

Aquatint

Aquatint is a process used to create tone in etching. There are many variations on aquatint but the original one involves rosin. Rosin is the sticky part of the sap of the pine tree. This is the same material that you see baseball pitchers working in their rosin bag. It is the same material that violinists put on their bow to make it stick to the strings. The goal of an aquatint is the creation of evenly distributed dots of resist to acid. To accomplish this the artist may use an aquatint box (which will be discussed later) or put the rosin inside a bag formed of old nylons or fine mesh cloth. By tapping on the bag the artist disburses a fine cloud of rosin which is allowed to settle on the plate and, eventually, is fused with heat.

Esthetic Issues / a sumptuous tonality:

Why would one want to create an image with aquatint rather than lithography, or silkscreen?

Aquatint distinguishes itself by delivering a range of tones that vary not only in value, but in thickness as well. The darkest areas have a thicker layer of ink than light areas. Under most circumstances, the grays created through this technique have an underlying sparkle from the original plate's surface. The actual appearance of an aquatint will differ with ink selection, paper selection, and the characteristics of the individual printing the plate. It is organic. In contrast to images on paper made with other media, there is a subtle glow that can be found only in this medium.

Historical underpinning:

Aquatint was invented by ----- in the seventeenth century. It came into being during the Baroque period when artists manipulated their paints with a great emphasis on light and dark, a sense of shadow, and illumination. Like other intaglio techniques, it permits the artist to rework areas, to retreat to the original surface of the polished metal. It can be combined with other working methods and provide results varying from crystalline to mud-like.

Aquatint provided the necessary texture for tone in techniques such as photogravure, sugar lift, white etching ground, and other tonal approaches to imagery. Techniques like "reverse aquatint" have been invented by printers of the years, but the original technique served for historically significant prints by Goya, Roualt, Delacroix, Mary Cassatt, Picasso and others.

The steps in creating an aquatint are as follows:

Step 1.

De-grease the copper plate or zinc plate. Do this by rubbing the plate with a mixture of talc and ammonia. The ammonia need not be full strength. The mixture should be rather loose paste consistency and is rubbed with a piece of felt or towel. A completely de-greased plate will allow water to form a continuous sheet on it rather than turn to beads. To test this hold the plate under running water. When you hold it horizontally beads indicate a small amount of grease is still on the plate.

Step. 2

Once de-greased, the plate is then dried and laid on a flat surface. Holding the bag of rosin over the plate or using the box the artist distributes an even coat of rosin dust over the plate. Generally the amount should cover 50% of the surface. Using a magnifying glass you can look at the plate and see whether the spaces between the beads of rosin are roughly equal to the size of the rosin beads. This appearance is referred to as a 50% coating.

Step. 3

The rosin coated plate is carried over to a hot ring (or is elevated over a torch) and the rosin is heated until it melts. At this point one needs to take great care not to over melt or incompletely melt the rosin. Over melted rosin is heated so much that it forms a continuous sheet over the plate. Under melted rosin is easier to detect because parts of the plate have a white powdery appearance and other parts have a glossy surface. Finding a situation in which the plate's mirror-like surface reflects a dark (shadowed) area will facilitate judging the successful melting of rosin. Glossy areas will reflect the dark. Unmelted areas will appear relatively light and matte like a dusting of snow.

Step 4.

The artist is now ready to develop the image by blocking out by creating a resist to the acid with "stop out" (an alcohol-based resist) or asphaltum which is a mineral spirits based resist.

Time as a factor in aquatint:

The instructions below assume the printmaker is using Dutch Mordant to etch the plate. This acid is used in a 9 to 1 ratio of water to hydrochloric acid. Potassium per Chlorate is also mixed into the acid to maintain a steady reservoir of chlorine that is the active ingredient in Dutch Mordant. The effect of acid is not directly related to strength. Doubling the acid in solution will not halve the etching time. In fact, cutting the acid to one third its normal strength will result a tenfold increase in the time needed to create a given tone.

Other acids can be used to etch aquatints. Among the desirable alternatives is Ferric Chloride, which is actually a salt. Ferric Chloride etches quite cleanly when used appropriately. It does not emit toxic fumes, but whatever it

touches may be stained. For that reason, use of ferric chloride is discouraged except for techniques such as photogravure which can not be done with any other acid.

In our studio we have a chart consisting of seven or eight different values ranging from the white of a brand new plate to deep black. The artist consults the chart to determine the amount of time the plate must be in the acid. The chart is based on a doubling of interval for each value. That is, if the first unit is one minute in the acid, the second unit is three minutes in the acid. (There is a two minute increase in the next step.) The next step would require an additional four minutes (seven minute total) in the acid. Following this are intervals of eight minutes then sixteen minutes and so forth.

60 Minute Limit:

There is a limit to the amount of time a given aquatint can be in the acid. This is related to the size of the beads when they melt. The smaller beads require a shorter time in the acid. If the plate is in the acid too long it will be undercut. As the acid etches the plate the valley that it is creating becomes increasingly circular in cross-section. Starting out as a small shallow depression like a pie plate and eventually becoming a circular cavity whose walls are so thin that the entire texture collapses on itself.

Coarser aquatints can remain in the acid longer. Undercutting can be seen while the plate is submerged in the acid. Rosin covered areas remain shiny. If the shiny areas begin to disappear, the plate has reached the limit beyond which the print will become lighter rather than darker.

Exploiting Undercutting:

Undercutting can be useful as a technique in creating a very flat black that is different from a

normal aquatint. Let us assume that undercutting begins at an hour in the acid. The effect of the acid is toward an even "open bite." This is a dull gray that usually has a sharp black edge when printed. What has actually happened to the plate is that rather than a series of shallow depressions we now have a subtle wave pattern in which the plate gently rises and falls like a rather calm, undulating, ocean.

The plate can, at this point, be taken out of the acid, rinsed, dried, and placed back in the aquatint box. A second coat of very fine rosin can be allowed to settle on the plate. Once that fine dusting is fused to the plate with heat, the plate can be placed back in the acid and etched. By etching this second aquatint in the same area, one creates a texture within a texture. This surface will hold more ink than a normal aquatint. It will have no sparkle to it and therefore is different in appearance from a normal aquatint. Picasso's "Tambourine Dancer" from 1929 has many areas accomplished with this technique. The matte, absorbent, blacks contrast with near-blacks that retain a hint of the original aquatint's sparkle.

Bag Aquatint:

A bag aquatint is executed by filling a small nylon bag with hand-ground, lump rosin. **Do not use the powdered rosin provided for lithographers. It does not melt at the same temperature and is impure.** By placing the plate on the floor and tapping the bag over it a cloud of rosin can be seen descending onto the plate. The closer to the bag is to the plate during this process the more uneven the result. As usual, the rosin is melted onto the degreased plate.

Other Aquatints**Spray Paint:**

Another technique for creating an aquatint is spray paint. Simply lay the degreased plate on a surface and spray with spray enamel (or acrylic or lacquer or shellac) from further away than instructed for an even coat. The result is large beads of paint which are acid resistant.

Spraying of the plate should be done in a well ventilated area. Ironically, as one explores this approach, it is frequently the cheapest spray paints that work best.

Spirit ground:

Another classic aquatint that is very organic in appearance is called spirit ground . The original spirit ground was done by semi dissolving rosin, which is soluble in alcohol, in something like wine rather than in pure alcohol. Ground rosin would be placed in a jar with wine and allowed to soften over a day or two. This mixture of wine and rosin is poured over the plate while it is flat on it's back or at a shallow angle. It is then allowed to dry in the sun or simply fused with heat.

This is a very erratic process. It requires that the etcher gain experience through trial and error and be to judge whether the spirit ground is worth etching. As with any other aquatint too much rosin and too much heat will result in an entirely sealed plate. At the other end of the spectrum, too little rosin spread in a sparse fashion over the plate will result in a filmy gray that doesn't have the sparkle of the conventional aquatint.

A more reliable version of spirit ground can be made by placing powdered asphaltum in

alcohol. not soluble in alcohol, therefore, one can

shake up the mixture pour it over the plate immediately and the will settle out as the alcohol dries. This must be heated far higher and hotter than an normal acquatint the plate must go through a

color change from normal copper color to a mauve or purple before the is truly secured to the plate. Again, experience allows the printmaker to determine whether a given ground is worth biting.

A cheaper version of this technique can be accomplished with xerox toner. Surplus toner can usually be had from any copy center as it accumulates in the machine. Toner is nothing more than plastic with black pigment imbedded in it. Toner has the advantage of a low melting temperature. Once again, toner is not soluble in alcohol and its distribution on the plate depends on the flowing of the alcohol back and forth, or simply how it settles as it dries.