



Artistic Techniques

Usually on a ship, artists and naturalists would sit at a table together with fresh specimens. The naturalists would describe to the artists how to illustrate the specimens they had seen. When there were too many specimens to draw, a line drawing may have been done and completed back in England using the preserved specimen.

Artistic methods changed during and after the three voyages of HMB *Endeavour*, HMS *Resolution* and HMS *Bounty*. Techniques at the time of the voyages included copper plate engravings with hand colouring; stipple engravings in France and aquatint and mezzotint in England.

Copper plate engravings - a sharp tool (burin) is used to scratch lines into a hard surface such as metal, or more recently - plastic. Ink is rolled over the plate, which settles in the grooves below the surface of the plate. Paper is pressed over the plate, creating a slightly raised print impression on the paper. Copper plates are preferred as copper is easy to engrave, but strong enough to withstand pressure under a press. Other metal plates such as silver or zinc may have an electrolysed coating of steel or chrome. This coating of stronger metal allows a printer to produce large editions and prevent the print quality from deteriorating. Paper quality is important, as it needs to be soaked and have even sized fibres. Sometimes satin and silk were used as alternatives to paper, especially in the 19th century.

Colourings – for many years, artists used natural pigments to hand colour their line drawings. Printing inks were prepared from well ground pigments, which were mixed into linseed oil, making inks that could take a week or more to dry. The first synthetic dye was produced accidentally in 1856 when W. H. Perkin was synthesising the chemical quinine and realised it made a mauve coloured dye. Storage conditions – such as temperature, humidity and sunlight affect the colour quality. Colour was originally used in the scientific classification of organisms, but this was abandoned by the end of the 18th century.

Lithography – this process was accidentally discovered by Alois Senefelder at the end of the 18th century. Senefelder wrote a list of chores on a stone using greasy ink. When he tried to wash the ink with acid and water, he found the greasy writing could not be removed. Then he conceived the idea of lithography. A greasy crayon, pen or ink is used to draw on a slab of limestone. The slab is then moistened with water and a roller with greasy ink is passed over it. The greasy drawn lines retain the ink, but the water-dampened areas of the stone do not take up the greasy ink. A print on paper is then produced.

Mezzotint – used to express tone and texture in monochrome. The surface of the metal plate is roughened with a rocker (a chisel like tool). The burrs of different roughness retain different amounts of ink to produce tones and half tones. This allows for a richer tonal range, allowing textures of flesh or fabric to be reproduced. Mezzotint plates are easier to work, but produce fewer good quality prints as the rough surface is worn down when the plate is wiped to remove excess ink before printing.

Aquatint – originated in France in the late 1760s, but was most popularly used in England. The copper plate was produced (as described above), and the areas which were to be left white were covered with varnish. Powdered resin was dusted over the copper plate and the plate was heated, then cooled. After cooling, acid was applied, leaking through the cracks in the resin. The plate was immersed in acid for different periods of time to allow different degrees of reaction between the copper plate and the acid. Once a particular area of the plate had reached the required depth of tone, it was covered in varnish and the acid dipping process started again to produce the remaining colours on the plate. This process gives prints with high clarity and luminosity and no blending of tones. Generally, this method was rarely used for zoological illustrations, although Audubon's *Birds of America* did use aquatint in the illustrations.