Photographic Processes

1839 often heralded as the birth year of photography, but that ignores decades of development in lens manufacturing and the centuries of research into the photosensitive qualities of silver salts. And it wasn't just research, Thomas Wedgewood was using silver nitrate and silver chloride to record the shapes of the distinctive profiles that decorate his ornaments.

Daguerreotypes-
Louise Daguerre gave his name to the first practical method of capturing an image of the world simply by exposing a photosensitive surface to light. He is himself indebted to the work of Niecpe and Charles Chevalier.

The image is formed by exposing a copper plate with silver surface. The silver surface was first polished and exposed to iodine vapours which formed a silver-iodine surface to the plate. The plate is then exposed to light transmitted through a lens, once exposed the plate was removed and exposed to vapors from heated mercury, only then would the image form.

Long exposures
Unique
Reversed
unstable / protective glass

Salt-paper prints

1840 Fox Talbot

Paper is first submerged in sodium chloride solution, once dried it is floated on solution silver nitrate solution in a darkend room forming a photosensitive silver chloride compound on one side of the paper. This is then dried and ready to be exposed to light.

When exposed to light the silver chloride darkens, creating a negative image. This negative can then be used to make multiple positive prints simply by playing the negative onto a sensitised piece of paper and exposed to light.

Trouble was that unexposed areas remained photosensitve so sheets would eventually turn completely black. So the exposed paper would have to be fixed by submerging the exposed paper in sodium thiosulphate to remove residual silver chloride.

Whilst the materials and some chemicals have changed, to this day that is the process by which a b/w photograph is produced.

Most beautiful process

Image sharpness limited by paper

Collodion negative

1851 sodium nitrate, containing potassium bromide is poured onto a sheet of glass, as it becomes firm the plate is sensitised in silver nitrate forming silver bromide. This is then exposed to light in a camera, removed developed in a silver nitrate and acid solution before being fixed with thio-sulphate.

The glass negative can then be used to create a much sharper positive print than was possible with a paper negative.

Resolution

Impracticality

Albumen print

1850 louis-desire Blanquart evrad (thomas sutton)

Much finer detail than salt prints, quickly adopted

Sodium chloride added to egg white, this is then whisked and paper floated on top. When dry the paper could be contact printed as salt prints were but later with collodion negatives.

Gelatin dryplate

1878 - was the standard by 1878, gelatin had been used since Talbots day, but by the 1870s it was becoming the binder preferred binder whether on paper glass and soon to become film.

Due to faster exposer times allowing natural photographs, unstaged

Mass production

Gelatin DOP

1880 - this is still the process used today the speed of the paper allowed exposer via enlargement for the first time.

The stability was also much improved, and is still the most stable of the silver based photographic processes

Autochrome

1907 - Lumiere brothers - medical pioneers

gelatin dry plate exposed through a screen of potato strach grains dyed red gree and blue.

So the silver bromide is only exposed in places in which the red green and blue colour waves have passed through. When viewed through light those dyed grains are lit and a colour image created for the viewer.

May seem primitive. Rgb same technology used in your phone screens and computer monitors.

Chromogenic colour

CMYK - whether on a gelatin film base like these or on paperchromgenic colour images are formed by imposing there layers of photosensitve gelatin on to a material support. Each layers composition is such that when the silver compound is exposed to light it creates an coloured dye. Cyan yellow and magenta when superimposed these create a full colour image as with rgb.

Thomas sutton