

Techniques of Printmaking

1. What are topographical prints?

These are prints showing views of landscapes, townscapes or buildings as well as some interior views. Prints are illustrations published in multiple copies using a variety of techniques. Normally these procedures are used to produce images which were distributed separately from text, either individually or in portfolios, but in many instances they were also issued as plates illustrating books. Somers Cocks in his *Devon Topographical Prints 1660-1870: A Catalogue and Guide* did not normally list illustrations which only appeared on the same page as text in a book or periodical.

There are three main types of print, depending on whether the ink is taken from the raised surface of the printing block or plate (relief prints), from recessed areas (intaglio prints) or from different areas of a flat plate (planographic prints). These are discussed in more detail below. For the sake of completeness some processes are mentioned which do not figure significantly, if at all, in Devon topographical prints.

2. Relief Prints

Here, the ink which produces the image is taken from the raised part of the printing block or plate. This means that the impression can be taken on a normal hand printing press, usually at the same time as any accompanying text. There are various forms this process can take:

2.1 Woodcut

Normally a soft block of wood is used such as pear, apple, cherry, sycamore or beech, and the areas to print white are cut away with a knife or graver, leaving the areas to print black standing proud. The great advantage of this process is that blocks can be printed on a normal hand printing press at the same time as text, but fine detail is not easily achieved. The first woodcuts date from the early 15th century, shortly before the invention of printing, with moveable type. The method is not used for Devon topographical prints and the example illustrated is from a sixteenth century chronicle. It purports to show the siege of Exeter in 1549 but could equally well serve to illustrate any local skirmish.

The metal cut is similar to woodcut except that a metal plate is used. It was common in the 15th and 16th centuries but is not used for Devon topographical prints.

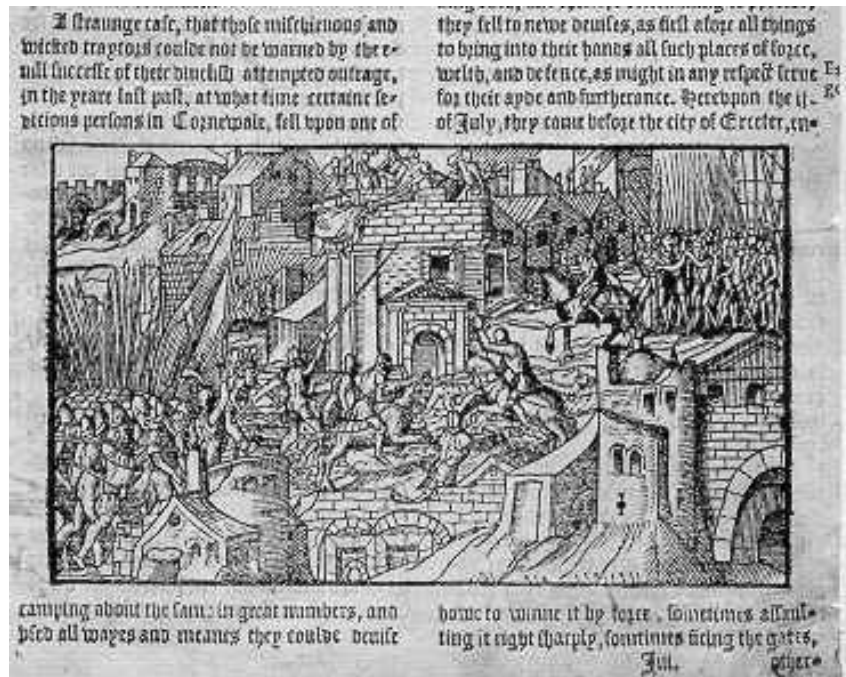


Image 2.1 Woodcut, Rebellion in Devonshire

2.2 Wood Engraving

Here a block of hard wood is used and the artist cuts the design with a fine graver across the end grain of the wood. Much more detail is possible but large images can often only be achieved by bolting together smaller blocks of wood. Despite its name, wood engraving is a relief process. It was popularised in the late 18th century by Bewick and was widely used to illustrate periodicals, notably the *Illustrated London News* in the 19th century. It is not widely used to produce separate topographical prints in Devon but can be found in some 19th century histories. The illustration is from a wood engraving by Dalziel used in part 19 of *The Land We Live In*, published by Charles Knight in 1850. To the top left of the extract a line can be seen which shows where two separate blocks were bolted together. Often these sections were engraved separately and only joined together for final finishing before printing.

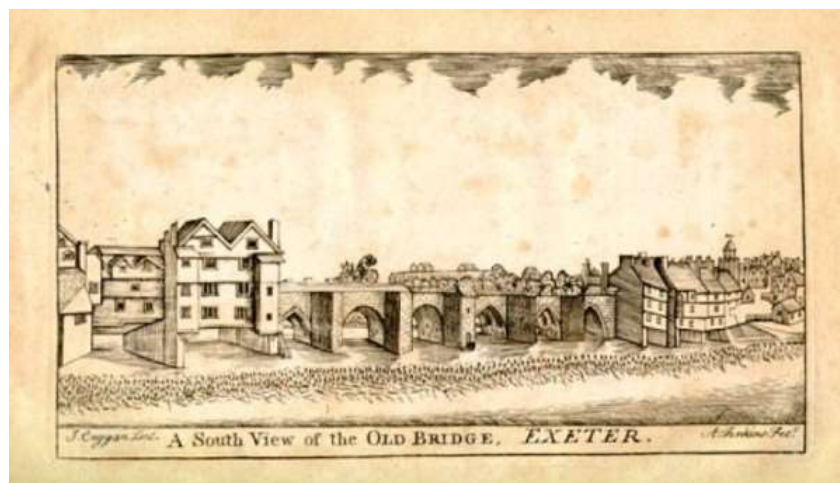


Image 2.2 Wood engraving: SC0752, A South view of the Old Bridge, Exeter, A Jenkins, 1806

2.3 Black-Line

The design is carried by black lines, the bulk of the surface being cut away. Despite being a more laborious process, it was the dominant technique to the time of Bewick in the later 18th century.

2.4 White line

The design is carried by white lines in a technique which works from back to white. A more direct technique, it was widely used in wood engraving.

2.5 Stipple (manière criblée)

A white-line technique where the background is punched away by stamps of various shapes which was mainly used in the later 15th century.

3. Intaglio Prints

Here the ink which produces the image is taken from the recessed areas of the printing block or plate. The plate is warmed, inked and then wiped lean, leaving ink in the recessed areas. It is then passed through the press with dampened paper placed on the plate. Board below and felts above help to spread the considerable pressure. The press, known as a rolling press, operates on the principle of a mangle, concentrating the pressure in a single strip.

This different type of press means that the illustrations cannot be printed at the same time as letterpress text, although much finer detail is possible. The considerable pressure also results in a plate-line which is often visible outside the area of the print, unless it has been cut off or the print has been produced by an off-set process.

3.1 Line processes

Here the engraver works on a plate of polished metal, often with a thin coating of wax onto which the drawing is traced. A burin is pushed along the plate, cutting a fine line and throwing up a burr which is normally brushed away before inking. Errors can be burnished away.

3.2 Copper line engraving

This is the earliest process, the first dated print appearing in 1446. The pressure needed to engrave the lines results in a still, formal appearance. It is the most normal method for the earliest Devon topographical prints, dating from the 17th and 18th centuries. The example shown depicts part of the tower of Rougemont Castle in Exeter and was engraved by Richardson in about 1775. The line is freer than in many steel engravings.



Image 3.2 Copper line engraving: SCO769, Rougemont Castle at Exeter in Devonshire, Richardson, 1775

3.3 Steel line engraving

This uses the same process as copper line engraving but the harder metal results in a much finer line. It was first used by Devon topographical artists in the 1820s and became the medium for the small format line engraved vignette views of Devon which were popular from the 1840s, both because of the fine detail that was possible and because the harder metal made long print-runs possible. The example shown for purposes of comparison depicts the same view of Rougemont Castle as the copper engraving and was engraved by C.J.G.Sprake in 1831.



Image 3.3 Steel line engraving: SC0778, Rougemont Castle Exeter, G J C Sprake, 1831

3.4 Dry-point

Here the burr thrown up is not removed, resulting in a softer line. As the burr is flattened by a few impressions, this is only suitable for limited editions and so is not an appropriate technique for Devon topographical prints.

4.

There are a number of process which attempt to reproduce tones as opposed to line effects.

4.1 Stipple

The plate is pierced with roulettes and multi-pointed tools to produce a close mass of dots. It was used from the mid 18th century but usually in combination with other techniques. This technique is more common in the context of etching. This extract from a view of Saltram in Plympton St Mary, engraved by W.Birch in 1789, shows line as well as stipple techniques being used.



Image 4.1 Stipple engraving: Saltram Devonshire, The House Their Majesties Resided at in the Autumn of 1789, William Birch, 1789

4.2 Mezzotint

This is a tone process invented in the 1640s by Ludwig von Siegen. Here the whole plate is roughened with a rocker which throws up burr in all directions. The burr is scraped down in areas that are intended not to print black, possibly with a lightly etched or engraved outline as a guide. The resulting velvety texture is good for reproducing oil paintings and it was largely used in England for portraits. There are a few examples of Devon topographical prints using this technique, for example this atmospheric view by G.S.Sanders of "The haunted tower", actually Rougemont Castle, dating from 1838.



Image 4.2 Mezzotint: SC0779, The Haunted Tower, George Sidwell Sanders, 1838

4.3 Etching

Here the lines are incised into the plate by the effect of acid, not by the pressure of the burin. The metal plate is protected by a transparent waxy ground which is rolled or dabbed on and the back and sides protected by varnish. The face is smoked to blacken it and the design is drawn on with a needle to break through the ground. The plate is then placed in an

acid bath. If only one immersion is given the effect is uniform, like a copper engraving, but areas can then be stopped out and the plate immersed again to give a thicker line. Etchings can be distinguished from line engravings by the "juicier" edges of the line, due to the uneven biting of the acid, and a more freehand appearance, as less pressure is required to produce the lines. For this reason the method was widely used by amateurs. The first dated etching, by Urs Graf, survives from 1513. Etchings can be found among Devon topographical prints from the 1760s onwards. This etching of Rougemont Castle by L. Byrne after J. Farington, dates from 1822.



Image 4.3 Etching: SC0776, Remains of Exeter Castle, Letitia Byrne, 1822

4.4 Soft-ground Etching

The plate is covered with a soft granulated ground. Paper is laid on it and the design drawn on the paper. The resulting pressure makes the waxy ground adhere to the paper which, when it is lifted off, leaves exposed lines which are irregular as some ground still adheres to the plate. Thus the acid bites irregularly giving an effect like a pencil or crayon on rough

paper. The process was developed in about 1600 by Dietrick Meyer (1572-1658). In Devon it was notably used by Samuel Prout from 1812 for his views of vernacular buildings. The example illustrated is from a view of Bridestowe published by Prout in 1811.



Image 4.4 Soft-ground etching: SC0263, Bridestow, Samuel Prout, 1811

4.5 Crayon manner

This aims to produce the effect of a chalk drawing by using toothed roulettes, special needles and a mattoir (miniature cudgel) to pierce the etching ground in dots. The printed line is made up of dots which are more regular than in soft ground etching. It first began to be used in the mid-18th century by Jean Charles François but no use of this technique has been observed for Devon

4.6 Stipple

This is similar to the crayon manner but aims at a tone effect rather than a line drawing. The etching ground is pierced by multi-pointed tools and roulettes resulting in a mass of closely spaced dots which imitates the effect of a light wash. It is often combined with crayon in portraits. The technique mainly flourished in England, where it was probably introduced by William Wynne Ryland (1732-83). It is not widely used for topographical work.

4.7 Aquatint

This produces a much lighter tone effect than mezzotint, and is therefore better for giving the effect of a wash or watercolour. It is also much less laborious than mezzotint as the effect of the rocker is achieved by acid. The plate is coated with a porous granular etching ground by covering it with resin. The acid bites round the grains leaving a fine network of lines around white dots. A graduation of tone can be achieved by stopping out areas which are to print lighter with an acid resisting varnish. A light outline can be etched in first and

additional lines can be added later. The technique was invented in the 1760s by Jean Baptist le Prince (1734-81) and was introduced into England in 1774 by Paul Sandby. It can be found in Devon topographical prints from the 1790 to the 1830s when it was ousted by lithography. Aquatints were often designed to be hand coloured. There are two methods of applying the ground. In the dust ground process powdered resin is placed in a box and blown into a cloud by bellows. The dust settles on the copper plate and is fixed by heating the back of the plate, causing the resin to melt and adhere. In the spirit ground process the resin is dissolved in alcohol and the solution spread evenly. As the alcohol dissolves, the grains are left on the surface. The results of the two processes are difficult to differentiate. This detail is of the Logan Stone near Drewsteignton and was published in about 1828.



Image 4.7 Aquatint: SC0680, The Logan Stone near Drewsteignton, H Pyall, 1828

5. Planographic Prints

Here the ink which produces the image is taken from different areas of a flat printing block or plate.

5.1 Lithography

The process is based on the antipathy of grease and water. A flat block of limestone is used and the artist draws the design onto the polished surface either direct or by transfer, using a specially prepared greasy chalk pencil, or by laying on greasy ink with a brush. Water with

nitric acid and gum arabic is rolled over the stone to fix the design by filling up the pores of stone and stopping the greasy areas from spreading. The surface is cleaned with a wet sponge and the crayon removed by washing with turpentine. Thus, when inked with a roller, only the greasy areas will accept the ink and the damp areas will repel it. The stones are printed in a special press where a squeegee type pressure is applied from a travelling scraper. The process was invented in Germany 1798 by Alois Senefelder and the first Devon prints appear in 1819 in a publication by Wallis in Sidmouth. This detail of Exeter Cathedral is from a lithograph by George Rowe, dating from about 1828.



Image 5.1 Lithography: SC0818, The Cathedral Exeter, George Rowe, 1828

5.2 Collotype

This has the same basis as lithography but a continuous tone is possible through the use of gelatine, which accepts water to various extents, depending on its hardness. This process, which makes use of some photographic techniques, was developed in the 1850s but was not used in Devon topographical prints.

More than one person is normally involved in the production of a print: the artist who produced the original work; the engraver or lithographer who prepared the plates (sometimes the same as the artist, especially in the case of etching and lithography); the printer who ran the plate through the press to produce multiple copies; and the publisher who put them on the market. All this leads to a complex relationship between the scene depicted (or at least the artist's interpretation of it) and the image that eventually reaches the hand of the purchaser.

6. States of plates

As work on the block or plate progressed the artist would take test prints, known as progress proofs. Where these are taken before the lettering has been added, these are known as proofs before letters. Often these were issued at a premium to subscribers and are prized as they represent impressions taken from the unworn plate. After publication alterations could also be made, but this could be a tedious process and evidence of the changes can sometimes be detected. A woodcut could have a plug of wood inserted or a copper or steel plate could be burnished away and re-engraved if significant changes were required to areas of the image.

Publishers such as Besley or Rock sometimes went to the trouble of making such changes to bring their plates up to date but more often the image itself was unchanged, alterations being made to the lettering to reflect changing circumstances of publication. These two views of Okehampton Castle are more unusual. The first plate was engraved by H. Wallis after G.B.Campion and was published in Thomas Moore's *History of Devonshire* in 1830.



Image 6(a) SC1827, Oakhampton Castle, Henry Wallis, 1830

At some stage the Exeter printer Henry Besley acquired the plate and decided to include it in his series of vignette views. He engaged the Exeter artist George Townsend to revise the central portion and the engraver was entrusted with converting the original rectangular plate into the required shape by adding extra material at the edges. The resulting plate appeared in the 1850s with all reference to the original artist and engraver removed, the figures and coach in the foreground betraying the origin of the design.



Image 6(b) SC1830, Oakhampton Castle Devonshire, 1850

The moral of the above is that those using engraved plates as historical evidence should be aware of the circumstances under which they were produced. All may not be as it seems ...