



flintknapping



what is it?

It's the art of making tools from stone capable of producing a conchoidal fracture, which generates a sharp edge on its circumference. A conchoidal (shell-like) fracture is one that doesn't follow any predetermined plane due to the structure of the material, but depends entirely on the angle and force of the blow that caused it. Only a few stones can be worked in this way - e.g. basalt, chert or quartz. But best of all is flint, which formed the basis of stone-age technology.

Flint is formed on the sea bed, from the remains of sea creatures that have been altered by temperature and pressure. It passes through an ooze-like liquid stage which produces a tight molecular structure, like glass, after which most flint ends up held within chalk beds that protect it from the elements.

There is controversy about when our hominid ancestors first started using stone 'tools', but the oldest known intentional tools were from around 3.5 million years ago, found at Olduvai Gorge in Tanzania. The first stone tools were used to break open the skulls of prey animals to remove the nutritious brains. They would have been the only predators capable of doing this in a systematic way, which gave them an advantage that compensated for the lack of long, sharp teeth and claws. And this is where flintknapping came in - to provide razor-sharp weaponry to compete with the best of the big predators.

The hand-axe was the archetypal stone-age tool. It wasn't used in the same way as modern axes - it was used mainly for cutting up carcasses. Stone is resilient, so there are thousands of examples of hand-axes, and the evidence shows that many were quite sophisticated. People today trying to create the same tools are more likely to end up with a pile of rubble than a razor-sharp axe.



Flint is formed from sediments altered by temperature & pressure, forming a glass-like structure.



Flint hand-axe and arrowheads.

Flintknapping was practised all over the world, wherever the right stone was found. In Boxgrove, Sussex, stone and animal remains and imprints in the ground showed where a male *Homo heidelbergensis* knelt, made a hand-axe and butchered the carcasses of rhino, mammoths and hyenas, over 500,000 years ago. Antler parts were found that comprise a toolkit to make a special kind of 'tranchet' hand-axe. Axes were found that were ovate biface (oval-shaped, tapering at the edges), with a razor-sharp edge cast all the way down one side. There are over 500 Boxgrove hand-axes in the British Museum. Later, at the Norfolk coast, palaeolithic (old stone age) sediments were found to contain flint tools from around a million years ago.

As time passed, tools became more sophisticated. In the neolithic (new stone age) period, we find evidence of axes that look much like modern axes, ground flat with sandstone. Some are so perfectly ground that it's been estimated that over 100 hours work went into them. I suppose it was cutting edge technology at the time, and there were geeks even then. At the same time, lots of different microlithic (small; lithic = stone) tools were made - needles, fish hooks, toggles, scrapers and burins (engraving tools).

There were even flint trepanning (basic brain surgery) kits. Pieces of skull were removed in an attempt to cure migraines or epilepsy, or to allow blood to escape after a blow. A 55,000-year-old skull was found in the Rhyn Valley in France, of a man who had endured two trepanning episodes, before being killed by the third.

Stone tools were in widespread use well into the Bronze and Iron Ages, and today they are still used in the Amazon and Papua New Guinea. In fact stone tools are used in modern surgery on internal organs - obsidian blades are softer than flint, but extremely fine and sharp, which allows the organ to heal more cleanly and easily.



what are the benefits?

- flintknapping is of great archaeological interest; there is little other evidence of ancient lifestyles as most possessions were perishable
- learning flintknapping provides an experiential window into the past; it's incredible to go through a operations that you know were performed perhaps half a million years ago - i.e. before there were humans! And they would have been better at it than you.
- it allows us to make useful, free and natural tools (see below), that involve no environmental damage in their manufacture, use or disposal
- in a survival situation, with no other tools, it may well be a skill that keeps you alive
- it can be a very therapeutic activity, involving rhythmic movements whilst slowly observing a useful item appear from a natural piece of stone

what can I do?

You can't learn flintknapping by reading about it, unfortunately. The first thing to do is attend a course. It's best to have a vision of what you want to make before you start, rather than haphazardly working to see what emerges. That way you can visualise the finished item in the stone that you choose and work with.

Flint, or other suitable stone, is readily available in many parts of the world, especially in sea cliffs, river beds and chalk landscapes. You could also ask at a local quarry about what kind of stones are found in your area. In the UK, flint is found south-east of a line drawn roughly from Lincolnshire to Portsmouth. Where it doesn't exist there are often alternatives - e.g. greenstone in Cornwall and



Flint arrowheads fixed to shafts with pine pitch, beeswax and charcoal glue, bound with deer tendon.

Cumbria. You can also buy flintknapping kits with the tools and materials you need to start.

When working, as you strike the edge of a stone, a shockwave is sent through the material that produces large, thick chunks when hit slightly away from the edge with a hard hammer (e.g. quartzite) and small, thin flakes when struck directly on the edge by a soft hammer (e.g. antler). Pressure flaking can also be used to refine or sharpen the piece, using bone, antler or even wooden tools to apply pressure (rather than striking) to remove small fragments, holding the stone in the palm of the hand with a piece of leather or a glove for protection. It takes a lot of practice, but when you get used to it you can start making axes, daggers and then arrowheads and even fish hooks. Quite sophisticated arrowheads with barbs on each side, and a tang in the middle can be made by pressure flaking.

Our partner Will Lord makes flint axes and blades sharp enough to fell trees and butcher carcasses. He also makes daggers, spears and bows & arrows that, in a survival situation, could be used to catch rabbits, fish or deer. However, in combination with natural cordage, his survival toolkit increases in usefulness dramatically, as he is able to bind axe heads and dagger handles, and make things like nets and traps.

Once you can make a serviceable tool, you can begin to bind the flint to pieces of wood to make more useful tools. Arrow- or spear-heads can be fixed with a natural glue made of pine pitch, beeswax and ground charcoal, then bound with the tendon from the lower leg of a deer. Beaten into fine fibres, this is the strongest natural binder there is for arrowheads.

Knapping techniques can also be used to shape pieces of flint for use in flint and lime walls.

resources

- see lowimpact.org/flint for more info, courses, advice, products and books, including:
- Robert Turner, *Flintknapping: a Guide to Making Your Own Stone Age Tool Kit*
- John Lord, *Nature & Subsequent Uses of Flint*
- K Schick & N Toth, *Making Silent Stones Speak*
- flintknappingtips.com - videos and tips
- lithics.org - Lithic Studies Society, promoting research into stone & flint tools
- nongeo-ltd.com/lithicshare - extensive database of lithics and artefacts from around the world

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