

MAKING WOODBLOCK PRINTS

Merlyn Chesterman and Rod Nelson



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Frontispiece: *Birds* by Rod Nelson.

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DEDICATION

For all who like woodblock prints

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FOREWORD



Woodcut by Li Dongxia.

Merlyn and Rod together have produced this extraordinary book on the art and craft of woodblock printing. It is a thorough masterpiece, combining a lucid text and superb illustrations to show all aspects of

the process of making a print from the cutting, the tools and the paper, through to the inks, the types of press and finally the printing. The book is a first, and whether you are a beginner or well-established in the art of woodblock printing, it contains a very wide span of information and useful facts.

Merlyn Chesterman and Rod Nelson are both well-known in the field of printmaking and have pooled their resources to produce this book. I thoroughly recommend it and feel inspired to go and sharpen my V-shaped tools right away.

I can see this book as having the same feel as a well-thumbed cookery book.

Philip Leach, Springfield Pottery,
Hartland, Devon

AN INTRODUCTION TO THE WOODBLOCK PRINT

The ability to print an image is as old as the human race itself. A finger, dabbed in some mud, imprints upon a face. A handprint is pressed on to the wall of a cave, and then another one and another, until a pattern is made.

Tens of thousands years later, the same process developed through what we now regard as simple technologies into a process that would change the world immeasurably. There are woodblock prints on silk from China pre-dating 220CE. By the mid-seventh century in China, sophisticated prints, both image and text, were made on paper from planks of wood.

To make a woodcut or woodblock print (the two are synonymous), four things are required: sharp tools, smooth wooden surfaces, paper (or cloth) and ink. Sharp metal tools are needed to shape the planks, smooth them, and incise marks into the smooth surface. Ink must then be applied to the plank, on to which the paper is then pressed.

This is a process that can be carried out repeatedly, resulting in printed sheets of information or decoration that is permanently available, transportable and relatively inexpensive.

Printing was a revolutionary discovery. The woodblock print – or woodcut – was born as a medium. Suddenly, using this newly discovered method, practical knowledge, data, wisdom and art could be made available to a vastly greater number of people than had

previously had access to it. By doing so, it facilitated profound intellectual and technical development in China and in the Far East, generally at a time when the transfer of knowledge in the West could only be done by handwritten books and verbal traditions.



The Moon Boat by Qianyi Huang from the Sweet-Scented Osmanthus Primary School of Longhua, Shenzhen City, teacher Ri Rao Zhang.



Cueva de las Manos, Patagonia, prehistoric handprints.



**Cut marks incised into a smooth surface – *Leaf Surface* (block)
by Rod Nelson.**



The author lifting a print.



***Pattern of Small Beings* (in Sōsaku Hanga style) by Rod Nelson.**

Although printing has developed immeasurably since that time, and the technology has evolved through several powerful transformations on a thousand-year evolutionary journey from Gutenberg's important invention of moveable type to the amazing possibilities of the modern digital print, the art and craft of making prints from wood still has unique creative potential. To put it simply, one can make images using this most ancient technique of printing, which cannot be made in any other way, even using the most

modern technology. Because of this, woodblock printing still has relevance and a life of its own as an art form – it will not die out or become obsolete despite the development of more sophisticated technologies.

Woodblock printmaking reached its technical apotheosis in nineteenth-century Japan, where specialist artists and craftsmen produced phenomenally beautiful and delicate images. As many as seventeen blocks, each one printing a separate colour, were used in the production of a single print.

Blocks were cut by teams of specialist craftsmen. However, early in the twentieth century there was a reaction against this specialization by some Japanese artists who wished to take full control of the printing process themselves. They formed the 'Sōsaku-hanga' (literally 'creative prints') movement of artist-craftsmen. They were influenced by Western artists, particularly by Van Gogh, the Impressionists and the Vienna school. The artists of the Sōsaku-hanga have influenced our own approach to printmaking, and in this book, their presence is to be found as one of a number of influences.

Woodblock prints can still carry more 'punch' than almost any other art form. In China itself, it is notable that the iconic images of the Communist revolution of the 1950s and 1960s were all derived from woodblock prints.



Revolutionary poster of Mao Zedong, mid-1960s china.

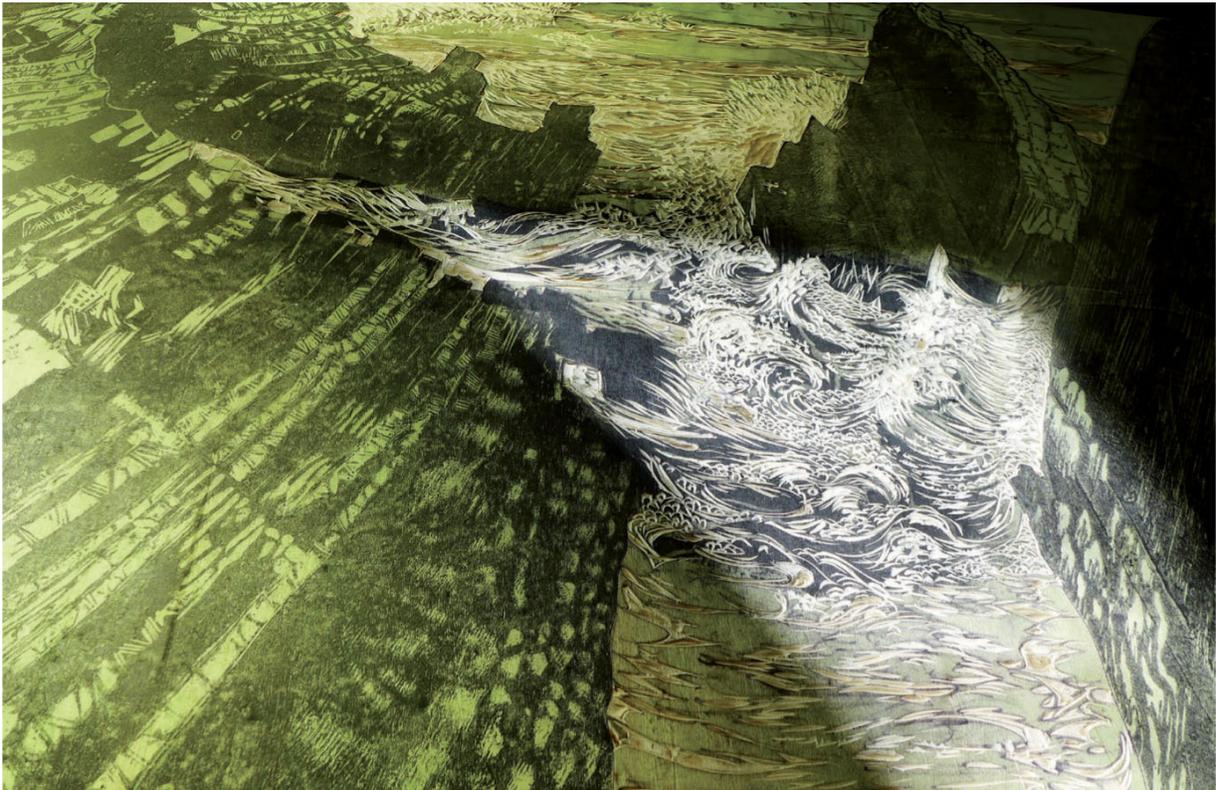
One of the most attractive aspects of woodblock printmaking is its democratic nature: it really is available to almost everyone. Even young children, if taught carefully how to hold and use the tools safely, can do lovely work. The woodcut *The Moon Boat* shown earlier in this chapter, and *My Rabbit* in [Chapter 1](#) are beautiful examples by very young artists.

Woodblock printmaking requires no great strength or any special visual acuity. It is not expensive, nor does it need costly equipment. It has difficulties – for example, that of making reversed images – but these can be turned to the advantage of the artist, who can end up with work that surprises and amazes with its energy. When one lifts the printed image from the block for the first time and sees the fruits of maybe several hours of work appear, there can be hardly any greater pleasure.

Woodblock printmakers may have the fortune to work in beautiful, well equipped studios with expensive equipment, but equally they can produce wonderful work on their kitchen table with simple tools

and only a little skill, and with little more equipment than would fit in a handbag.

This book is aimed at helping anyone to make woodcuts, from the most naïve beginner who just wants to make a birthday card, to artists who already have a strong sense of their own abilities and techniques, who wish to broaden the expressive range of their work through this powerful medium. Whilst it is only really possible to learn woodblock print-making by doing it, we hope that reading this book will enable our readers to save time and energy which they might otherwise have had to expend in experiment. Over time we have learned methods – often from other printmakers – which we hope can prove helpful to our readers and to those who come after us. We would like to think that in another thousand years there will still be woodblock printmakers working in ways that are relevant to their time, using techniques that the Chinese would have recognized in the ninth century.



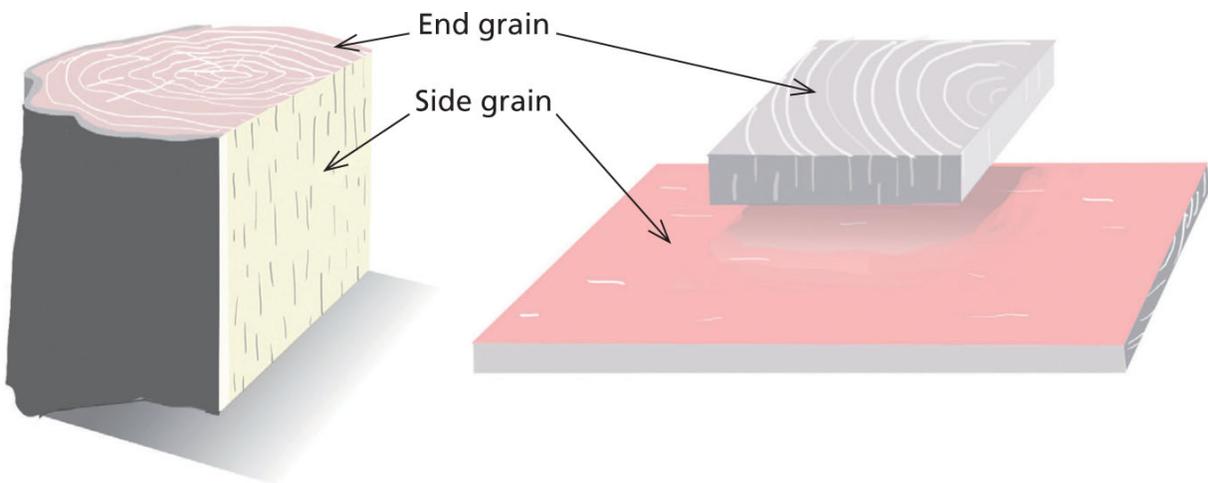
Top block of *Sea Rocks* by Pine Feroda.

WOODCUT OR WOOD ENGRAVING?

Wood engraving is similar, but not identical to woodblock printmaking. In wood engraving, the end grain, not the side grain, of the wood is used.

Very hard, close-grained woods are used – traditionally boxwood, lemonwood or cherry. The tools used – scorpers, spitstickers, gravers – result in images that are exquisitely delicate. These tools cut in quite a different way from the chisels and gouges that are used to make woodblock prints, and can make the finest of white lines, thinner than a hair. Engraved prints are generally quite small.

To this day, some wonderful book illustration is done with this method. Wood engraving is, however, a specialism that is beyond the scope of this book.



End grain and side grain explained.



Wood engraving: *The Three Bathers* by John Buckland Wright, 1957.



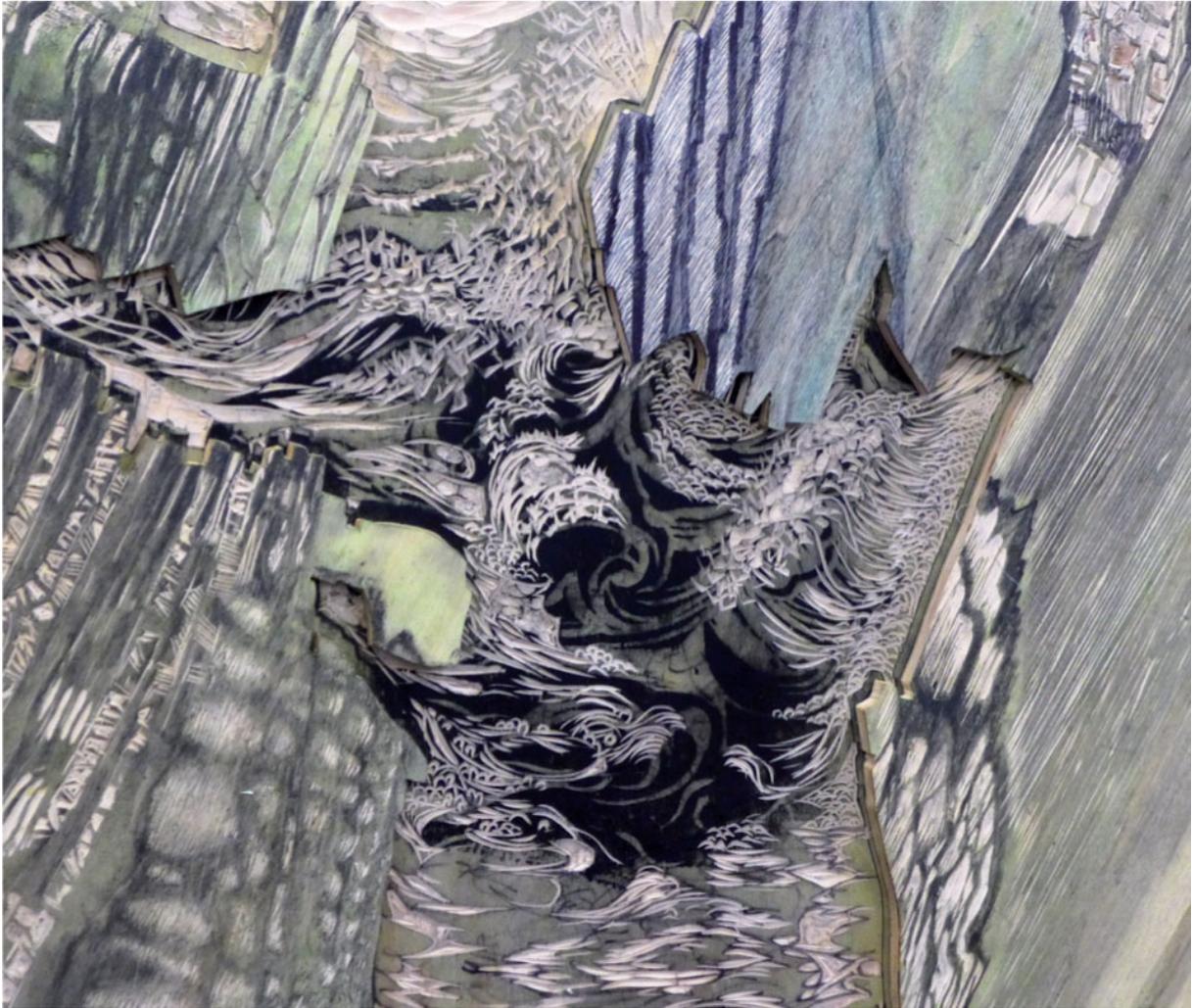
Woodcut: *Spring Tide* by Pine Feroda 1,220mm × 835mm. (Pine Feroda is the name of a group of woodblock printmakers – Merlyn Chesterman, Julia Manning, Rod Nelson, Ian Phillips and Judith Westcott.)

By contrast with wood engraving, woodblock printing is carried out using the side grain of the wood, and because of this, a much larger print can be made.

For colour prints, multiple blocks are usually cut. The extraordinarily fine detail possible with wood engraving is not possible with woodblock printing, although the woodblocks cut for traditional Japanese woodblock prints come close to challenging this statement, using quite hard, fine-grain woods such as cherry. However, in the production of the traditional Japanese prints, cutting of blocks would be carried out by specialist craftsmen who would not be involved directly with overall artistic control.

It was not until the emergence of the *Sōsakuhan* movement in Japan at the beginning of the twentieth century that the whole print-

making process was reclaimed by the artists themselves. Now, we have the fortune, through the Internet, to look at and learn from the work of printmakers around the world. Never before has such richness been available so easily.



Multiple blocks by Pine Feroda.

THE WOODBLOCK

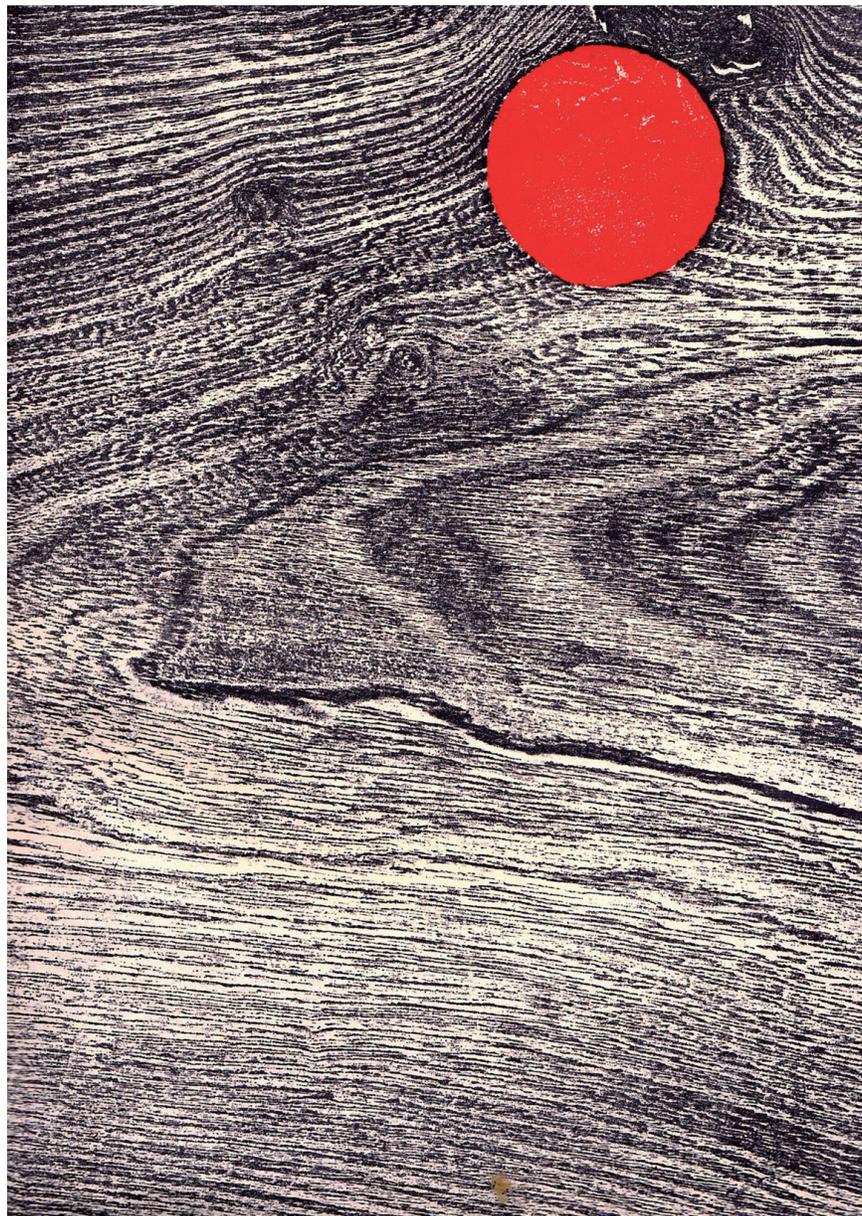
The traditional woodblock, in both Eastern and Western traditions, would once have been exclusively made of a fine, close-grained, dimensionally stable but not-too-hard hardwood. Cherry was traditionally used in Japan, but field maple, tulipwood and limewood are all used today. The surface needs to be smooth and even. Each wood has its own character, and for those who want to experiment, these woods are all obtainable from specialist wood suppliers.

Like all woods, wide boards of these timbers are prone to cupping (radial warping) or shakes (longitudinal splitting).

A large split in a block can be filled, but this is a very skilful business and is to be avoided by the faint-hearted woodworker. Good quality, well planed blocks up to A4 size in tulipwood can be readily purchased from printmaker suppliers and are unlikely to split.

Some artists now use a plywood that is made in the Far East specifically for woodblock printmakers. It is relatively inexpensive and can be bought from printmaker suppliers. It is made from a wood described as 'shina'. It is very even to cut, even when one cuts through several of the ply layers. The surface is quite 'cheesy' and hardly shows a grain, even when stained. Fine cutting of these soft ply blocks requires super-sharp tools. It helps to bind the wood grain slightly by melting paraffin wax into the wood with a hot iron. It is also possible to treat the surface of the wood with boiled linseed oil. Birch

or eucalyptus ply or other types of plywood can also be tried, but they are harder to cut.



Mission Sky by Merlyn Chesterman.



Blocks.



Waney edge (the bark edge of a plank).

Common name of timber	Tree classification	Description
Lime	<i>Tilia europaea</i>	Limewood is a close-grained, not very hard wood of a pale, creamy colour; it is fairly stable (it doesn't warp much). It is available in big sizes, because the tree (which is often found in parkland in the UK) is fairly large, and is widely used by wood carvers. The wood tends to be obtainable only from specialist hardwood timber suppliers
Cherry	<i>Prunus avium</i>	Cherry is a middling hard, dun-coloured, close-grained wood, very straight grained and stable. It was the wood traditionally used by Japanese

		printmakers. It is commercially available from hardwood suppliers as it is used by joiners
Tulipwood – sometimes sold as Japanese sidegrain woodblock	<i>Populus tremula</i>	Tulipwood or American poplar is a straight-grained, not-very-hard wood with a pale grey-pink colour. It can be used for woodblock printmaking as it cuts very well and is stable. It is commercially available from hardwood suppliers as it is used by joiners
Maple	<i>Acer campestre</i>	Maple is a very pale, close-grained wood which is harder than limewood. It can be used for fine work but is also harder to cut than lime
Elm for printing of a wood grain pattern	<i>Ulmus procera</i>	<p>Sometimes you may want to use wood grain as a pattern. Some woods – elm for example – have a lovely figured grain</p>  <p>Print from a plank of elm showing the grain</p> <p>Other woods may have a good printable surface through exposure to wind and weather over many years. There are no hard and fast rules for this effect</p>
Shina ply		Shina ply is a special plywood, possibly made from poplar; it is used for woodcut, and is almost free of grain. It is not ideal for very fine work, but good for general-purpose cutting
MDF		MDF – fibreboard – is cheap and readily obtained, but must never be washed with water as it swells and distorts



At the timber yard.

Larger printmaking blocks can be made from solid wood, but these will probably need to be prepared. Preparing a block is a useful skill because not only are you then free from the need always to purchase pre-prepared blocks, but it is a nice, contemplative job to do whilst thinking about what you might work on.

There are two different approaches to achieving a smooth printable surface on fine grain, reasonably homogenous hardwoods

such as cherry, maple or limewood: the first involves using a noisy, dust-producing belt sander – though once you have done this once or twice, you may think about the second method. For this, you will need a very sharp block plane set to make a fine cut. Identify the 'high spots'. These can be seen by laying a straight edge or ruler on to the block and marking the high spots with wax crayon. It will take some patience. Plane these down across (at 90 degrees to) the direction of the grain. Once the block is reasonably flat, you can pull a smooth, clean surface with a scraper.



Chinese block plane, with a simple wedge that holds the blade in place.



A modern American plane with a fine adjustment system.

The key to being able to carry out both these operations without undue stress lies in having sharp, well set-up hand tools. If you are hand-printing, it is not critical that the blocks are flat, only smooth and even.

Any surface of wood will take ink and print, and experimentation will often yield interesting results – especially on old planks that have been weathered and eroded. They often print beautiful marks.

The Printing Surface of the Block

It is important to remember that the prepared surface of the block is the printing surface. A 'turbulent' surface is not desirable, where the prepared surface of the wood is torn, lifted, peeled or crushed rather than cut, where splinters or fibres of wood protrude, or where there is only very shallow removal of the surface.

These kinds of surface do not receive ink in a straightforward way from a roller, and can cause the ink to gather unevenly around the small woody fibres where they jut out from the surface. A block that has been carelessly treated like this can then print in unpredictable ways. Wood is a material that expands with moisture, and a surface that is simply crushed down will tend to expand once it gets wet, and in doing so, will not print cleanly.



Inks are sold in tubes, tins and cartridges.

Wood Hardness

The terminology of 'hard' and 'soft' wood is a technical one that is fairly inaccurate in describing the actual hardness of the wood. Some softwoods (for example yew) are far harder than some hardwoods (for example balsa). Hardwoods (such as cherry, lime and poplar) are to be preferred because they cut cleanly and are fairly stable.

INK

Ink for woodblock printing has two components – pigment and medium. The ink is a mixture of the two – in fact, it is a suspension of pigment in a printing-ink medium. The medium (without pigment) is usually called ‘extender’ by printmakers, because it extends the volume of a ready-mixed ink, making it more translucent, proportionate to the amount of extender used.

The pigment component of ink begins life as an inert mineral or synthetically produced, coloured, inorganic compound. The coloured rock or compound has to be crushed and ground to a very fine powder before it is made into an ink by being mixed with extender to a consistency suitable for rolling out. At risk of repetition, it needs to be remembered that the proportion of pigment to extender will govern the opacity of the ink.

To function properly, a printing ink needs to be:

Homogenous: It must not have any lumps in it, so it can be rolled out smoothly and evenly on to a slab. In particular, ‘skin’ (which can form on the surface of ink exposed to air) must not be included into the ink.

Viscous: The viscosity of the ink must be such that it is neither too runny nor too solid – ideally it should have the consistency of syrup.

Tack: This term refers to the quality of ‘stickiness’. Ink needs to adhere both to the roller and to the paper, and when cured, it must bind the pigment to the paper.

Curable: Ink must dry to the touch, either through a molecular reaction within the ink itself, by evaporation, or by absorption into the paper.

Washable: Ink must have the capability to be dissolved so it can be wiped from the equipment being used, such as rollers and slabs, and

from the printer!

Types of Ink

Printing ink is normally classified and described by stockists and printmakers under the following headings:

Water-based ink: This is soluble in water, either wet or dry. These inks are easy to wash up, fairly quick drying, and simple to use. This makes them a good choice when teaching printing with younger children. They tend to dry by evaporation rather than by reaction with air. These inks do not seem to roll out as well as other inks – they are slightly less ‘tacky’. In dry weather they can thicken and dry too quickly on the slab as water evaporates from the mixture. We have not found an extender made for this type of ink.

Water-washable ink: These inks are emulsifiable with water, but only in the state they have before the ink has dried. To say that this ink ‘dries’ is possibly inaccurate: what happens is a reaction takes place as the ink becomes dry to the touch, and once it has set/dried, it cannot then be dissolved in water. This is similar to the way that emulsion paint works. In fact, these kinds of inks are made from polymerized linseed oil. When this ink prints directly on to paper, it dries quite rapidly. However, when it is printed on an underneath layer that is not absorbent (for instance a previously printed layer) it requires much longer to dry.

This ink must not be allowed to set/dry on to rollers because it is very difficult to remove. One must be careful not to damage the roller. Try soaking in washing-up liquid.

Oil-based ink: The carrier is a ‘drying oil’ which undergoes a reaction with air and sets so that it becomes dry to the touch. Even before it has set/dried, it requires the use of paraffin or white spirit to dissolve it. After it has dried it cannot be dissolved, in the same way as water-washable ink. Drying times for oil-based inks are longer

than for other types of ink, but multiple overprinting is possible. Once again, this kind of ink must not be allowed to dry on the roller.

Traditional Japanese inks made with rice paste: In traditional Japanese woodblock printmaking, rice paste is used as the carrier, and it washes off with water. It can be made at home, is very cheap, and dries quickly. It is not traditionally applied to the block with a roller, but by using a small brush. The use of this ink is a specialist topic and is beyond the scope of this book.

Extender

Extender is the name given to the carrier or ink medium that does not contain pigment. It is essential to the printmaker as it can easily be mixed with more opaque inks, making them translucent. It can also be used to make the most subtle tints for printing by mixing in just a touch of colour. The way extender is used to control the opacity or translucency of ink during the printing process is explained further in [Chapter 6](#), in the section about printing and proofing.



Beautiful coloured earths found on the North Devon coast.

Pigment

‘Pigment’ is the name given to a powder that is ground up exceedingly fine and then mixed into the carrier. Pigment itself is not

'soluble' – it is not dissolved in the carrier medium, but is carried in suspension – hence the term 'carrier' for the medium. The range of vegetable and mineral powders available for use as pigments is really wonderful, and this opens up a whole other world of colour for the printmaker.



Bideford Black being ground with a pestle and mortar before use.

Pigments can be obtained as coloured powders from specialist suppliers – suggestions are provided at the end of this book. They are also obtainable from paint suppliers – they are used for tinting plaster and limewash – and even from the ground under one’s feet. There is a seam of Bideford Black in North Devon, for example, which was mined by Max Factor for use as mascara. It is a wonderfully black and rich carboniferous clay.

There are some really beautiful coloured earths to be found around the UK, and if you are lucky enough to live in an area where they can be found, what better than to make prints from the ground itself!



The author's foot after collecting from the Bideford Black seam.



Woodcut using Bideford Black.

Before use, pigments need to be milled or ground to a very fine powder using a muller (a glass grinding tool) or a mechanical ball mill.

The raw powder should be mixed with a little oil or extender and worked round and round with the muller on a sheet of glass, to thoroughly crush out any grains or lumps. This can be a painstaking process and is likely to be undertaken only by the more long-suffering or perfectionist printmaker. In order to be certain that there are no lumps or particles in the ground up pigment, it should ideally

be passed through the mesh of a fine sieve before mixing it with a block printing medium into a printable ink.



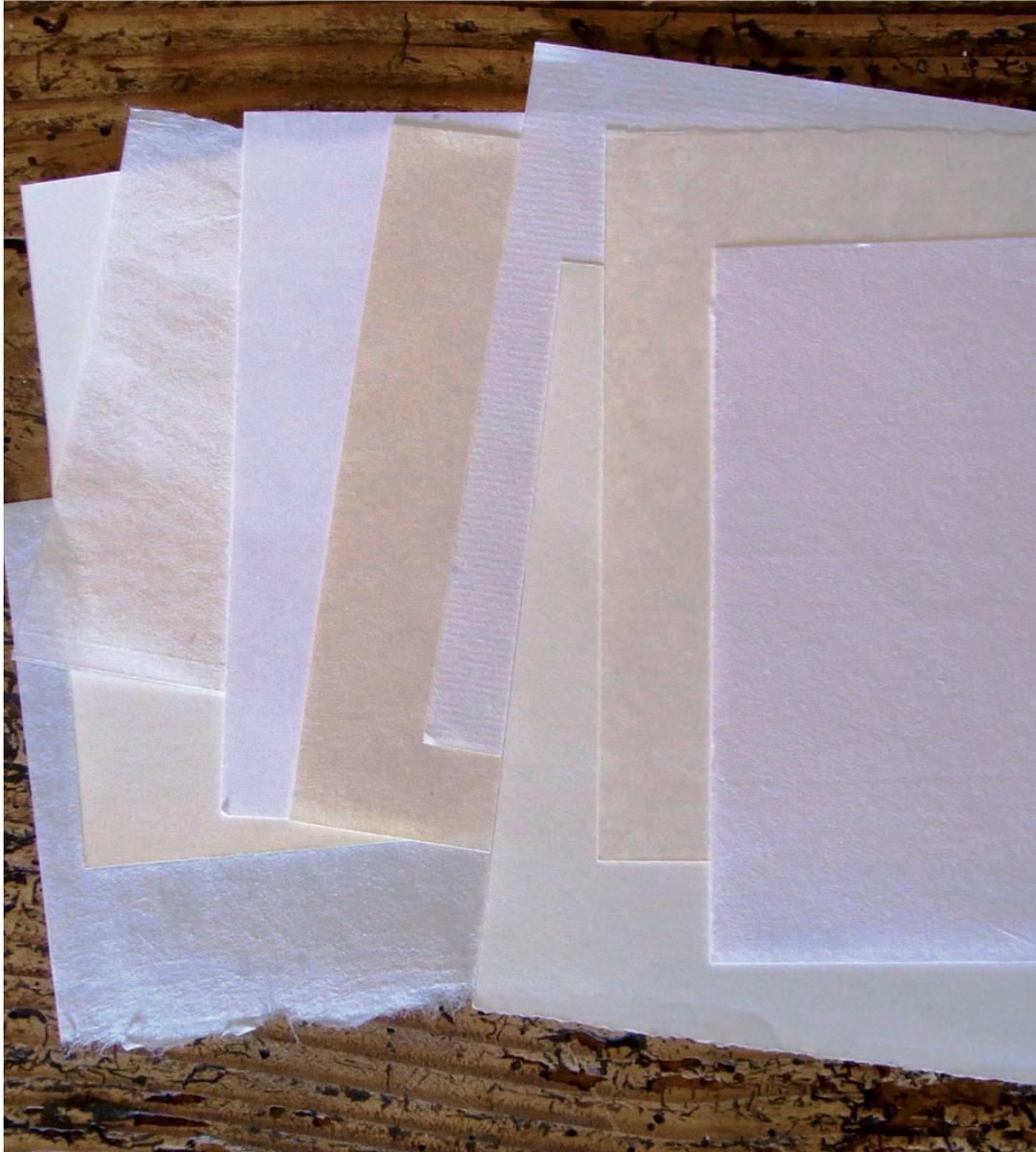
A muller and ground plate glass is used for very fine grinding.

USING THE RIGHT PAPER

The choice of paper makes a great deal of difference to the quality of a print. There are a great many options because paper comes in a bewildering variety of weights, textures and opacity. In order not to spend a fortune on paper, the printmaker will initially want to find a paper for proofing, preferably one that is not too dissimilar from the

paper that is to be used for the edition. Plain newsprint is good stuff: it is very cheap, it takes a good impression, is relatively strong and thin, and can be purchased in A1 size and larger. For proofing it is almost ideal. Lining paper is also fine for proofing and can be bought at DIY stores but needs ironing to make it flat – though turn off the steam facility first!

Good papers for printing can be found from both the East and the West, but they have rather different qualities. Before going into these differences in some detail, it needs to be noted that whilst papermaking on the industrial scale is a very sophisticated and large-scale business, there are numerous small 'craft' papermakers who make quite lovely paper that cannot be made industrially. It hardly needs to be said that 'machine-made' papers are far cheaper than 'handmade' papers. Exquisite handmade papers can be found from both papermaking traditions.



A selection of Japanese papers.

When a print is being taken from a woodblock, the mechanical stress on the paper is considerable. Japanese printing papers are made to withstand the stresses of this kind of printing, as they are made with a long-staple fibre (generally mulberry bark, called 'kōzo' in Japan) which binds the paper together strongly in all directions. As the print is being taken this paper has an additional advantage in that, as it is thin and light (35–60gsm), it is possible to see through

the back of the paper just how the ink is being transferred. This facilitates the printing process when printing by hand.

European papers will generally be far heavier (120–300gsm) than their Japanese cousins; also they are generally very opaque. Both European and Japanese papers are available in large sizes.

Hardly any types of paper are ‘double sided’ – clean and smooth on both sides in the way that A4 copy paper is. It is generally desirable to print on the smoother side of the paper if a clean and consistent image is required.

Khadi papers (Indian recycled and cotton pulp papers) are very attractive, but don’t work well for fine prints, due to the rough surface – rather like printing on muesli.

Our list of papers is far from comprehensive, but we hope will enable beginners to navigate their way through this particular field of choice.

Name of paper used by paper merchants	Weight (grammes per square metre = gsm)	Description
Kozo	Various	The word ‘kozo’ is a generic description for mulberry fibre – strong and stable. This is the most commonly used fibre in the making of Japanese paper. The term also describes some high quality mulberry fibre papers. It comes in various thicknesses and colour
Shoji	45–60gsm	There are papers by the name of ‘shoji’ (the Japanese word for screen) which are part kozo fibre, and are sold for printmaking
Kawanaka	29gsm	A fine, lightweight, strong, white or pale cream, handmade paper
Hosho	80gsm	A near-white, strong, medium-weight, acid-free machine-made paper with one smooth face. It is relatively inexpensive and suitable for general purpose work. It comes in handy pad size and on rolls

Okawara	60gsm	A beautiful cream-coloured machine-made, medium-weight Japanese paper, very strong and available in large sizes
Somerset	250–410gsm	A very high quality, heavyweight, acid-free printing paper made in the UK. It is available in very large sizes, in white and different shades
Rives	250gsm	A very high quality, acid-free, heavyweight printing paper from France. Available in white, cream, buff and grey
Zerkall	120–225gsm	A good quality, machine-made, acid-free paper suitable for general purpose printmaking

EQUIPMENT AND SHARPENING

RECOMMENDED EQUIPMENT FOR EACH PROCESS

It is a happy aspect of the craft of woodcut print-making that only a minimal amount of equipment is essential. Furthermore, many of the things that are listed here will already be found around the house. So a big press is not necessary, nor any heavy tools – and nor is a studio, or electricity, or dust extraction. Nor is protective clothing needed, or safety goggles, or ear protectors. However, it helps to have good lighting, in a place that feels good to work in. And a firm table at the right height will be needed so that you can work without back strain.

When printing, it is useful to have a sink and running water, but even this isn't essential. It is quite possible to work from one's kitchen table and produce exciting prints – and for portability, a kit of essential equipment can be put into a carrier bag.

At a later stage, when ambition has taken you forwards, you may wish to have all sorts of extra items; but for now, the essential equipment for each process is listed in the table.

Process	Recommended equipment
Laying out a print	Soft pencil, chalk, eraser, carbon paper, paintbrush, water
Beginning	Bench hook or non-slip mat (non-slip rubbery fabric as sold to

to work with tools on the block	hold cushions in place or to stop crockery slipping on board ship). Sharp tools. An adjustable desk lamp. Masking tape. Small brush. Carving tools
Proofing	Newsprint or other fairly cheap plain paper. An apron. Roller and ink. Smooth slab for rolling out ink. Baby wipes. Kitchen tissue roll. Soft rag. Burnishing tools. Masking tape. String. Pinch-type clothes pegs.
Editioning	Newspaper. Talcum powder. Baby wipes. Sharp knife. Masking tape
Washing up	Rubber gloves. Washing up liquid. Scraper (like a flat paint scraper). Baby wipes. Kitchen roll. Cotton rag. Squeegee (as used for window cleaning). Waste bag (black plastic bag). Squeezy bottle with paraffin (for solvent-based inks only)
Other useful things to have	Stanley knife. Medium wet-and-dry abrasive paper (120 grit). A small, fine-tooth saw. Camera



A family of rollers.

Process: Laying out a print

Equipment needed: Soft pencil. Chalk. Eraser. Carbon paper. Paintbrush. Water

Before beginning to cut into the block – even before beginning to lay out any design – it is good practice to darken the surface grain with a

thinned ink wash. This greatly helps the artist when actually making the design, as the cut-away area shows pale very clearly. If this is not done it can be very hard to see where you have cut. In China, a distinctive pink wash is used: the actual colour of the darkening medium is immaterial.

In terms of 'putting a drawing on the block', most artists find it helpful to make some sort of guide marks or picture on the block to help them decide which areas are to be kept and which removed. This can be done with a brush and watercolour paint, or by using a transfer with carbon paper from another drawing, or by drawing directly on to the block with chalk or pencil. Do not forget that the process embodies a left-right reversal of the image, so if you want lettering to read or a landscape to be true to its appearance, you will need to reverse the image that is cut.

So that you don't dent or score the surface of the block with the pencil point, use light pressure and a slightly blunt soft (2B or softer) pencil.



Pink wash on block, as used in China.

Process: Beginning to work with tools on the block

Equipment needed: Non-slip mat or bench hook. Sharp tools. Good light. Masking tape. Small brush. Carving tools

The process of beginning a woodcut is like making preparations for a journey: there is a great sense of setting off on a new adventure. The marks you have drawn should only be a guideline – carefully cutting

what you have drawn without any leeway can result in a rather 'dead' print. Allow the tools a life of their own, and cut too little, rather than too much – you can take out more at the proofing stage.

Process: Taking proofs

Equipment needed: An apron. Newsprint or other fairly cheap plain paper. Roller and ink. Smooth slab for rolling out ink. Baby wipes. Kitchen tissue roll. Soft rag. Burnishing tools. String and pinch-type clothes pegs for hanging prints up to dry, or marble rack system

Once the cutting has been taken to that exciting point where you want to have a look at what you have achieved, you will need to clear up any mess that cutting the block has created. It is amazing how determined small shavings of wood can be in trying to find their way into the ink that you have carefully rolled out. They will then get themselves on to the block and print as speckles, a halo of white around each speck of woodchip. These tiny things stick to almost anything, and will lurk on the far side of your sleeves, or curl up ready to pounce from underneath sheets of paper. They will tuck themselves away in crevices on the newly cut block, or hide in your hair, ready to drop out. You need to have quite a clinical approach to cleaning up at this stage if you are to avoid wood-shavings misery!

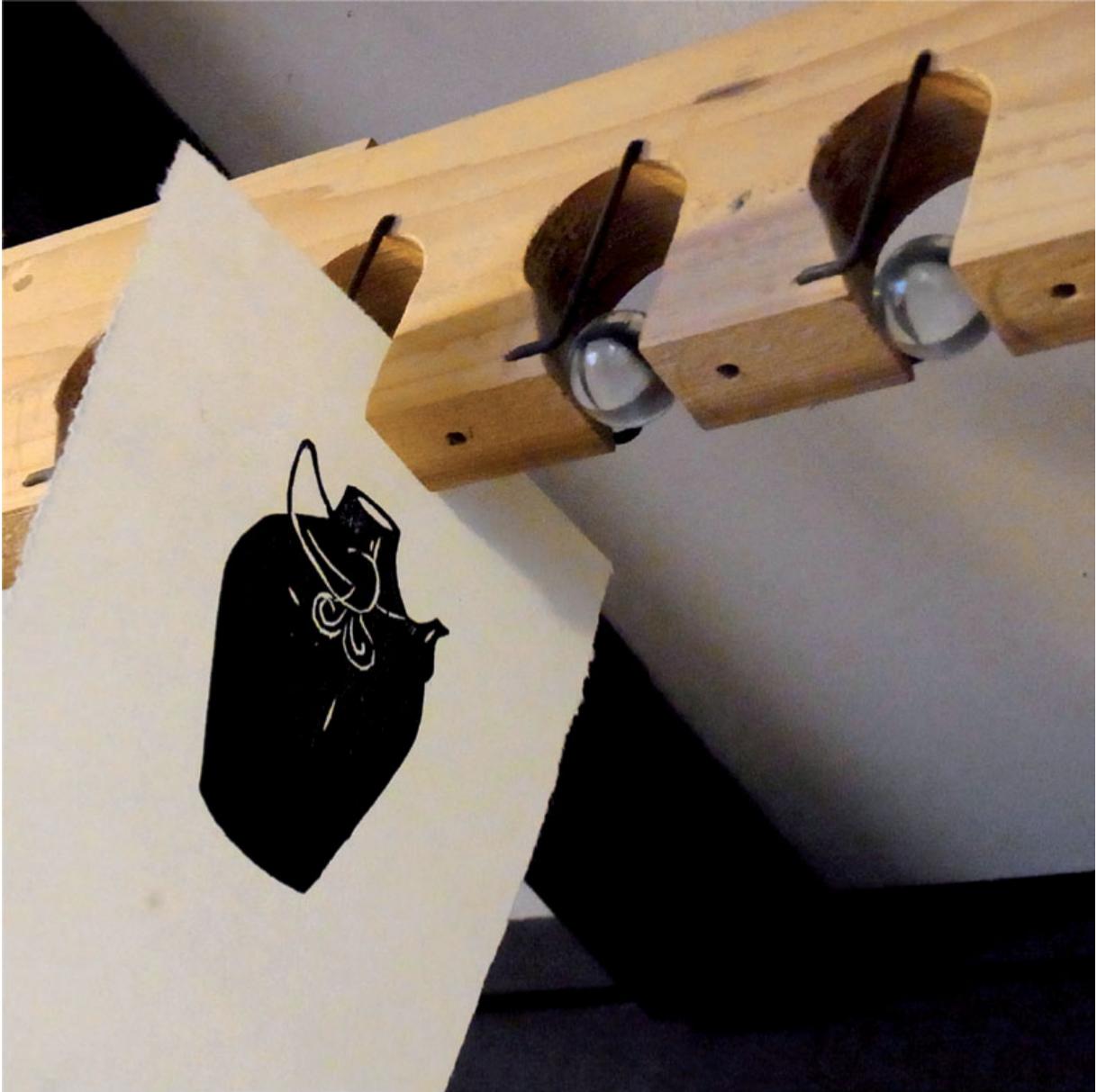
When taking proofs, a record of the stages through which a print has been taken can be useful later.



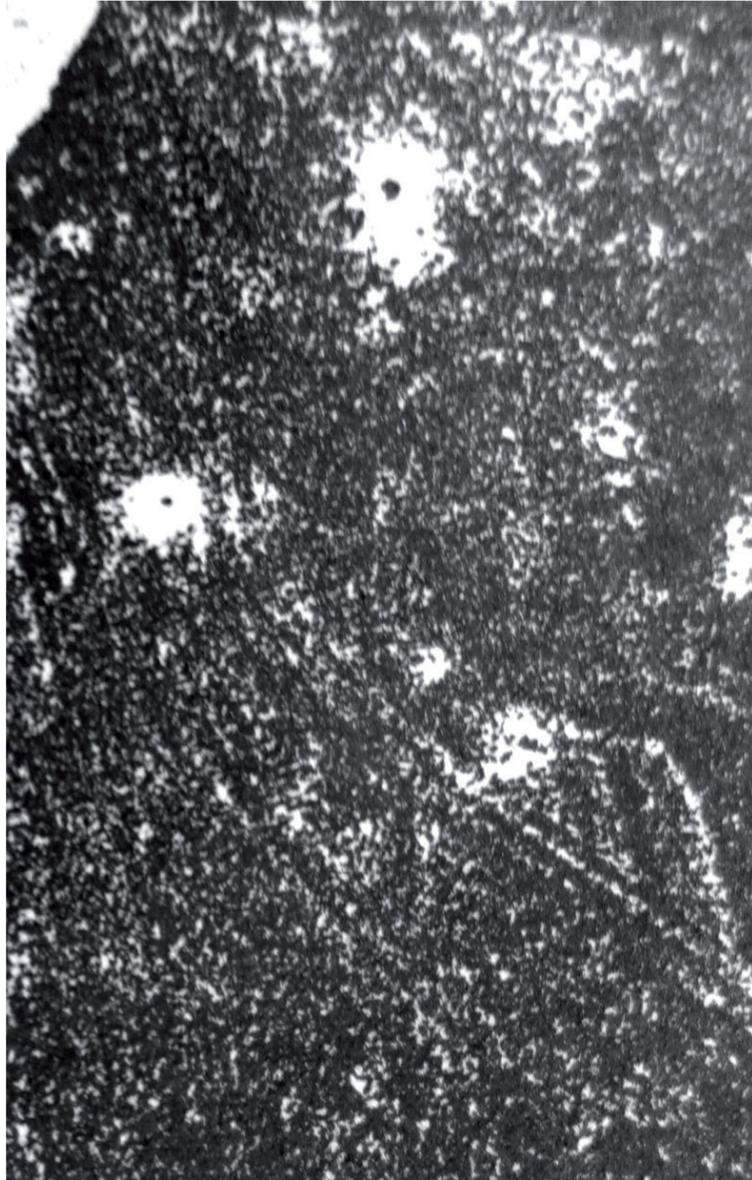
Bench hook.



Bench hook with arrow, showing the safest direction in which to cut.



Hanging rack that uses glass balls to hold paper by gravity.



Little flakes of wood prevent the ink from being transferred properly and create a 'halo' of white. This compromises the quality of the print.

Process: Cleaning up ink

Equipment needed: Rubber gloves. Washing-up liquid. Scraper (like a flat paint scraper). Baby wipes. Kitchen roll. Rag. Squeegee (as used for window cleaning). Waste bag (black plastic bag). Squeezy bottle with paraffin or white spirit (for solvent-based inks)

only). Cheap washing-up liquid for water-washable ink Washing up is something that printmakers do quite a lot of, therefore it is a good idea to learn how to enjoy it. It isn't perhaps the most creative of jobs, but you can develop a slick approach to it that brings its own kind of satisfaction. Washing up is a part of the printmaking process, and there is a real skill to doing this rapidly and effectively. With a little practice it takes only a minimal amount of effort, and there is pride in doing it well.



Inky splodgy mess.



The clothes-peg system for drying is cheap and effective.

Have readily to hand what you will need: newspaper, cotton rag, washing-up liquid, rubber gloves, paraffin or white spirit, some water, baby wipes, kitchen roll. Have a scraper and if possible a squeegee (as for window cleaning).

First, scrape off as much ink as you can. Roll out as much ink from the roller on to the freshly scraped surface, and dispose of that also. Scraping is easier and quicker than washing, and will minimize the size of the job considerably.

Next, loosen all the ink on the slab with washing-up liquid. Don't use water until all the ink has been loosened – that is, has lost its stickiness. Use the squeegee now, and use newspaper to mop up the gloop. Now use some water, as sparingly as possible. Once again use the squeegee to gather up the liquid before mopping it up with newspaper. Finally, wipe the slab with baby wipes or cotton rag, and dry with a clean cloth.

To clean the roller, start as before with washing-up liquid, and only resort to water once the ink is fully loosened. Be careful with the surface of the roller – it must not become damaged.

The main thing with rollers is to ensure that they are cleaned very thoroughly – they are expensive, and ink that hardens on a roller will wreck it permanently. Pay particular attention to ink that finds its way on to the ends. Once the roller is clean, wipe it with a soft cloth and store it so that there is no pressure on the rubber or gel – hang it up if possible.

Process: Making your edition

Equipment needed: Drying rack. Newspaper. Talcum powder. Baby wipes. Sharp knife. Masking tape

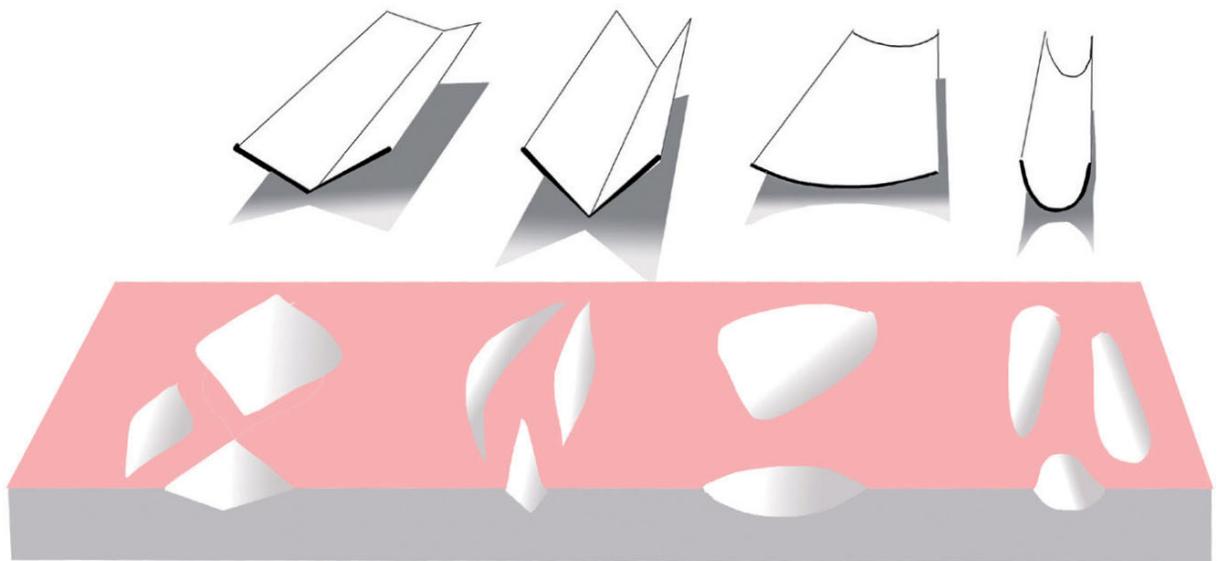
When running off an edition of prints, ink will, given half a chance, get everywhere and it ruins work. You get into the habit of continually checking for clean hands, and baby wipes are very useful to have lying about as they remove almost all inks quickly. Talcum powder will prevent stray ink from printing, and it is useful to have a small pot of it to hand. Dip your fingers into it before handling paper to avoid fingerprints. A drying rack – even if this is just a clothes line – is needed, as there will be many sheets of paper that are tacky with wet ink that need to be kept from blowing about or sticking together.

CUTTING TOOLS AND HOW TO SHARPEN THEM

Woodblock printmaking is a craft as well as an art, and understanding, sharpening and using tools is an enjoyable part of the process. Cutting a block with very sharp tools is a sophisticated pleasure – not least for the particularly lovely sound they make as they cut. For best work in cutting a woodblock the tools will be comfortable to hold, very sharp, and capable of cleanly removing wood from the surface of the block.



V tools and U-shaped gouges.



The kinds of mark made by different tools.

Toolmakers and suppliers do not always supply their tools sharpened and ready for use, and until a tool for printmaking is sharp – however costly, and however refined in design and material it might be – it is of no use whatsoever. By contrast, even the humblest, most unpromising looking piece of steel will cut wood cleanly once it is sharpened properly, and will make good work in the right hands.

There are four categories of tool for woodblock cutting to be considered:

U-shaped tools: These will vary in size and curvature. The large, flattened U-shaped tools are used for clearing background areas quickly. The smaller ones will make rounded-end marks.

V-shaped tools: These will vary in size and ‘inside angle’. They are used for cutting along lines, where the thickness of the line can be controlled with the depth of the cut. They will make a lozenge-shaped mark when ‘dived and re-surfaced’ into the wood.

Knives and straight-bladed chisels: A very sharp, fine-pointed knife is useful for following intricate lines or clearing up difficult corners. Traditionally, in Japanese printmaking the block cutter will have a pair of knives, one with a right-hand bevel, and the other with a left-hand bevel. For cutting letters, a sharp knife is essential. Straight-bladed chisels, even though they are more a carpenter’s tool than a printmaker’s tool, can still be used for making straight cuts.

‘Other tools’: Anything that can make a mark on wood can in theory be used to develop a design or a texture. A wire brush can tear away softer fibres of wood to reveal a woodgrain pattern. A jigsaw can be used to cut out shapes from a block. A ball-point pen will push a line into soft wood, a nail will punch a hole, power tools can rapidly remove wood.

Apart from the V-chisels and U-chisels, a fine-bladed, pointed knife is really the only other essential tool that you might need. A

scalpel with a 10a blade is quite useful. A Stanley knife is also a useful tool, though it is only really useable in larger scale work. The Japanese masters, who use knives a lot more for woodblock cutting than is customary in the West, consider a pair of knives essential – one with a right-hand bevel and the other with a left-hand bevel.

Many people think of cutting wood as requiring manly strength and effort, but this is not the case at all. Wood cuts easily, provided that the tools are kept very sharp and the wood is of the right kind. You don't need brawny forearms and bulging biceps, and great delicacy is possible even in making large prints. A well sharpened V-chisel should be able to cut a line in wood almost as freely as a pencil draws on paper.

To work properly, all these tools must be kept razor sharp. Any tool, when it is very sharp, has a wonderful feel and makes a beautiful sound as it cuts the wood, and this has to be experienced rather than described. It is one of the great pleasures of this craft to work with good tools that are perfectly sharp and well set up.

By contrast, blunt tools can result in hard work and poor results – a drudgery that is both unpleasant and potentially dangerous. The blunt tool feels clumsy and does not cut in a predictable way: instead of cutting through, it can pull and tear at the fibres and damage the clean wood surface that is needed for printing. The combination of unpredictability and extra effort caused by blunt edges can result in the tool slipping out of the wood and (if one is at all careless) into work that has been carefully done beforehand.



Some more mark-making tools.

How to Sharpen Tools

There is some mystique around sharpness. Undoubtedly there is a knack to making tools sharp, but there are no black arts involved, and with a little practice and patience anyone can do it. It helps enormously to know the principles that underpin what really makes a sharp edge on a piece of steel. To do this, it helps to be very patient with this job. Sharpening is far from being an unpleasant chore, but it cannot be rushed.

The main difficulty with sharpening is the leap of faith required to work on a process where you can hardly see what is happening. This is because a sharp edge occurs at a molecular scale, well

below the threshold that normal vision is capable of discerning. Only under a microscope can you really see what takes place at the place where sharpness exists – at the edge of the blade.



The 'flat' side of the tools is uppermost.



The ‘bevel’ side of the tools is uppermost.

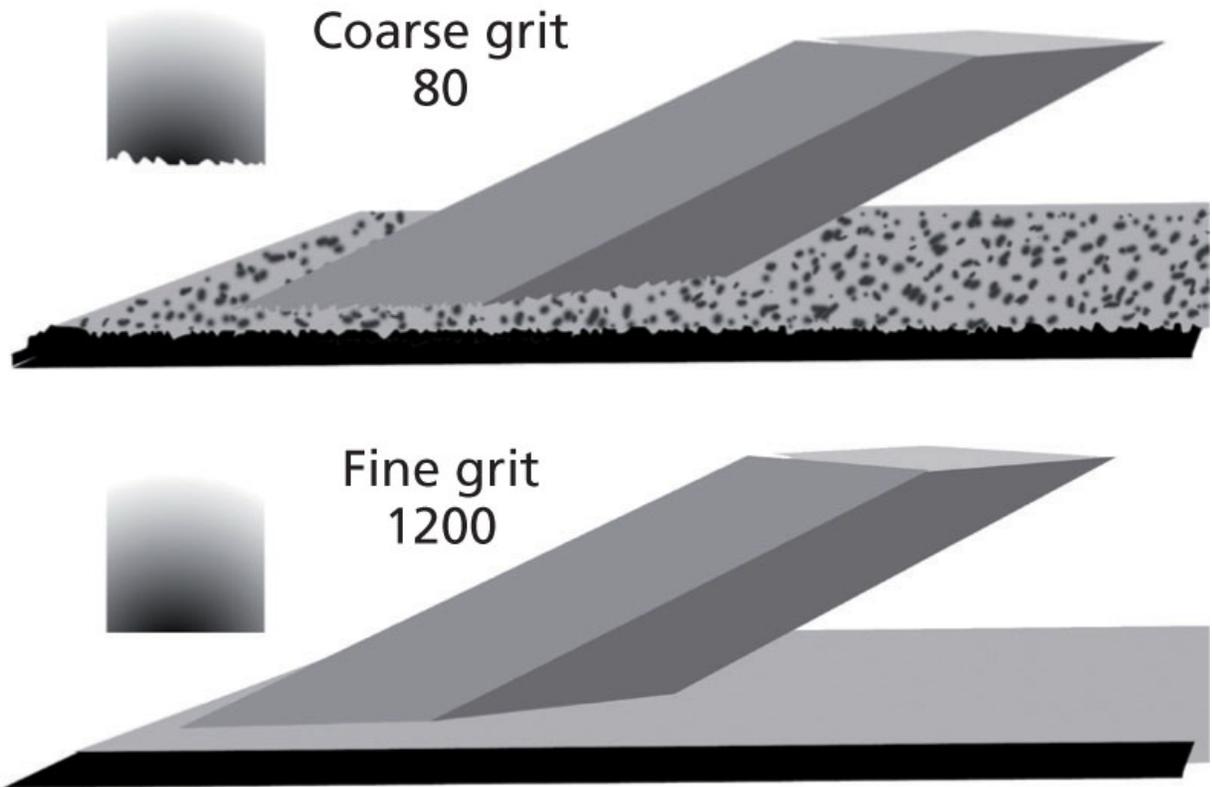
The theory of a sharp edge is quite simple. Two plane (flat or curved) surfaces meet at an angle, and at the line where they meet, there is an edge. With a blade, those plane surfaces are called the ‘flat’ of the tool and the ‘bevel’.

When making an edge, the bevel side of the steel is rubbed against an abrasive surface, which tears off minute chunks of steel. The most common abrasive surface for this purpose is some kind of stone – a Japanese waterstone, or so-called diamond stones (usually a steel surface with tiny industrial diamonds embedded in it). Abrasive paper – such as ‘wet and dry’ paper – can also be used for this process, provided that it is glued flat on to some flat, firm surface such as plywood. ‘Whetstone’ or oilstones can be bought for this purpose, but we prefer the others, as they use water as the lubricant, which is less messy.

The stone will need to be held down so it doesn't move about as you work to grind away the steel. Squirt a small amount of water on to the stone (about a teaspoonful will do). Use a light pressure and hold the tool at the appropriate angle. This will be a little shallower than the angle at which the tool is normally held for cutting. Then move the tool along the surface of the stone for a few strokes, back and forth, pressing lightly and listening for the sound, which is a good indicator of steel being ground away. After a minute or so, closely examine the tool. Immediately it can clearly be seen that 'something' has been happening.

At this point we need to digress a little into the nature of steel itself. Steel has a magical and variable blend of two qualities that are mutually incompatible in the world of materials – hardness and flexibility. This can be exemplified by grass and glass: grass is flexible but not hard, glass is hard but not flexible. A steel that is very hard will tend to be inflexible, and a steel which is very flexible will not tend to be hard. Yet for a perfect sharp edge on a steel tool, both qualities are needed simultaneously. If we make a perfect edge in a very hard steel (not difficult to do) it will be brittle, and will tend to break under stress in the same way that flint or glass edges break. This limits the usefulness of these materials as chisels or axes. Going to the other quality – flexibility – we have another set of problems. Under the stress of use, a soft edge will not break but will deform and bend, or even fold right over in the same way that the edge of a piece of paper will fold over under stress.

In practice, useful tool steel is a compromise between these qualities. Although it feels and looks very hard, at the molecular scale, this steel is rather tough and 'rubbery'. It will retain enough hardness to cut, but also a bit of flexibility. But this makes for a problem when one wishes to form a sharp edge.



Coarse- and fine-grit abrasives: coarse-grit abrasives cut much faster.

The finer the abrasive surface of the stone is, the smoother the surface of the steel will be, but equally, the longer it will take to grind away steel. A few drops of water are used during this process to carry away the steel debris (which is seen only as a muddy colour in the water) and to help the cutting of the steel by the grit.

The first part of the process of sharpening follows these steps:

Grind the bevel of the steel until you can unmistakably feel a burr with the tip of your finger from the other side of the blade. The burr is likely to be very small, and sensitivity in the fingertips is necessary. Never feel the edge of the blade by dragging your finger in the direction of cutting, but pull it in the opposite direction.

Lightly grind the other face, in order to make sure that the burr is bent back over in the other direction.

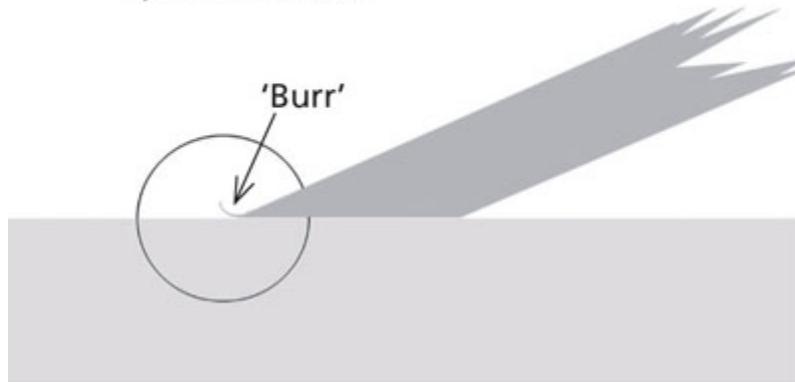
Repeat grind from the other side: grinding gently on each side in turn ensures that the burr is repeatedly bent back and forth until it

breaks off. A large burr looks like a very, very thin hair.

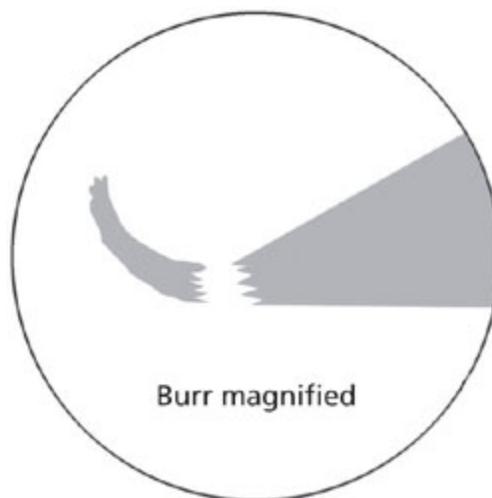
Grind a little more on each side to finish the first stage of the sharpening process.

The final part of the sharpening process is not done with an abrasive stone, but instead uses abrasive wax or paste on a leather or felt surface. This cuts only a very tiny amount of steel but leaves a mirror finish on the steel and a very sharp edge indeed. It is possible to get a certain clue as to the sharpness just by looking at the way the edge reflects light from each side.

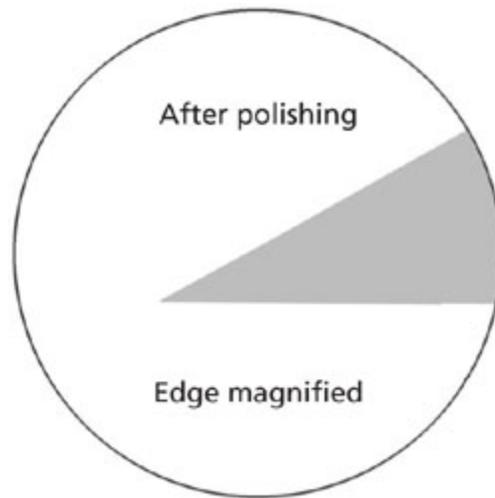
When sharpening, a tiny curl of steel is created at the tip of the blade



The burr at the cutting edge of a tool can hardly be seen by the naked eye, but can be felt by a finger stroking away from the cutting edge.



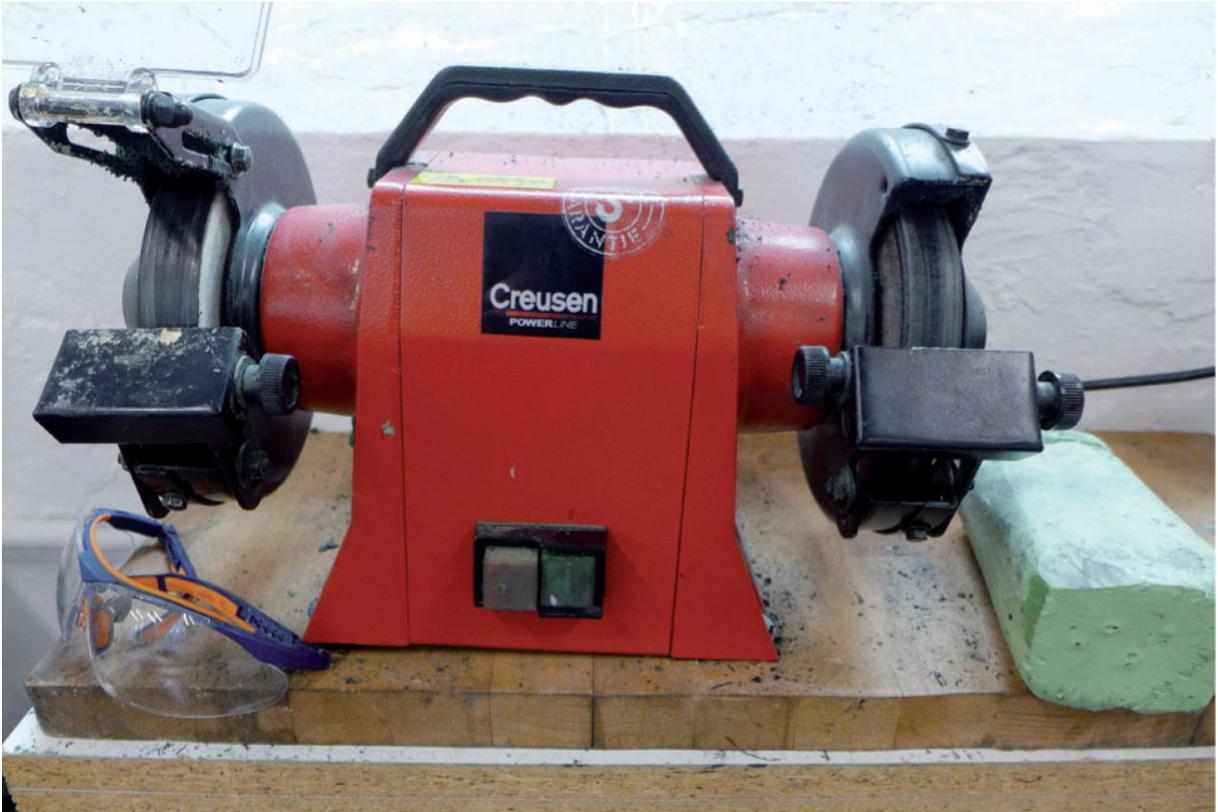
The burr needs to be removed from the edge, and then the honing process can begin.



Edge (magnified) after polishing.



The simplest and most economical kit for making your tools very sharp is based on wet-and-dry abrasive paper mounted on scraps of plywood, followed by an abrasive paste on a leather strop.



Electric sharpening equipment speeds up the process.

Either use a leather strop (a piece of leather stuck down to a board) or a felt wheel on a honing machine. This is exactly like a bench grinder, but the wheels turn in the opposite direction, which is always away from the tool edge.

With plenty of paste on the strop or wheel, work with medium pressure from each side of the tool repeatedly until only bright shiny metal can be seen along the edge. You are aiming to achieve a mirror finish. Only when this has been achieved can you be certain that the tool is probably sharp enough to use.

ROLLERS

Rollers for printmaking come in two flavours: cheap and expensive. We would suggest that you avoid cheap and get the best you can afford.

The disadvantages of cheap rollers are too many to list. However, there are some moderately good mid-priced rollers, and it might be best to purchase one of these at the start. High quality rollers are precision items and costly. The roller itself is made either from a high-density gel called durathene, or from a black rubber. Both of these seem absolutely satisfactory. They come in various widths, diameters and 'shore' (hardness). For a good all-purpose roller, we would suggest a 150 or 200mm roller of 50mm diameter. This item will last for many years if it is properly cleaned after each use.

When cleaning rollers, make sure you do so thoroughly, paying particular attention to the ends and corners, which can get overlooked.

It is possible to accomplish a great variety of work with even a single roller.

IS IT NECESSARY TO HAVE A PRESS?

Printing woodblock prints by hand is perfectly possible for virtually any size print. Printing by hand has some advantages – for example, the block does not need to be accurately thickened. Large presses are cumbersome and expensive pieces of equipment. The quality of printing by hand can also match or surpass that from a press for some work.

A simple burnisher is all that is needed in the early stages of one's engagement as a print-maker. (See 'Printing by Hand' in [Chapter 8](#).)

In short, for any amateur, and even some professional printmakers, a press is not an essential piece of equipment. It is a big financial investment and takes up space – but if there is a fairly

large run of prints, or many colours to print, or if you suffer from sore arms or shoulders, then a press will seem a very attractive proposition. Joining a printmakers' collective is one possible alternative to buying, as this would give access to equipment that might enable more ambitious work.



A method of storing rollers ensuring there is no pressure on either the gel or the rubber.

A press has certain advantages over hand burnishing. It is much faster and more consistent than hand printing – and the larger the print, the more sense it makes to have a press, not least because of the physical labour involved in burnishing. A press is likely to give more even results when there are large areas of flat colour to be printed, and it is much less effort.

Even so, for all the advantages that a press can bring, there are still subtle effects that only hand burnishing will produce. Only hand work will enable the artist to select different parts of the impression for particular delicacy or pressure in the laying down of the ink.

GETTING STARTED

There are many pleasures to be enjoyed in woodblock printmaking, and one of them is the exploration of the kinds of mark, or combination of marks that a tool will make. There are many possibilities of creating texture and pattern. By experimenting, each artist will develop a repertoire and a style, which is often as distinctive as a handwriting. Getting to know one's tools is a very important part of the process, and it is only by playing around with the kinds of mark that the tools can make that your hand and brain can learn for themselves just what is possible.

The more cutting with these tools you do, the more you will learn to appreciate the quality of sharpness that makes them easy to use. A really well sharpened tool is nearly as easy to push through the wood as a pencil would be to draw on its surface. So with very sharp tools you can learn to cut very freely. Some marks can only be made to be beautiful with free movements of the arm; as soon as you begin to become 'very detailed' a tension can set in, and the sense of freedom is lost.

The illustrations show the kinds of mark that others have developed: the beginner can copy this approach, and by doing so, can experience the feeling of and for the tools.



A wide variety of marks can be made with very few tools by Merlyn Chesterman.



Chinese printmaker Chen Yuping working out of doors at Guanlan Print Base.

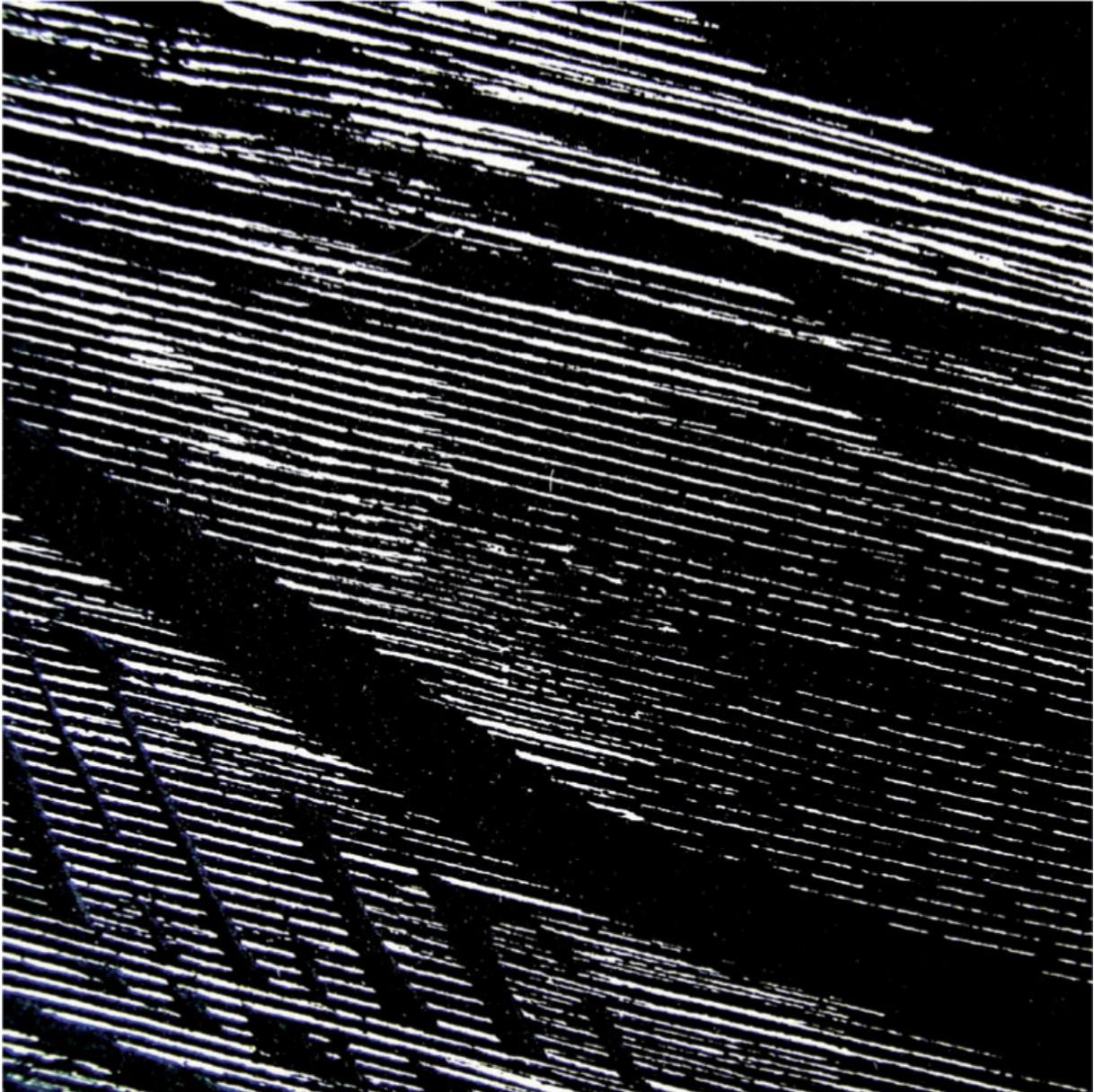


Chen Yuping's distinctive cutting (detail). He cuts with a chisel in each hand, using them simultaneously.



A selection of marks that woodcutting tools can make.

**Think not those things identical that have the selfsame shape:
tis not only the hairs on a gooseberry that prevent it from being
a grape.**



The subtlety of skilled cutting.

THE PROCESS OF CUTTING

The process of cutting is enjoyable, provided that the tool is super sharp. As soon as the cutting tool becomes the slightest bit blunt, it will start to make rough edges or to tear at the grain. Stop cutting as soon as you notice this beginning to happen, and hone the tool back

to the level of sharpness that brings enjoyment again. Then your work will be quicker and better.

Holding the tool at the right angle is important. The vertical angle between the chisel and block controls the width of the cut, and this is something that will soon be discovered with experience. Thus if the tool is held at too steep an angle, it will dig in; if too shallow, it won't cut at all. By playing around with the depth of the cut with one particular tool, you will quickly find out what is possible in terms of broad and narrow lines. It soon becomes clear that a shallow cut is equivalent to a narrow white line. When the chisel enters the wood at a steep angle, the line will rapidly deepen.

There are three actions in the making of a single cut into a piece of wood: the way the chisel enters the wood, the main part of the mark itself, and the way the chisel is taken up and out of the wood. Of course, this is much too complicated to think of as one is working, but nonetheless it is an accurate description of what happens. Similarly the angle between the chisel and the wood will determine how the cut progresses. The steeper the chisel is raised from the wood, the deeper it will cut. At the extreme, the chisel is pointing straight down into the wood.

When cutting strokes are repeated, patterns may begin to emerge, as parallel lines, radiating lines, crosses, dots or whatever are made in relationship. Choices that lead towards pattern and order or towards randomness and chaos are always there, and each stroke into the wood is an irrevocable choice that the artist makes, a choice that cannot be undone. A beginner will begin to cut lines into a surface, and these lines will show against the black printed surface as white lines – but a few white lines by themselves rarely create a good print. The eye will read these lines as drawn lines on a black page, but it may be that more expressive choices can be made. For example, until there are areas of white and areas of black, some textures or some kind of spatial reference like a horizon, the potential of the image is probably not fully released.

At every stage the artist may wish to give some attention to the kinds of shape that are being created – white shapes being cut into

black, and black shapes being created to stand out against a white background. As well as shape being important, the ratio of black to white (that is, what percentage of the block is going to print black – for example, is left uncut) is also going to matter for the impact of the final print. Beginners will often have a block that is 90 per cent black, and quite apart from any artistic consideration, this can often be hard to print cleanly.

Unconsciously, when there is a balance between black and white, and when the shapes are interesting, the mind will tend to read this as a good and interesting print, regardless of the subject.

THE EXPERIENCE OF CUTTING A BLOCK

The experience of cutting wood with a sharp chisel is extremely enjoyable, but nobody can really teach you how to do it well: you will have to find out for yourself. Surprisingly, though your eyes will be your main guide for telling you what is right or wrong, in part you can use your sense of hearing. The sound of a sharp tool cutting through wood, if it is 'right', will indicate that the tool is working well: this is part of the pleasure of the job.

Holding the tool can seem difficult for some people; for others it seems to come quite naturally. An overhand grip is probably the best for maximum control, with the top of the handle in the palm of the hand. This will also enable you to roll the tool from side to side by using the thumb and first finger. Try to keep your grip firm but relaxed, because your hand will get tired if you strain. The effort required to push the tool can come from the hand, from the wrist, from the elbow, or from the whole body. There are different designs of tool handle, so when you are buying tools, try to find ones that are comfortable. The Japanese and Chinese chisels are just like thick pencils and they have a straight handle; we find these perfectly adequate.



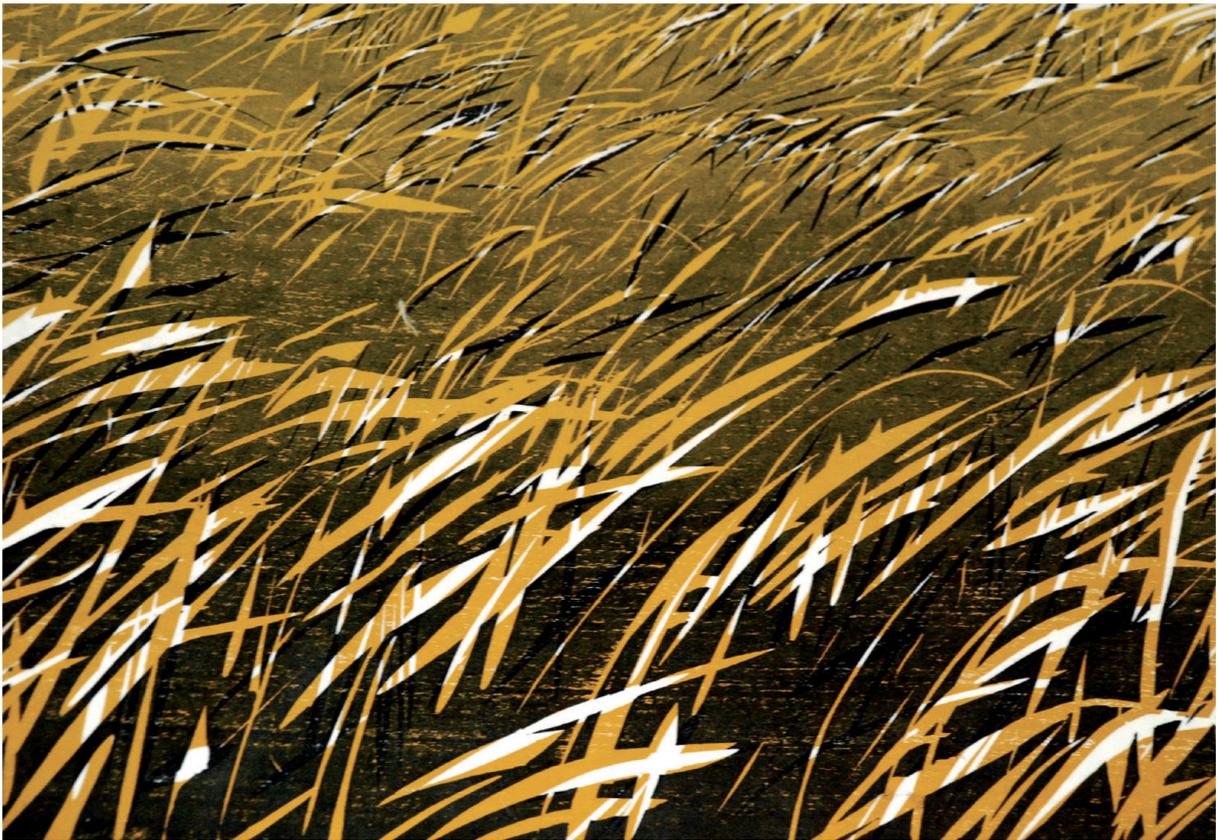
***Fifi Dort* by Rod Nelson. This block was cut in less than two hours with very sharp tools.**

Working with Very Sharp Tools

Fifi sleeps where she will be the centre of attention, which happens to be where all the very sharp tools are. All roads to success stem from having sharp tools. Cutting with sharp tools is not physically hard work – not much harder than pushing a loaf of bread across a

breadboard. Control of the tool is crucial, but if your strength is becoming challenged, it is almost certainly because you are working with blunt tools, or because you are trying to cut too much wood out of the block. Every small cut will print, and therefore it is only necessary to cut a few tenths of a millimetre below the surface of the block. With large areas of white, you may need to cut a bit deeper.

Finally, it is a good idea to have some tissues and a few sticking plasters around, just in case – though hopefully you will never need use them.



***Grassland* by Merlyn Chesterman. This is an example of sweeping and rapid cuts used to create the feeling of the wind over the grass.**

Speed of Cutting

Some artists will work with tremendous care and sense of duty. They will carefully draw an image down to the last detail, and only begin to cut once their drawing is perfect. Diligence is a fine thing, but what starts out as 'care' carries the danger that concern with detail can put the work at risk of becoming stiff and over-controlled. The artist has played for safety, but the print simply becomes a version of a drawing.

It takes courage to work with flair and energy – one is risking failure or chaos. The danger here is that the cutting results in an image that is visually uncontrolled or careless. On the other hand, when you can pull it off, this is the route to a great print, a work with verve and daring.

Ideally, the artist will be versatile and able to work with either of these kinds of approach at will, and as suits the purpose of the work at hand.

Full control of every cut can be crucial – for example, when cutting letters or formal symbols. You will want to be conscious and careful in a medium that hardly allows of mistakes – though a sense of proportion is hard to maintain. The artist who obsesses on detail can become lost in time and space, wasting a lot of time in unnecessary effort to perfect parts of a print that may well not matter. There is a danger of thinking that in order to complete a piece, one must go on and on cutting at the block until the poor thing is done to death. Maybe rather than going on, it could be a good idea to take a proof of the incomplete work. Knowing when to stop at the 'right moment of incompleteness' is a valuable perception: an overworked print may leave nothing to the imagination.

On the other hand, the great Japanese woodblock printmaker Shiko Munakata has this to say on the subject of completion:

No print is complete in itself. It is one more stake in the ground. It is one more step toward the goal of a lifetime. It is one more prayer that I may reach that goal.

Munakata, 1958

Involvement and Focus

Cutting a woodblock generates a kind of single-minded attention that is good for the soul, and the process itself is as important as the end result that flows from it. Some people are so self-critical that they hurt themselves, but because printmaking is an 'indirect' medium – the artist works mainly with the block and then with inking, rather than on the finished image – it is maybe easier in this medium to suspend self-criticism, perhaps even until after the print has been taken. It often happens that the high quality of the unexpected in the first proof is a great surprise.

One of the beauties of woodcut printing is that the results are to some extent often better when they are wild, even a little unpredictable – the exceeding of original expectations brings a huge sense of satisfaction. Therefore when cutting a block, suspend the common tendency towards self-criticism for a little while and just give yourself over to the task at hand, making each choice to the best of your ability. Nobody finds this easy, but enjoy yourself in the process of cutting the block, remembering also that a great deal of the quality of the work will come in the next stages – proofing and editioning.

If you find that you are wondering whether it is time for a cup of tea, it could well be that the tools are no longer sharp. So, take a little break and work on them.

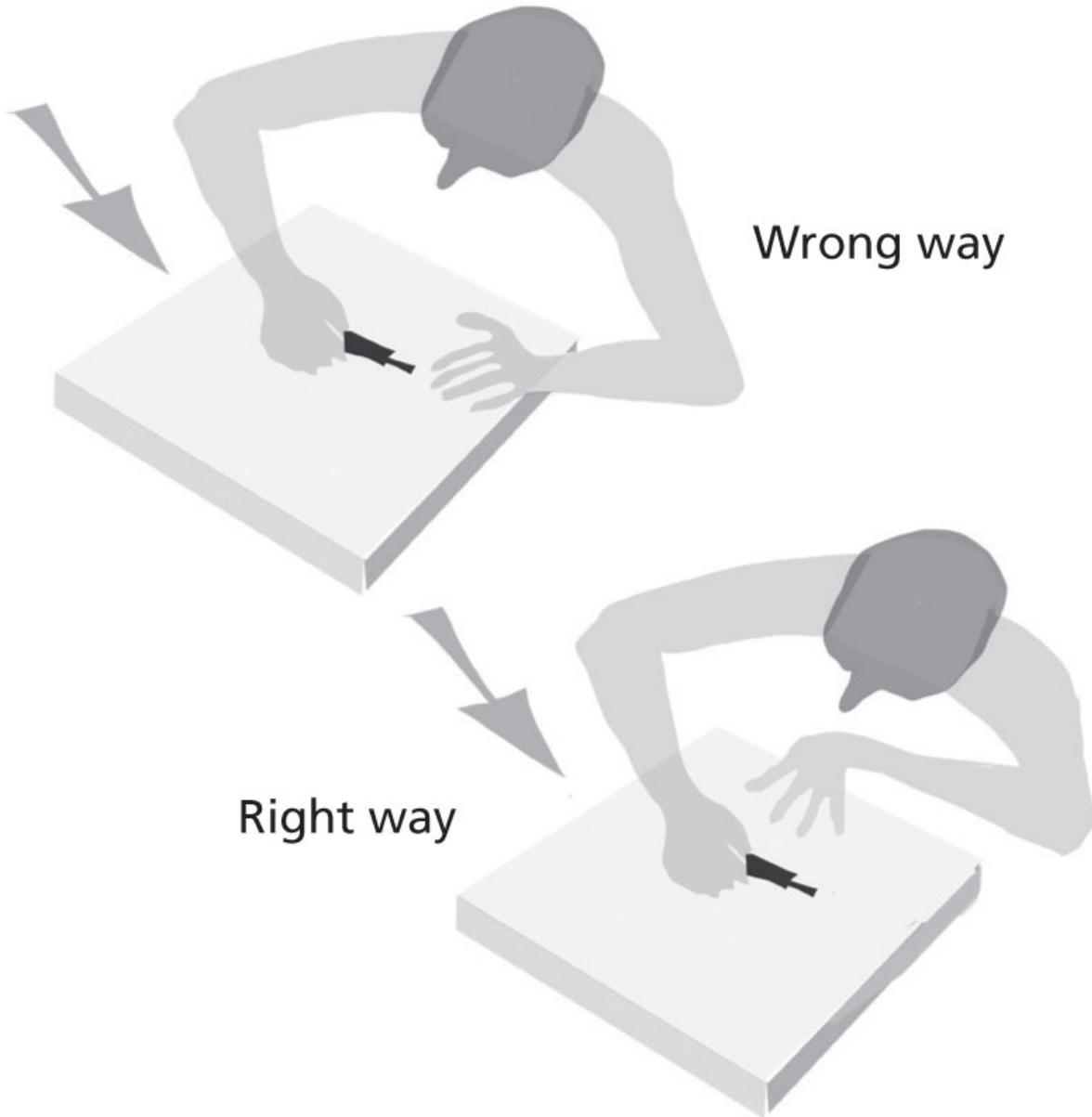
SAFETY

The process of woodcut is not dangerous, and those with some experience hardly ever cut themselves (though one can never say 'never'). Injuries with woodcut tools can be painful and inconvenient, but fortunately, avoidance of dangerous situations becomes second nature with practice. The most important rule is:

Never put your spare hand in front of the cutting edge of the tool!

Break the rule at your peril! Woodcut tools are very sharp.

Never put your spare hand in front of the tool. If the tool should accidentally slip out of the wood and your hand is in front of it at that moment, you may suffer a painful cut. This particular danger is greater with small blocks than with large ones, simply because they are harder to hold and control. So remember to keep moving your spare hand to a position where it cannot be cut. After some practice, this will become second nature.



Never cut towards your spare hand: if necessary, turn the block round.



Chinese printmaker Chen Long cutting a new block – note the placement of his hands.

For very fine work, it is often a good idea to steady one hand against the other so that the hands work together as a single unit. This can avoid the problem of the tool slipping accidentally and damaging existing work. If you want to work with both hands on the tool, the block must not move, and a bench hook is useful to prevent

it skidding about. Alternatively, non-slip matting underneath the block will do the job.

If you attempt to assess how sharp a tool is by running your finger along the edge (a surprising number of people do this) you may well regret the test. To find out how sharp any chisel or knife is, try using it on a piece of scrap wood or on the reverse side of the block.

DESIGNING AND CUTTING A WOODBLOCK PRINT

If you know the end point at the beginning, you have risked your creativity.

Sandy Brown, ceramic artist

Almost any subject is suitable for a woodblock print, including text and lettering. Simple motifs such as flowers, leaves and trees will be quite enough for expressive and beautiful prints.

Architectural or industrial themes and abstracts work well as woodcuts. As a medium, the spectrum of possibilities is bewilderingly great – woodcut technique can be as delicate as lace, as soft as water, as hard as ice and as brash as Broadway.

It will always help to have a look at the work of other artists who work in the medium. Very committing topics such as portraiture or intricate architectural detail will test anyone's skill, and can swallow a great amount of time without any guarantee of success.

Before beginning, remember that designs, once cut, will print in 'mirror image' – in reverse from left to right. Reversal sometimes doesn't matter, depending on the topic, but if you need to control the reversal, you can lay it out on tracing paper first and then transfer lines with carbon paper after flipping the tracing paper over to the back side uppermost. You can also use a mirror to get some idea of how the subject will look when it is printed.



Banana Tree by Merlyn Chesterman.



A photograph and woodcut of lotus leaves by Merlyn Chesterman. This shows the translation of nature to art in woodcut. (Images 100 × 100mm)



Fadagosa, Portugal. Photograph and woodcut by Merlyn Chesterman. The casual and random lie of the grass is distilled with a minimal number of rapid cuts. (Images 100 × 100mm)



Chen Yuping, Guanlan Printbase, China, using a mirror to see his image in reverse.

You also need to remind yourself that cutting is removing white from solid colour, so that whereas thin white lines are easily cut, thin coloured lines will take skill.

Woodcut, from the start to the finish, involves making a great many choices, each one of which will have an effect on the finished print, and many of which are irrevocable. Expect the unexpected.

Here is a checklist of design considerations that it may prove useful to consider:

- If you want to make a print using more than one colour, there are several ways of doing this. A separate block can be cut for each colour, and multiple blocks will need to be aligned with accuracy (registered) to achieve the right effect – see [Chapter 7](#) Registration. The reduction process may also be used, in which one cuts and prints from the same block, reducing the printable surface many times and printing repeatedly, using a range of colours or tones. See the section on the reduction method in [Chapter 7](#).
- Large areas of black or solid colour can be hard to print evenly, unless one has a press. Large areas of cleared away background around small areas of printing surface will be hard to print completely cleanly, without the accidental transfer of ink.
- If you want to cut lettering or script, you will almost certainly need to lay it out first on tracing paper before transferring it to the block.



The Gap. The artist swims to this location and afterwards marks up the block with a wax crayon. The photograph is taken with a waterproof camera at sea level.



***The Gap II* by Merlyn Chesterman. This print interprets the mood of the movement of water from a series of marks made under interesting circumstances.**



***Breaking Great Wave (after Hokusai)* by Rod Nelson.**

A print is not a drawing, and it is very tempting to make a detailed drawing on the uncut block and then cut that image. This does not necessarily lead to a successful print. A print can contain elements from a drawing or a photograph, but it has the potential to go beyond either. The graphical motif in the illustration here is taken from perhaps the best known woodblock print of all time: *The Great Wave* by Katsushika Hokusai.

LAYING OUT IMAGES BEFORE CUTTING

Before marking up a design most printmakers will stain or paint the surface grain of the whole surface of the block so that it is easier to see where a cut has been made. In China, printmakers stain the surface of the block pink, and then mark up their design in soft pencil or chalk. Pink staining mix (or any other colour one wishes) is made by diluting poster colour or acrylic ink with water. Remember to dry the block carefully before beginning cutting, because wet wood does not cut very well – it becomes more ‘fluffy’ and can leave the edges of cuts rather whiskery.

Most people prefer to lay out an image on the block before beginning to cut it. This is particularly important where one needs to achieve predictable ‘reversal’ – typically necessary for landscapes or for typography. These need to be carefully laid out – if you want to check how the image will look when it is printed, use the mirror; it is all too easy to cut letters such as ‘s’ and ‘n’ the wrong way round. Landscapes will also often need to be reversed – it can be quite disturbing to see a place that you know well printed the wrong way round!



***Starlings* block, by Merlyn Chesterman. The block is drawn up with ink, felt pen and chalk.**

An image can be laid out on to paper and then transferred using carbon paper. This is a very 'safe' way to lay out images, but it can also result in an over-controlled feeling.

It is possible to damage the surface of the block by scoring into it with a hard pencil. You can safely use a brush and ink, chalk, white crayon or a soft pencil to lay out a design if you wish to do so first. Permanent marker or felt-tip pens are a risk because they can leave a residue that prints, even after every effort is made to scrub out the ink. Be aware, however, that chalk or soft pencil marks on the block

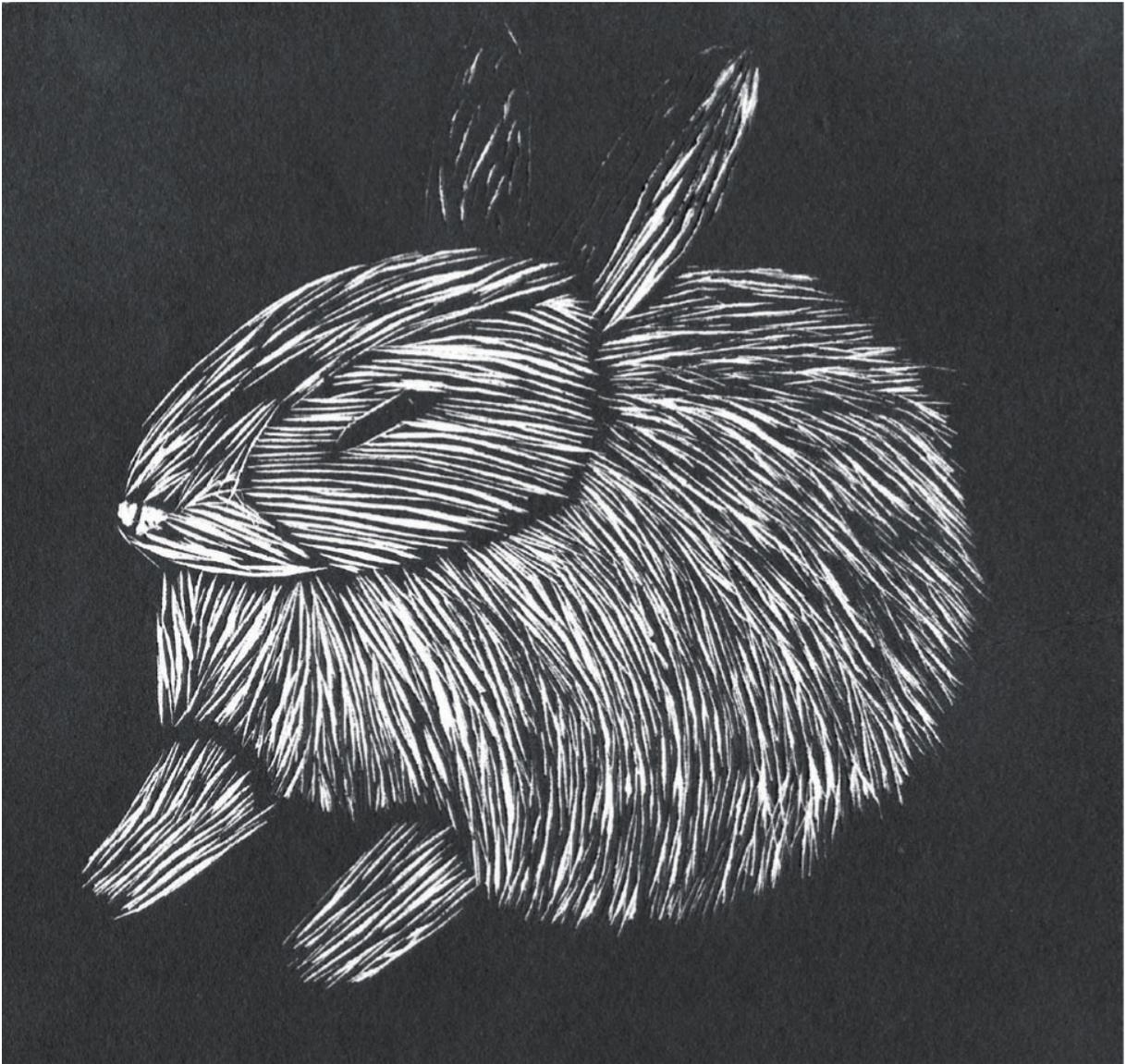
will be very easily smudged or rubbed out, so if you are right-handed you will need to begin cutting at the bottom right-hand side of the block and work upwards. Alternatively, tape some newsprint over the marked up, but uncut area, to protect the marks from scuffing.



Using a mirror to get a better idea of what your block will look like when it is printed.

If you wish to work very freely and are feeling brave, you can trust your intuition and work without marks, relying on the spontaneity of the chisel. This is an exhilarating experience, even if it is risking total failure, and could be a good antidote to the excessive need to control the entire process. As Shiko Munakata says: 'The mind goes, and the tool walks alone.' He also noted: 'Generally, the faster I work, the better the results, but when I work so fast I am left with a sort of sadness.'

There is also the middle way, where a composition is marked out roughly, and the detail put in with the tools.



My Rabbit by Robert Jeffery.

THE DIRECTION OF CUTS

In order to cut in a free and yet controllable way, you will find there are only certain directions in which the tool can be guided confidently. If you are right-handed, you will find it easy to use a tool

to cut an arc-shaped line from bottom right to top left. But you will find it quite awkward to cut a line that goes from bottom left to top right – the arm just doesn't want to push controllably in this sort of direction. You can test this for yourself by just pushing something across a table with your hand. The easiest way round this awkwardness is to keep turning the block to ensure that the most comfortable direction for each cut or set of cuts is possible. Left-handed artists need to reverse this guidance in their minds.

Repeated cuts made in the same direction will build up a texture that can be very appealing and effective.

In the illustration (above) notice how the artist (aged eleven) creates line by 'not cutting' along the line of the head, eye and feet of his rabbit. See how he has also created a three-dimensional effect through the direction of his cuts. This is one of only two woodcuts that he did and it is a sophisticated print. One can feel immediately how well he knew his rabbit!

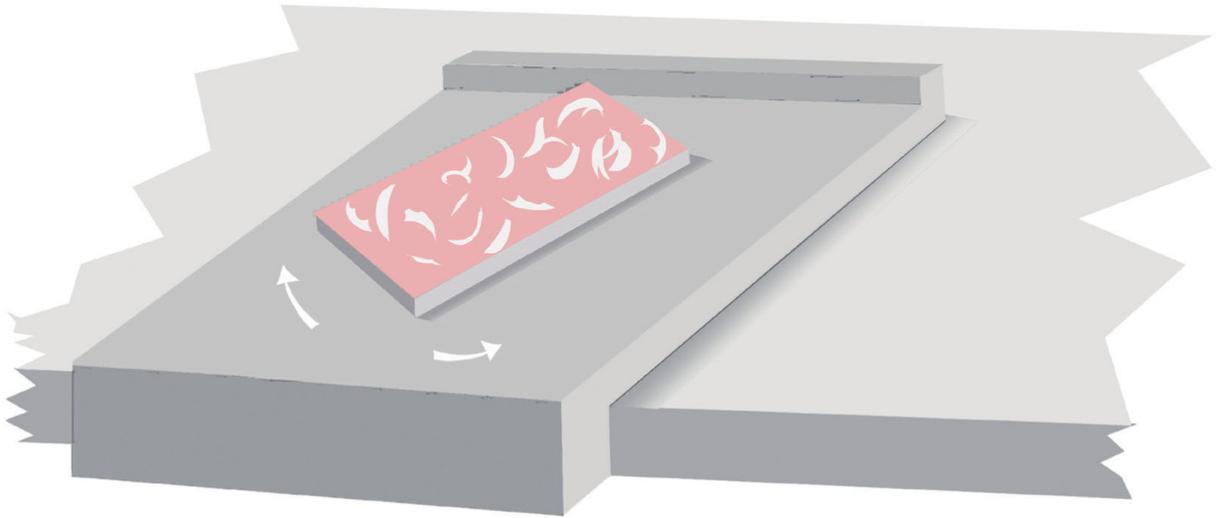
HOLDING THE BLOCK

The block will need to be turned fairly continuously during the process of cutting because, as we have discussed above, it is easier to cut in one direction than in others: this soon becomes apparent from experience. Artists can find themselves struggling to cut in awkward directions unless they remember to turn the block. Yet having a block sliding around uncontrollably is both unsafe and artistically risky. It is therefore necessary to find a balance between two opposites: a block clamped down immovably, and one skidding about all over the place. Anti-slip underlay is a very practical solution to this dilemma – it is a slightly tacky fabric sold in hardware shops or on line to stop things sliding off tables on boats. It will usually hold the block in place quite safely without any other equipment being necessary.



Anti-slip fabric, a widely available commercial product.

Holding the block steady is progressively more difficult the smaller the block is. A bench hook that provides a 'back stop' is very useful, and makes the process much safer. If the block isn't held properly, the tool can slip accidentally. A large block will stay still under its own weight, without any assistance.



A bench hook, simple to make.

CLEARING BACKGROUND

In most prints the artist will want some areas to remain unprinted, using the paper itself to represent 'white' (or whatever colour the paper happens to be). In these areas, the printing surface of the block will need to be relieved (cut back), or even removed altogether, in order that no ink reaches the paper. The cutting away process, known as 'clearing', is best thought of in three stages.

The first stage is to ensure that all the periphery of the area that is to be cleared is itself cleared. This is the critical area adjacent to the printing surface that you wish to keep. The main danger is that 'good work' will become damaged through accidental slipping of the chisel, or excessive haste of the artist. In order to avoid this, always 'work away from danger' – danger in this case being the risk of damage to areas you wish to keep.

Having defined the area you wish to clear away, make sure you have a very sharp, flattish U-shaped gouge. Work in an orderly way, not taking out too much at each stroke. A hammer or mallet can be used if the effort of pushing becomes too much. This will give more control and therefore less risk, and will be less effort, but you will need to secure the block well to the table.



Printmaking technician Cheng Xiangning using yellow parcel tape to facilitate clean printing.

Finally, any upstanding humps and bumps can be removed using a fairly flat gouge.

Even so, however careful you are, it is hard to ensure that no ink will be picked up on areas that are supposed to be 'white'. There are one or two fixes that you can employ. For example, it might be possible to apply ink in such a way that no ink is transferred to a particular area of the block, either by masking it or by avoiding it with the roller.



Crows by Joy Shepherd. The print would have been less exciting had the background been completely cleared.

Another approach is to make the background very flat by carving away all 'hills and valleys' of a background. One might even completely cut away areas of the block altogether with a jigsaw or scroll saw. For those with access to suitable tools, this method works well with thin plywood or other thin board materials.

An approach used by printmakers in China is to carve the background as flat and level as possible, then press down a layer of shiny, thin parcel tape over the whole area. The tape provides a surface that is easy to wipe clean before inking.

When you are starting to cut, be careful not to clear the background with too much enthusiasm, as this could diminish your

options – there may be marks that are worth keeping. The print of *Crows* by Joy Shepherd would have been much less exciting had the background been completely cleared back to a white paper.

BLACK/WHITE BALANCE

The proportion of black areas in a print to white areas is an important consideration for a successful print. Prints cut by beginners are quite often of a ratio of 80 per cent black and 20 per cent white. This can be overwhelming to look at, and also it can be difficult to print evenly. If you don't have a press, a lot of hard work is required to burnish large areas of jet black, and to do so in a way that yields an even black surface. It is perhaps better to consider this technical difficulty as a design issue, and to avoid large, even areas of black, particularly if you don't have a press.

Large areas of 'white' may also present difficulties of a different kind, as we have discussed in the previous section.

It is helpful to have in mind the ratio of black to white, whether that be 50/50, 60/40 or 70/30.



Rumour about Frogs by Rod Nelson. At a glance, this print appears to have a ratio of about 60 per cent black to 40 per cent white.



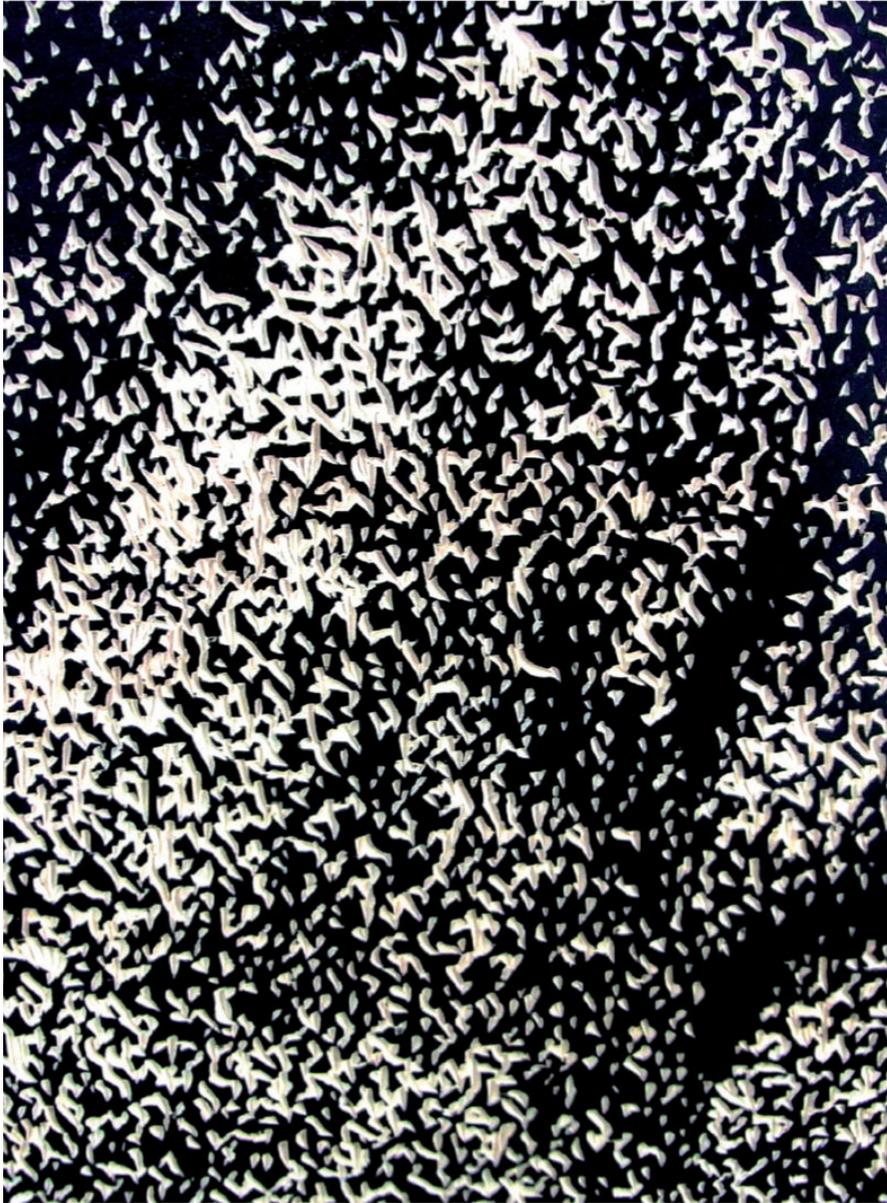
***Fern Fan* by Helen Roddie. This print, with a black/white ratio of about 50/50, confounds the eye with its Escher-like quality.**

THE SHAPE OF EACH MARK

The shape of each mark is a kind of 'handwriting' that is characteristic of the printmaker, and the artist's hand is inherent in the quality of the print, and in its uniqueness. The artful hand makes for vigour and energy in the print. The converse isn't necessarily

true, but there are prints with good ideas that are spoiled or diminished by poor style of cutting. There are no rules for 'what is good and what is bad', but one guideline that can be borne in mind is that if the mark is obvious and obviously made by a particular tool, it can be like a cliché in the final image, and reads as a tool mark rather than art.

Great cutting often finds a way of escaping from the obvious. A high level of accuracy and control with a tool can be achieved in such a masterly way that a sort of effortless beauty results. Very pedantic, highly accurate but overcontrolled cutting can result from an artist's decision to make a very detailed drawing on the block before cutting it. This is a pitfall for any artist who is good with a pen and pencil, because such highly precise woodcuts, accurate though they may be, can fail to come to life as prints.



Tool marks from a block at Guanlan Print Base, China.



***Les Musiciens* by Michel Mazzone: note the black figures on a white ground, and then the emergence of the white figures behind.**

Marks occur in two main 'flavours': white marks, shapes and lines are made in a black surface by the removal of wood from the printing surface. Black marks, shapes and lines will also be created, when revealed by the removal of white background. These two flavours can be run through from one to the other, and this is a highly skilful and effective woodcut technique.

It is never easy for the artist to remember to keep the shapes of the marks interesting, but at subsequent proofing stages a great deal can be done to liven up and improve the cutting and the shapes. When in the flow of work, you don't necessarily want to stop and take a proof, because you cannot then work again until the block has

been washed up and dried. But there is a halfway house to proofing, and that is to take a rubbing (just like brass-rubbing) with a thin piece of paper and a very soft pencil or graphite stick. This can help to inform subsequent decisions – although it does not reverse the image so is only a rough guide.

SCALE

There are no absolute limitations of scale when making a woodblock print. Tiny woodcuts can be exquisite, and one can ‘read’ them like illustrations in a book. Large woodcuts are often very powerful, the size combining with the dynamic quality of the woodcuts themselves.

At the small end of the scale, the limitation is most likely to be the finest lines that can be cut and printed cleanly. Wood engravers generally work at a small scale, and are able to achieve astonishingly expressive images, perhaps because they use different tools from those used by woodblock printmakers. As has been previously described, they work on the end grain of the wood. With woodcuts, the finest cutting on the side grain of wood requires that hard, fine-grained wood is used, such as cherry: this is the wood that is traditionally used by the great Japanese printmakers such as Hiroshige and Hokusai.

At this very small-scale end of the woodcut printmaking spectrum, a very sharp, fine, scalpel-like knife is commonly used by the artist to achieve the finesse that is required in the cutting, particularly for the cutting of fine black lines. The Japanese achieved the highest levels of mastery of these techniques.

With larger prints, there are limitations on the size of the sheets of paper that can be obtained – although there is nothing to prevent the artist joining several sheets together for a single print. At the extreme end of the ‘large print spectrum’ huge prints may be taken from one or more entire 8ft by 4ft sheets of plywood (2,440 × 1,220mm).

Conventional Western methods of framing a large picture behind protective glass result in a fairly heavy and fragile object that

requires great care in transportation and hanging. There are acrylic alternatives, which make for a much lighter (in weight) finished frame, but they come at an additional price and have certain disadvantages: they require particular care with cleaning as they can be permanently scratched relatively easily.



***A prevailing wind* by Merlyn Chesterman, showing the large scale of this print.**

Oriental prints are often displayed as hangings or scrolls, which are objects of great beauty in themselves. Whilst this method of display does solve problems for printmakers working at a large scale, notably concerning the weight and fragility of the finished object, it is not in our own traditions, and cultural factors undoubtedly are involved in 'how we like to look at art'.

The decision to work at a particular scale is relatively open to the printmaker, and is really only dependent on premises – for instance, a big edition of large, wet prints needs a drying system that would not fit into the average kitchen or even studio. But for the artist who needs to make a living from his or her prints, there is a strong market for good woodcuts at any scale.

THE REPAIR OF BLOCKS

Cutting into a block does permanently change it; however, some recovery, repair and alteration can be made afterwards, but it takes care and skill.

For small dents resulting from accidental bruising of the printing surface: Using a small brush, paint clean water into the bruised area. Leave it for a few minutes, then add a little more water. Using the tip of a hot soldering iron and hardly any pressure, coax the steam that is produced into the wood. This will 're-inflate' damaged wood back up to, or even above the original surface. Once it has fully dried out, use 500-grit abrasive paper stuck on a flat sanding block to lightly sand the area back to a level surface.

For small errors in cutting: Use plastic padding such as P40 or similar, sold as car body filler: this is a filler based on polyester resin. It needs to be mixed thoroughly with a small proportion of hardener, and this will give a working time of two or three minutes – enough to allow you to push the soft and sticky paste well into place. Don't worry about it being a little too high: leave it to set for half an hour in a warm spot (it is very sensitive to temperature), then put some shiny parcel tape on the area of the block round the repair to offer it some protection at the next stage. Using fine sandpaper stuck to a flat block, very carefully bring the filled area down to the level of the shiny surface. Only then remove the parcel tape; finish off with very fine paper (500 grit).

For larger areas of a block where replacement of the image is required: There is a method, but it requires time, considerable skill and sharp tools. Make a new piece of suitable wood, a little larger than the area that requires replacement, and mark around it on the block using a scalpel. Cut back the block to the depth required to insert the new piece, and glue it in place. Then carefully plane and sand the new piece back to the surface level.

BLACK ON WHITE, WHITE ON BLACK

It is very easy to make white marks on black because 'that is what the tool does'. It is more difficult to conceptualize and to cut in such a way that you are left with black marks on a white ground. A conscious effort needs to be made to bring out the black shape from the white background – and in this medium, this can be counter-intuitive.

As an exercise, even in one's mind, make an 'island' of black in a sea of white: then you can see how much you need to cut to make this happen. In the illustration you can see how the white leaf shapes are cut within the black background. The same shape is carved quite accurately and left on the white background as a black image. To understand how to do this, students were asked to draw a surface pattern over an entire block. They then divided the block in two, and on one half they cut round the pattern, and on the other half they cut out the leaves themselves.



Woodcut by Chen Xiangning showing black-on-white, white-on-black.



L'État Chrastique by Michael Mazzoni.



Woodblock by Kate Welsford, a secondary school student, done as an exercise as described opposite.



***Lotus Root* by Guang Jun: a contemporary Chinese master, who worked very freely and rapidly to produce this large print.**

FAST AND SLOW CUTTING

Is it possible to imagine that, to produce great work, one has to find the right pace to carry it out? There may be those who equate great work with tremendous pernickety application of effort on the part of the artist, and thoroughness of execution. Were this to be argued

academically, no doubt there would be some fabulous work produced in evidence – it would be unthinkable for Dürer to take shortcuts in producing a masterpiece such as *Melancholia*, for example.

However, there is a strong counter argument that can be posited, again with examples, that for freshness and vigour, one needs to work with commitment and pace.

Although it may sound risky to exhort the printmaker to be fast, there is no doubt that good work can be spoiled by excessive care and by the compulsion to work over every square millimeter and to finish the design to the last detail. To carry the argument to the other extreme, if cutting is too fast, too careless, the grain of the wood surface can get lifted or damaged and will not print well. There is no formula for ‘a right way’.



Fast cutting: *The Gap* by Merlyn Chesterman. The cutting marks on *The Gap* are made with very free and rapid strokes of the V-gouge.



Slow cutting: *Bent Tree* by Merlyn Chesterman. In this print, background has been carefully cut away to leave each branch as a line to be printed.

Woodcut presents plenty of opportunities to fixate obsessively upon detail, but once again, there is a paradox with this medium. It can be the most free and exhilarating of art forms, while at the other end of the spectrum, it can tie the artist up in knots. Be careful of getting bogged down in details unless you have made a very clear decision to take this path.

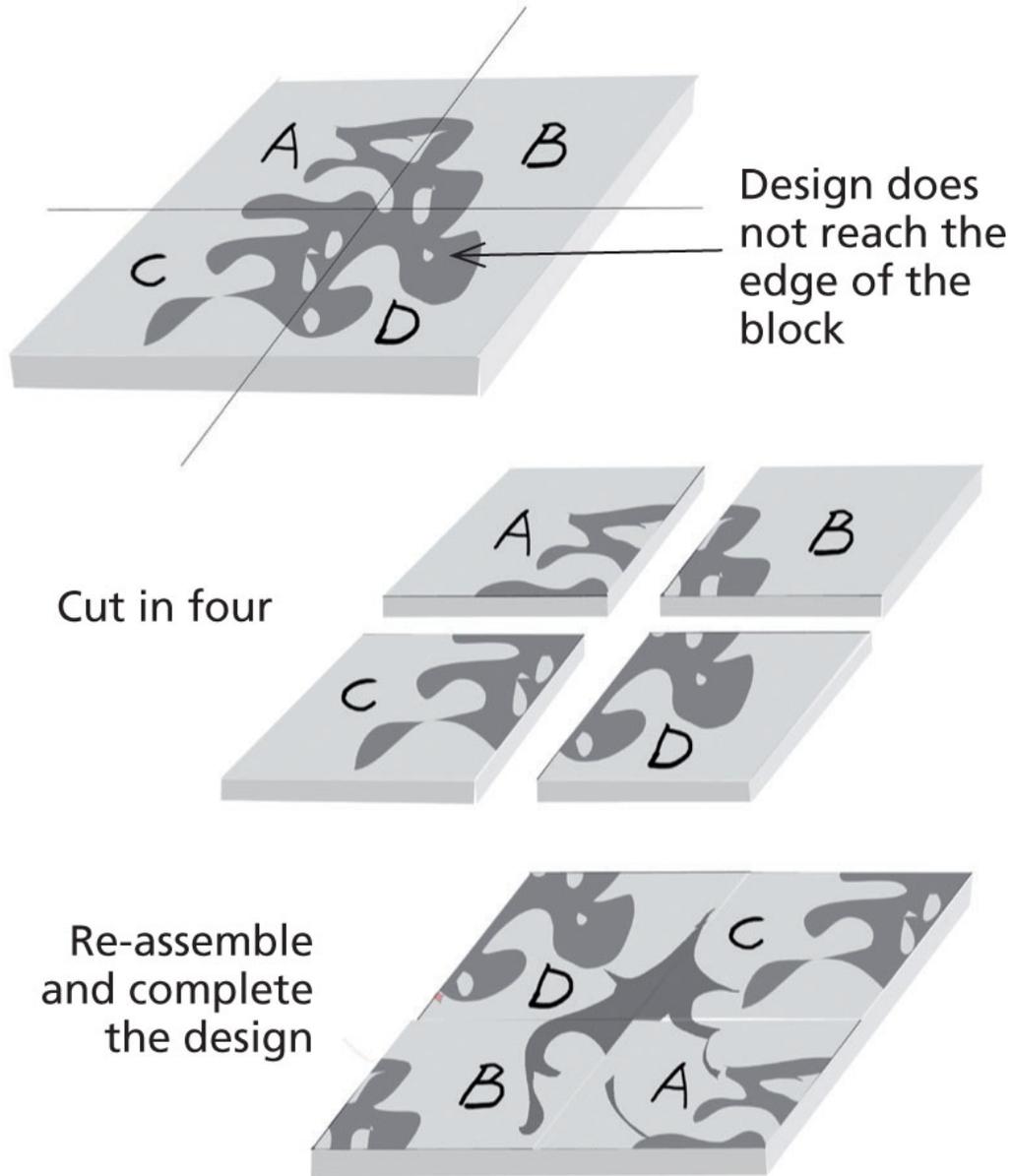
TILING AND REPEAT

Repeat patterns printed from a block have many possibilities, and although it is peripheral to the main purpose of this book, there are times when it is useful and/or exciting to have some knowledge of what tiled patterns can do, and how to lay out a woodblock that will print an endlessly repeating pattern in a way that is not obvious.

Sometimes a block that has 'failed' can be printed in novel ways – upside down, sideways, overlapping, or along with other blocks to produce images that are pleasing. Sometimes a particularly pleasing detail of a block can have a further life of its own if the rest of the block is removed.



Print by Heather Lowe: blocks have been reused in inventive new ways by this artist.



Simple repeat pattern method.

Repeated patterns can be useful to print on fabric and on gift papers, and for wallpaper.

Tiling is a geometrical option for covering a surface with pattern in a repeatable way. Tiles do not necessarily have to be square. Regular polygons – such as hexagons, triangles, pentagons and so on – will tile a surface singly or in combinations. There are also many irregular polygonal shapes that will ‘close pack’ to pattern a surface. A pattern that runs across from one rectangular tile to all the four

tiles adjacent might at first appear impossible to master, but once one has understood the simple graphical trick required, it is really quite simple.



***Rocky Repeat* (for wrapping paper) by Merlyn Chesterman.**

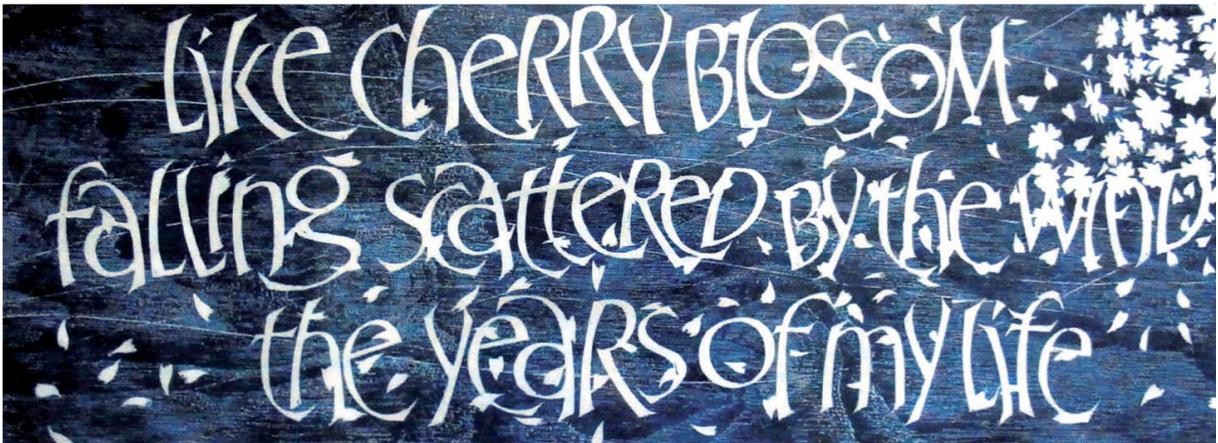
The simple repeat pattern method lends itself to woodcut, because the block can so easily be cut up and reassembled in the way required by the technique. The method for producing such patterns is quite straightforward. Rectangle or square block is marked up with the primary design, with one limitation: the design

must not cross the outer boundary. The block is then cut into four parts, and these are then assembled 'in reverse'.

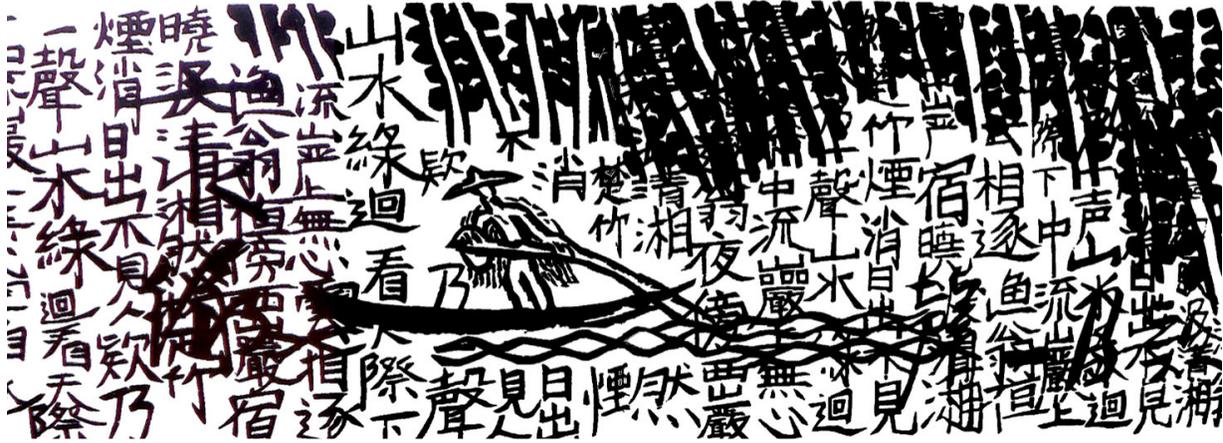
LETTER CUTTING

The use of lettering within the composition of a print can be very effective. The art and craft of lettering is beyond the scope of this book, but because you might wish to use lettering from time to time, a few general points are worth knowing.

Ensure that the layout is reversed before cutting. It is probably easiest to lay out lettering on some tracing paper, so that the eye can read the script normally. Eric Gill, the great letter cutter, used to leave his work drafted but uncut for many days, because he knew he would continue to see things that niggled. Once the design is settled, you can simply flip over the tracing paper to achieve reversal. Carbon paper will transfer the reversed image to the block before cutting – though be careful not to press too hard with a biro when doing this, as you will bruise the printing surface of the block. Fresh and lively lettering can be laid out directly to the block, but be careful: if laying out in reverse 'If it looks right, it is probably wrong' – letters such as S and N, D and B are particularly tricky.



Old Man in April: a lovely example of the combination of lettering and image by Martin Wenham.

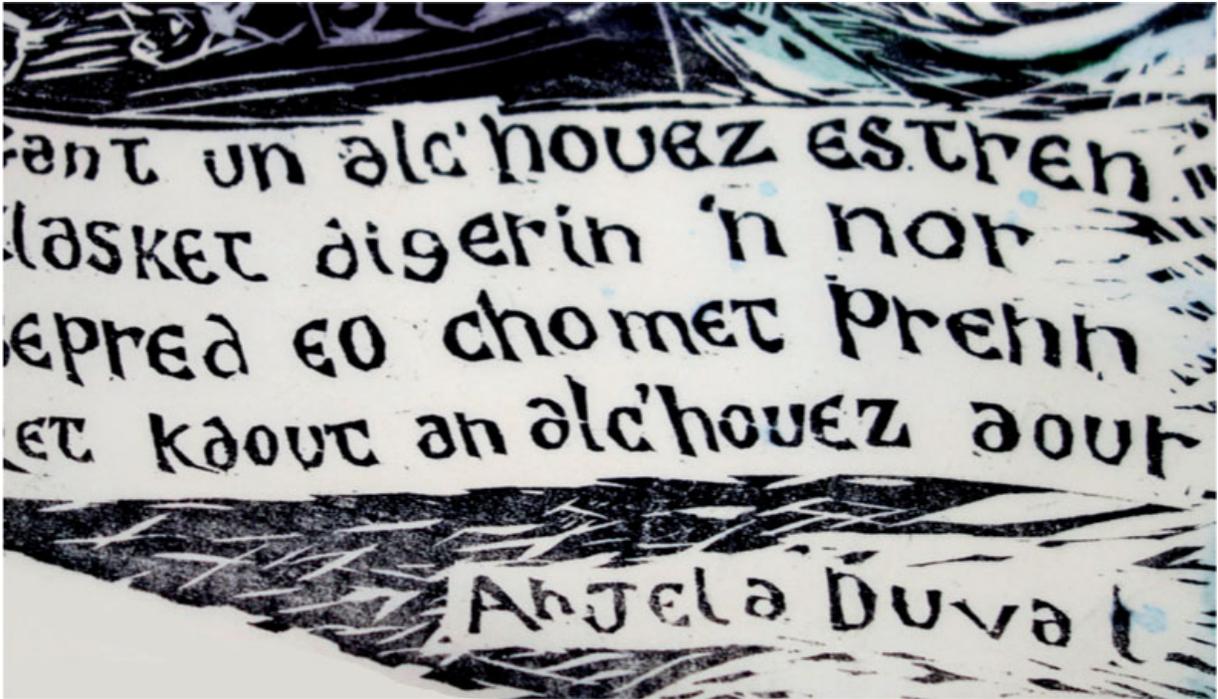


***The Boatman* by Guang Jun: Chinese and Japanese scripts are particularly suited to being cut into wood, and in the hands of a great artist will produce extraordinary graphical images.**

Before you start to make the irrevocable commitment of cutting the letters, use a small mirror to check that the text you have laid out on the block reads properly.

Generally, the physical work of cutting letters is straightforward if you use a sharp knife to go round the outlines. It is both satisfying and time-consuming. Very tight inside curves are the most difficult. To define the inner edges of letters such as C or O you can stab vertically downwards into the wood with a small curved gouge.

When inspiration is at a low ebb, or for practical applications, it is very useful to be able to design with lettering.



Part of the print *Kistinic* – a Breton poem – cut in an uncial script by Rod Nelson.



Merlyn Chesterman and Guang Jun: China, 2012.

COLOUR AND INKS

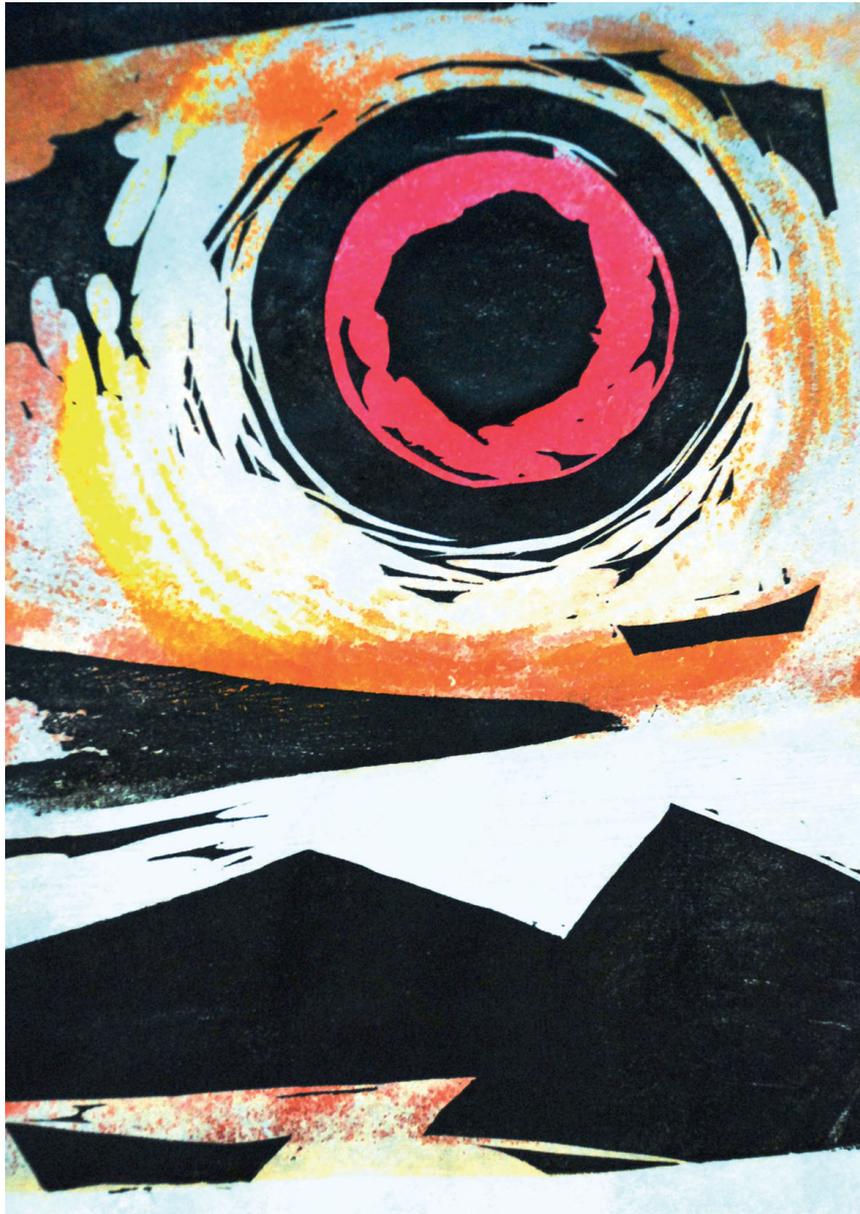
It is easy to become so involved in the actual technique of cutting a woodblock that one can temporarily forget that the woodblock is simply a method for transferring ink to paper in a repeatable way. It is the ink that makes the print. Consequently, there is at least as much skill required with ink, with the transfer of ink to the block, and with the printing process, as there is with the making of the blocks. (The nature and qualities of ink have already been discussed in [Chapter 2](#).)

THE USE OF EXTENDER

Extender is ink without pigment – it is colourless when printed on to paper. Extra extender can be mixed with opaque ink to make it semi translucent. Even a very tiny proportion of pigment will give extender a tint, and great subtlety can be achieved in tonal ranges through skilful use of extender.

Extender is also very useful when making a ‘graded colour’ – you can grade the saturation of any colour across a block without altering its hue, simply by having a higher proportion of extender in the ink on one side of the roller. If you wish to make ink, a commercially manufactured extender can be mixed with a pigment that you might have made (for instance from minerals or earths that are found in Nature) or purchased from a stockist. This gives the artist great freedom to make whatever colour he or she wishes.

Both water-washable and oil-based extenders are available commercially.



***After Munakata* by Merlyn Chesterman: urazaishiki (hand colouring on the back of paper) technique.**



Rolling translucent ink: ink mixed with extender, with two different tones used on one roller.



***Reflection* by Rod Nelson (detail). Three layers of translucent ink are used.**

TRANSLUCENCY

As mentioned previously, the translucency of ink is controlled by the amount of extender that is mixed into it. Theoretically, a fully opaque ink will completely mask any surface printed beneath it.

Likewise in theory, a completely translucent ink should not modify the appearance of anything printed beneath it. However, extender printed over ink can induce subtle change. A sheen can be produced by inking up a block with extender on to an otherwise matt surface. The ability to manipulate the opacity of ink by controlling the amount

of extender in it opens up a range of artistic choices, which are great fun to play with.



***January Storm* by Pine Feroda. This print uses extender, mixed with increasing amounts of pigment.**

Thus a translucent colour, when printed on top of another colour, will result in a colour, the hue of which is modified by the colour that shows through from beneath it. For example, where a translucent red ink is overprinted on to a blue surface, a purple will result in the overprinted area. Where a translucent colour is overprinted on to a design, the design will show through the translucency. There are many creative possibilities for creating beautiful colour effects when printing with translucent inks. The table below shows how many colours can be achieved when using multiple blocks.

Where grading of the colour is used, the tonal possibilities grow exponentially.

Using the colour formula supplied by Leon Loveridge (see illustration), it is possible to work out that using two blocks can give us three colours, using three blocks can give us up to eight colours, and so on, if one counts the paper as a 'colour'.

When making up a translucent ink, use a good amount of extender in one pile, and some coloured ink in another. Gradually add a small amount of the coloured ink to the extender, pea size to start with, and mix it thoroughly with a pallet knife, testing as you go.

Consider n blocks. The expression ${}^n C_r = \frac{n!}{r!(n-r)!}$ (where $n! = n \times (n-1) \times (n-2) \dots$; "!" is called *factorial*) tells you how to choose r blocks from n . Notice that ${}^n C_n = 1$. So, given n blocks, we first choose n , giving a single colour, and then out of the n we find all possible ways of choosing $n-1$, i.e., ${}^n C_{n-1}$ and add it to ${}^n C_n$. Then we find all possible ways of choosing $n-2$ from n etc. This gives the number of combinations (i.e., possible colours) N as

$$N = {}^n C_n + {}^n C_{n-1} + {}^n C_{n-2} + {}^n C_{n-3} \dots$$

If we allow ${}^n C_0$ (this corresponds to choosing no colours, i.e., white), there is a general formula that gives

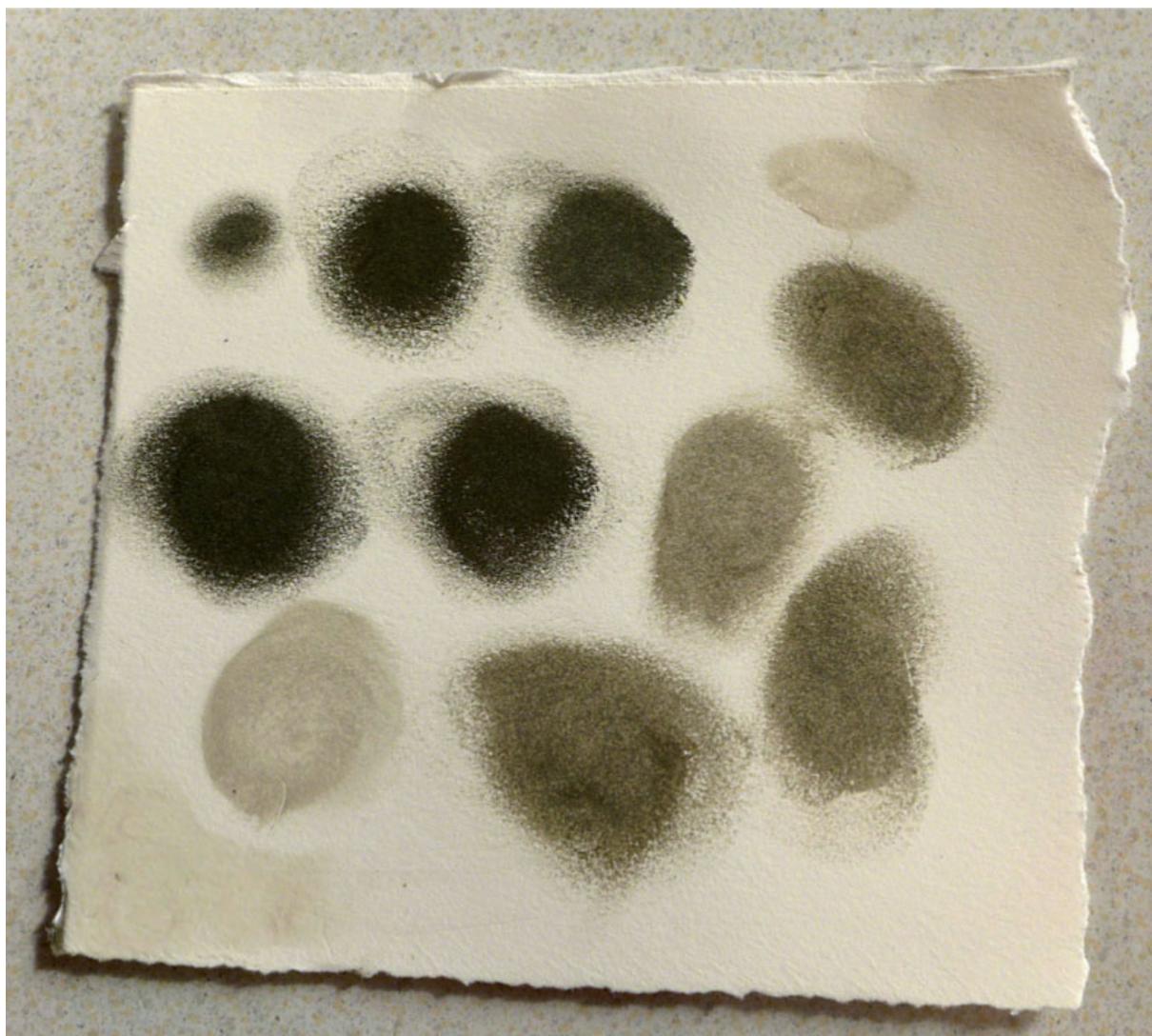
$$N = 2^n.$$

Equivalently, but more abstractly, $N = 2^n$ is the cardinality of the powerset on n elements, giving all combinations of colours. 3 blocks therefore yield 8 colours for instance, 4 blocks 16 colours, and 10 blocks 1024.

Colour formula supplied by Leon Loveridge.

Testing Translucency

It is impossible to judge by eye the translucency of an ink when the ink is rolled out on to a slab. In order to test the translucency, take a small blob of the mixture on the end of your finger, and rub and spread it thoroughly on a scrap of the paper you intend to use for the print. This will be a good indication of the finished colour as it prints from the block.



Just one colour, with decreasing amounts of pigment added to the extender. It is the test strip for *January Storm*. The extender is mixed with increasing amounts of pigment.



One colour mixed with different amounts of extender.



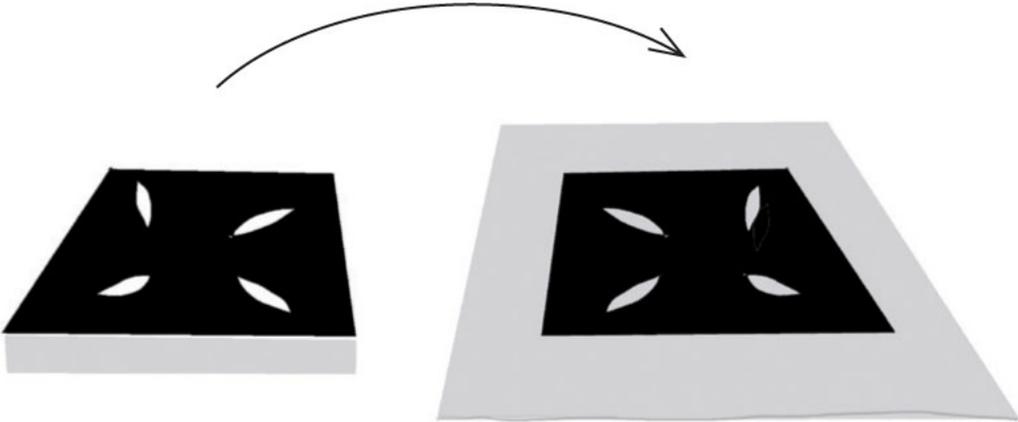
***Winter* by Merlyn Chesterman, using opaque inks.**

OPACITY

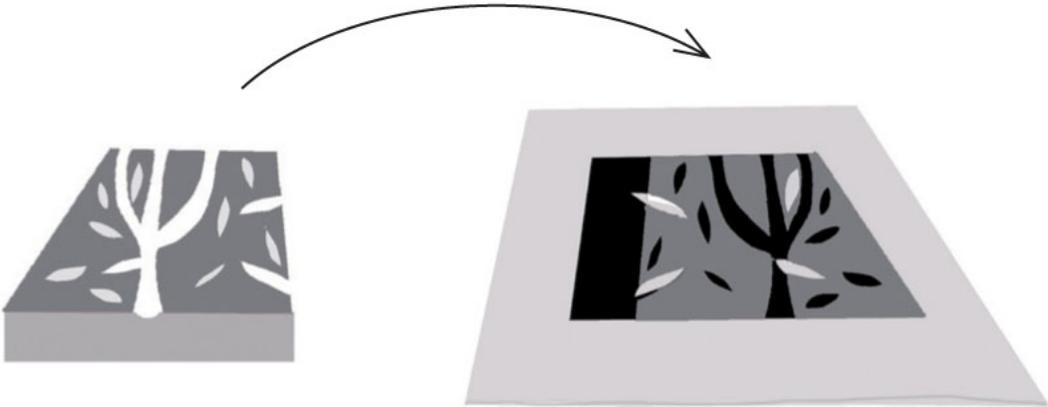
Relief printing ink may be used in opaque or transparent form, and the feeling is quite different. Both are wonderful when used well. Opaque inks can give a chalky look on thinner papers.

In the print of *Winter* by Merlyn Chesterman, a pure black underblock has been cut into with a falling leaf design. The top block

is printed in an opaque brown/grey, which has been cut through with the branch and leaf design. Some of the leaves have been cut away on both blocks, and those show white (the paper is showing). Those leaves that have been cut out of the top block but not the underblock show black – the colour of the underblock is released. The diagram shows this process: the first block is printed dark; the second block is printed in a paler, opaque ink – note how white appears where both blocks are cut away.



First block is cut and printed dark



Second block is printed in a paler opaque ink – note how white appears where both blocks are cut away

Opacity.



***Hot Day* by Merlyn Chesterman**

The following illustrations showing the print *Hot Day* demonstrate the artistic power and possibility of a sequence of opaque printing stages.

It is not easy, even for an experienced print-maker, to 'reverse engineer' the process that has resulted in the print *Hot Day*, therefore the process is broken down into the sequence in which it was created. There are only two printing stages. Each of the two

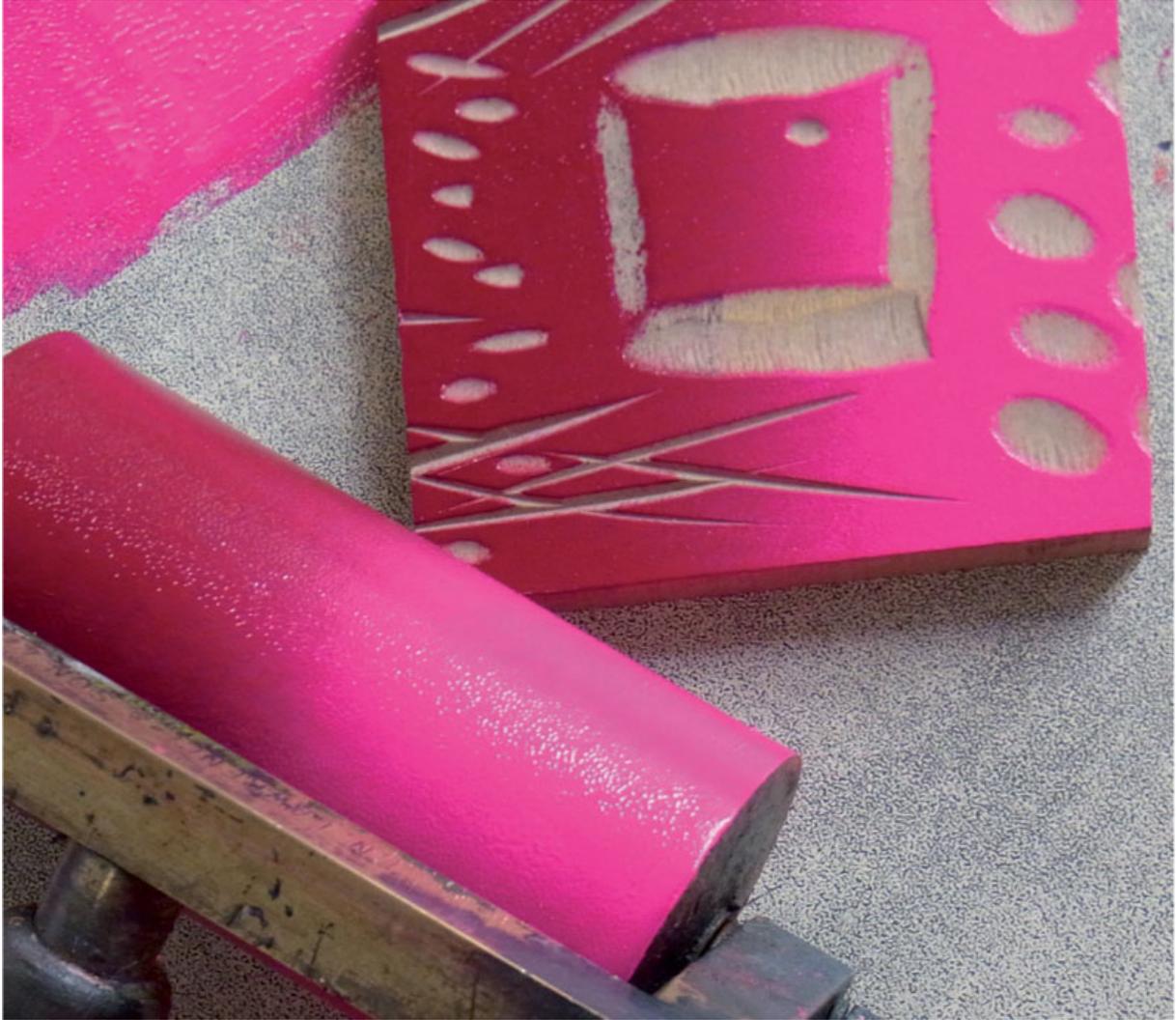
layers is made up of blocks which are an assemblage of separately inked parts put together like a simple jigsaw.



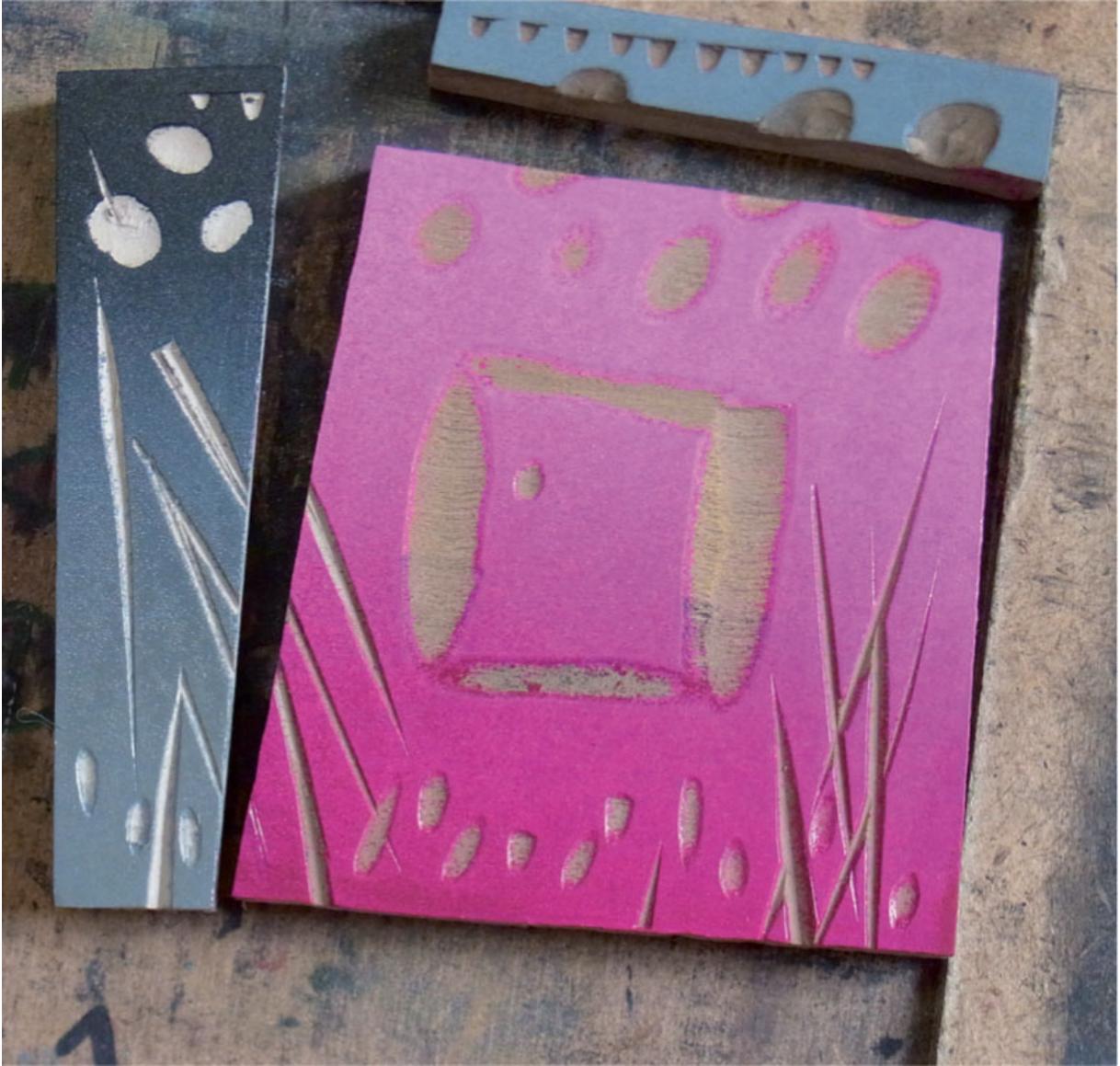
Hot Day. Block 1, underblock inked in two parts.



***Hot Day.* Block 1, underblock printed.**



Hot Day. Woodcut blocks and roller.



Hot Day. Block 2, top block inked in three parts.



Hot Day. Top block printed.

As the illustrations show, it is possible to create a highly complex coloured print with just two printings.

The possibilities with colour are truly amazing and sometimes not fully considered. As a result, good prints sometimes fail to reach their full potential.

Driers

Driers are chemicals that can be added to ink to speed up drying. There are two types, in liquid form, called catalytic driers, which accelerate the natural drying process of an oil-based ink:

- Manganese drier is a body drier
- Cobalt drier dries from the top surface down, so enables overprinting.

A cautionary note - they should be used with care as these chemicals are very active. A maximum of 1 to 2 per cent only should be added and often much less is needed. Add too much and your prints may never dry

BUYING AND STORING INK

There are no problems with storing and keeping ink in tubes and cartridges, but it is more expensive to buy in these containers. Ink in tins (usually 1kg or 0.5kg) is cheaper, but certain steps should be taken to stop the ink making a skin. When you buy a new tin of ink, it will be supplied with a disc of paper positioned on the surface of the ink to prevent it making a skin.

Exposing ink to the air sets up a reaction that begins to cure it – a setting process. Obviously, every time you open the tin, it immediately fills with air, and any ink exposed to this air will form a skin during the subsequent few hours. This skin is a problem, because it can break into lots of little pieces that form blobs, which only really appear when the ink is being rolled out. Although these can be clearly seen and removed from the roller or the slab in the course of rolling up, this is a fiddly job. And if these little blobs get on to the print, they will print in an unpredictable and unsightly way, and can mean that you have to wash the block to get rid of them. This is a waste of ink, so skin and blobs can cost you money.

One way of avoiding the skin problem is to use clingfilm, pushing it carefully down on to the surface of newly exposed ink and squeezing out all the air, and sealing it round the perimeter of the inside of the tin. It is best if this is done right from the start when you begin a new tin, so there is no chance of blobs forming. When taking

ink out of the tin, the edge of the clingfilm can be peeled up and ink removed with a pallet knife, and the film then quickly replaced.



Pigment in pestle.



Commercial pigments.



Muller, Bideford Black pigment and medium on ground glass.

PIGMENTS

Pigments can be obtained as coloured powders from specialist suppliers – suggestions are provided at the end of this book. They are also obtainable from paint suppliers (they are used for tinting

plaster and lime wash), and from the ground if one is lucky enough to live in an area where coloured earths are found.

Most pigments will be insoluble in water. Because pigment in its raw state will have granules or lumps in it, it needs to be milled or ground to a very fine powder. This can be done using a pestle and mortar, or a muller (a bell-shaped grinding tool made of glass with a handle on the top and a flattened base), or a mechanical ball-mill. The first two of these require quite a degree of patience. The ball mill (or tumbling mill) is a cylindrical tub, into which the rough or granular pigment is put, together with steel ball bearings or quartz pebbles. The mill is then set going and left rotating slowly for many hours, and the pebbles tumble over and over, crushing and reducing the granular pigment to a very fine powder indeed. This powder is then ready to be mixed with the carrier medium.

To grind a raw pigment by hand so that it is fine enough to make into an ink, the muller is moved in a circular motion on a ground glass slab to crush any particles that may lurk in the colour. This simple tool has been used for centuries by artists to ensure the high quality of their paints. The raw pigment should first be mixed into a creamy paste with oil or water before it is ground.

A huge variety of interesting pigments and powders can be purchased from commercial suppliers (some of whom are listed at the end of the book).

In the photograph an intensely black clay called Bideford Black, which is found naturally in North Devon, is being prepared to make a black ink. Bideford Black was mined until the 1960s by Max Factor, the cosmetic products manufacturer, as a base for mascara.

BUILDING COLOUR

At its simplest, a woodblock print might simply be a black print on a white surface. The making of black and white images is a great and demanding art in its own right, and some artists have found in this

limitation a kind of expressive freedom. However, the printmaker might wish to move beyond this austerity by using colour.

As colours are built up on the print, in order to achieve a work of high quality it is essential to allow any printed surfaces to dry. Solid colour does not 'take' well on a wet surface, and the results are often disappointing – the ink is blotchy and uneven. The initial drying time on absorbent paper is fairly quick – around an hour or so, depending upon temperature and humidity – but when the paper surface has become more impervious due to previous uptake of ink into the paper, ink can take a week to dry. However, driers that speed the curing of ink by catalyzing certain chemical processes can be purchased commercially. Only a tiny proportion of drier will speed up the reaction considerably.

There are two types of drier, generally used in liquid form. A manganese drier is a body drier, and a cobalt drier dries from the top surface down, and so enables overprinting. These metallic salts accelerate the natural drying of an oil-based ink, but they should be used with care as they are very active: 1–2 per cent maximum only should be added, and often much less is needed. Add too much and your prints may never dry.

USING A ROLLER

The purpose of the roller is to spread an even and appropriate thickness of ink on to the printing surface of the block. Although it is only experience that will guarantee success with this process, there are one or two pointers that are useful.

Firstly, use your ear. The sound that is made by the roller on the slab is a very good indicator of the 'right' amount of ink. If there is too much ink, the sound of the roller is very 'sticky' – like cycling through wet tarmac. If the ink is too lean, there is hardly any sound at all.

If you roll too much ink on to a block, the little cut marks you had wished to print as delicate lines will fill up with ink. They will then print as blobby marks, and the only way to retrieve the situation is to

face the tedium of washing the block, waiting for it to dry, and beginning again. Any stray wood chippings, hair or crumbs will print in a way that any printmaker will recognize, and is distracting. Also, these marks are random, and therefore an edition would not have identical prints, as these specs and the 'haloes' around them land anywhere.



Using the roller.

Therefore it is better to put too little ink on to the block than too much – at least you will retain the detail of the cutting, and can increase the number of rollings for the next print.

When rolling out ink, there is a temptation just to move the roller back and forth. However, this keeps the ink in one place and simply squashes it. Make sure the ink is spread by rolling repeatedly, lifting the roller at the end of each stroke. It is best not to roll out ink over a wide area: a square patch of rolled-out ink defined by the width of

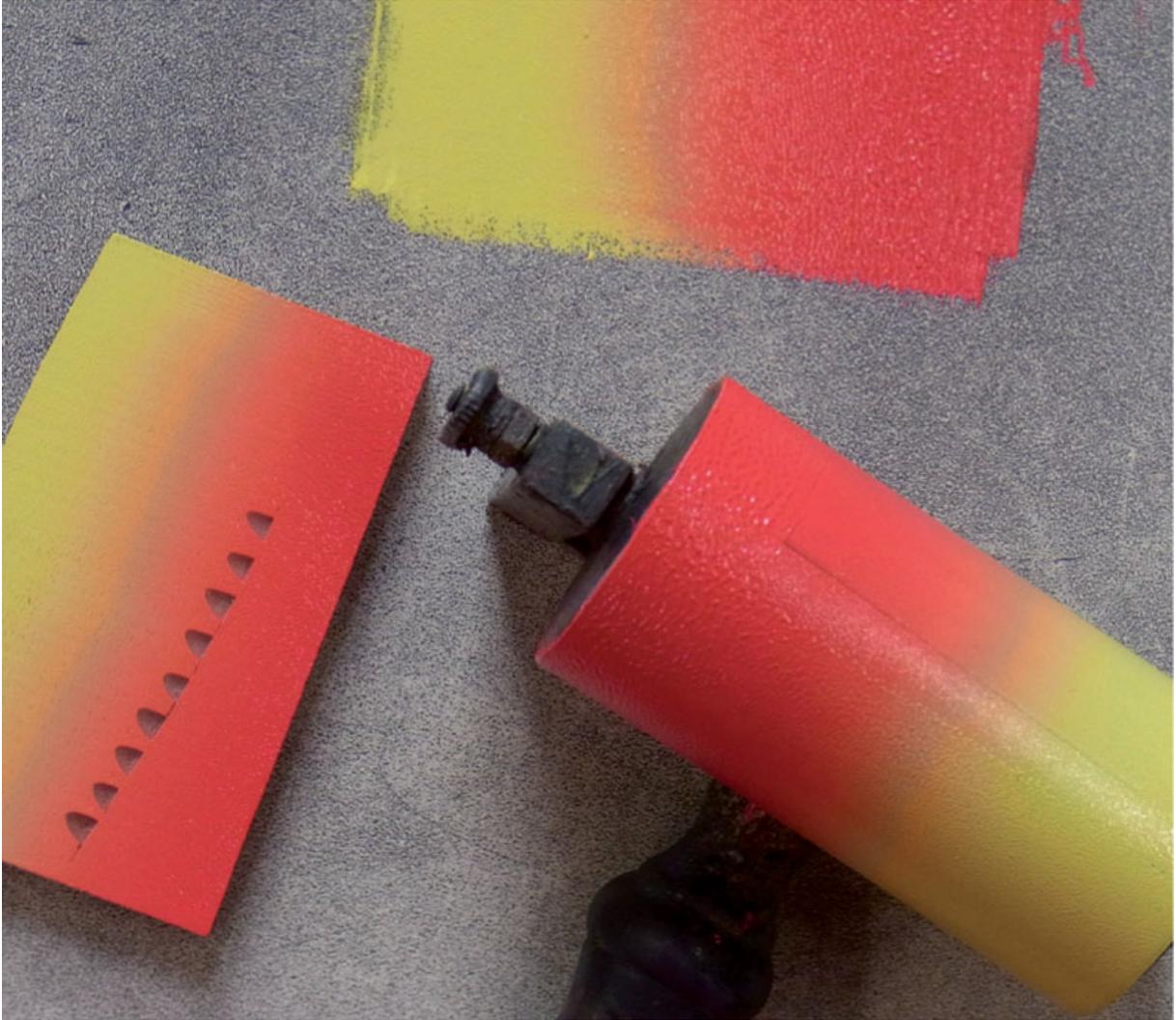
the roller is sufficient, where the roller is used in both directions at 90 degrees.

When printing, note that most rollers have a frame that allows the roller to be stored upside down, so the roller itself is clear of the surface. It is easy, when using the roller, to transfer lines on to the block. These will then print. Turning the roller over after using it will eliminate one cause of unwanted lines. A step-by-step guide to rollering is given in [Appendix I](#).

GRADING COLOUR

Grading between two tints or between two colours on a block is visually powerful. As a technique it takes some patience and must be done carefully. It is necessary to use a roller at least as wide as the gradation that is required on the image.

Mix up two small lakes of the colours that you require for each end of the spectrum that you wish to print. Spread the colour evenly along the roller, and have the two colours meet at the required point with no overlap or gap. Roll in a parallel fashion, continually lifting the roller so that you are not simply rolling over and over the same place. It helps to mix the colours more rapidly if you move the roller slightly from side to side as you are rolling out.



Grading colour.



***Winter Branches* by Merlyn Chesterman showing graded colour.**

It is necessary to roll until the ink is evenly distributed along the roller, and a perfect grade is achieved from one colour to the other. Some patience is required to do this, but it does happen with time.

When using this technique, remember 'which side is which' of the roller. It is astonishingly easy to put – for instance – dark-coloured ink on the light end of the roller, or vice versa. At the worst, muddling the ends up might require you to clean up completely and start again

if the gradation has become compromised with colour in the wrong places.

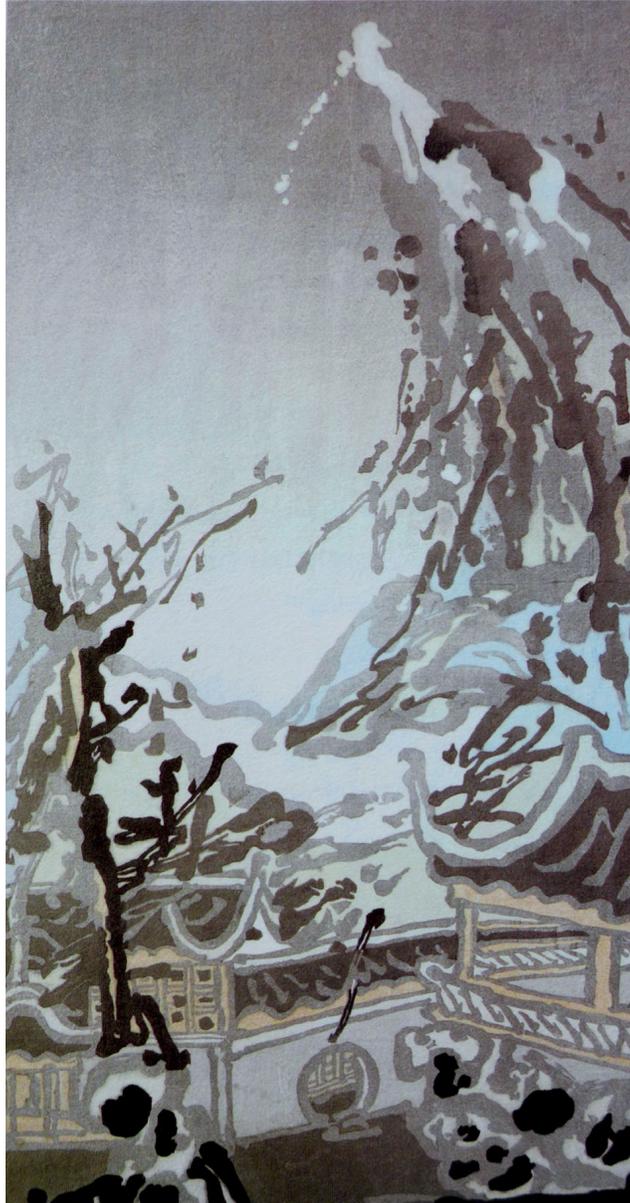
WATER WOODCUT

Water woodcut is a uniquely Chinese printing method which yields the most beautiful results and is known in China as shui-yin. A thinned ink is used on damped paper to give a soft-edged, free quality to the print.

The technique of water-soluble inks requires a thin paper like Chinese rice paper. Before the printing begins, the paper must be moistened – not too much and not too little. The control of the paper humidity requires a lot of experience and is crucial for the success of the printing process. Even an experienced artist hardly achieves a success quota above 50 per cent with this technique.

Dieter Wanczura

On a visit to China in 2012 we came across the work of the remarkable artist Ling Junwu, from the city of Suzhou where this printing form is predominant. This master printmaker died in 2014 and we hope that the memory of him will survive through his beautiful work.



***Waiting for the Night* by Ling Junwu – a refined and fluid piece of work.**

COLOURING THROUGH THE BACK OF THE PAPER

There is a traditional Japanese technique called *urazaishiki* (meaning 'colouring from the back'), which involves flooding ink on to the back of the print so that it shows from the front as a soft-edged, blended colouration. This is really only suitable for oriental papers,

where the colour can readily bleed through the thickness of the paper. It would not work on heavier European papers.

The technique itself has a potential for great freedom and beauty, but at the same time suffers from being somewhat uncontrollable. However, what one loses in control, one can gain in beauty, as the watercolour feel of the colours that are obtained in this way cannot be reproduced from a block. As a technique, it lies between printmaking and painting. It is particularly difficult to control the capillary flow of ink through the paper at the margins and the edges of the image. Water applied at the edges of the image as it stands before applying colour can inhibit the flow of ink outside the area treated with water. This avoids spreading of colour in a way that looks like, and is, a mistake.

When getting ready to use the urazaishiki technique, at the outset prepare all the colours that will be needed, together with a large pot of water, some kitchen roll, and a lot of dry newspaper. Watercolours or acrylic inks can be used, dissolved to a watery consistency. Acrylic paint dissolved in the same way, will also work.



***Branches (detail)* by Rod Nelson, showing urazaishiki technique using watercolours on kawanaka paper.**

Large brushes or pipettes are used to transfer the colours on to the paper. You can work very freely, but you need to be very careful to let the ink stay where it is wanted.

The ink of the print will need to be dry before putting the colour on to the paper, otherwise the printed colour may spread. Distortion of the paper will occur, and some papers distort too much.

Editioning prints using this method can be labelled V/E – variable edition.

You may well lose work during this process, because it cannot be fully controlled: it is painting on print. But when it does work, it can be glorious.



***Blossom* by Rod Nelson: urazaishiki technique using acrylic ink on okawara paper.**

REGISTRATION

The process of repeatedly placing a printed image with great accuracy at a previously specified or intended location on an edition is known as 'registration'. It requires the printmaker to somehow define the relative position of the block with regard to the position of the paper, and to do so repeatedly, throughout the proofing process and the printing of a whole edition. Therefore any method of registration needs to be convenient and not too time-consuming to set up for each printing. It also needs to be reliable in use, yielding consistent results. It is only when one looks closely at what the printing process involves, or tries it out for oneself, that the importance of registration becomes apparent.

A simple black-and-white image will typically not require highly accurate registration – although it is nice to be able to put the image in almost the same place on each sheet of paper when printing an edition. The problem that needs to be addressed is that one cannot see the block when one is placing the paper, and a systematic way around this problem needs to be established. The easiest method that we have come across is set out here:

First, place the un-inked block on to a flat surface and mark its position with a pencil or with strips of masking tape on the left and top edges (this is only a convention – it actually doesn't matter as long as two adjacent edges are defined). The reason for marking the position of the block is so that you can return it to exactly the same position if you need to move it – for instance, to re-cut some small detail, to ink it up, or to clean it.



Blocks.

Having established the position of the block, then decide the widths of the top and left margins – the distance between the printed image and the edge of the paper. To do this, you will need to refer to the dimensions of the paper to be used for the edition.

Then transfer and mark these measurements to the surface on which the block is lying. This is the position for the edges of the paper.

Lay down a sheet of edition paper to those marks, and mark the edge positions for the top and left-hand edges of the paper using strips of masking tape. Remove the paper.

Now ink the block and place it on its marks. Holding the paper so that only the left edge aligns with the marks and the rest of the sheet is clear of the block, gently lower the sheet of paper on to the block. A left-handed person will probably wish to mark the top and right-hand side.

This simple method of registration, which is quick to set up, will give pretty good accuracy for any number of repeats.

A relaxed attitude to registration for printing a finished image from a single block is not good enough if you intend to print with more than one colour. This is because each colour requires a separate block, and each separate colour block needs to align perfectly with every other colour block and with the master block. If there is even a tiny misalignment between multiple blocks, it will show, particularly at the margins, and there could well be a halo of single colour elsewhere in the print.

A number of techniques can be used to achieve perfect registration, but the common feature of them all is punctilious accuracy. Every slight deviation or slight inaccuracy, even one with only the thickness of a pencil line, will affect the quality of the print. Tiny inaccuracies, miniscule errors that may only be measured in tenths of a millimetre, have an annoying habit of creeping in unless one works with conscious precision at each stage to eliminate them. Once errors have crept in, they display a bizarre capacity to multiply, and to compound themselves in ways that can be difficult to rectify.

There is no magic formula for accuracy – ultimately you are either accurate or not, but you can do things that will help towards good habits in working accurately. Factors that contribute to accuracy come in various forms: a clean working environment and absence of clutter, very good light, very sharp knives and pencils, good knowledge, a clear head, and a calm approach to the work – all these will help. Factors that tend to compromise accuracy are inexperience, tiredness, time stress and deadlines, poor lighting, lack

of the right equipment or tools, and clutter. It also helps greatly to know what you are doing, so read on!

PRINTING MULTIPLE BLOCKS

In the print *Edge of the Moor* the black half block was printed first. The grey and yellow block was then printed on top of the first block.

Where a print is in more than one colour, a block is required for each colour, if using one colour per block. As more colour blocks are introduced to enrich a print, the number of colours that can be obtained from these blocks proportionally increases in an exponential fashion. The explanation for this bonus effect is provided in the section on translucency in the previous chapter.



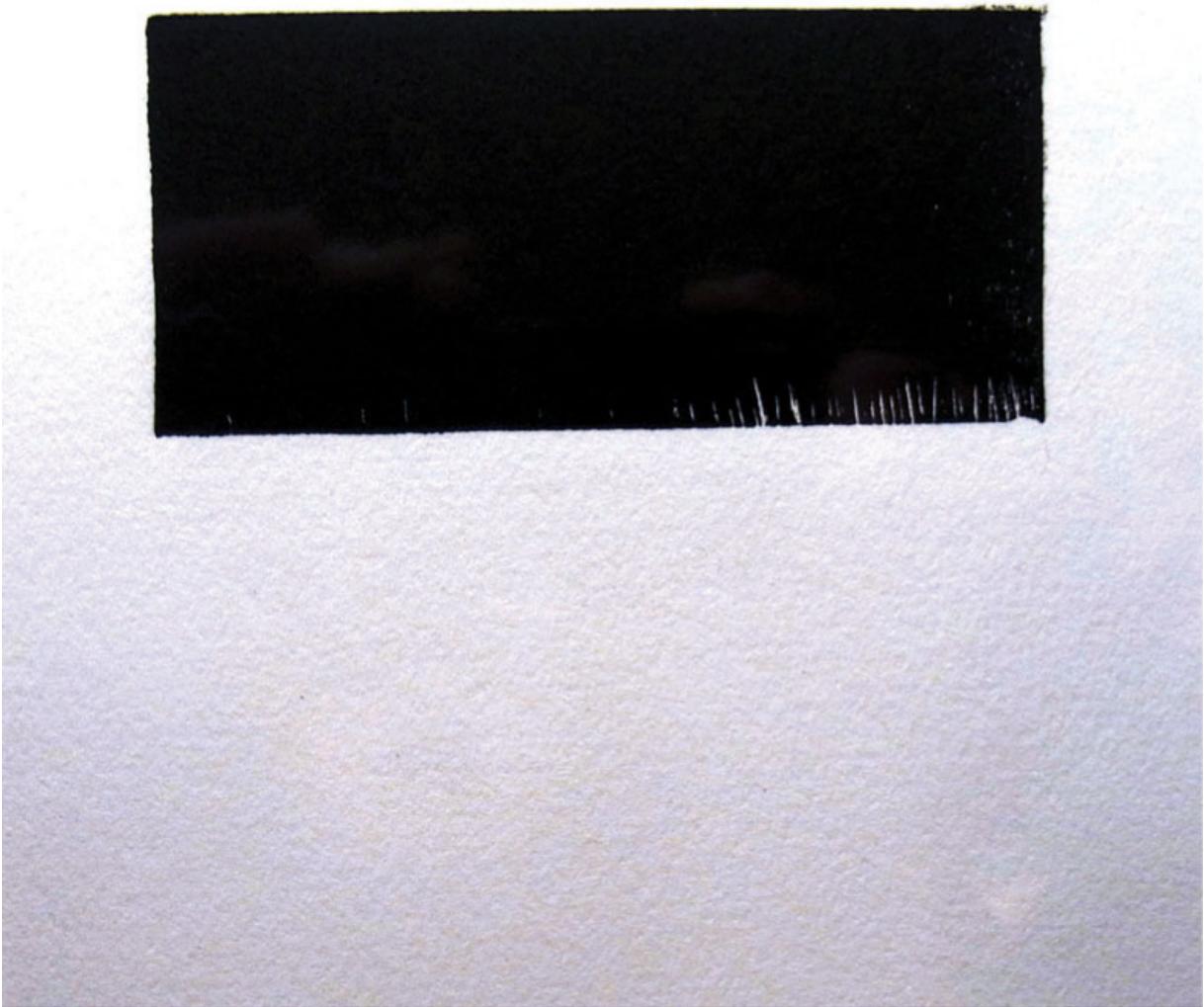
***Edge of the Moor* by Merlyn Chesterman.**

As the next block is over-printed on to an image printed by the previous block, the two printed images have to line up perfectly – to register – with each other. Otherwise there will be fringes of stray colour, which read as mistakes – which they are.

Some printmakers prefer to work spontaneously, making decisions as they go – the size of the edition, the kind of paper to be used, the number of colour blocks they want – and they will do so as the print develops. Other artists know from the outset just what they

are after. When beginning a multi-colour print, it will help to have prepared as many blank blocks as you think you will need: these should be of the same dimensions as the master block.

The first thing to consider is how to set up a system to register (to line up) the block with the paper for repeat, accurate printing.



Edge of the Moor: block one.



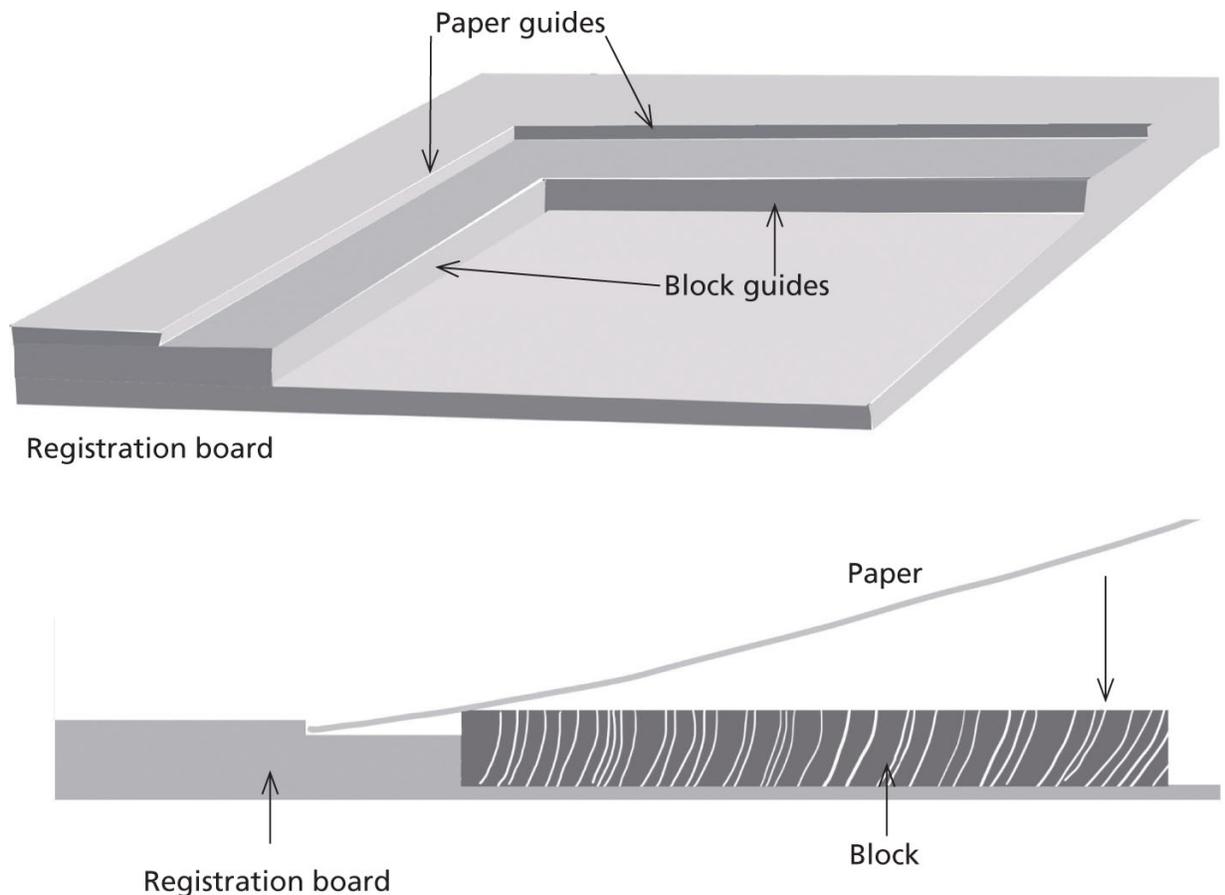
Edge of the Moor: block two.



Location guides on a registration board.

REGISTRATION USING A REGISTRATION BOARD

A registration board is a simple piece of equipment that creates and defines the margin between the top and left sides of the paper and the top and left sides of the block. You can easily improvise a registration board for yourself using simple tools and materials from a DIY store; it does not require a specialist supplier or expensive materials.



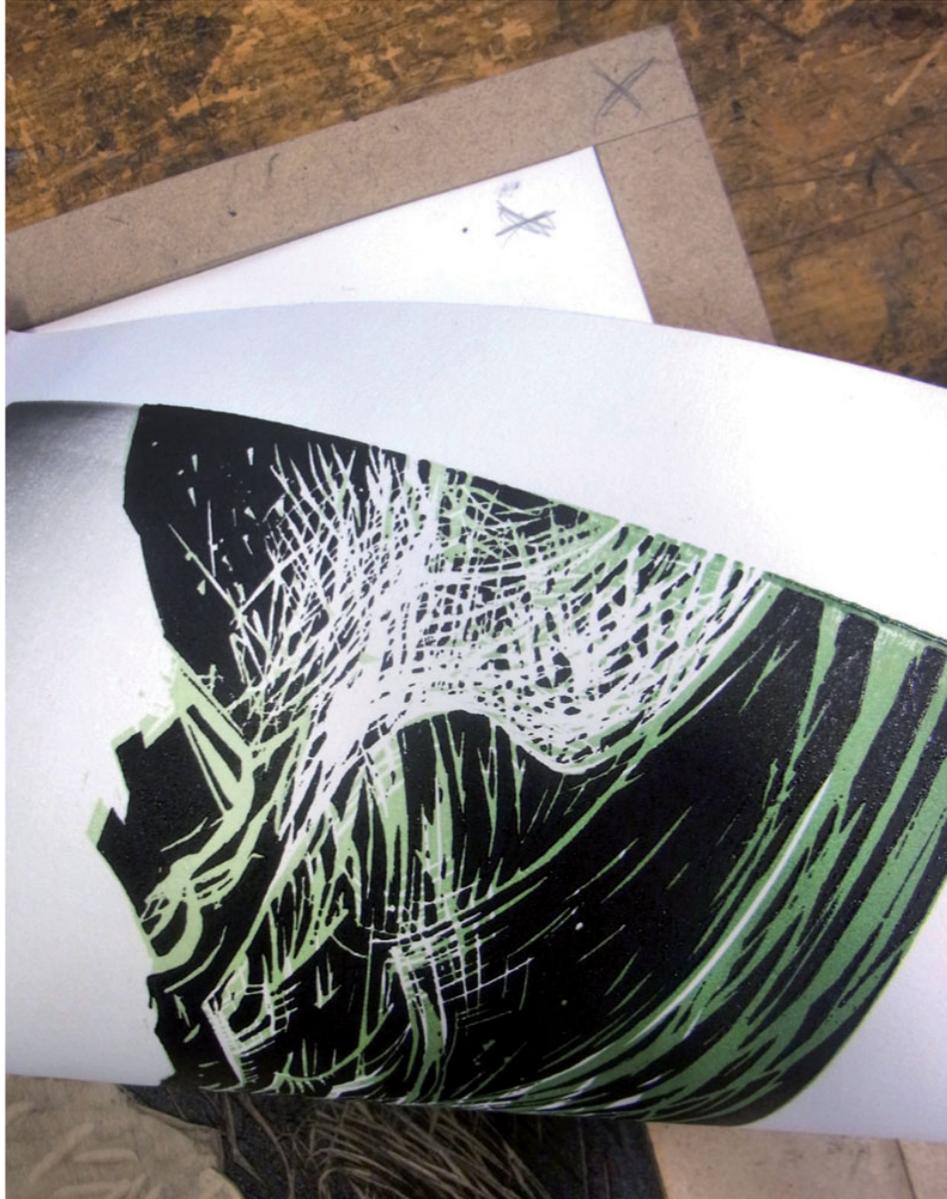
Diagrams of a registration board.

This method does require that the paper used for the edition has cleanly cut, straight top and left-hand (or right-hand, if you are left-handed) sides, at a right-angle to one another. Deckle-edge paper will need to be cut straight.

Firstly place the inked block into location guides or stops to hold it securely in place along its top and side edge. Make sure that there are no tiny pieces of grit or shavings between the block and the stops – these are a common cause of inaccuracy.

Then carefully align the paper to a second set of guides along the top and left edges, but holding the paper up so it does not touch the block.

Once you are happy that the paper is lined up to the paper guides, lower it gently on to the inked block and press it down so the ink can adhere to the paper.



Print being lifted from the registration board.

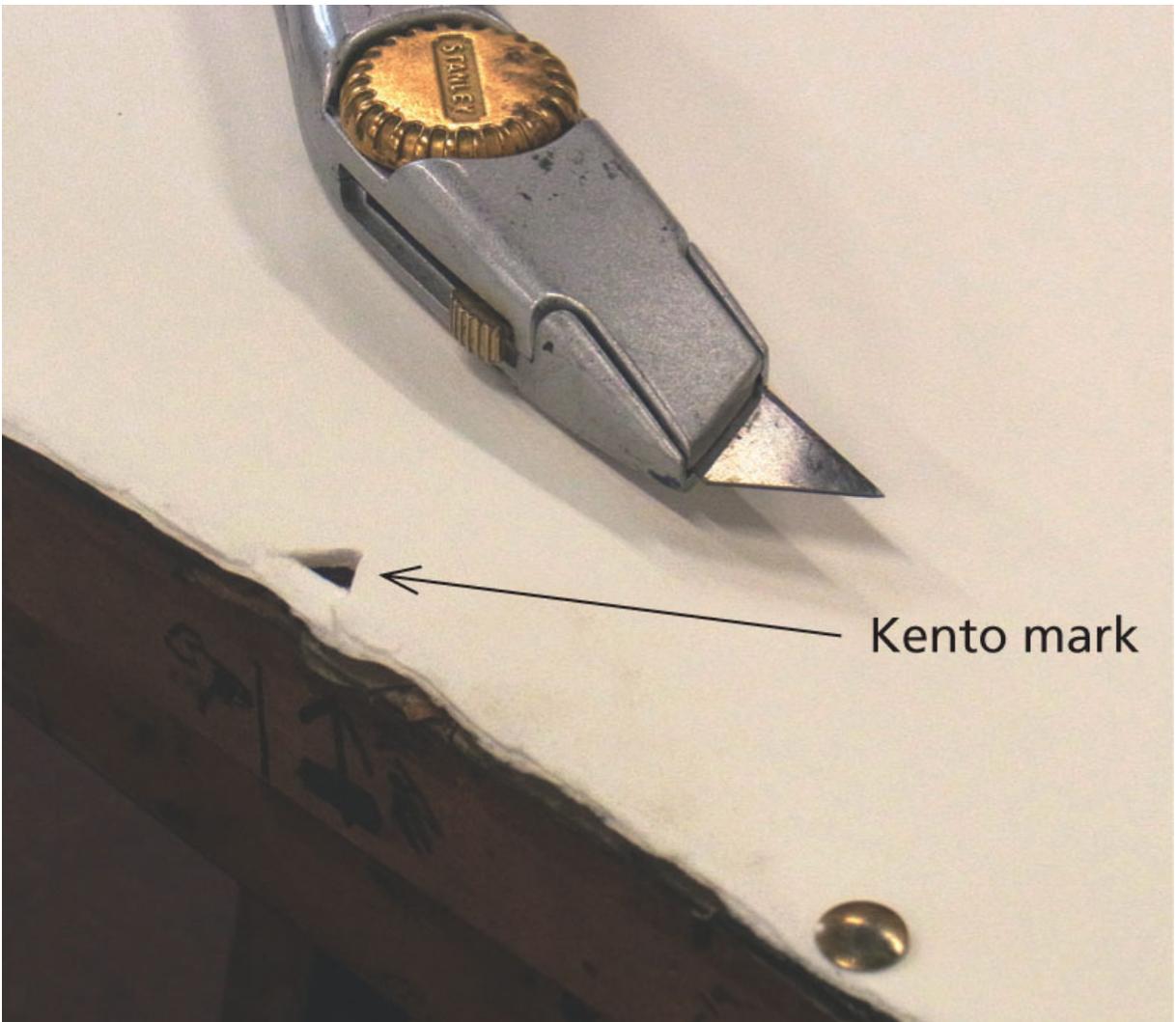
REGISTRATION USING KENTO MARKS

This is an adaptable and flexible way of registering paper to block, based on the traditional Japanese system for registration that can be used for registering any size or shape of paper. It does not require that the paper is all the same size or that its edges are square, but it

does rely on having all the paper you will need, for both proofing and editioning purposes, prepared before printing commences.

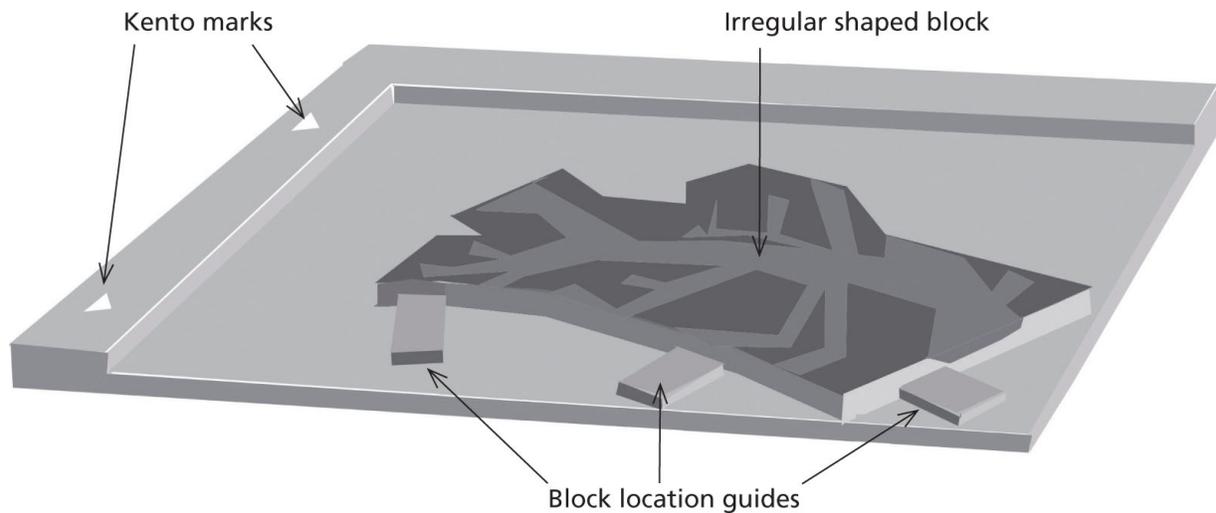
The first system involves making small triangular cuts in the paper of an entire edition, which are then lined up with triangles marked on to the perimeter of a board. The diagram also shows block location guides for an irregular-shaped block. You will see that it is not necessary to have a block that fits the shape of the frame: it is simply necessary to create a spatial relationship.

The second, similar system, uses two or three triangular pieces of card or wood ('guide blocks') as a template. Firstly, cut three small triangular holes through the outer margins of all the paper for the entire edition prior to printing. The blocks are then glued or fixed with double-sided sticky tape in the appropriate positions on the perimeter of a board.



One of a series of kento marks.

By lining up each sheet of paper on to its guide blocks, you ensure that the paper always returns to the same position. Its relative position to the board is always controlled by locating the triangular holes over the blocks. By ensuring with guides that the block is also placed in the same position on the board after each inking, the relative position of paper to block or blocks can be assured throughout the printing of an entire edition.

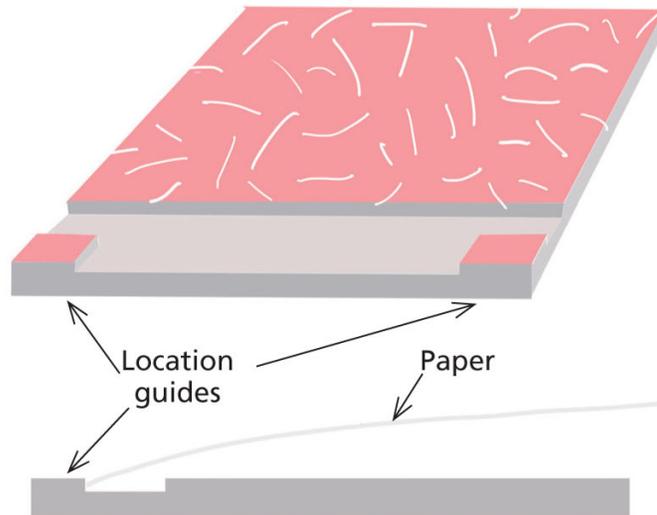


Block location guides showing kento marks.

CHINESE REGISTRATION METHOD

In traditional Chinese printmaking, the registration guides for paper location are carved into the block. The immediate advantage of this method is that registration information for all prints from the block is never lost, for the obvious reason that registration and block are the same item.

When printing from these blocks, the paper is slid up to the marks whilst being supported at a sufficiently steep angle to avoid accidental contact with the block.



Location guides carved into the block, Chinese method.

TRANSFERRING AN IMAGE TO COLOUR BLOCKS BY OFFSETTING

To cut a colour block that will complement the print, it is necessary to have the master image appearing on an as yet uncut colour block. It would not be possible to make the necessary design decisions

required during the cutting process unless these cuts could be referred to the original image, the master image.

This master image (so called because it controls the process, at least at the beginning) must somehow be transferred on to the colour block.

However, you cannot simply print the master block on to the colour block by printing them face to face, as the process will reverse the image. Luckily, there is a simple adaptation of the normal printing process which ensures that the image appears correctly on the colour block, or any subsequent blocks that have yet to be cut. This adapted print process is called 'offsetting'.

When an image is 'offset' it means that printing has taken place, not from the block itself, but from fresh, wet ink on a sheet of paper or plastic film upon which the block has just printed.

Having taken proofs of the master image and done whatever corrections are required, ink the master block and place it into the registration frame. Use a slightly more generous amount of ink for offsetting than you would normally use for printing. A slightly glossy paper is good for offsetting, as it works better if the paper doesn't immediately absorb the ink – the wet ink needs to remain on the surface of the paper for a couple of minutes.

Acetate film can be used for the offset process, as it takes ink cleanly and is non-absorbent.

Carefully place the paper on to the registration frame with the block in place. Then burnish or print (with the press) the ink on to the paper, and lift the paper off the block.



Offsetting step one: taking a print from the master block on to paper.



Offsetting step two: putting inked paper down on to a new block.

Remove the master block and insert a second, blank, block. Burnish the ink into the block by rubbing the back of the paper. This will offset the master image on to the colour block.

Repeat this process with as many colour blocks as you are intending to use.



Offsetting may also be carried out using acetate.

JIGSAWN BLOCKS

It is possible to cut a block into a number of pieces and then fit them back together as a kind of jigsaw. Each of these pieces can then be inked individually in different colours and reassembled before printing. Highly complex designs can therefore be printed in a

relatively few number of printing operations. This is an exciting way of working but requires some skill in using a jigsaw or scroll saw.

Inevitably there is a kerf that is created when cutting up the blocks. (The kerf is the width of the saw-cut itself.) Kerf width needs to be thought about for two reasons. The first is that the block will not necessarily arrange itself back into its original dimensions, unless the blocks are spaced apart by the kerf thickness. Secondly, the kerf thickness will not print, so you will end up with a thin white halo around each piece of the original block.



Jigsaw blocks by Pine Feroda.

The best way to minimize the halo effect is to use a very thin saw blade (such as a coping-saw or scroll-saw blade). However, these blades are rather delicate and it needs some skill and practice to learn how to avoid breaking them continually.

Jigsaw blocks can be registered to nonjigsaw blocks, and used successfully together within a design. The individual sections of

jigsaw designs can also be cut with designs in the same way as a 'normal' block can be.

When assembling a jigsawn block, ensure that the edges are wiped clean of any ink that may have crept over. It takes a certain amount of care to reassemble the jigsaw design cleanly, because it can be tricky handling irregularly shaped blocks that have been previously inked up – ink spreads easily on to the fingers, and thence on to the paper. When printing jigsaw blocks, it is useful to have a small pot with talcum powder, into which you can dip your fingers. The talc will effectively prevent inky fingers from accidentally printing on to the paper.

REDUCTION PRINTS

A reduction print is an interesting method for making a print with many layers but using only a single block. It takes some bravado to produce a successful edition by this method. The reason for this will become apparent, as you see how the process works. The results, however, can be very powerful.

You will have to use a system for registering so that the single block will print accurately on to exactly the same place on the paper each time. All the paper for the entire edition must be at hand from the outset, because each time you print, you will print every sheet.

The process is conceptually simple. Print the palest background tint first, having previously cut away any area that you wish to show as paper colour only. Having done this, clean the block, carve away some more of the block as you think appropriate, and print again from the same (but re-cut) block.



***Waterfall Song*, a reduction print by Ian Phillips.**



***Snow and Shadows* by Ian Phillips.**

Proceed in this way, methodically printing the entire number of sheets again and again each time from the same block, taking out a bit more from the block each time between printings, and with a darker ink than the previous layer.

Proofing is not an open-ended process as it is with normal multi-block prints. Each time a proof is rejected, you will have lost another sheet from the original printing – and because the number of these is finite, you need to be careful and to take firm decisions at an earlier stage than with conventional work, where proofing is a somewhat open-ended part of the process.

Drying time is an important consideration with reduction prints – the process can become lengthy when the printing surface can absorb no further ink.

The final printing session will be the darkest tone but the least area of colour. By this stage, not much of the original area of the block is likely to be left, having been progressively cut away between previous printings. The result is a print that can't be re-edited, because the information is lost each time the block is altered, and this simply cannot be recovered. Although the block is not destroyed, it is irrevocably altered in the process of making the finished print.

Using only one block has both advantages and disadvantages. It is economical on wood, and there is not the concern that each block must be of the same size and preferably depth – registration should be very straightforward indeed. However, working with only one block means that you can't experiment with the printing of one set of marks upon another, or play with composition, or with different colour combinations. You cut and print to a large extent according to a preconceived plan.



Snow and Shadows: layer one.



Snow and Shadows: layer two.



Snow and Shadows: first and second colour layers together.



***Snow and Shadows*: third colour layer on its own.**



***Snow and Shadows*: first three colour layers all together**



Snow and Shadows: fourth (dark) colour layer on its own.

PROOF AND PRINT

While a simple print may take only a few seconds to produce, it is possible to make complex and ambitious print editions with the simplest equipment – but it does require patience and time. You don't need to have a press or any expensive equipment, and even professional printmakers don't always use one.

Proofing and printing is a committing part of the process: it is when the print is made or unmade. It can undoubtedly be stressful at times, and there is no printmaker who doesn't suffer from occasional bouts of exasperation. But the compensations are plentiful, otherwise we wouldn't do it! The key to the successful printing of an edition is good preparation at the outset, and a certain amount of thoroughness and care during the work. Run through what you will need before you begin printing: most of these items are very easy to obtain:

- Newsprint or cheap blank paper for proofing
- Editioning paper, cut to size
- Tins or tubes of ink, extender
- Drying rack or drying line for finished work – clothes pegs and string at the minimum
- Slab for rolling out ink – glass or melamine-faced board
- Burnishing tools – a baren, burnishing sticks, wooden spoon
- Pack of baby wipes for cleaning hands and cleaning up
- Some talc for dusting the fingers or stray ink
- Kitchen roll for wiping up excess ink

- Pallet knives for getting and mixing ink
- Protective gloves for handling inky slabs or blocks
- Sharp knife and scissors
- Rags and newspaper for cleaning up
- Water, paraffin and/or white spirit in a squeezezy bottle (depending on the kind of ink)



Burnishing by hand.

PRINTING BY HAND

It is very simple to take a print from a woodblock without any fancy equipment. All you need is a film of wet ink on the block, then simply press down some paper on top of it, burnish it with the back of a spoon, and lift off your print. This very basic way of printing is without a doubt at the heart of what woodblock printing is about.

This section of our book is about the myriad refinements of this simple process, so that beautiful and many-coloured prints can be made in a reliable manner. Although there are many techniques, tricks and refinements which can be employed to make more sophisticated work, you want to try to keep a feeling of freshness about what you are doing, and in the light of this, perhaps you need to be wary of technique for its own sake. To quote Shiko Munakata:

I want to go beyond virtuosity; I want to strip my work of 'effects' until it stands monolithic, based on reality and yet transcending it. It must flow naturally from my materials, from the way of the chisel and the way of the block. This is very difficult, but it is the only right way. It is the ultimate ideal.



Group burnishing at Guanlan Print Base.

Making Corrections

The simplest printing can be the most exciting, and it is a great thrill to see an image come off the block for the first time. This is one of those pleasures that never fades. However, a newly cut block will not usually yield an image that is completely satisfying – and this is particularly the case for experienced artists who will maybe aim higher in terms of what they expect. Once the first proof has been taken, the artist is commonly facing a fairly painstaking, but enjoyable process to optimize the image, by tweaking difficult parts, by cutting out more white areas or by refining details. Somehow you have to get it to a point where you can live with it. Even if you are not thrilled with the initial image, there is usually a great deal that can be done to improve or rescue work during the printing process.

Having taken the first proof, you need to wash the block before you can begin to correct it. Although very minor corrections can be done on an inked block, the tiny slivers of wood that are cut away will

be sticky with ink. These inky slivers tend to have a mind of their own, leaving inky marks wherever they land, or sticking to the block. Unless you can collect them and dispose of them appropriately, it is better to correct on a cleaned-up block.

It can be confusing to make corrections, due to the fact that you are having to correct 'in reverse' – the image on the paper is the opposite to that on the block. If you get lost, take a few minutes to mark up the proof itself, and then work systematically to make each correction or adjustment before re-proofing and, if necessary, repeating the process.

If there is a part of a block that simply cannot be left in – because it would spoil work that is otherwise good – you will have to face the tricky job of repair or replacement of a section of the block. There is no panacea for this – whatever you do will require great care. Very small areas can be filled with car-body filler (polyester resin and filler), while larger areas might be cut back and a new piece of block inserted, and the surface then re-levelled for further cutting. This takes a lot of skill.

BURNISHING

Once the paper has been positioned accurately on to the block, the ink has a slightly adhesive quality that will tend to keep it in place. A light overall rubbing down from the back will prevent the paper from sliding laterally and smudging the ink. Burnishing is the process of ensuring that the ink is completely transferred to the paper from the block. It is done by rubbing on the back of the paper with a tool.

The degree to which the ink has transferred can be checked by lifting the paper from one part of the block and peeking underneath. So long as you ensure that some of the print is still adhering to the block, the paper will replace completely accurately. If there is insufficient ink, more can be added whilst you hold up part of the print, clear of the roller.

Some burnishing tools are shown in the illustration – the tool at the bottom left being the wonderful Japanese burnishing pad called the baren, made from a single bamboo leaf.



Barens and burnishers.



Artist Melanie Boyd burnishing her woodcut with a wooden pottery tool.

Burnishing is a process where a great degree of subtlety is possible, and where the quality of a print can be made or lost.

Hand burnishing has major advantages over using a press. Apart from the flexibility of choosing which areas of the print to burnish more or burnish less, there is no limitation to the size of print that can be hand burnished. Prints can be taken from blocks of any size or shape.

There are also some pitfalls. It is hard work to ensure that continuous areas of black (or colour) are printed evenly. It is very easy to get 'swirl marks' on to the print – often caused by minute particles of grit which lodge between the baren and the paper, and which will mark through the paper. It is also quite easy to make a hole right through the paper if you are printing on thin paper – though this can be avoided to some extent by using a sacrificial 'rubbing sheet' of paper over the top of the actual print. You must also avoid rubbing so enthusiastically with a wooden burnisher as to damage the block.



An Albion press.

PRINTING WITH A PRESS

A press enables high quality prints to be produced far more rapidly than they would by hand. However, there are limitations. The press method of printing requires that the block is of even thickness and is flat. It also places a limitation on the maximum size of a print. Further, a press might be a very substantial and expensive piece of equipment, and it needs a home: not every artist can afford a dedicated studio. Lastly, for very small editions or proofs, the careful work that is required to ensure that all the settings and adjustments on a press are properly carried out might not be worthwhile.

There are two kinds of press used for relief prints: a platen press and a roller press. A platen press compresses the paper into the block by squeezing it between two metal plates (platen). The classic platen press is the Albion press, a hefty but rather beautiful piece of equipment that would not normally be found in a small studio.

The other sort of press is a roller press. It works by compressing the paper and the block between two steel rollers, in the same way that an old-fashioned mangle squeezes the water out of clothes. First, register the paper to the block on the printing table, and then place a 'blanket' (a substantially thick felt cloth) on top of the paper. The printing table, block, paper and blanket are then wound through the press between the rollers. The amount of pressure can be adjusted by means of screw-controlled sliders on the axles of the top roller. As the block and the paper are wound through the rollers, the ink is transferred very smoothly and evenly to the paper.



Hartland Printmaker's roller press.

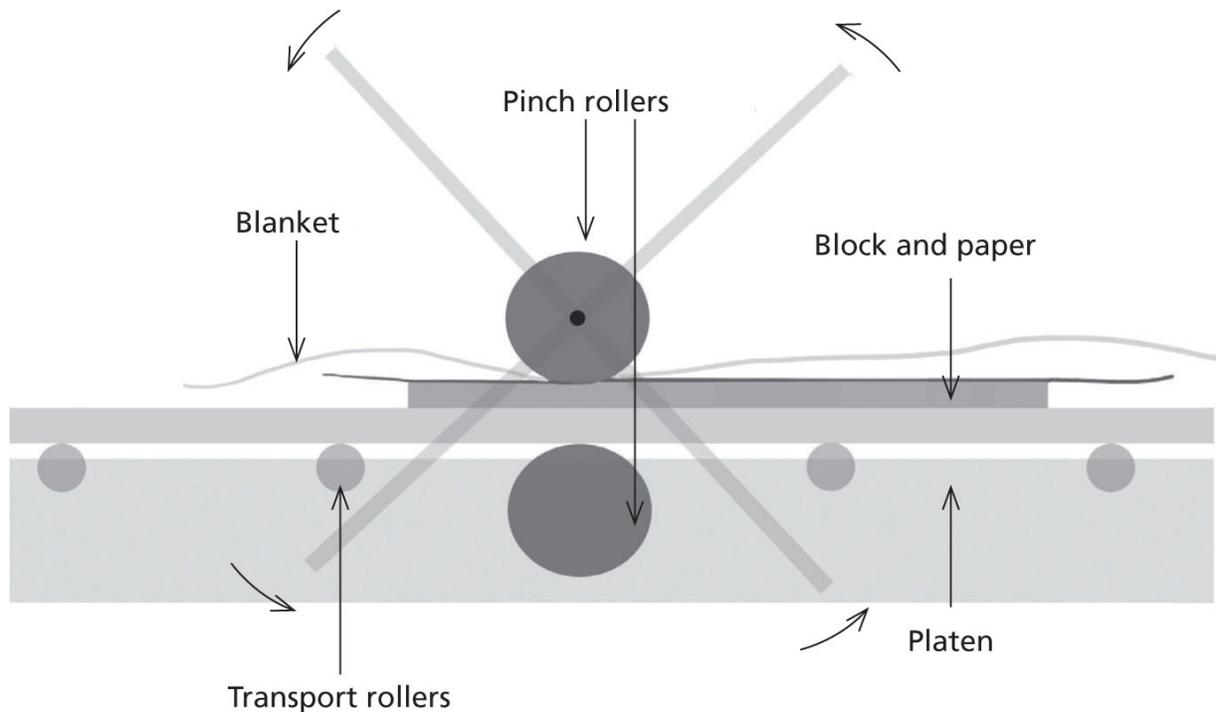


Diagram of a roller press.

When using a roller press, the key points to watch out for are these:

- Ensure even printing from side to side of the print by adjusting the pressure screws.
- Avoid 'clunking' on to the print as the block begins to go through the rollers – this is helped by using guide rails which are the same thickness as the block and longer, so that the roller is supported when it meets the block.
- Avoid getting wet ink on to the blanket – this is a danger when using thin papers, where the ink may be forced right through the paper. Blankets are expensive, so use a sacrificial sheet of paper to prevent this kind of offset.

PROOFING

Proofing is testing, and describes the meticulous checking and correcting process that can take place at each stage in the making of the print.

The decisions that take place during proofing will 'make or break' a print. If the artist can see the consequence on paper of a particular adjustment in the cutting of the blocks, or with the colours used, it will enable the fine tuning of cutting on the blocks, the balance of colour or black and white in the print, the elimination of unneeded marks, and the careful consideration of what to keep and what to let go. Numerous decisions need to be made about the design of colour blocks, their composition, whether to use opaque or translucent inks, what to print first and what to print next, what paper should be used, what size the edition. Most of these decisions cannot be taken without testing what the implications will be, and without having a good notion as to what the final edition will look like.

A print may have several blocks, and if this is the case, the proofing process can be long and involved, as every block will affect every other. It is quite possible to get 'lost in space' during this process, forgetting what makes for a positive result. Proofing is where many of the important artistic decisions are made, and is perhaps the most challenging part of the print-making process.



Lifting a proof from a roller press.

Whilst proofing, quite a lot of paper with wet ink on it will be generated and it is a good idea to set up a drying system before commencing the proofing process.

Taking an Overview of the Print

Proofing will enable the artist to test the feel of a print: the subtler points may not be immediately apparent, and it can be a good idea to hang up a proof on a wall for a few days, to allow the critical faculties time for recovery.

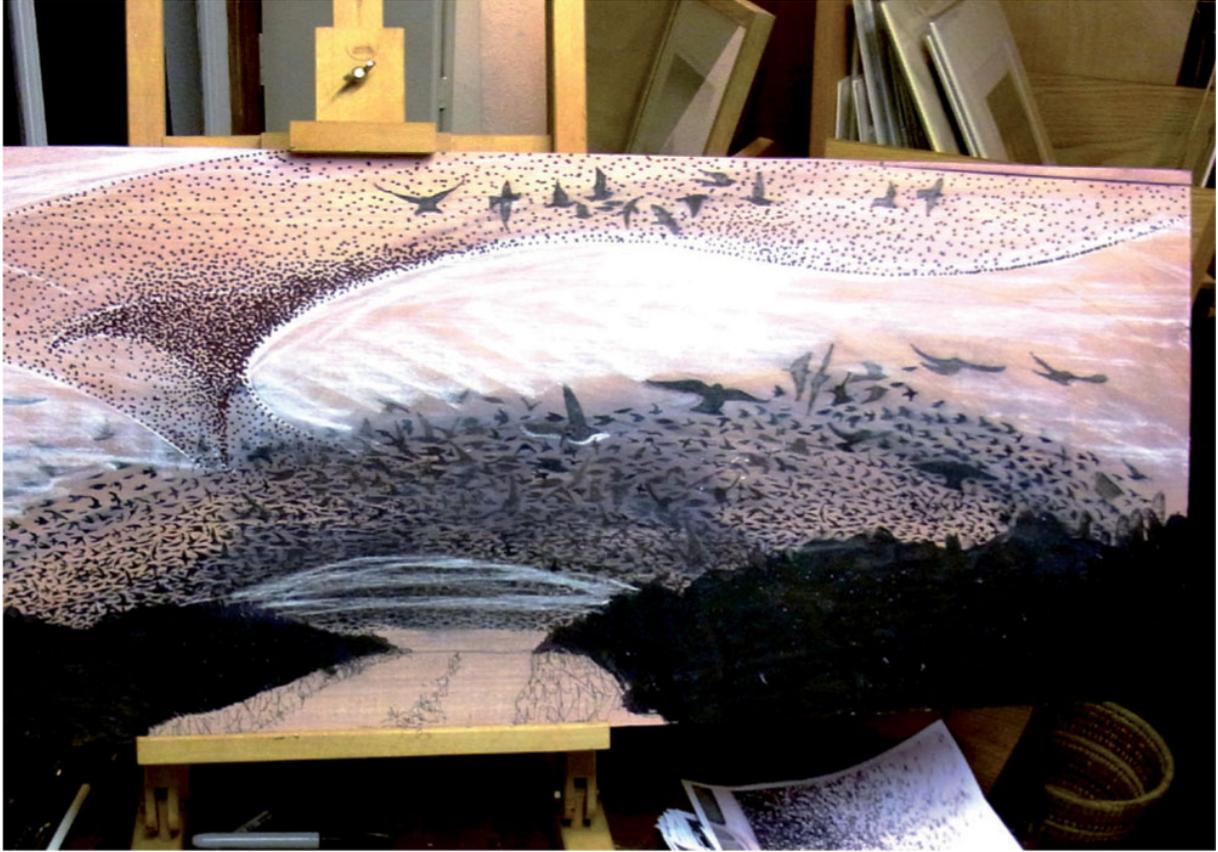
The overview that time permits is of critical importance. Cutting the block does not make the finished print: printing does. In reality, cutting is just the beginning. Therefore, allow time for reviewing. One can work all day proofing, and have nothing to show for hours of effort, but actually this is possibly the most important day in the life of

a new print. It is likely to be the time when the difference between a good print and a great print is decided.

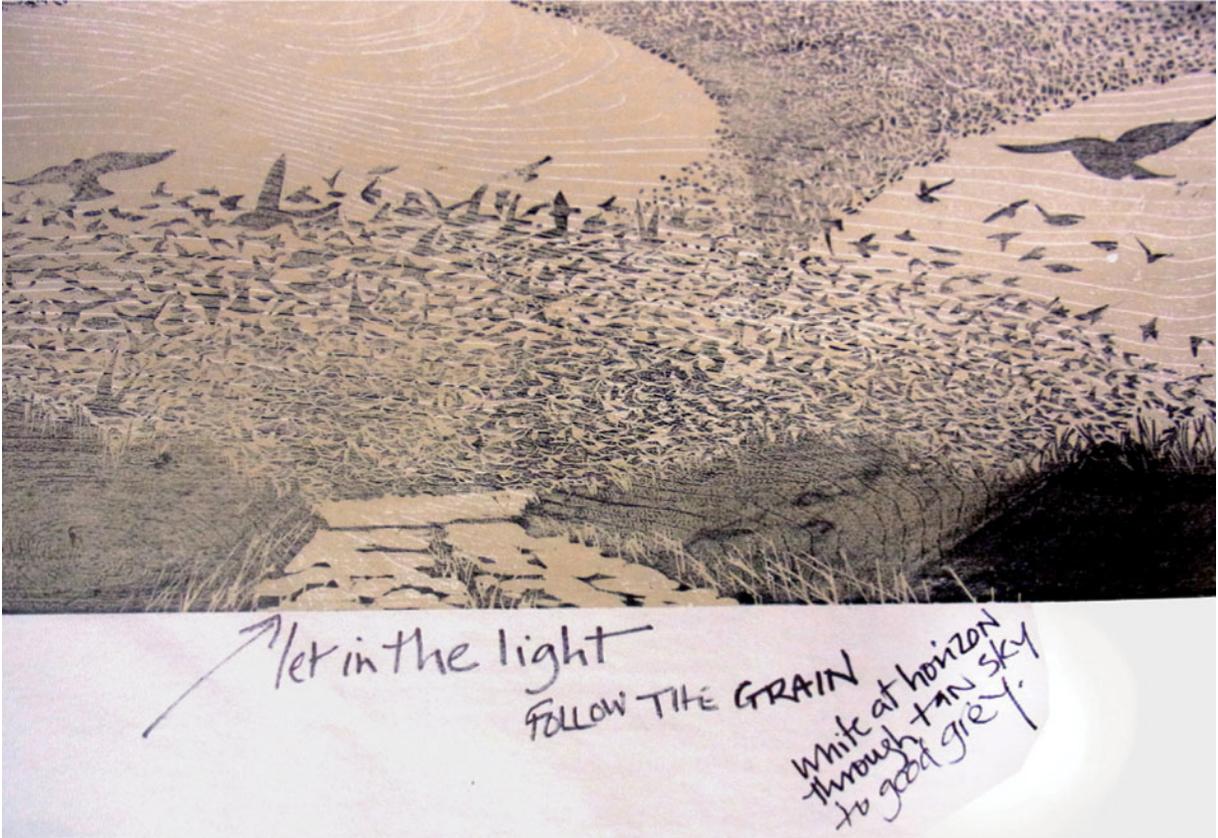
Once in a while a woodcut will just 'work', straight from the initial proof, first time round. Whilst this is a great feeling, it is just luck and you should not become depressed if on another occasion you encounter shortcomings in the early stages. A good print can be wrestled from unlikely material.



***Starlings* – editioned print by Merlyn Chesterman.**



Starlings – block drawn but not yet cut.



Starlings – early proof with notations.

STAMPS AND CHOPS

The practice of using a stamp or a chop is more common on Chinese or Japanese prints than it is in Western printmaking, but the tradition is not exclusively from the East. Using this way of marking a print gives an attractive individuality to work, as well as being a moderately secure way of positively identifying a print.

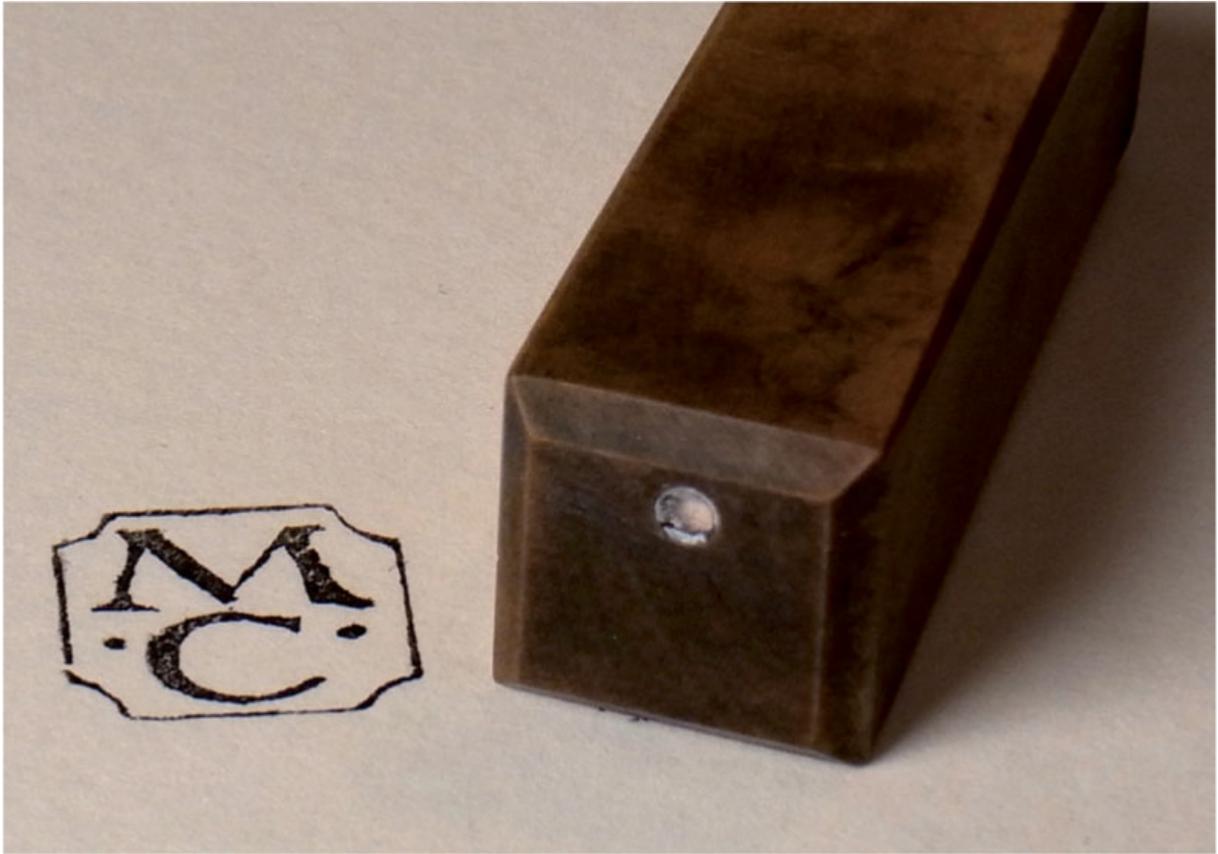
You can either make your own stamp or chop, or you can commission one. Commercial stationers can produce rubber stamps that work very well – despite lacking the aesthetic cachet of the handmade stamp. In China, beautiful soapstone chops are readily available – in street markets there, you will find craftsmen who can cut an individual chop in a few minutes. We have made our stamps

from European boxwood, a very fine, hard wood, by using woodblock tools to carve into the end grain.

Print a chop on to a firm surface. Ink up the chop using a stamp pad, and then push it down evenly and quite hard on to a firm surface. Stamp pads are sold in many art shops or in stationery shops.



Chop.



Chop cut by Rod Nelson.



A typical mess to be cleared up.

WASHING UP

Washing up the slab and the rollers is an art in itself, and can be a pleasure to do if managed swiftly and efficiently. If ink dries on the slab, it can be hard to remove; if it dries on the roller, you may have lost a roller.

You will need newspaper, cotton rag, kitchen roll, baby wipes, washing-up liquid, a bottle of water, and if you are using oil-based inks, some paraffin. A metal-bladed scraper (the sort used by painters and decorators), a squeegee (as used by window cleaners) and some rubber gloves will all be very useful. You will also need a rubbish bag or bin, to put all the inky bits in.

The first part of the job is to minimize it – to make the task as light as possible. Use a scraper to remove as much old ink as you can from the slab and wipe it into newspaper. Then roll out as much ink as possible from the roller on to newspaper. Once this is done, things won't look so bad.

Now, with rubber gloves on and a wodge of newspaper and water, soften what is left by rubbing washing-up liquid into the ink. Only then put some water on.

Then use a squeegee to gather the resulting liquid into a pool, which can be scooped up into newspaper. Repeat this stage if necessary, and finish off cleaning the slab with cotton rag and water (or white spirit if using oil-based ink).

The roller needs a slightly different approach. Roll off as much ink as you can, on to newspaper. Then soften all the ink using washing-up liquid only – no water. When you think you've got all the ink softened, wash the roller with warm water and washing-up liquid, paying particular attention to the edges of the roller and to the frame.

EDITIONING

An edition is a number of identical prints that are produced from the same block or set of blocks. Editions come in two forms – an 'open' edition or a 'limited' edition. The number of individual prints that can be produced from a woodblock is not limited by the physical characteristics of the woodblock itself, if it is looked after. A great many prints would need to be produced to wear out an individual block. Thomas Bewick's wood engraving of a view of Newcastle, on box end grain, was printed 900,000 times.

The decision to limit an edition is therefore the choice of the artist, rather than a technical limitation imposed by the medium itself. There is no inherent need to make limited editions, although most print-makers do, in practice, limit their editions.

Every copy of an edition does not have to be produced at a single printing session. An edition is limited by means of a claim, written in pencil at the foot of each print. The exact way these claims are written is bound by an informal but widely respected set of printmakers' conventions.

Editioning Conventions

There is no rule that dictates that these conventions have to be followed, because printmaking is an unregulated activity and there are no specific legal requirements. However, claims and product descriptions are subject to the Trade Descriptions Act 1968 Section 2, and this legislation will be relevant for all prints that are sold commercially. This may sound over-legalistic, but in practice it is simply a requirement to tell the truth when describing something. If claims are believed, they add value, and it is only reasonable to expect a customer who spends a considerable sum on a print to expect that print to conform to the claims written on it.



Editing *Spring Tide*: checking the quality.



Editioning.

The way in which a printmaker will mark up each of his prints is as follows:

- The edition claim is written as a pair of numbers on the left bottom margin of the print itself: it consists of a print number and an edition number written as a group with a short separating line between them. The print number is written above or to the left, the edition size is written below or to the right
- The title of the print is written in the middle of the bottom margin of the print
- The signature (and/or chop mark) is on the right of the bottom margin of the print
- Edition descriptions are always signed in pencil

Instead of writing the print number/edition number group, the following assignments may also be made in the space at the bottom left of the print:

- The letters A/P signify an artist's proof, and the convention is that they are identical to the edition. Artist proofs can be produced up to 10 per cent of an edition
- The letters T/P signify the early proofs at the time that work is still being done on the block
- The letter V2 (or V3, etc.) signifies a variant of an edition – for example, that different colour ways are used, a block omitted, or an extra block added
- The letters V/E signify a variable edition, where a part of the print is constant, but hand colouring or other less predictable background is applied
- The description 'Hors de Commerce' can be used to describe a print that is identical to the edition but not for sale and therefore not part of the edition – for instance, one submitted for book publication, as a gift, or for some other non-commercial destination



Three editioning marks.

THE LAST WORD

Making woodcuts is one of those rare things in life where it is not uncommon to get more out of it than you have put into it.

How can this be so? One possible explanation is that the very difficulties that one faces in the work – working back-to-front and in reverse – allow for the unexpected, the uncalculated and, occasionally, the magical quality to come out of the image. The difficulties of this medium produce happy accidents, therefore the artist can take chances.

Woodcuts require a certain amount of perseverance, but they reward with interest in terms of fun and the element of surprise. You will need to spend a few pounds on a set of tools, a block, a roller and some ink, but then, for not much more than the price of a tank of petrol, you are ready to work. Suspend for an hour or two any tendency towards self-criticism, open your imagination to the winds, take up your tools and join the stream of artists who, over more than a thousand years, have worked to make strong images and beautiful prints to share with the world.

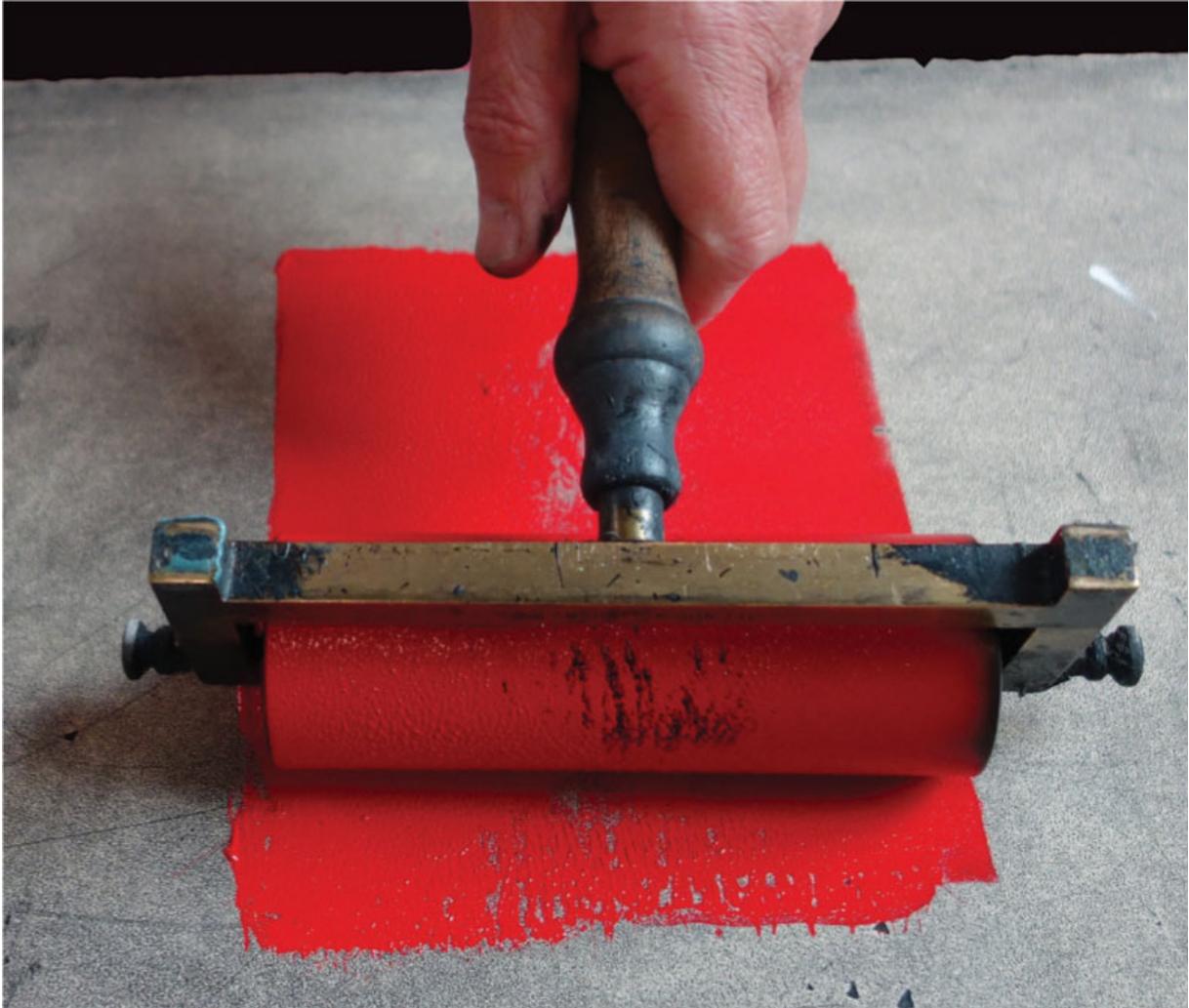


The indirect quality of the process will tend to magnify the artistic achievement of even the humblest artist. MC and RN abseiling with shadow prints. (Photo: Frannie Leach)

APPENDIX I : ROLLERING – A STEP-BY-STEP GUIDE



1. A good way of inking the roller to ensure an even distribution of ink.



2. The first rolling is carried out vertically, up and down.



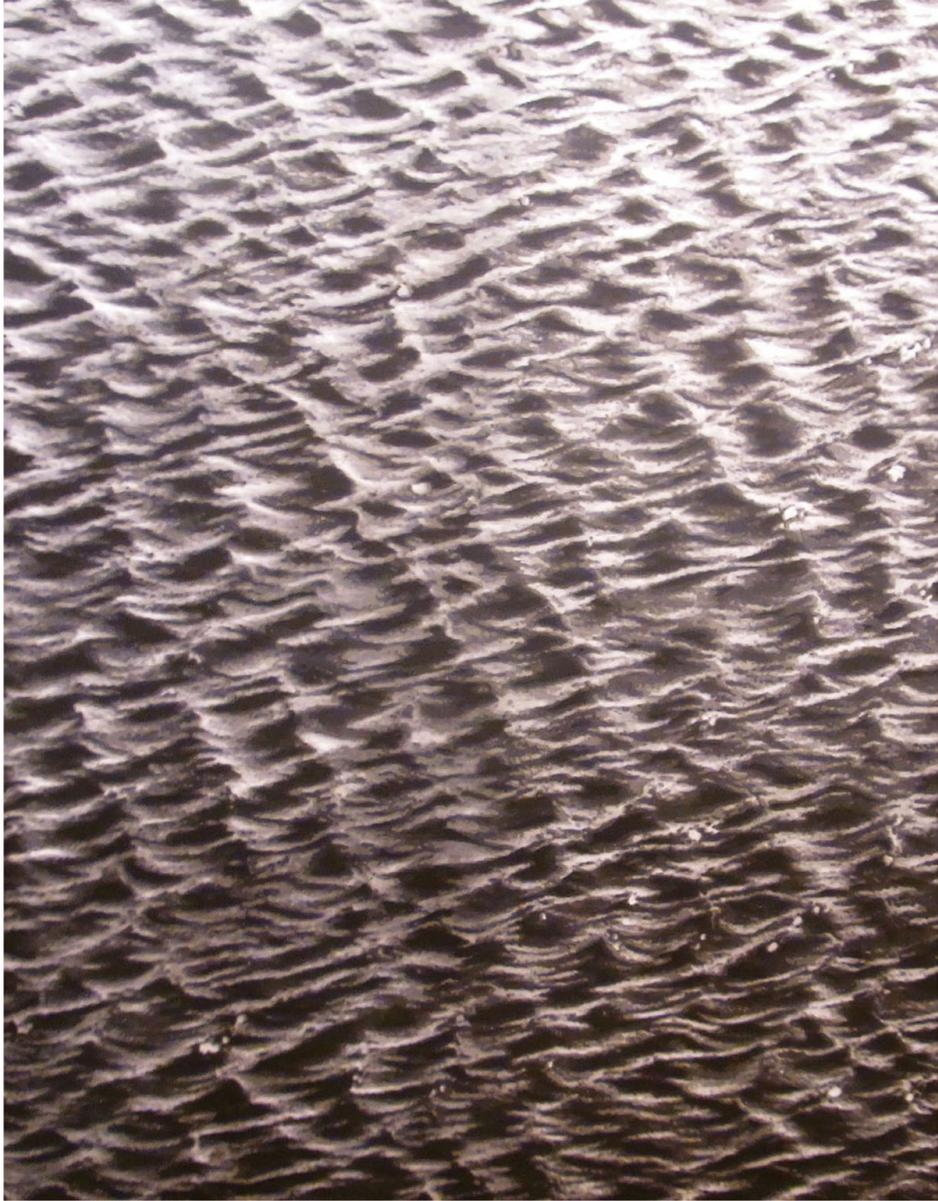
3. Next the rolling is done horizontally, from left to right.



4. The shape of the final rolled-out ink. There is no need for a larger area.

APPENDIX II: PRINTMAKERS' GALLERY

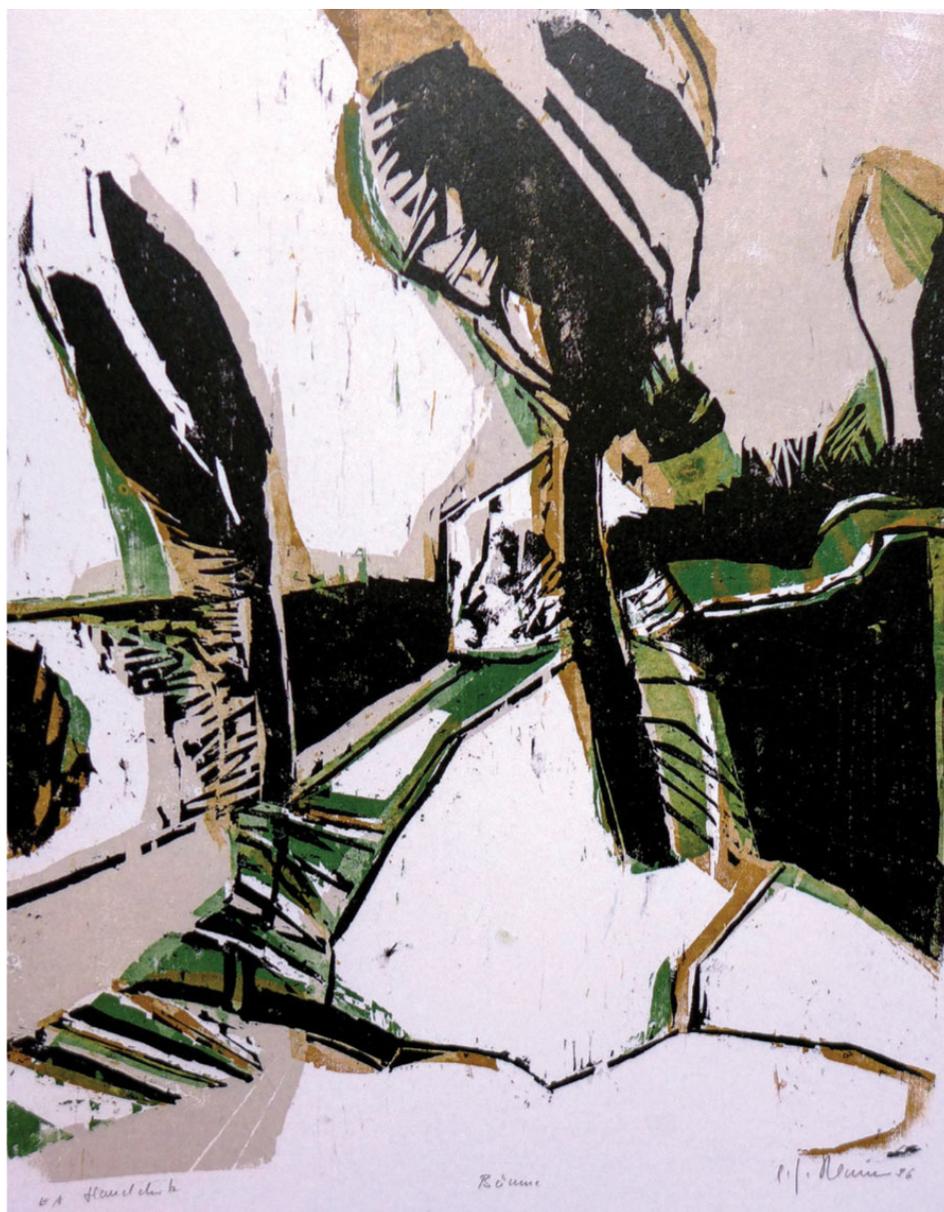
To inspire you further, here we're sharing some of our favourite woodblock prints by ourselves, and also by other artists of all ages from around the world.



Detail from *Water* 2012 by Chen Qi.



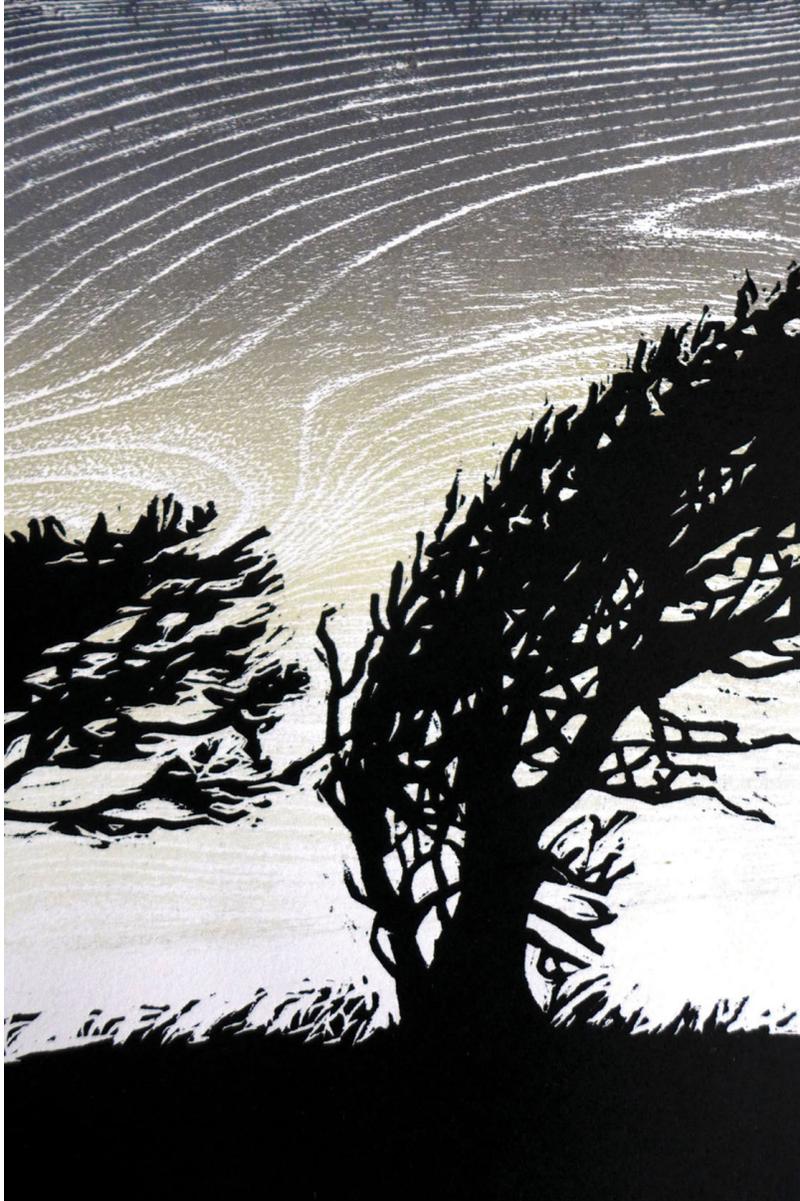
***Haus am Horizont* by Carl-Heinz Kliemann.**



Baume by Carl-Heinz Kliemann.



***Helle Nacht* by Carl-Heinz Kliemann.**



Detail from *A prevailing wind* by Merlyn Chesterman showing the use of wood grain in the underblock.



Detail from *Sea Rocks* by Pine Feroda.



Detail from *Dragonfly* by a student at the Sweet-Scented Osmanthus Primary School, China.



Giraffe by a student at the Sweet-Scented Osmanthus Primary School, China.



The Captive by Yu Ziliang.



Caged Bird by Guang Jun.



***Forest* by Eva Pietzcker.**



Hakka Houses by Merlyn Chesterman.

FURTHER INFORMATION

Specialist Suppliers

Intaglio Printmakers – printmaking supplies

www.intaglioprintmaker.com

020 7928 2633

T.N. Lawrence and Sons – printmaking supplies

www.lawrence.co.uk

01273 260260

L.Cornelissen and Son – pigments

www.cornelissen.com

020 7636 1045

Kremer Pigmente GmbH – pigments

www.kremer-pigmente.de

0049 7565 91120

Preservation Equipment Ltd (Norfolk) – paper

www.preservationequipment.com

01379 647400

Shepherds Falkiners – fine paper and bookbinders
supplies

<http://store.bookbinding.co.uk>

0207 233 9999

Classic Hand Tools Ltd – tools

www.classichandtools.com

01473 784983

Dictum GmbH – tools
www.mehr-als-werkzeug.de
0049 991 9109 100

Handprinted Ltd – ink suppliers
shop@handprinted.co.uk
01243 697606

Societies in the United Kingdom

The Royal Society of Painter-Printmakers
www.re-printmakers.com

The Society of Wood Engravers
www.woodengravers.co.uk

Websites

www.woodblock.eu
Merlyn Chesterman and Rod Nelson's website

www.baren.com
An interesting printmakers' forum with lots of links

www.artelino.com
Dieter Wanczura, a knowledgeable dealer from Germany

www.pineferoda.co.uk
Pine Feroda website

www.worldwidewoodcuts.com
A compilation of and reference point for all the great artists in the medium

Books

Colour

Finlay, Victoria *Colour* (Sceptre Books)

Gage, John *Colour and Meaning* (Thames and Hudson)

Lenclos, Jean-Phillippe and Dominic, I. *Colours of the World* (W.W. Norton, 1999)

Tools

Weygers, Alexander *The Making of Tools* (Van Nostrand Reinhold, 1973)

Artists

Ackley, Clifford S. (ed.) *British Prints from the Machine Age* (Thames and Hudson, 2008)

Howard Hodgkin Prints (Barbican Art Gallery)

Matsubara, Naoko *Tibetan Sky* (Bayeaux)

The Woodblock and the Artist – The Life and Work of Shiko Munakata (South Bank Centre, London, 1991)

Yanagi, Soetsu, foreword by Shoji Hamada *The Unknown Craftsman* (Kodansha International Ltd, 1972)

Lettering

Sepp, Jacob *Schrift und Symbol in Stein, Holz und Metall* (Callwey, 1995)

Verdier, Fabienne *L'Unique Trait de Pinceau* (Albin Michel)

Printmaking

Barker, David *Contemporary Chinese Printmaking*
(A & C Black)

Pye, David *The Nature and Art of Workmanship*
(The Herbert Press)

Salter, Rebecca *Japanese Woodblock Printmaking*
(A & C Black)

Stobart, Jane *Printmaking for Beginners*
(A & C Black)

Walkin, Colin *Relief Printmaking*
(The Crowood Press)

Westleigh, Anne *Relief Printmaking*
(A & C Black)

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