

SO YOU WANT TO BE A WOODTURNER.

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Chapter 1.

This booklet is intended to try to pass on to those who are contemplating taking up woodturnmg, some of the things which should be considered.

Buying a Lathe

Where can I put it?
What room is available for me to be able to operate it fully?
If long hole boring of Table or Standard Lamps is contemplated, room must be available to the right of the tailstock, to allow the insertion of the boring tool

Will shavings and dust affect other things close by?
I.E. Car in the garage - deep freeze etc- A lot of turners set up in their garages and the car eventually ends up in the open.

Will I need to make a bench to support it - or will it have its own stand?
Quite a few lathes are sold with their own stand, some stands are an additional cost- or the lathe can be mounted on a home made bench.

What accessories come with the Lathe ? How many more items will I have to buy to start even the simplest bit of spindle turning?
Most lathes are equipped with a drive centre in the headstock and a dead centre in the tailstock -some have 2 sizes of tool rest, others one short one ~ you will need a longer tool rest for spindle work and probably a running tail stock Centre.

What diameter of wood will turn over the bed bars?
This is an important measurement, and is known as the "Swing over the Bed" it is sometimes reduced by the "saddle" or tool rest holder, which will come between the bed bars and the wood being turned - it is an advantage to have a fairly good diameter,

Has it* a *swivelling headstock? What is the maximum size bowl I can turn?
A swivelling headstock will allow you to turn larger bowls than you could over the bed bars using the same chuck. Otherwise you may have to do outboard turning - using the other end of the headstock spindle, which requires another chuck with a left hand thread. A Swivelling headstock is a good facility especially when working inside vases or boxes.

Can it be run off the household ring main? What is the Electric Motor rating?
I.E 1/2 hp, *3/4* hp 1 hp or above, remember if the lathe is to be run off the household ring mains the motor rating needs to be taken into account - bearing in mind lighting, heating, dust extraction, power requirements,

What is the best length between centres?
Lathes can be purchased with different bed lengths, according to the room available. For table or chair legs - turned in one piece you need at least 30 inches or 750mm.

Has it a hollow headstock spindle ?
Hollow headstock spindle will allow a special Jacobs chuck to be held securely in the headstock and allow morse tapers to be knocked out should they be difficult to remove,

Are the head and tail stock Morse tapers the same?
This can he useful in some circumstances.

Has it a hollow tail stock?
This facilitates easy long hole boring, although other methods can be used.

Are spares readily available?
With old or out of date lathes spares sometimes have to be specially made - can be expensive,

Is it substantially built ?
To help damp out vibration- try to avoid box, pressed steel bed bars.

Does it have a NO VOLT/ OVERLOAD Switch?
A machine provided with this facility, will not start up after a power failure, without being switched ON - Overload facility will cut the power OFF - if the motor is over loaded - A Good safety Device.

What speeds are available?
It is best, to have at least 5 speeds to suit different sizes and types of Wood.
Variable speed Is a great advantage as there are no belt changes to be made - this facility could cost more.

What do I intend to make?
Unless you are quite sure that you intend to specialise in one particular thing - i,e Lace bobbins or miniature furniture making - a small Mini Lathe would be sufficient - it would be better to go for a middle of the range sized machine on which you can make nearly anything including small items. Take your time before buying, try to get advice from an experienced Wood Turner (not the one who is selling the lathe) look at and judge all the machines you can - once you have bought, you will have it for a long time or have to sell and start again,

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Chapter 2.

Setting Up

Electric Power is easily available?
This is a difficult matter to give much advice on, as it will depend on each persons own knowledge of matters Electrical. However if you have only a little knowledge, it is essential to seek advice from an Electrician,
My own supply is via an 18mm armoured 3 core underground cable which is taken off a 13amp ring main point adjacent to the back wall of the house. The ring main is fed from a circuit breaker mains box. Cable is buried 2 feet deep beside the concrete garden path. Great care should be taken to get your supply correctly and safely installed, Al! the plugs in my workshop are fitted with the correct fuses for the equipment being used. Loading should also be taken into account if coming off a 13 amp socket. However remember that all of your equipment will not be in operation at the same time. Lathe, Lighting, Dust extraction & possibly a small heater would probably be the most power required at one time, if supply is coming off a 13amp socket,
I am not qualified to give full advice on the power supply, but must insist, that when setting up do ensure that you get the best advice possible, and don't stint on the quality of cables or electrical fittings,

Has the Lathe got its own stand?
Quite a few different types of stand are available, to suit particular lathes, some being a long box like structure which can be filled with sand or building blocks, to give stability and damp out vibration. Others with splayed legs at each end of the lathe bed which may need fixing to the floor, it is not a very good idea, to have the lathe fixed to a wooden floor, unless the floor is solidly underpinned - otherwise there may be unacceptable vibration.

Do I need to adjust the working height of the lathe?
It can cause a lot of back ache, in the long run, if the working height of your lathe is too low, It is generally accepted that to get the right height for yourself, you should stand beside the lathe and place your hand on the shoulder of that side, tuck the elbow into your side and the elbow should be roughly level with the headstock spindle. Stands are sometimes available in different heights, Otherwise mounting on wooden blocks or lengths of square timber can be the answer. It is generally best for lengths of timber to be at 90 degrees to the lathe bed axis and not protruding much beyond the front legs,
These timbers can then be fixed to the floor if required.

Can I make my own stand ?
Bearing in mind that vibration needs suppressing when the lathe is in operation, plans for your own made stand need to be well designed. Assuming that your carpentry skills are up to the job, the stand must be built with strengthened joints, and of substantial timbers. It is advisable to improve stability by incorporating some weight into the base, with perhaps paving slabs or building blocks. A stand of this type can give extra storage space and more stability if shelves are built into the plan. Filling in the back and sides with sheet material will give the strength of box construction.

Is the lathe well sited ?
There should be room on the right of the tailstock for boring operations and if the lathe has a swivel Headstock or the headstock is fixed and there is a threaded spindle at the back of the head stock allowing "outboard turning" you will need room to stand to the left of the headstock when turning large items. If the lathe is sited against the side of the workshop and it has a swivelling head stock, make sure that there is room for it to swing round,
It is not a good idea to site the lathe against a workshop window to try to get more light Windows could be broken If anything flies off the lathe, which can happen from time to time.

What type of lighting will be best ?

Generally a good angle poise lamp with a 60 watt bulb or above, sited above the lathe bed, will be sufficiently flexible to provide ail the dose up lighting requirements, It can be an advantage to have other fixed lights in the roof at either end of the lathe bed but positioning will of course need to be worked out for each situation. Some Turners don't like florescent lighting as it can produce unwelcome tricks on the eyesight when used close up to revolving work. But it can be used for general workshop lighting with good effect.

Where should I site the ON/OFF Switch ?

In the Main the ON/OFF switch for most lathes is in a fixed position, which has the advantage that with use, it is quickly found when required. Some lathes have a switch which can be placed in any position suitable to the user and some turners site them so that the off switch (which is usually protruding) can be operated by the knee. Lathes can be modified to operate from a foot pedal switch and electronic variable speed lathes some times have a free standing control panel. Depending on the kind of On/Off switch available, suitable site/space would have to be found when installing the lathe.

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Chapter 3.

Tools

Turning tools.

Can be roughly divided into 3 basic types, gouges, chisels & scrapers, a set usually consists of a Roughing Gouge, Spindle Gouge, Round Nosed Scraper, Skew Chisel & Parting tool. However composition of sets varies between Manufacturers.

What turning tools will he best for me?

***This* will depend on the size of lathe you have bought, obviously if you have bought a small mini lathe the tools you will require are only small ones, which can be bought singly or in sets of about five. There are what might be called medium sized sets of tools, these usually consist of 3/4" Roughing Gouge, 1/4" Spindle Gouge, 3/8" Bowl Gouge, 3/4" Skew Chisel, 1/8" parting tool, and '1/2" round nose scraper. These tools can be bought singly, and are all you need initially to carry out all basic turning operations.**

Should I buy Carbon or (HSS} High Speed Steel tools?

I would think that most Turners initially bought Carbon Steel, as they are usually much cheaper, However HSS tools seem to keep their edge much longer and are capable of being ground to a finer edge. There are Turners, who I know, who nevertheless still like Carbon steel and use these tools regularly. Carbon Steel tools have to be sharpened more often in my opinion. My own set of Carbon Steel tools are not used very often but nevertheless are useful.

What about Tools made from old Files ?

There is no doubt that this type of steel grinds to a very sharp edge and cuts well with very little re-grinding. However File Steel is very brittle, and they can be very dangerous, particularly if the cutting edge is extended much beyond the tool rest while in use. There is a good possibility that the file will snap under pressure, and the piece, which comes off, takes up the characteristics of shrapnel. It has happened to me with a homemade ½ " Round Nosed Scraper used well over the tool rest, deep into the bottom of a vase. The Tip about an inch long, broke off without warning, with near disastrous results. Better not used if possible,

Can I make my own Tools ?

Small tools for turning can be made from old second hand carpenters chisels or gouges providing a good grindstone is available and they are suitably re-handled, The steel is often of very good quality, but they should not be used in heavy cuts, as often the tang is the weak soft area.

For very small work some Turners make miniature tools from oboe nails, but they are of a fairly brittle nature and can only be used for light cutting on small or miniature work. Lengths of HSS tools steel can be purchased from some suppliers for Turners to make up their own special tools. Cork Handles can be made up from fishing rod handle cork, but the steel shaft needs to be long enough to extend right through the handle.

Why* are *some turning tools supplied with out handles?

Turning Tools can be purchased with, or without handles,

Those supplied without handles are usually a bit cheaper and you can turn handles for them to suit your own requirements, Handles are usually made of Ash or Beech but any reasonably close grained hard wood will suffice.

Brass ferules of various sizes, can be obtained cheaply from most vvoodturning suppliers.

There are lots of other different Tools . What should I buy?

Tool Manufacturers these days are regularly bringing out many new turning tools, some are very good, others perhaps a bit difficult to get used to. Many only do what the basic tools will do. Get used to the basic tools first and learn to use them well - later when they have been mastered and other essential equipment bought, you may want to purchase a special tool from time to time.

Where can I keep the tools?

It is useful to plan storage of the tools as near as possible to your lathe, preferably within easy reach while you are turning. Some Turners make up wooden racks drilled to accept the too! up to the handle, but this can have the disadvantage of causing the shaft to fall out, after being regularly dropped into place in the rack.

In this case it may be necessary to secure the handle with Aroldite glue,

With some thought and good carpentry a free standing Tool rack can be made up if sufficient room is available.

There is no doubt that well planned too! storage, with easy access while turning, is a great convenience.

Magnetic tool racks can be purchased, but they could be expensive if a number are required. A table or work bench adjacent to the Lathe, is an advantage, if tools are stored in tool roils or normally kept in cupboards or drawers, They can then be laid out to provide easy access while-turning.

If possible tools should be stored separated from each other to avoid damage to the cutting edges and occasionally given some anti rust treatment.

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Other Equipment

What do I need for sharpening my turning tools?
There are a great variety of grinders on the market the most common are the two wheel machines. These are often equipped with different grades of grinding wheel, dependant on the ultimate use, but generally have medium and fine carborundum wheels, The kind most popular with Woodturners has a medium carborundum wheel and a white aluminium oxide wheel which is said to be the best for sharpening High Speed Steel tools.
There are other slow turning grinders, which use water cooling, and can be used to sharpen and hone all kinds of tools, but these often require the purchase of several jigs for grinding different types of tool, this can be expensive, (one system has 13 different jigs, which may be bought, although they are not all used for sharpening turning tools). From the point of view of a Woodturner, these are considerably slower then the two wheel ordinary grinders. However some Woodturners seem to get very good results with their use. There are also what might be called combination machines which incorporate both a slow turning, water cooled wheel and a faster Aluminium Oxide Wheel.

How Important is sharpening?
Sharpening is one of the most important aspects of Woodturning which you will have to give a great deal of attention to, sooner or later.
Most People who have little experience of grinding tools, tend to press the too! against the stone too hard, and have difficulty in obtaining the correct angles required for the tool being ground. Remember always a light touch and try to use all the surface of the wheel. That is don't " dig" grooves in the surface of the wheel by grinding on the same place all the time. Too much pressure results in over heating of the steel, and burning, which destroys the temper of the tool edge.
Carbon steel tools can be quenched in cold water, from time to time during grinding, but High Speed Steel needs to be allowed to cool, otherwise the tool temper will be drawn.
After a while in use, the grinding wheels will need "dressing" to remove all the fine metal particles which have become bedded into the surface, so you will require the means of doing this. Generally there are three most used methods of dressing a wheel, by use of a bar of hard carborundum called a "Devil" stone, or using another tool called a '"Star Wheel ", there is also a Diamond wheel dresser.
The "Devil" stone is quite a good way of dressing the stone, and the Diamond wheel dresser is even better in my opinion. However i have not had much success with the "Star Wheel " which has always seemed a bit too rough for my liking, particularly on fine stones.

Are there any sharpening aids available?
Gouges are probably the most difficult of the Turning tools to sharpen on a Grinding wheel, so there are quite a lot of jigs on the market which make the job much easier and give consistent results. Tools like the Skew chisel and parting and beading tools can be sharpened on bench India or Diamond stones, or if you have a disc sander with a table set at 90 degrees to the disc with 120 grit abrasive, good results can be achieved with a little practice.
Start to grind near the centre of the disc, (which is turning slower than the outer rim) then draw the tool slowly to the faster turning outer rim, when the correct angle has been achieved.
Prices at present for two wheel grinders, vary greatly from about £30.00 to over £100.00, in my opinion a medium priced machine should give good service, as it will probably have good quality bearings and wheels.
Do some research - Talk to other Turners, look through the suppliers catalogues or around their shops before buying the first thing that you see,
Slip stones can be of use to touch up the edge of gouges, chisels & scrapers without having to do an Immediate re-grind.

Where should I site the Grinder?.
Preferably near to the lathe, you don't want to walk to the other side of the workshop every time you need to have a quick re-grind. Some very nice pedestal stands are

available at the present time, which will probably be best fixed to the floor. Bear in mind that use of a grinder produces lots of fine metal filings, so keep the grinder away from any other equipment that has an open electric motor. My experience was that a small belt & Disc sender with an open motor was right in front of my Grinder and I believe metal filings were attracted by the Motors magnets which caused it to fail.
Distribution of metal filings can be retarded by the inclusion of a strong magnet placed on the bench or stand in front of each grinding wheel, metal particles can be removed from time to time

Remember Grinders can be dangerous!
NEVER under any circumstances use an unguarded grinding wheel - some years ago a supplier of drill driven accessories sold a grinding and buffing attachment which included an unguarded grinding wheel, and following some cases of severe facial injuries this had to be withdrawn!
Be warned and take sensible precautions. Make sure your spark deflectors are properly adjusted and in place. Grinder tool rests should be about 1/16th from the edge of the wheel - firmly secured and adjusted regularly as the wheel wears,
Don't allow anything to fall against or knock the wheels, which could crack causing bits to fly off with disastrous results. It is best to use eye protection when using grinders.
If a wheel needs changing get advice from your supplier, find out how to test a wheel for cracks, never leave off the cardboard washers each side of the wheel or over tighten the retaining nuts.
In industry all persons changing grinder wheels have to have a special course.

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Tool Rests

What Kind of Tool Rests will I Need?
There are a wide variety of tool rests on the market, of different shapes and for different uses.
The standard rests are generally available from the maker of your chosen lathe, in two or three different lengths, although special tool rests can be purchased from other suppliers, in which case you would have to supply the diameter of the tool rest stem. When doing spindle turning, a rest which will extend the full length of the work is an advantage, equally, under some circumstances, a shorter than standard tool rest is useful.
Then there are curved tool rests, to help the turner when turning inside a bowl, and other special shaped rests which you could find useful. However, initially, it is usual for the lathe manufacturer to provide a medium sized tool rest with the machine - what other tool rests are available, should be a question put to your Lathe Supplier, Some times a lathe comes with a short and medium rest, these should be sufficient for a new comer to wood turning to use during the early days, A look through various suppliers catalogues, will quickly inform you what is available, but again as with turning tools, don't be too quick to buy until you eventually find the need for a particular rest. In use tool rests can suffer damage, usually deep nicks on the working surface in which turning tools, particularly skew chisels, or tools with a square or rectangular shaft, can stick, when traversing the tool rest. Some turners overcome this by lightly rounding off the corners of the turning tool. However occasionally, and I mean very occasionally, it may be necessary to lightly draw file the tool rest, to smooth the surface back to its original state. You can also get a better and smoother movement along your tool rest, by subbing a candle along it from time to time, if you feel that the tool is dragging.
Some Suppliers have special Tool Rests for small work (like Lace Bobbins) which have a straight or vertical face which allows the rest to be placed very close to the work.

Drive Centres

Will I require more than one Drive Centre?
Ordinary drive centres on No 1 - No2 & No3 Morse tapers can be obtained in a number of different diameters from about 1/2 " upwards, the use of which depends on the diameter of the spindle work being turned.
If is useful in the long run to have a selection of different diameter drive centres.
Drive Centres are usually two or four pronged.
Four pronged will give a strong and reliable drive, which will be well suited to any heavy work, Many Turners favour the two pronged drive as it is possible to adjust the work piece to a better centre by tapping it into place. The four pronged centre, would of course not allow this manoeuvre. Many four pronged drive centres have an adjustable centre pin, which can be turned round to provide a cylindrical pin instead of a point. This turns the drive into a counter bore (more of which later under long hole boring).
There are some special drive centres made to quickly fit into certain chucks so that the chuck doesn't have to be removed, when changing over to spindle turning, but these of course are particular to the type of chuck they have been designed for. There is also available a ring (drive) centre - which is usually used in the tail stock to avoid problems when doing split turnings - However when used in the headstock as a (pressure) drive centre it has been found useful by budding turners, as it allows the drive to slip, if a tool "dig in" occurs. A, thing which can be a boon to the timid newcomer!
Usually your new lathe is supplied with a medium sized drive centre, and again, there is no need to rush out and buy further sizes immediately, wait until you find the need for a different size.

Tail Stock Centres.

What kinds* are *Available?

Quite a number of new lathes are supplied with solid tail stock centres, which are not too well liked by modern Woodturners, because they set up a friction which burns the wood at the point of contact.

This requires the centre to be constantly lubricated with wax and the pressure on the spindle being turned, frequently adjusted, as the end of the spindle is worn or burnt away

It is a good idea to obtain a running tail stock centre as soon as possible, if one Is not supplied with the lathe.

Running tail stock centres come in various sizes mounted on No 1 No2 & No3 Morse tapers.

Again a look through various Suppliers Catalogues, will quickly inform you of what is available.

There are, what are described as, Deluxe Revolving Centre's which have about 4 different alternative fittings which can be changed as required

1. **A Mini point - which allows better access round the end of small work.**
2. **Cone Centre and Reducer - to centre split turnings and lace bobbin blanks,**
3. **Ring Centre - where there is a danger of splitting the wood or for split turnings,**
4. **Adaptor Plate - For making up various supports. E.G supporting open end of goblets etc,**

(In this respect I keep a variety of sizes of solid rubber or plastic bails in my workshop to enable me to support openings that cannot be filled by my revolving centre. The ball filling the opening and the running centre holding the ball in place,)

For use in long hole boring there are hollow ring centres (with a centralising pin) and even a hollow running centre.

It is advisable when turning, to take notice when ever any unusual noise develops, for example a rattle or vibration of the work, as this can indicate that the pressure on the spindle by the tail stock has some how been reduced. When a spindle has been properly mounted on the lathe the tail stock should always be locked, an operation which can be easily forgotten

Reducing Morse Tapers

What are these used for?

They are morse tapers which enable the user, to convert a machine with No 3 or *1* morse taper head and tail stocks to No 1, or No3 to No2, They are in the form of a sleeve which fits into the head or tail stock and provides a No1 or No2 taper through its centre.

Useful if you should use a machine with a larger taper than your own.

It is not advisable to use them on head or tail stocks where they cannot be knocked out after use.

They are available from most lathe or engineering suppliers.

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Chapter 6.

Boring Holes on the Lathe

What equipment is required?

A Jacobs chuck will be the first thing to buy. This is a three jaw chuck similar to the chuck on an electric drill but is mounted on either No 1, 2 or 3 Morse taper.
They are usually used fitted into the tail stock and the drill, when secured, is then wound into the work. During this operation it is important to wind the drill into and out of the work piece to remove the shavings, which can become compacted, just as you would when using a drill press. There are occasions when you may want to drill from the head-stock end, but be warned, when inserted into the headstock spindle, if constant pressure cannot be maintained throughout, the Jacobs chuck will work loose, and can fly out with disastrous results.
There is on the market a very useful Jacobs Chuck where the end of the Morse taper has an internal thread and a length of threaded bar is provided, with a nut on the end to secure the chuck into any hollow headstock. This enables the easy drilling of handles, and with the use of a small table mounted in the too! rest support,, tamp bases can be effectively drilled horizontally for the insertion of the electrical wiring, It can also be used as a chuck for small items,

What Kind of drills can I use on the lathe?

Brad Point Drills are freely available and are specially ground for accurate drilling in wood,
I have never tried to sharpen them, a process which could prove difficult, however as they are only used for drilling wood there is not likely to be a regular requirement,

Engineering Drills mounted on Morse tapers, are usually used when working in metals, and are quite expensive to buy. A good source of these is at Boot Fairs where they can often be found on sale for as little as 50p or less, I have acquired all sizes from an 1/8th to 1/2" in this way, They are very useful for boring wood on the lathe, as they can be mounted straight into the tail stock, and quickly knocked out again, when the job is finished. They can be used at about 800 to 1200 rpm providing attention is given to the removal of the shavings while in use,

Twist Drills can be used in the Jacobs chuck, up to the capacity of its jaws, which is usually 1/2", Boring end grain on the lathe (the item would have to be held in a 3 or 4 jawed chuck) there is a distinct advantage, small diameter drills run true, as the grain is revolving round the drill, whereas on a drill press the drill tends to follow the grain. This is particularly noticeable when boring such things as Light Pulls, Again removal of the shavings while boring is important, particularly with small diameter drills, which can quickly jam and break.

Flat Bits the kind generally used in electric drills can be used, but having a very long point are not very useful when boring on the lathe. When I have used them they have seemed to be rather violent and caused great vibration, I would say there are better methods!

Forstner Bits are ideal for Woodturners, and range in size from about 1/4 " to 3-1/8" they will bore a nearly flat bottomed, accurate hole, with a very shallow point mark at the centre
which can be easily removed if required with a scraper.

Saw Tooth Bits are similar to Forstner bits but have saw type teeth around the edge as opposed to the Forstner which has a continuous cutting surface, they are made in a similar range of sizes, They should be used at slow speed, to avoid overheating, which could destroy the temper of the cutting edge.
Both Forstner and Saw Tooth Bits can be bought in short stem and longer stern versions, individually or in boxed sets. Prices vary considerably and one should shop around carefully. Seconds can sometimes be purchased from some suppliers, and can

be quite useful, as it is not often that great accuracy is required when working in wood.

When boring large diameter holes with these bits, it is preferable to work in stages using several smaller sizes, in increasing order to relieve the possible stress on the large bit,- and decrease the amount of heat generated.

If I want to make table OR standard lamps what do I need?

You will require a long hole boring kit. This usually consists of an Auger about 30 inches long, with a wooden handle, A four Prong Drive Centre / Counter bore, a short, hollow centre with the appropriate Morse taper to fit your own machine, and a Centre finder and Allen Key, The four Prong Drive Centre has a removable centre pin held in place by an allen screw which can be undone to allow the pin to be reversed, to present a cylindrical pilot which will fit into the 5/16" hole made by the Auger half way through the process.
The method is, mount the wood on the 4 prong drive with the point in place. Mount the wood at the tailstock end onto the hollow centre, with the centre finder point fixed in place with the grub screw in the hollow centre. Centralise the wood " Start the lathe on its lowest speed or about 450 rprm, slacken off the grub screw and wind the hollow centre into the revolving wood.
Stop the lathe, remove the centre finder pin from the hollow centre and remount the wood on the hollow centre again. Without increasing the speed, the Auger is then passed through the hollow tailstock and will start to remove wood,
Progress in short bites of about 1/2" at a time, paying attention to the removal of the shavings, until the half way stage has been reached,
If the Auger tends to bind or starts to squeal, each time it is pulled out to remove the shavings, it can be rubbed with a block of beeswax to provide lubrication,
When the Auger has bored out to just past the half way mark, the lathe is stopped and the wood must be reversed from head to tailstock.
The pin in the 4 prong drive centre is now removed and reversed, which presents a cylindrical Pilot which will fit into the hole already bored. At the tailstock end the centring of the wood is again carried out as previously described, and boring of the blank completed, It is preferable to bore out the lamp blank before attempting to do any shaping of the lamp stem. When turning the lamp stem, the Counter bore remains in place, but a running centre can be used to replace the hollow centre.
If it is intended to make a standard lamp, the first section has a spigot turned on the end; the exact size of the head of the Counter bore. When the second section has been bored and shaped the pressure on the tailstock is slackened off and a firm grip established with the left hand on the wood, With the right hand at the tailstock end, the wood is wound gently into the Counter bore, which will bore slowly into the end grain and produce a perfect mortise. A depth of about one inch should be sufficient but great care should be takers to release the shavings, as when the prongs of the Counter bore get well into the wood there is no way for shavings to escape,
If there is a need to joint sections of spindle turning, this can be done if a 2 inch long hole is bored in the second section with the Auger and the Counter bore used in the manner as described to produce a mortise
If it is not your intention to produce table or standard lamps in any numbers, and the cost of the Long Hole Boring Kit is therefore not viable, some Woodturning suppliers sell already bored lamp blanks which is a very convenient service.
If your lathe has not got a hollow tailstock there is an independent long hole boring jig available from most woodturning suppliers which fits into the tool rest holder and used in a similar way.

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Chapter 7.

Safety Measures

What can I do to ensure that i work in a Safe manner?

Enthusiasm and the thrill of turning a lump of rough wood., into an item which can be a source of great pleasure, can quickly overcome ail your natural safety instincts,
So always be acutely aware, that you must keep safety well to the fore at all times, don't rush into any movement, cut, or adjustment without considering the safety aspects of what you are about to do. Be self disciplined and develop a regular safe routine,

Mounting Wood on the Lathe

When spindle turning ensure that the drive centre Is located well into the end of the wood, Some turners cut a slot or slots to take the pronges, others knock the drive centre into the end of the wood with a mallet. At the tail stock end the centre must be wound into the wood and locked into place with the tail stock locking mechanism.
As a safety practice always listen for any unexplained noises while turning and stop and identify the cause. For example, if the tailstock has not been locked into place. It can move and a rattle will develop, this can effect the quality of the turning or in extreme case the wood could fly off.
Before switching on the lathe always turn the wood by hand to ensure that: it clears the bed bars and the tool rest. At the same time try to judge if the wood is very much out of balance, in which case it may be necessary to start on the slowest, speed until the wood has been roughed to a balanced cylinder. Never adjust the tool rest while the lathe is in motion, you wilt see others do it quite often, but don't pick up others sloppy routines, stick to your own safety rules, The safest way of mounting bowl blanks is on a face plate, providing of course that sufficient screws are used and that they are firmly set into the wood, You will find that the length of screw will be a matter of your judgement, according to the size and weight of the blank being mounted, and of course depending on whether the screw holes can be removed in the next stage of the process,
A good rule is,, use all the screw holes in the face plate, If attaching a face plate to the bark side of a half log it is advisable to plane or chisel a flat surface for the face plate to fit firmly onto, When bowl turning over the bed bars, unless you have a particularly long length between centres, and can put the tailstock well out of the way, always remove the running centre, as one's elbow can receive a nasty wound from the sharp point.
When using chucks - make sure that the jaws are fully tightened, and when removing wood from the chuck, do not leave the chuck levers still inserted in position as any accidental start up will throw them out with alarming speed.

Clothing

Pay particular attention to your hair and clothing before starting to do any turning.
Long hair must be carefully secured under a cap, or tied back out of the way with no loose ends showing. Similarly neck ties should not be worn as they can prove to be extremely dangerous if caught up in the revolving wood or spindle. Scarves are just as dangerous as ties and should not be worn unless they are completely covered in by other clothing. It is an advantage to have a shirt which can be buttoned at the neck.
Loose cuffs are also a danger and sleeves should either be rolled up or well secured and close fitting; an elastic band round the cuff of some garments, can be useful.
Do not wear bandages on your hands or anywhere they could be in danger of catching in the revolving work.
Wear sensible footwear and where it can be afforded, safety boots or shoes, it is quite easy to drop a heavy tool or piece of wood onto your feet. Toe protected boots or shoes are well worth the expenditure.

The Floor

Keep where you stand fairly free of shavings, which can build up in mounds and at least give uncomfortable footing, have a regular clear up, or sweep shavings into a corner out of the way until later. Don't leave wood or tools laying about - keep the working area clear or you may not enjoy your trip!
Waxed floor boards, wooden block flooring and even painted concrete floors, can be very slippery when covered with shavings. This can be overcome by a rubber or woven plastic mat. Carpet off cuts can also overcome slippery surfaces and provide some comfort on concrete surfaces in winter. (There is no hope of keeping them clean of course!).

Finishing & Finishes

Sanding is usually carried out low down on a spindle or bowl in what is often described as the *7* o'clock position, This carries the sanding dust away from the body and should the abrasive slip from your hand it will fly away from you. Care should be taken however, to ensure that there is always sufficient room for your fingers, between the edge of a bowl or spindle and the bed bars, as getting fingers trapped and pulled in, could result in a severe injury, A more common injury than you may think.
Get into the habit of supporting the hand holding the abrasive, with the other hand, this gives a much better control, and stops the fingers being occasionally twirled around uncontrollably. Wire wool - 0000 grade is used by most Woodturners and it is not generally known that it is highly combustible, both on its own and when impregnated with wax polishes, or combustible liquids. It must always be kept in a safe place away from the possibility of sparks from your grinder. One spark will set it alight and many workshop fires are attributable to this little known fact.
Polishing materials, paper and clean up rags can be subject to spontaneous combustion when impregnated with French Polish, White Spirit, Spirit dyes, Linseed oil etc and should be kept in an air tight jar or moved out of the workshop every time it is closed up for the night. I keep an old metal bucket outside in the garden, and all of this material is thrown out into if when I finish for the day. Pressurized containers and any inflammable liquids must be kept in a coot position where there is no possibility of them being overheated by sunlight, through the windows.

Lighting – eye safety - electricity

Make sure that your workshop is well lit. and a good angle poise lamp, with at least a 60 watt bulb fitted over the lathe bed. Fluorescent lighting is quite good for general workshop lighting but is not usually recommended for close work on the lathe, where it can cause a strobic effect and have other undesirable effects on the eyesight. In my own case I get flashing colours with some woods which tend to turn into migraine.
While on the subject of eyes it is important to have available some eye protection both for turning and using your grinder. There are a good variety of eye protectors available ranging from safety glasses which can be purchased from your opticians, and safety goggles and face shields can be obtained from most woodturning suppliers. Face shields seem to be favoured by most Woodturners as they are capable of being raised to allow a better look at the work from time to time. Although most Demonstrators you may see at shows, and on other occasions, never seem to take any precautions, don't be fooled, this is only because it would make demonstrating difficult. They nearly all use eye protection in their own workshops, particularly when roughing out very splintery wood or logs covered in rough bark,
This is an aspect of turning which deserves much more attention than most of us give it. There are of course a good number of Respirator helmets on the market which take care of eye protection and the ever present possible ill effects of dust generated while turning and sanding. Then there is electricity in the workshop - make sure that the wiring is properly installed and cables properly secured with cable clips to *a* sound timber backing. Try to install switched sockets at all points close to where there is a requirement for power. Do away where possible with all trailing leads. Make sure that all your plugs are fused at the proper level for the power requirement.

SO YOU WANT TO BE A WOODTURNER
Chapter 8.

Further Aspects of Safety

Are there any hazards to health connected with Woodturning?
Modern power machining of' wood will always produce shavings, and dust in some quantity, dust in particular will tend to be blown into the atmosphere, the degree of concentration depending on the equipment being used, and the duration of use, It is advisable at all times, to take some precautions to protect yourself from the effects of breathing in this dust. The extent of these precautions will be affected of course by the amount of dust generated by your activities. In the case of most part time or Amateur wood turners, the most dust will probably be generated by hand sanding, although there are a number of woods which are of a very dusty nature-and give off dust during turning. Keeping your turning tools realty sharp can help to produce a finish from the tool which will not need too much sanding, thus cutting down the amount of dust produced,
Band saws are a source of considerable amounts of dust, and it is advisable when using them to make an effort to protect yourself from the effects of dust inhalation.
You will see Woodturning demonstrators who apparently make no effort protect themselves from the effects of dust, however this is because it is difficult to demonstrate to an audience and talk while masked up. Seen in their own workshops they will all be taking sensible measures. The inhalation of too much dust of any kind, can be injurious to health, and in some circumstances wood dusts can cause skin disorders, a type of asthma, and obstruction of the nose, and it has been known that life long exposure has led to a rare type of nasal cancer in some cases. Having said that, one must not be put off taking up woodturning as long as some sensible precautions are taken, This may, in some cases, be taken care of, by wearing a simple face mask, again dependant on the amount of dust being generated it may be necessary to purchase a powered respirator.
Protection is available from safety equipment suppliers, ranging from a simple face mask to powered respirators, all of which must be suitable for use with wood dust. The concentration of dusts will also be affected by the size of the area in which you are working whether it is an open shelter, a very large workshop or a small garden shed. It is also important to remember to clear up effectively at the end of each turning session and to vacuum up dust which may have settled on the surfaces in the work place,
Heavy concentrations of dust in the air are in some circumstances combustible, but although I have not heard, in this respect, of any problems experienced by Amateur Woodturners, it is as well to be aware of the possibilities.
As mentioned in a previous Chapter wood dust on the floor can cause slipping and tripping if not cleared up or swept aside until the final clear up at the end of the day. If it can be afforded, it is n good idea to try to install in your workplace some kind of dust extractor system; there are a number of types available from Woodturning suppliers. Extractor fans can also be installed, but it must be realised that they will also extract the warm air in the winter! I would not attempt to give detailed advice on matters of Health and Safety in connection with woodturning - not being by any means fully conversant with all aspects of this subject. Health & Safety Books & FREE publications are available by Mai! order from;-HSE Books, Po Box 1999, Sudbury, Suffolk. CO10 6F5, Telephone 01787 881165 FAX 01787 313995.
Additional advice and information can be obtained from local Health & Safety Offices, Address and telephone numbers can be found in the telephone directory under Health & Safety-Executive,
I have found the following free Health & Safety Executive Information sheets to be very informative,
Sheet No 1. " Wood Dust Hazards & Precautions",
Sheet No 11, " Hardwood Dust Survey ".
Sheet No 12, " Assessment & Control of Wood Dust & Use of the Dust Lamp".

Sheet No 14. " Selection of Respiratory Protective Equipment suitable for use with Wood Dust",
Sheet No 30. " Toxic Woods ",
Sheet No 31 " Safety in the use of narrow band sawing machines".

These information sheets may seem to be aimed at the more industrial side of wood processing, where there is likely to be far greater concentrations of dusts. However it is just as important to the Wood turner, Amateur or Professional, to be aware of the possible ill effects which could he experienced if sensible precautions are not taken.
When assessing the various woods which you may come into contact with, it is as well to remember at even if they are included in a list of toxic woods, it does not mean that a particular wood in will result in adverse health effects. Lots of timbers are used regularly without any apparent effect, this depends on the species used, extent of exposure, the sensitivity of the user to the wood and levels of toxic agent within the wood.
My neighbour who I introduced to woodturning 2 years ago has been making fantastic progress, and has announced on several occasions, that he has really found his great retirement hobby,
He has turned a number of pieces of Iroko during the past 2 years without any ill effects, However recently after turning an Iroko bowl he had a sudden and unexpected asthma like attack or something akin to that. He spent a week sitting up in bed at night in an uncomfortable state before the symptoms began to wear off. It began to look as if his turning days were over and he was unhappy about going into the workshop but following advice from myself and others, his fears were overcome.
The first thing of course was to get someone else to vacuum out the workshop to get rid of any residue of dust remaining. Then have a careful and thoughtful review of ones dust precautions.
This he did which resulted in him buying a very good dust extractor and Powered respirator *and* vowing never to touch a piece of Iroko ever again. No further trouble has come his way and his turning is becoming - of a very high standard. So do try to protect yourself from any possible effects of dust, take it seriously, don't let it worry you and remember that the inhalation of any kind of dust in excess is a health hazard, Take sensible precautions at all times and if affected by any wood avoid using it in future, I would strongly recommend everyone to obtain copies of the HSE Information sheets quoted in this article.

SO YOU WANT TO BE A WOODTURNER
Chapter 9.

Wood

Where and how can I get* wood *for turning?

There are roughly 3 main sources of supply.

1.Prepared Wood.

Can be bought from woodturning suppliers, who advertise in most woodworking magazines. Woodturning Suppliers hold a great variety of different woods, home grown and imported, in prepared bowl and spindle turning blanks. Some of which you may feel ere a bit expensive, but you must remember that they have had to get the wood seasoned, cut to size, and the end grain sealed, Costs of felling and transporting of imported woods must also be taken into account. The blanks are often labelled individually with the type of wood and annotated as follows. PS = Part Seasoned. Which means that the blank requires further seasoning, AD = Air Dried. Which means it has been stacked and dried naturally. KD = Kiln Dried, The wood has been heated in a kiln to dry the wood comparatively quickly. Without this information, one is not really sure if the wood is suitable for use immediately, unless you have a moisture meter or can put it into store for a while. Moisture meters can be rather expensive if you are just starting in woodturning, and are of greater use if you intend to season your own wood from the point of felling.

Prepared wood which is ready to use, in the case of bowl blanks, requires no further attention and wood for spindle turning will possibly only require cutting to length, which can easily be done with a hand saw. When purchasing prepared blanks one should examine each piece carefully and reject any badly cracked wood or that which has too many bark inclusion's. Unless you want to include these defects as a feature of the item planned, Wood is a volatile material and suppliers cannot really be blamed, if after purchase it proves to be a bit unsatisfactory. However persistently occurring faults in prepared blanks can indicate that maybe you should change your supplier. Some suppliers sell whole rough-cut planks, but these would have to be cut to size by the purchaser. Bags of wood can be purchased, which contain a variety of different woods, but I have not found these to be *of* much use, usually being odd sizes. Useful if you want to familiarize yourself with the way that different woods turn.

2. Hardwood Off Cuts

Are increasingly available from local sawmills and Joinery Shops, so make enquiries in your local area. Rough-cut planks can often be purchased from sawmills but will usually be much higher priced than off cuts.

Once you have obtained a reasonable piece of wood, it is then possible to cut it up for Bowl Blanks or spindle turning. Keep it in store and only do this as the need arises. Most of the wood from these sources has been Kiln dried and all that is required is to seal the ends with Paraffin wax, although any old gloss or bitumen paint would be suitable, before putting it into store. Cutting up these hard wood off cuts by hand is of course very hard work, particularly when requiring longer lengths for spindle turning. The possession of a Bandsaw is most desirable, and failing that, some DIY shops will cut the wood to the sizes you require for a small fee. If you are eventually able to purchase a band saw, try to avoid buying a small three wheel bench mounted bend saw (a common mistake by first time buyers -including myself) as they are usually unable to cope with the thickness' of wood you will eventually require- A floor mounted two wheel bandsaw with at least a 3/4 H.P motor and capable of cutting at least 6 inch thick material is probably the minimum type one should purchase. When this has been acquired it is essential to read up any instructions provided, get if possible a book from your local library on the subject, and try to make yourself fully conversant with all the safety requirements for use of these machines.

From the moment that you inform relatives and friends that you intend to take up woodturning, you will start to get offers of wood from all around. Some times you will be offered some well-seasoned wood left over from the building *of a* wooden conservatory or installation of wooden windowsills and frames. Most people seem to have a block, plank or piece of something lurking in their shed or garage, and can't resist this heaven sent opportunity to dispose of it!

Everyone at first, seems eager to get rid of their no longer required bits and pieces. It is of course diplomatic to accept them all, one never knows what splendid offer could follow!

3.Seasoning your own Wood

Quite often friends and relatives will offer you a small tree cut down in their own garden, again in this case it is diplomatic to accept it. It should be cut into 3 to 4 foot lengths which are then cut in half down their length and the ends sealed with paraffin wax, old Gloss or bitumen paint. Care must be taken when melting Paraffin wax to ensure it does not come into contact with any flame, A double pot technique with the wax in a container standing in hot water, and use of a controllable electric heater preferably in the open would seem to be appropriate. The pieces should then be stacked raised off the ground, with wooden spacers between them to allow the air to circulate freely, and covered to keep off the rain, rate of seasoning can be as slow as 1 inch per year. Home seasoning can produce quite a lot of waste wood, when it is eventually prepared for turning. If you expect to do much seasoning of your own wood, it is an advantage to have a wood burning stove, or an arrangement to pass on waste bits and pieces to some one who has. For those who live in suburban houses with not a lot of garden space - apart from occasional small attempts to season wood, it is better in my opinion, to either, buy prepared wood or seasoned off cuts from your local saw mill. However some Woodturners do make up their own small kilns using, perhaps a clean 50 gallon drum, heated by a light bulb, which allows them to shorten the seasoning period to about 3 to 4 weeks. To really be successful in seasoning your own wood there are a number of things, in my opinion, which are essential. There needs to be plenty of space available to stack wood, preferably under some sort of cover, where the air can circulate freely around it. Length of seasoning depends on the thickness of the wood available, it can take a year or more, and as time passes each successive lot put down for seasoning, will require more storage space. Good transport needs to be available, and a means of cutting tree trunks into thick planks before laying it down to season. There are specialist firms, individuals or Saw Mills who will plank a whole tree for you, and although you have been given it free, this may cost in excess of £100, depending on the size and the work involved.

A lot of turners rough turn unseasoned wood *I.E* Bowls to about 1 Inch thick and then put them, sway to season. This shortens the seasoning period considerably but the part turned items have to be put away into a dry place where the air can circulate freely around them.

Storage

As can be seen there is a need to plan some kind of storage space for your wood, preferably separate from your workshop if possible.

I have been in workshops where, there has been so much wood stored that the Wood turner was hardly able to operate his laths or bandsaw. This can lead to a possible dangerous situation.

Practice Wood

At first you may find it best to buy a sack or two of fire wood logs. When I started woodturning I bought 7 sacks of logs, read a woodturning manual; and practised the use of each turning tool, with out much attempt to produce any particular item. Fire wood is often full of sap and turns beautifully although it will usually crack quickly when left for a short while. Some turners however specialize *in* turning wet wood very thin, which then dries very quickly and can produce some unusual twisted and wavy edged effects. Plenty of practice is the key to learning how to use your tools successfully.

SO YOU WANT TO BE A WOODTURNER

Chapter 10.

Security

Having bought your lathe and set it up in either a shed, garage, or other out building, it is advisable to have a good look at the security aspects of your chosen site. If you have set up in your garage, one might assume that a certain amount of security is already in place. Small tools however, that are easy to carry away, are at most risk, Turning tools are not cheap, neither are chucks and their accessories. Small carpentry tools, planes and a host of other items are the first target of night time prowlers, who find it easy to dispose of their ill gotten gains at Boot Fairs, far away from the seat of the crime. One of the drawbacks of our car driven society!

If you give your tools some careful thought, there is quite a lot of money locked up, in even the most lightly used and equipped workshop. When I set up my workshop I decided to put 1 inch angle iron bars, length ways over the windows at 10 inches apart.

The angle iron can be bought at quite reasonable prices from any local iron supplier. This angle iron was cut to length and drilled to take 2 screws at each point of contact with internal battening or window frames, then painted with Hammerite to exclude rust, before installation. It was not long before I realised that the internal angle could be used to attach wooden battens drilled to accept small turning tools.

This seemed a good idea but placed the toots near to the windows.

This was overcome by double glazing the windows on the inside with transparent plastic sheeting about 4 mm thick, which takes a lot of force to break through, and of course to do so would make *A* lot of noise. It had the additional advantage of improving heat retention.

Many shed and outhouse doors are hung on long leaf hinges screwed to the outside and it only needs a screwdriver to quietly take the hinges off within minutes. Each leaf of the hinges on my workshop door was drilled for one 3/8th engineering bolt secured by a nut on the inside of the strengthened door and door frames.

Following a visit by a burglar one night armed with bolt cutters, who was snipping off padlocks, there seemed a need for more than one type of locking system. I had already bolted through the door and door framing a very large galvanized heavy draw bolt secured by a Yale lock with a ½ inch hardened hasp.

This had resisted the Burglar's best efforts - probably because the bolt cutters were too small! Those sheds and workshops which had internal locks, where the key had to pass through the door, on this occasion were not entered. Presumably because any levering action would have made too much noise,

Our local locksmith on request advised a pair of heavy steel, right angled brackets, each bored on one leaf with 2 holes to bolt to the door or door frame (both of which had been strengthened on the inside) and one hole on the other leaf for the lock hasp to pass through. The "expensive" lock he advised, was of a kind where, when closed, high shoulders on the lock case nearly completely cover the lock hasp, thus preventing bolt cutters any hope of getting a grip. The next acquisition was a very good, nearly new, lockable four drawer steel filing cabinet for all the small toots, so that anyone gaining access would still have problems.

My electric supply is plugged into a switched ring main socket, adjacent to the rear of the house, supplied from a circuit breaker mains box.

It runs through a 18 mm underground armoured cable to my garden shed and workshop and is controllable from the switched socket.

To improve security i installed bulkhead lights over the doors of my garden shed and workshop. The shed and workshop lights are left on when I finish for the day, and are switched off from the house. This enables them to be switched on immediately there is any suspicion of unwanted activity occurring at the bottom of the garden,

One failing which is very common with householders *is* planting screening shrubs in front *of* their house porch, which enables criminals to work at breaking in unobserved. The same thing of course applies to workshops and it is best to have a clear view from the house of the garden shed or workshop, (I have just dug out my large Mallow right in front of the workshop door!) Yes we all do it! Or maybe my plants just grow better!

There are available shed/garage security systems which work by radio, and will sound an alarm in the house if intruders get into your workshop or garage, these are very good for a workshop or garage which is out of view from the house.
One that I can't recommend is a device which hangs on the door handle and when activated gives off the sound of a large dog barking behind the door. At first it seems highly desirable, until the neighbours report you to the RSPCA for having a large dog locked up in your workshop, which you never let out, and are never seen feeding!
Another thing well worth installing is a security light facing your workshop, the PIR often has only a 45 feet detection range at the normal recommended height on the house wall, this can be extended by mounting it a bit higher in some cases. (after a while you give up leaping out of bed every time goes on). It is really a deterrent that should work on its own! It also has the advantage of illuminating the garden if you go outside at night,
I have found it an advantage to put my initials onto my turning tools since I lost a mini gouge at an outside event, probably not stolen but picked up in error by another turner.
On one occasion, incensed by the night time prowlers, I installed a trip wire by my workshop, but after tripping over it three times myself in as many hours I removed it. Actually it is quite illegal to set traps for prowlers, even if they are on your land or premises without permission, although I must say at times one feels extreme temptation!!
One can of course grow thorny or prickly plants in vulnerable places, but they will fake some time to grow sufficiently to be a deterrent,
I was once advised by a crime prevention officer that having done everything you can, if the burglar's really want to get in, they will - but always do your best to make it hard for them! Membership of a Woodturning club or association some times allows you to obtain cheaper insurance or your tools and equipment and insurance cover at the official meetings, Some insurance, house hold contents policies, cover the loss of tools held in outhouses, but it is advisable to make enquiries with your insurance agent and preferably get his reply in writing, Anyway don't be complacent about security which will have to be planned according to everyone's particular situation - hopefully this Chapter has passed on some idea's that will be of use.

SO YOU WANT TO BE A WOODTURNER
Chapter 11.

What do I need to do to maintain my equipment?

Lathes

In regular use most lathe bed bars begin to show an accumulation of debris from various finishes, dust and shavings, so there is a need at times to do some maintenance. Genera! cleaning up of the lathe, and oiling bearings and running centres, It is a good idea to place a. sheet of paper on the bed bars when putting on most finishes. However never use rag for this purpose, as it could get caught up if the work is allowed to revolve. Wax finishes can be removed with a white spirit soaked paper towel - shellac with metholated spirit, and Cellulose finishes with Cellulose thinners. Some bed bars are chromium plated, in which case a cleaning agent which will not damage the chrome should be used. Where the bed bars are of plain machined steel or cast iron an occasional rub over with fine grade abrasive should keep them clean and bright.

This should be followed by the application of a non greasy lubricant WD.40 is suitable and should be sprayed on and allowed to dry without wiping off the excess, Spray cans of PTFE dry lubricant or Silicon will provide easy movement of the saddle and tail stock over the bed bars, and have the advantage that they resist accumulations of dust. Oil or grease will of course have quite the opposite effect.

Running tailstock centres need to be oiled from time to time, and the tail stock barrel removed, cleaned and oiled occasionally.

Where there are grease nipples or oiling points, these should be kept topped up - they are usually found on lathes which have tapered Phosphor-Bronze bearings. These bearings should be checked from time to time to see if wear has occurred, in which case the retaining collars need to be tightened.

When oiling anywhere around the headstock try to keep oil off the drive belt as it will soften the rubber content of the belt, which can become rather messy, and in extreme cases become completely unserviceable,

As mentioned in an earlier chapter the tool rest should also be examined for any deep knicks or other damage to its top edge, which could cause some turning tools to catch while traversing the rest.

A light draw filing with a fine file will cures this problem and the application of a candle rubbed along the rest will improve the smooth movement of your turning tools.

Chucks

Most Chucks need maintenance from time to time, the threads in particular can get choked up with dust, which makes the chuck difficult to tighten. Old toothbrushes are quite good for removing this. In the case of Scroll chucks it may be necessary to wash the various parts out in paraffin or white spirit. I usually manage this clean up with white spirit, and a short stiff bristle brush and follow up after cleaning with WD40 or Silicon spray. It is usually necessary to remove the chuck jaws and slides to allow access to the inner parts of the mechanism,

A fine brass wire brush can be of use for more badly affected threads, but care should be taken to avoid any violent cleaning methods which could cause wear or damage to the threads. Bright steel chucks can be protected from rust by applications of WD40, PTFE or Silicon sprays.

Turning Tools

Can be protected from rust by WD40, PTFE, Silicon Sprays or Lubo (a Liberon product) which imparts a very thin coating of protective wax on all woodworking and woodturning tools and is very good for the protection of the metal work tables of Bandsaws, Planers, fretsaws etc during the winter.

The coating properly applied is so thin that it does not require wiping off before the tool is used.

Other Way of Avoiding Rust

Cold Damp conditions that we get during the winter time, are the primary cause of rust affecting our tools and machinery. When I built my workshop I laid a builders plastic membrane on a bed of sand under the concrete floor which has made the workshop completely free of rising damp.

However in cold weather moisture in the air can condense onto the cold metal surfaces which will then start the rusting process.

To overcome this, in addition to using the anti rust sprays and coatings, I keep my Lathe, Bandsaw, Fretsaw, Planer & Belt & Disc Sander under cloth covers, when not in use.

An old curtain folded down the centre with both ends sewn up makes a fine cover for the lathe, even an old dressing gown cut across the body below the armpits and sewn up each end provides a good cover for the planer.

There is no doubt that using covers during winter months is a great help in stopping rust from getting a hold.

Bitumous based floor paints, when used on concrete floors, can provide a fairly good resistance to rising damp.

Belt and Disc Sanders

A belt cleaning block can be purchased from most Woodturning suppliers, which when held on the moving disc or belt will remove the accumulated wood particles, and improve the cutting qualities of what appears to be a worn out abrasive.

Try to get into a regular habit of protecting your tools and equipment with a half hour of maintenance from time to time, they will last longer and be a pleasure to work with,

SO YOU WANT TO BE A WOODTURNER
Chapter 12.

Having turned an item - how should I finish It?

It is important to use very sharp tools and seek to obtain the very best finish direct from them, unfortunately for those new to woodturning, this is not very often a skill that comes quickly, and will probably require quite a bit of practice to achieve the best results. One should always keep in mind the expression "cutting down hill" which really means, that thought should be given to the way the grain of the wood is running. For example if the grain is running horizontally in front of you, between head and tailstock, the cut should always be down toward the centre - either to left or right. Never from the lowest point upward, as the tool will tend to get under the layers of grain and tear them out. This will also apply to the situations when the line of the grain is facing you i.e when turning a bowl. Think carefully which way the grain is running and try to cut downwards slicing across the run of grain, if you have trouble with the concept try to get advice from another turner or your tutor.

What about abrasives or sandpapers?

Class Paper
Is not very successful when used on the lathe, it is too brittle, paper backed and cracks instead of bending when applied to rounded turned work surfaces, the cracked edges can cause unnecessary damage, it also tends to wear out quite quickly.

Garnet Paper
Some older Woodturners used to like Garnet Paper for use on the lathe, but it has in recent years been overtaken by cloth backed abrasives, specially produced for use in woodturning, My own experience with garnet paper was that I developed an allergy to the adhesive in the paper which caused my knuckles to harden and crack quite painfully - but this of course was individual to myself and was quickly cured when I moved on to other products.

Cloth Backed Aluminium Abrasive
These are very flexible and can be recommended for woodturning, where the abrasives need to be able to fit the shapes and contours of the work easily, without cracking or the grits coming off when folded or twisted, and to have some resistance to heat and clogging.
There are two kinds of good cloth backed abrasive on the market, which are known to me at the present time, J-Flex which is marketed by the Hermes Company and Vitex by VSM. I have used both and find them of very good quality, long lasting, and ideal for lathe work, they are manufactured and supplied in rolls of *25 or* 50 metre length, 100mm or 4 inch wide They can be readily purchased from most Woodturning suppliers in 1 or 1/2 metre lengths in a variety of grits ranging as follows 80 - 120 - 150 - 180 - 240 - 320 -400, these being about the range of grits favoured by most Woodturners. However as the finish straight from the tool improves the higher grit numbers are more often in use.
It is advisable not to use long lengths of abrasive in lathe work, as they could catch up with dire results. I usually cut my 4 inch wide 1 metre lengths into 4 inch by 2 inch pieces and make up packs containing each grade, fastened with a large paper clip. It is essential to keep all abrasives dry before use, so these ready use packs are kept in a small wooden box (with hinged lid) on the back of my lathe bench. Any extra supplies are kept in doors in a cardboard box where they get some benefit from the central heating. Roils can be purchased direct from the manufacturers but a 25 metre roll can cost anything between £46 - £68 at the present time, so it could mean quite a big outlay to purchase all the grits required.

0000 Wire Wool
Used by most Woodturners at some time, usually to apply waxes to previously sealed wood, smooth out built up cellulose finishes and to impart a satin like surface.

As mentioned in a previous chapter Wire Wool is highly combustible, and great care should be taken with its storage and disposal. When using wire wool, avoid its use on woods which may react unfavourably to it. Oak is a common example, tiny fragments of wire wool, almost invisible to the eye can catch in the grain and react to the acids in the wood, causing discolouration, (Wire woo! dissolved in vinegar produces a fluid which applied to bare fresh sanded oak turns the oak a dull black colour, which can be polished when dry, to a nice ebonised surface).
Care is necessary when using wire wool, to avoid loose whispy ends catching in the revolving work. It should be cut off the roll, preferably with scissors to give a clean edge, which should be folded inwards from both edges to make a pad. Never twist it round your fingers to get a better grip, always hold it in such a way that it will pull cleanly out of your fingers if' it catches on the work.

Webrax

Is a trade mark for a type of abrasive made by Hermes and consists of nylon fibres onto which aluminium oxides or silicon carbide grains have been bonded with resins, Similar in appearance to a pan scourer. Useful for lathe work and can be bought in a variety of pads and blocks of different grits.

Kitchen Paper

Sheets of Kitchen paper are probably the best thing to use for final polishing on the lathe, although there are suppliers who now make a special polishing material which is claimed to be "catch proof", kitchen roll is probably cheaper. The great advantage is that paper, as apposed to cloth, will tear if it catches on the revolving work, thus saving your fingers from be torn from your hand! Believe me that is not an exaggeration, do not use rag for polishing on the lathe it is highly dangerous. If you are using rag to clean up your lathe, what ever you do remember not to switch on at all while it is in use.

Further Information on Abrasives

Quite contrary to common belief the subject of abrasives, is hardly covered by a simple word like "sandpaper". If the catalogue of a firm producing and marketing abrasives can be obtained and browsed through, one quickly realises it is a very much more complex and scientifically based product.
Be ready to try new products - keep an open mind and you may even find something better than you have been using up to now.

SO YOU WANT TO BE A WOODTURNER
Chapter 13.

What kind of finishes can I use ?
There are a great number of finishes for wood and I can really only deal with a few of the more common kinds in this advice for beginners.

Bee's Wax

This is probably the oldest finish for wood; it has been used for centuries, but has the draw back that it needs to be renewed regularly to maintain a good finish.
Mixtures of bee's wax and pure turpentine forming a liquid polish can be applied to bare wood on the lathe and will buff up to a very nice shine, particularly on hard woods. These mixtures can be purchased from most woodturning suppliers and are usually marketed under a propriety name.
They are generally referred to as friction polishes. The thinning with turpentine helps the wax to be absorbed more easily into the wood and eases application. It is usually applied by a paper pad and buffed up to a shine usually with a paper towel or kitchen paper. Use of cloth buffing pads on the lathe is dangerous as they could get caught up with dire effects on ones fingers. But it is not a very durable finish until years of regular application of wax polish have built up a deep platina, which then produces a soft satin glow to the wood, which is most pleasing to the eye. I once knew a professional turner who finished all his work with wax but always applied a sticker to the article stating "To maintain this article in its present condition it should be polished regularly with *A* good quality wax polish". This just nicely sums up the qualifies of wax polishes, they will require regular attention! In my opinion people these days don't really want to have a regular polishing job on their hands.
However there are other wax's which are harder than bee's wax.

Carnuba Wax

This is a hard wax obtained from the carnuba palm and which Imparts a much more durable finish than bee's wax, It can be purchased in sticks and can he used to put a harder finish on top of wax and other finishes, and is often sold in sticks which are a mixture of bee's wax and carnuba to try to combine the best qualities of both.
Pure carnuba wax on its own is a very useful and can be used over other finishes to put on that extra super shine.
It is just pressed lightly against an item on the lathe and run round the contours carefully to cover the whole area to be polished, there wilt not appear to be any difference to the surface until it is buffed up with a paper buffing pad, the heat generated will melt the surface into a bright shine which will be much more durable than bee's wax. A useful wax that should always be in a collection of polishes.

Wax Filler Sticks (Wax Beaumontage)

Wax filler sticks can be purchased to fill holes or cracks in turned items they are sold usually in packs containing a variety of colours but individual colours can be purchased to match most of the commonly used woods. They are very hard and have to be kneaded carefully to soften them before being pressed into position and smoothed off, and are used before the application of a wax finish.

Shellac Polishes

French polish, button polish, white polish can all be used on the lathe and can be applied with a "rubber" prepared as for any type of trench polishing,
They can produce a very nice finish, but again not a very durable one, being subjected of course to all the marking problems experienced with French polished furniture I,E water and heat marks etc.

Shellac Sanding Sealer

A shellac sanding sealer can also be purchased, to fill and seal the grain of the wood before sanding to a fine surface and should only be used with other shellac based finishes, otherwise blooming or the appearance of dull white or cloudy areas will occur.

Shellac Filter Sticks (Shellac Beaumontage)

Shellac filter sticks can be purchased to fill holes or cracks in turned items these are usually sold in packs containing a variety of colours, but individual colours can be obtained to match most of the commonly used woods. These sticks are quite hard, rather like sealing wax and need to be applied with heat and a spatula type blade before being sanded flat, and are applied before the final finishing coat.
Care should always be taken not to mix shellac based finishes with cellulose finishes which are in more common use by today's Woodturners.

Cellulose Finishes

A cellulose based finish marketed as" Melamine" is readily available from most woodturning supplier's.
It produces a much harder surface which is claimed to be resistant to water and heat and needs to be diluted at least 50 / 50 with cellulose thinners for ease of application, thinners tends to evaporate fairly quickly so it may be necessary from time to time to add a *small t*op up to the already thinned liquid.
It is usually applied by brush with the work stationary and it is normal to wipe off the excess before starting the lathe to carry out the buffing process,
It dries quickly and can be buffed up immediately with a paper towel or kitchen paper, however it is said that it doesn't reach its final hardness for about a week, although perfectly dry enough to handle when the buffing has been completed.
A satin finish can be produced by a rub over with 0000 wire wool and a good wax polish can be applied if required.

Cellulose Sanding Sealer

A cellulose based sanding sealer is also readily available from woodturning suppliers and needs to be diluted at least 50/50 with cellulose thinners for ease of application and to allow the sealer to penetrate well into the wood. It helps to seal and fill the wood grain before sanding to a fine surface, application is exactly the same as that described for melamine.
Sanding sealer usually contains an amount of French chalk and should be shaken or stirred well before use, it can be useful for firming up the surface of rather soft or absorbent woods.
A final coat after sanding - buffed to a shine, can be followed by the application of a good paste wax on 0000 wire wool and when given a final buffing can produce quite pleasing results, it is my favoured method of finishing my own turned work.

SO YOU WANT TO BE A WOODTURNER
Chapter 14.

Can I use Oil Finishes?

For centuries linseed oil was used as a finish for furniture, and other vegetable oils in use were, Poppy, Walnut, Olive & Nut oil, these are still quite valuable finishes for the Woodworker but are inclined to be time consuming in their application.
These days there are proprietary products available specially formulated to be easy to apply, which can be quickly absorbed by the wood, and dry much faster, The vegetable oil base contains at least two ingredients a solvent and drier which allows a shorter drying time between coats, Proprietary oil finishes blend Danish Oil, Tung Oil & Teak Oil all of which have advantages over Raw Linseed Oil.
Manufacturers have their own special formula's, and it is up to Woodturners to try out various brands to find the one that they think, is most suitable for them. Having said that, there is not very much to chose between most brands in my opinion.
Oil finishes are durable and help to reduce cracking and drying out of the wood. An oil finish on many Burr's brings out some quite wonderful grain patterns.

Raw Linseed Oil

I have seen this used on turned items, and in particular on a Spinning wheel made by an old friend, the finish was excellent and produced a deep satin shine.
However it is a slow process, taking a number of slow drying coats over a period of time to obtain the best results.
It should be noted that Raw Linseed Oil gives the best penetration but takes much longer to dry, Boiled Linseed Oil is much more thick and viscous, and so I am led to understand dries much quicker.

Pure Tung Oil (Chinese Wood Oil)

Highly resistant to water, food acids and alcohol.
It forms a hard wearing weather resistant finish suitable for interior and exterior use.
Pure Tung Oil with no Dryers added is a natural non toxic oil which can be used on Toys an articles in contact with food such as Salad bowls.
Tung Oil is a penetrating Oil which allows the wood to age slowly and develop a natural patina.

Danish Oil

Suitable for interior and exterior use, it forms *&* tough, water resistant finish that will not shrink or crack, it can be used on bare or on dyed woods. Work is prepared and sanded as required, a liberal coat of Danish oil can be applied by brush or cloth, with the work stationary. It is allowed to dry for a few moments then the excess wiped off.
Up to 6 hours drying time is required between coats which can be repeated providing the surface is clean and dry.
It can be polished to soft shine on the lathe.

Teak Oil

This is suitable for interior or exterior use and is applied in a similar manner to Danish oil, jt can be used on wood furniture and turned articles with good results.

Salad Oils

Articles intended for use with foods, should be left unfinished or a edible vegetable oil can be used. Lighter oils are probably the best and will have better penetration.
Sunflower or Rapeseed oils bought at your local supermarket are suitable, and being pale will have no appreciable effect on the colour of the wood. If the article is to be washed regularly it will of course require a fairly frequent renewal of the finish.

(Proprietary Oils should not be used on objects, which are to be in contact with foods, as some of their ingredients can contaminate.}

Other Finishes

Woodturners are always looking for new types of finish and Manufacturers seeking ways of reducing the amount of solvents in their products.
There are quite a lot of finishes not mentioned in this article which the new comer to Woodturning will discover with more experience, some of which, such as spraying require a safe environment set up for their use.

Clean Area

It is evident that the use of oil finishes really requires a dust free atmosphere, separate from the average workshop, which if not available, will make the use of oil finishes difficult. The initial odour from oil finishes is not generally appreciated, in living area's of the home.

Safety

Health and Safety Regulations cover all aspects of modern wood finishes, as to whether they are, Toxic, Harmful, Corrosive, Irritant, Highly Inflammable, or Oxidizing,
Any finish which comes under these headings should have the appropriate Internationally recognised hazard symbol on an Orange background on the packaging,

TOXIC (*Skull & Cross hones on an Orange background)*
=Where serious, acute, and chronic health risks, and possible death may be involved.
(*I* have never yet seen this on any product sold for Woodturners).

HARMFUL (*Black Cross on an orange background.)*
= Where limited health risks may be involved.

CORROSIVE (Phials *dripping liquids onto objects below them on a* Orange *background).*
= Where contact with living tissues may destroy them.
(I have never seen this symbol on any finish sold for Woodturning).

IRRITANT *Black Cross on* an *Orange background).*
= Where Inflammation may be caused following contact with skin or mucous membranes.

HIGHLY INFLAMMABLE, *(Black Flame on an Orange background).*
= Where the product has a flash point below 22 degrees Celsius.

OXIDIZING *(Black flame on a black circle on an Orange background).*
= Where Oxygen is released during *chemical reaction.*

These symbols can be used in combination with each other,
It is always important to carefully read the Instructions on the packaging of all finishing products. There are quite a number of these products which must also be protected from frost and which will be ruined by unwitting exposure to low temperatures.

SO YOU WANT TO BE A WOODTURNER
Chapter 15.

How can I improve my Woodturning skills ?

Courses

A look through any of the Woodturning Magazines, available these days at most Newsagents, will provide information of the Courses available in your area, These courses are quite a valuable introduction to Woodturning if you have no previous knowledge of lathes, and the equipment involved, or the use of turning tools. However one must understand that a two-day course while being valuable to the newcomer will only be the start of a learning process, which will require a lot of practice, and a keen interest in all matters to do with Woodturning.

Books

There are a considerable number of books available from book sellers, or your local public library, both of whom will order a book for you, if it is not immediately available on the shelf. The book considered by many as the original and most informative is "Practical Wood turner" by-Frank Pain first published I believe in the 1950's. The original version can still be found in many Public Libraries, but does not deal with any modern methods of chucking, tools and equipment, Nevertheless a good basic treatise, well worth reading.
It has been revised and expanded by James A. Jaeobson in 1990 to bring it up to date, and is available from Book Sellers for about £12.00.
I learned my Woodturning mainly from "The Manual of Woodturning" by Cordon Stokes, which is a very comprehensive introduction to the subject. It is no longer in print and does not deal with any modern chucking or equipment. However it deals with all basic aspects of the subject very thoroughly and can be obtained from most public Libraries.

Video's

Are a very good source of information for ail Woodturners, and there are very many available featuring most of the acclaimed Professional International and National Turners. Video prices vary, probably according to the length of the subject matter, but can be most useful in teaching use of various tools and work holding technique's. Subjects range from basic to advanced turning, Colouring, Twists and other technique's of interest to Woodturners.

Woodturning Clubs

There is no doubt in my mind that the most beneficial way of learning about Woodturning, after perhaps a course, and a lot of reading, is contact with other Woodturners, where ideas, knowledge and technique's can be exchanged.
Demonstrations by Members and Professional Turners are a regular feature of Club activities, some times with the chance of hands on experience.
There are some 26 Branches throughout the United Kingdom of the Association of Woodturners of Great Britain, with a membership of 1700 plus and numerous other clubs who are affiliated and indeed some who are not. All provide a great source of information and assistance to their members, who in their turn, in my experience, are usually very friendly and only too willing to give advice and help to others.
Clubs or Branches usually hold a small library of Video's and books which have either been bought or donated by Members, which can be loaned to Members who would like to have them for a short period.
There are throughout the UK a number of Woodturning Suppliers who also put on at their premises Professional demonstrations for their Customers, and at National Woodworking Exhibitions there are usually a number of Professional Demonstrators provided by various firms, who are willing to give advice and help if requested.

Practice **is the best way of becoming a proficient Wood turner. For those who have to work for a living daily, it is not easy to achieve more than *2* or 3 sessions of turning per week without adverse effects on family life. However even an odd hour can help you to gain experience with your lathe and turning tools. Retired people of course have a bit more time and a regular turning session for a short period every day can soon build up a good confidence and skill.**
Once committed to the hobby or profession don't give up, keep trying to master your tool handling and seek advice if you are having any difficulties - give yourself time and you will soon be turning out your own masterpieces! Good Luck

Association of Woodturners of Great Britain

Chuck Turner is the Pseudonym of Stanley.P.Ludlow A.W.G.B No 1987 Kent Branch.