CHAPTER 1

TECHNIQUES OF PRINTMAKING

Printmaking Techniques

Collagraph
Platography

Relief
Intaglio
Planography
Serigraphy

Print

Material

TECHNIQUES OF PRINTMAKING

"A Print is an 'original', for it relates and belongs to the first hand experience of the artist. It is not copied or derived. It is like any original work in painting, inventive and creative expression of an original mind. It is the creativity and the novelty that makes it 'a work of art'." (Exhibition Reviews 60)

Printmaking is the process of transferring an image from one surface to another, instead of painting or drawing directly on a surface. Unlike reproductions of artworks, these prints are artist's original creations. (Printmaking Terms)

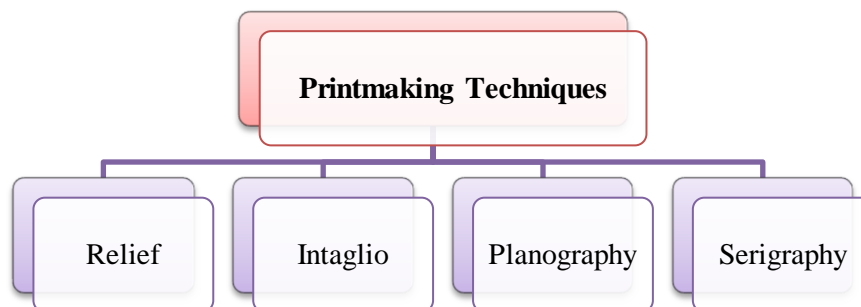Printmaking can be done using various techniques.

Chart 1

I. RELIEF PRINTING:

It is an image produced by a raised surface (in relief) which is inked by a roller and then the impression is transferred on paper by applying pressure on the entire block evenly. The image created is reversed form of the original drawing on the block.

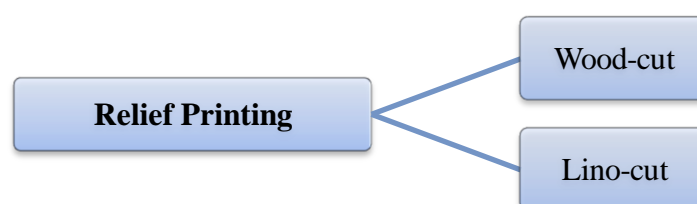There are two major types of Relief Printing techniques: Woodcut and Linocut

Chart 2

Wood-cut: It is the oldest printing process, where print is created by cutting off the non-printing areas with the help of different tools. Ink is then applied on the remaining parts and a paper is pressed onto the block to take an impression.

Lino-cut: A relief print taken from a block of linoleum, carved and prepared in the same way as in the wood-cut.

METHODS OF RELIEF PRINTING

Single block method
- This method involves the removal of non-printing areas, leaving the printing area in the raised form.
- Single block prints are usually monochromatic (black & white), but multi-colour inking on single block is also possible.
- Multi-colour printing through single block can be done with two methods.
- In first method cut the block for each colour area, then ink it separately and join again for printing.
- In second method one or more stencils can be prepared which is placed on the block to apply ink on the open areas of the stencil.

Multi-block method
- Separate relief blocks are used for each colour.
- Registration of one colour block with another needs to be carefully executed.
- Material can be varied to produce different effects. (wood and lino both can be used)
- Since the block remain intact it is possible to produce unlimted number of prints.

Reduction block method
- It involves removal of the image at every stage of printing a colour in the same block, until finally only the last colour print image is left.
- The order of printing the colour is usually from light to dark.
- Only a limited edition of prints can be taken because the block is cut every time after taking print for one colour.
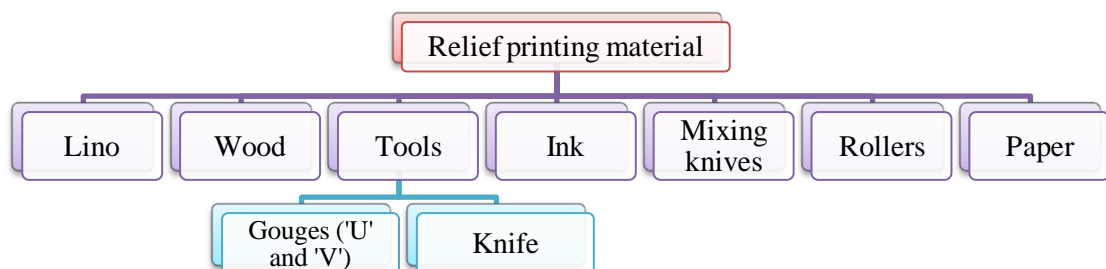
Chart 3

Materials used for Relief printmaking:

Chart 4

PRINTING PROCESS

Block preparation: The image is drawn on wood or lino in reverse order and carved with the help of various tools. Only the non-printing areas are carved out leaving the printing area in raised form. Apart from creating textures on lino with the tools, caustic soda solution can also be used for creation of granular texture on printing block. (Printmaking Terms)

Inking the Block: A large roller which covers the entire block surface is used. This roller rolls out the ink on a flat surface. When the roller is evenly coated with ink, it is rolled over the surface of the block, thereby applying an even layer of ink on the block.

Printing: A sheet is placed on the inked block and pressure is applied evenly on the block using a burnisher or smooth rounded object such as paper weight or back of the spoon. During this process, paper from the corner is peeled off regularly for checking the print.

For colour printing, if highlights are to be given with white then that portion has to be carved and the block will be printed with the lightest tone in the composition. It is followed by the carving of those areas which are printed in the lightest tone and then again the block is inked with the next colour tone darker than the previous one. This process (carving and printing) continues until the last darkest colour areas are left on the block.

II. **INTAGLIO PRINTING**:

The word *Intaglio* is derived from the Italian word '*intaglione*' which means 'to cut' or 'engrave'. (Dawson, Prints and Printmaking 74) It is a printmaking technique in which a design is cut, scratched or etched into the printing plate or matrix and the

incised area holds the ink for printing. The plate can be copper, zinc, aluminium, plastic etc.

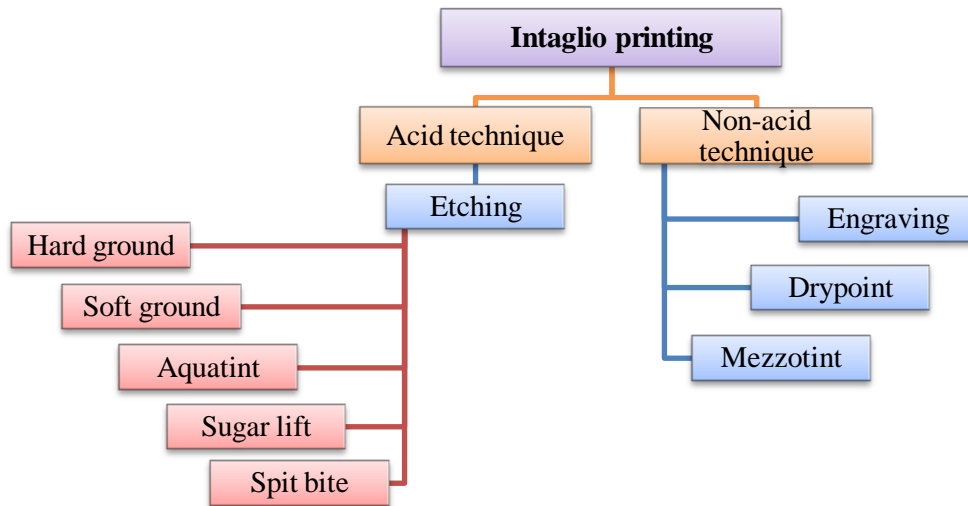*Two types of techniques are used in Intaglio printing namely acid and non-acid techniques.*

Chart 5

ACID TECHNIQUES: The technique that utilizes acid in the process of making a plate is called *Etching*. It is done with the help of image created on the plate covered with different types of grounds.

NON-ACID TECHNIQUES: *Engraving*, *Dry point* **and** *Mezzotint* are the Intaglio techniques where acid is not used for creating grooves on the plate. They are made with the help of different tools.

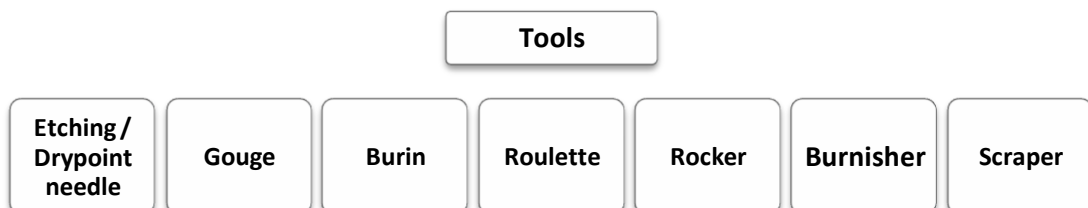**TOOLS USED**: Various tools that are required to create an image for intaglio printing are:

Chart 6

INTAGLIO PRINTING PROCESS

Plate preparation: Etching plate is prepared by applying ground on the plate and creating an image using various tools according to requirement. The plate is then immersed in a bath of nitric acid. The longer the plate is kept immersed in the acid; deeper is the etching of the exposed area. Plate is then taken out of the bath, rinsed under running water and cleaned. For non-acid technique the plate is directly carved with different tools without applying ground over it.

Preparing the paper: For both the techniques sheets are dipped in water. When they are completely soaked they are laid on a flat surface between blotting papers and a glass is placed over them with a heavy weight on top.

Inking the plate: The plate is placed on a hot-plate and ink is applied over it with the help of a dabber worked out in circular motions, thus, forcing the ink into the grooves. It is then removed from the hot plate and excess ink is wiped off using newsprint sheets and butter paper.

Printing: The plate is placed on intaglio press bed. The sheet of prepared paper is placed over the plate which is further covered by a felt blanket. The covered paper is then passed through the press. The print is then lifted from the plate and again kept between two blotting papers under heavy weight for drying.

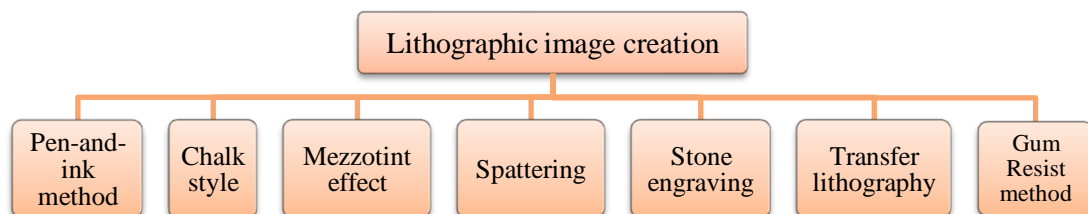III. **PLANOGRAPHIC PRINTING**:

It is the term given to the process of printing from a flat surface which is neither engraved, raised in relief nor etched by acid.

Lithography, the original and the most usual form of planographic printing utilizes stone, zinc or aluminium as the surface on which the image is drawn. (Dawson, Prints and Printmaking 16) It is closer to drawing and painting than any other printing

process. Images are drawn directly on stone or plate, giving the artist freedom of expression.

Lithography is a planographic process in which the image and the non-printing areas are on the same level and the process is chemical based on the simple principle that oil and water do not mix. Image is drawn on the printing surface in a greasy medium and the surface is then dampened with water which settles only on the undrawn areas. Then the surface is rolled with ink which adheres only to the drawing. (Dawson, Prints and Printmaking 16) The paper is then laid on the stone in the lithographic press, with sufficient backing material and a thin sheet of metal above it. The whole package is passed on runners under a bar of wood covered in leather known as the scraper. The downward pressure of the scraper transfers the ink from the stone to the paper. (Gascoigne, How to Identify Prints 1c)

IMAGE CREATION: *There are various ways in which the image can be created on lithographic stone.*

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                    ┌──────────────────────────────┐
                    │  Lithographic image creation  │
                    └──────────────────────────────┘
  ┌─────────┬─────────┬─────────┬─────────┬─────────┬─────────┬─────────┐
┌──────┐ ┌──────┐ ┌──────┐ ┌──────────┐ ┌──────┐ ┌──────────┐ ┌──────┐
│Pen-and-│ │Chalk │ │Mezzotint│ │Spattering│ │Stone │ │Transfer  │ │Gum   │
│ink     │ │style │ │effect   │ │          │ │engraving│ │lithography│ │Resist│
│method  │ │      │ │         │ │          │ │         │ │          │ │method│
└──────┘ └──────┘ └──────┘ └──────────┘ └──────┘ └──────────┘ └──────┘
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Chart 7

With the discovery of lithographic printing, artists have been using limestone surface for expressing themselves through prints. It is an ideal surface to draw as it holds greasy drawing and absorbs water used during printing. Lithographic stone is now rare, and only samples can be found.

Due to the scarcity of the stone by 1900's, zinc and aluminium plates became a common replacement for stone. However chemically, stone printing differs from plate

printing; but to produce a printable lithographic image both processes require the use of greasy drawing material. Each of them depends on gum Arabic solution for clean and satisfactory printing which is applied on the undrawn areas.

The technical advantage of using a plate is that it is less time consuming than stone lithography. However, it cannot replace the litho stone.

Material required for Pletography:

Material for Pletography:
- Aluminium Plate
- Gum Arabic
- Phosphoric acid
- Tannic acid
- Sodium Benzonite
- pH strip
- Water
- Plastic measuring cups
- Alum
- TAPUM
- 50-50 solution
- Sponge
- Xerox powder
- Toner / Petrol
- Litho crayons
- Glass marker
- Chalk powder
- Turpentine
- Acetone
- Red lacquer
- Wash out soluition
- Cotton rags
- Paper

Chart 8

Aluminium Plate preparation:

- Add a few drops of phosphoric acid in hot water and with a cotton rag clean the surface for any greasy element on it. Instead of phosphoric acid alum can also be used to clean the plate. Dry it immediately to avoid oxidation of the plate.

- Make the margins and apply gum Arabic to the margins with a clean sponge. Now draw the image on the plate with any greasy material like litho crayon or glass marker.

- Xerox powder mixed with toner can also be used to draw an image. When Xerox powder is used then the plate needs to be heated to fix the powder onto the plate. If it is mixed with petrol then it need not be heated, as the mixture of Xerox powder with petrol automatically fixes onto the plate. After drawing, apply chalk powder on the plate.

- After a few minutes, with a sponge apply gum Arabic to the plate and buff it with a clean rag. (Take care that not a drop of water should touch the surface of the plate.)

- Apply the 50-50 solution, evenly onto the plate to mildly etch the plate for light and medium tones. For hard / strong etching use TAPEM solution and for counter etching add a few drops of phosphoric acid to the Tapem solution. Immediately buff the plate with gum upon etching.

- Clean the plate with turpentine to remove the image from the plate. Follow it with cleaning the plate with Acetone to remove any greasy particles since it sensitizes the plate.

- Apply a thin layer of red lacquer evenly on the plate with a cotton rag and then apply wash out solution on the plate and wipe the plate with water loaded sponge.

- Now the plate is ready for printing. The printing process is the same as lithography process.

IV.   **SERIGRAPHY**:

It is a stencil process based on the principle of blocking out areas of the mesh (screen) in order to prevent colour from passing through while leaving clear open areas which allows ink to pass through the mesh. (Dawson, Prints and Printmaking 133) Serigraphy or Screen printing process gets its name from what was originally a

stretched silk cloth used to hold a stencil. This versatile printing process can produce thick, opaque deposits of ink in brilliant colours, and can be used to print on virtually any material, even curved or uneven surfaces. (Gordon and Gordon 77)

Stencil is an important constituent of this process. **There are four basic types of stencils.**
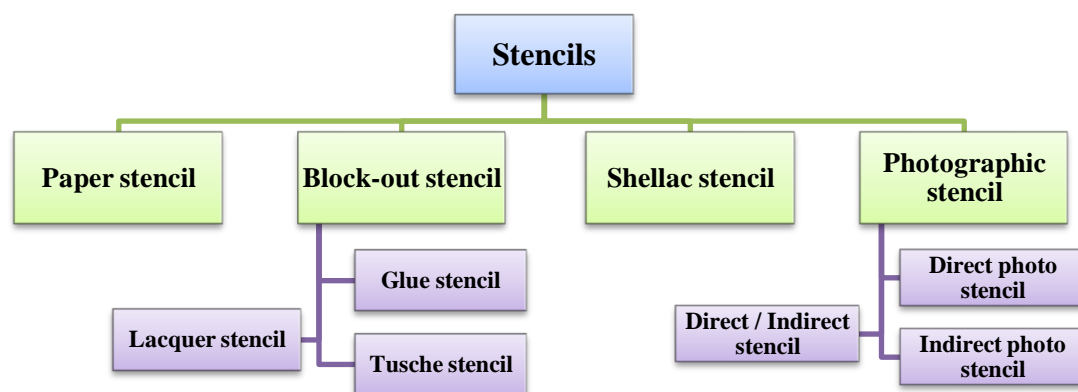

Chart 9

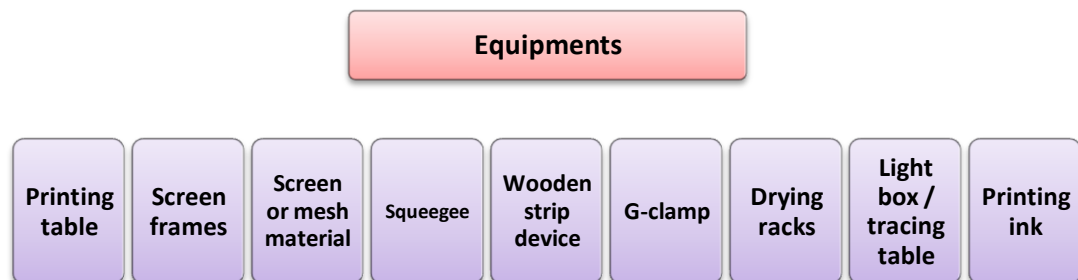*Equipments and accessories required for serigraphic printing:*

Chart 10

PROCESS

- Registration is very important during printing. Firstly, attach the frame to the printing table and check the registration marks by placing a blank sheet beneath the screen frame and position it in relation to the stencil. Mark the registration marks / margins on the table for correct placement of sheets during printing and

also on the screen for colour printing. This will remain throughout the printing progression.

• Prepare the colour in the desired shade and consistency. Now place a blank sheet on the printing table and lower the screen over it. While standing at the opposite end, pour ink into the screen at one end and pull it with the help of a squeegee, thus spreading it evenly from one side of the frame to the other. Raise the frame to remove the sheet and keep it for drying. Repeat the process for further edition.

• For multi-coloured printing it is essential to decide how many colours are to be printed and then make a stencil and frame for each one. While printing a multi-colour sequence it is suggested to print the colour which represents the largest area first. When opaque inks are used, it is important to print lightest colour first. On the other hand, one must anticipate the way in which the colours will blend when they overlap. (Dawson, Prints and Printmaking 144)

➢ **Monoprint / Monotype:**

It is form of printmaking made by drawing or painting on a smooth surface or matrix such as wood block, litho stone or etching plate, which is then transferred onto a sheet of paper by pressing the two together through a printing press. Image can also be created by inking the entire surface and then removing the ink with the help of brushes or rags to create a subtractive image. It is often spontaneously executed without any preliminary sketch. Thus it can be considered as a combination of printmaking, painting and drawing media. (Printmaking)

➢ **Offset Lithography:**

An image is transferred to a printing plate, which is then chemically treated so that only the image areas will accept the ink and reject water whereas the areas without

image will reject the ink. The plate is then rolled on a rubber cylinder to apply the ink on it, and in turn the rubber cylinder or blanket applies the image to the paper. The process is "Offset" because the plate does not come in direct contact with the paper. (Miller) Offset Lithography is one of the most common ways of creating printed matter. A few of its common applications include: newspapers, magazines, brochures, stationery and books. (Offset Printing)

Apart from these basic techniques, artists are in a constant process of developing various techniques of printmaking by experimenting with the traditional ones. Some of the new processes of artistic printing are:

➢ **Viscosity printing:**

It is a multi-coloured printmaking technique that incorporates the principles of relief and intaglio printing. (Viscosity printing and Collography) The process is based on the principle that inks of different viscosity or thickness will not mix. It is used to print multiple colours of ink from a single plate, rather than relying upon multiple plates of separate colours. For this rollers of varied density and softness are used to apply ink on different levels of the etched plate. (Sunish) It was developed during the late 1960's by Stanley William Hayter in Paris. (Viscosity Printing)

➢ **A la poupee (Local Intaglio):**

A colour printmaking process in which the intaglio plate is inked with different colours in different areas with "dollies" or "poupees" of rolled canvas or felt and one area is wiped at a time with tarlatan and by hand. Image is printed through just one run in the press. A gradation of tints or juxtaposition of different colours can be built simultaneously on the same plate by this process. The term 'a la poupee' means 'with a doll', which refers to the rolled fabric shaped like a ball. (A la poupee)

➢ **Chine Colle:**

Chine-Colle is a process that introduces colour and texture into etching in one single plate. (Glossary / Techniques) Chine-Colle roughly translates from French as "chine" – tissue, and "colle" – glue or paste. The word 'chine is used because the thin paper traditionally used was imported in Europe from China, India and Japan. (Grant)

The paper, with some degree of lightfastness compatible with etching paper is bonded to the heavier etching printing paper in the printmaking process. (Grant)

For preparing a chine-colle print, thin papers usually of lightweight, good quality having natural-fiber are cut or torn into desirable shapes and sizes, then dampened between blotters until they get uniformly moist. They are then brushed with a coating of wheat / rice paste or any kind of adhesive on one side and placed on the inked plate in their desired locations with paste side up. Above them the printing paper is placed and the plate is run through the press where due to heavy pressure the thin paper gets stuck to the printing paper.

➢ **Collagraphy:**

The word 'collagraph' is derived from the Greek word 'Koll' or 'kola', meaning glue and 'graph', meaning the activity of drawing. (Print Making) It is a printmaking process in which different materials are pasted on a hard surface such as paperboard or wood. Ink is applied to the resulting collage through intaglio or relief process or combination of both.

➢ **Embossed Print:**

It is also known as inkless intaglio or blind embossing. A print pulled from an intaglio relief plate with slightly raised surfaces created by etching, gouging, engraving and/or carving. The plate is run through the press without ink. The inkless image – that is,

just the image created by the relief of the plate – is then transferred, or "embossed" onto the printing paper.

➢ **Digital printing:**

It is a method of printing from a digital based image directly to a variety of media. (Digital printing) The image is created on the computer and transmitted directly to the output device or printer where the image is printed instead of using a traditional printing press. It can be differentiated from the traditional printing as every impression made on paper may be different as opposed to making several hundred or thousand impressions of the same image from one set of printing plate. (History of Printing) It usually refers to professional printing using large format and/or high volume laser or inkjet printers. It does not employ a "pre-press" operation as would be associated with traditional commercial printing technologies. (What is Digital Printing?) These images can be printed on a variety of substrates including paper, cloth, plastic or canvas. (Sunish)

Although a print is a work of art, but the actual process of printmaking is a craft and one that encompasses a variety of techniques. (Dawson, Prints and Printmaking 18) The materials available to the artist, the size of the print he wishes to develop, his experience in using various tools, together with his creative ideas – all of these factors influence the choice of technique. An artist can use any process in existence today; it can be single method or a combination of various processes. The idea of mixing various printmaking methods is not new. The famous Baxter prints from early 19th century were made by printing one etched intaglio plate with all the fine detailed work on it and then a number of wood engravings on top for the colours. (Simmons and Clemson, The Complete Manual of Relief Print Making 102) Until 20th century, printmakers have emphasized on the purity of each method and disapproved

any modifications, but now we see many methods used to create a single print. (Simmons and Clemson, The Complete Manual of Relief Print Making 102) These prints can be autographic, mechanical or photographic. Today, artist has a greater variety of printmaking equipments and methods to make a print. (Dawson, Prints and Printmaking 146) Each method has its advantages and disadvantages, so it makes sense to use the best of each technique.

Prints of Various Techniques

LINOCUT

Plate 1.1: Anita Das Chakraborty, "Untitled", Linocut, 2010

WOODCUT
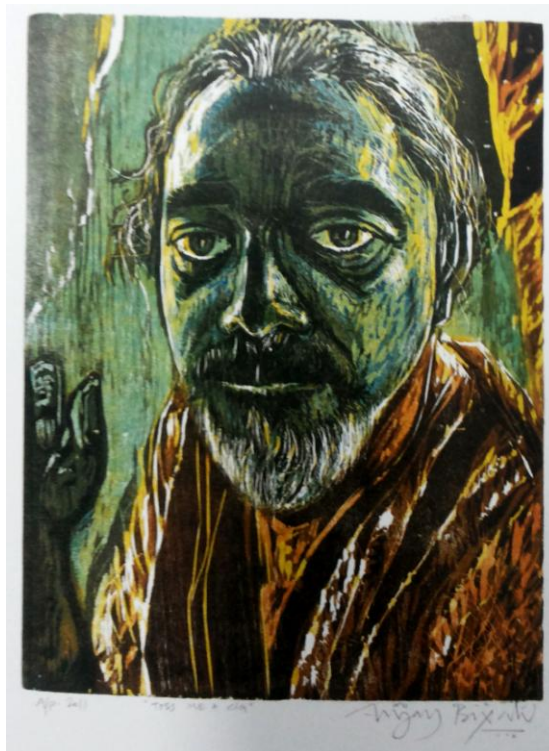
Plate 1.2: Vijay Bagodi, "Toss Me a Cig", Woodcut, 2011

LINO ETCHING

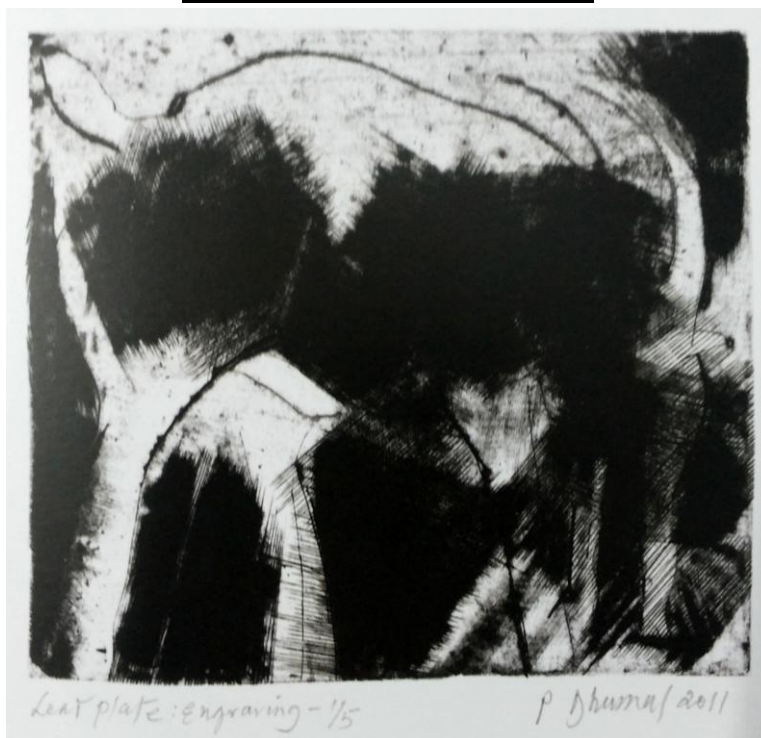**Plate 1.3: Anant Nikam, "Untitled", Lino Etching**

ETCHING
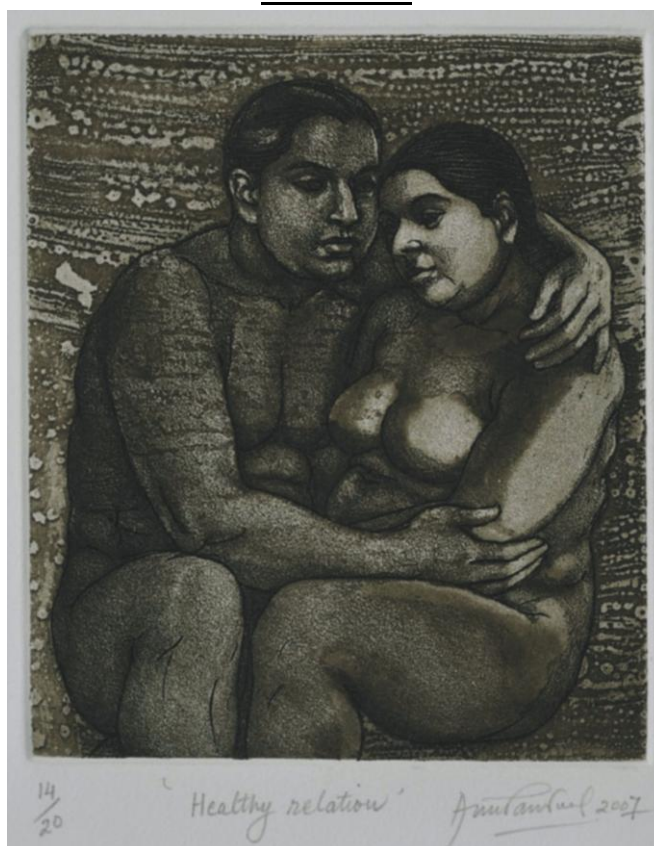
Plate 1.4: Anupam Sud, "Healthy Relation", Etching, 2007

ETCHING & AQUATINT

Plate 1.5: Kanchan Chander, "Ganga II", Etching & Aquatint, 2008

LEAD PLATE ENGRAVING

Plate 1.6: P.D. Dhumal, "Untitled (BW)", Lead Plate Engraving, 2011

DRY POINT, CHINCOLLE

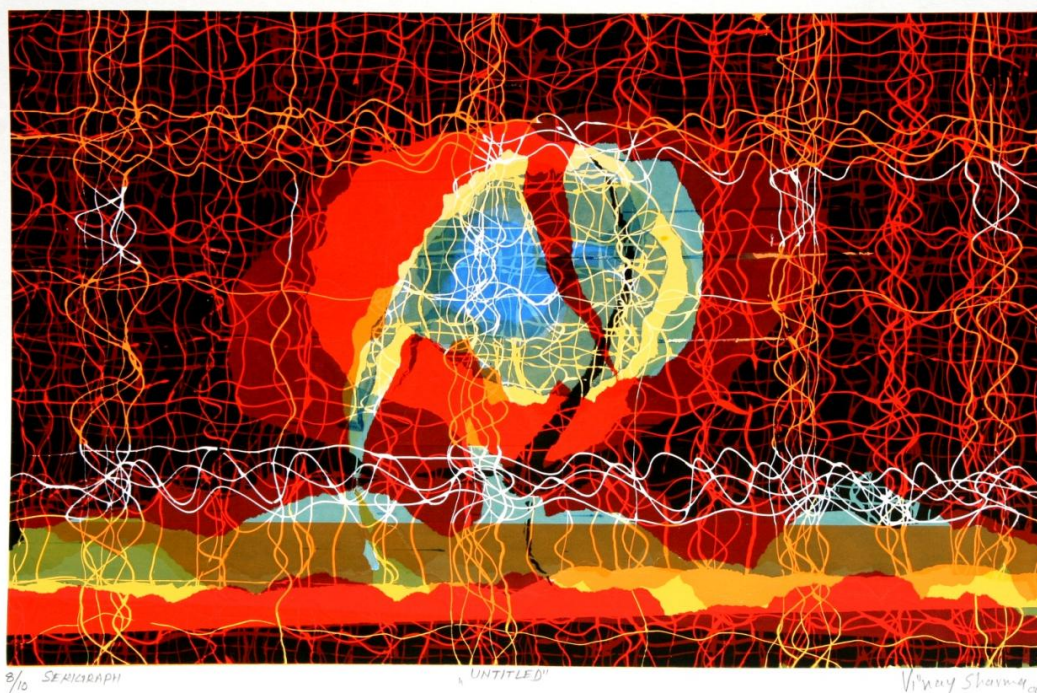**Plate 1.7: Kavita Shah, "Pescara II", Drypoint Chincolle, 2008**

LITHOGRAPHY

Plate 1.8: Jyoti Bhatt, "Untitled", Lithograph

PLETOGRAPHY

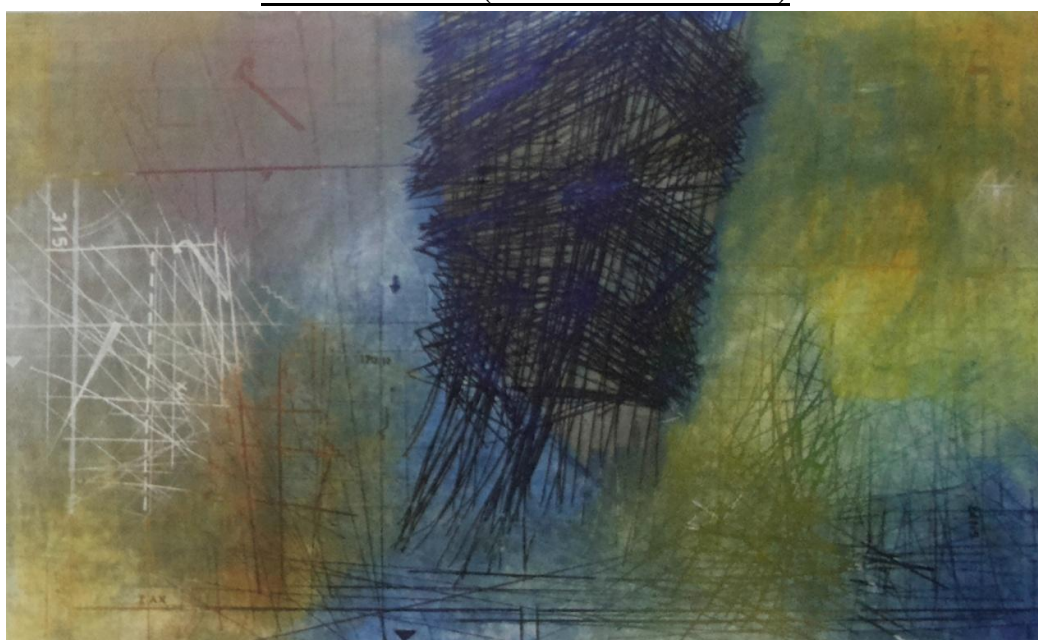**Plate 1.9: Nirmalendu Das, "Untitled", Pletography, 2011**

SILKSCREEN

Plate 1.10: Vinay Sharma, "Untitled", Serigraph, 2000, Private collection.

COLLOGRAPH

Plate 1.11: M. Senthilnathan, "Energy Series I", Collography
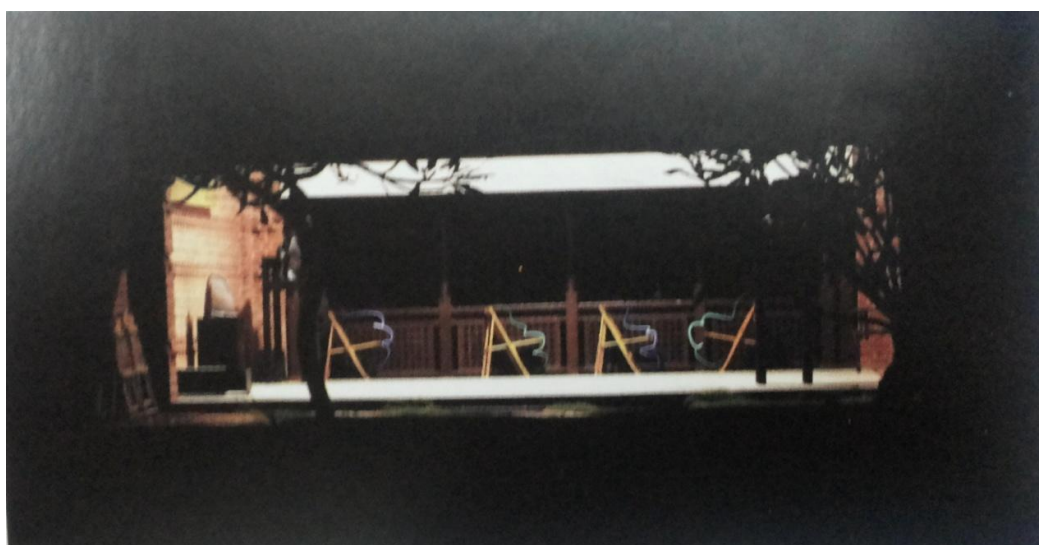
A LA POPUEE (LOCAL INTAGLIO)

Plate 1.12: Sunil Verma, A la Poupee

VISCOSITY

Plate 1.13: Krishna Reddy, "The Great Clown", Viscosity, 1986

DIGITAL PRINT

Plate 1.14: Suguresh Sultanpur, "Inception", Archive Digital Print

MIXED MEDIA AND TECHNIQUES INCLUDING BLIND EMBOSSING, ETCHING, SILKSCREEN, STAMPING AND COLLAGE

Plate 1.15: R. M. Palaniappan, "Energy, Land Architecture – 3", Mixed Media (Blind Embossing, Etching, Sikcreen, Stamping and Collage), 1993

ETCHING EMBOSSED

Plate 1.16: Hanuman Kambli, "Face & Nature", Etching + Embossed

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SOURCE OF CHARTS

Chart 1: Printmaking Techniques

Dawson, John, ed. *Prints and Printmaking*. London: Quill Publishing Limited, 1988.
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Chart 2: Relief Printing

Simmons, Rosemary and Kaite Clemson. *The Complete Manual of Relief Print
    Making*. London: Dorling Kindersley Ltd., 1988. Print.

Chart 3: Various ways to make a relief print

Simmons, Rosemary and Kaite Clemson. *The Complete Manual of Relief Print
    Making*. London: Dorling Kindersley Ltd., 1988. Print.

Chart 4: Material used for relief printmaking

Simmons, Rosemary and Kaite Clemson. *The Complete Manual of Relief Print
    Making*. London: Dorling Kindersley Ltd., 1988. Print.

Chart 5: Intaglio Printing

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Chart 6: Tools required to create an image for intaglio printing

Dawson, John, ed. *Prints and Printmaking*. London: Quill Publishing Limited, 1988. Print.

<u>Chart 7:</u> Lithographic image creation

Gascoigne, Bamber. *How to Identify Prints*. Second. London: Thames & Hudson, 2004. Print.

<u>Chart 8:</u> Material for Pletography

Information collected during Artist in residency Lithography Workshop, Baroda,

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<u>Chart 9:</u> Types of Stencils

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Dawson, John, ed. *Prints and Printmaking*. London: Quill Publishing Limited, 1988. Print.

<u>Chart 10:</u> Equipments and accessories required for serigraphic printing

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