2.1 INTRODUCTION

The research intends to begin by justification the word "Impression" as basic principle of any print making medium and also focusing on 'print' by product of that impression art, its origin, fundamental method and materials in the process of man's evolution through the years. As justification proposed by eminent art historian Pranabranjan Roy in an interview as, impression art or any print making medium operates in all two different areas; one is various methods and materials of matrix making (process of making the mother block) and another is processes and products of impression taking. And in both the areas need equal attention to make the print stand up. Professor Nirmalendu Das elaborates in detail regarding the prime stratum of impression art or 'Proto-Graphics' as carving cast or mould and creating impression which are vital mechanisms for study on more sources of modern printing. (Das: 1984)

Print making, unlike painting, except in the case of monotyping, the process is capable of producing multiples of the same pieces, which is called a 'print'. Each piece produced is not a copy but considered an original since it is not a reproduction of another work of art and is technically (more correctly) known as an 'impression'. Artists often approach the making of prints in an experimental manner and rightly resist any imposed restriction. A matrix is an
object upon which a design has been formed and which is then used to make an impression on a piece of paper, thus creating a print. A (wood) block, (metal) plate or (lithographic) stone can be used as a matrix. (www.philartshop.com: 2013)

Prints are created by transferring ink from a matrix or through a prepared screen to a sheet of paper or other material. Common types of matrices include: metal plates, usually copper or zinc, or polymer plates for engraving or etching; stone, aluminum, or polymer for lithography; blocks of wood for woodcuts and wood engravings; and linoleum for linocuts. Screens made of silk or synthetic fabrics are used for the screen printing process. Other types of matrix substrates and related processes are discussed below.

Multiple impressions printed from the same matrix form an edition. Since the late 19th century, artists have generally signed individual impressions from an edition and often number the impressions to form a limited edition. Prints may also be printed in book form, such as illustrated books or artist's books. The word 'print' is well defined as pictorial multiples which have been widely used since fifteenth century as a mean of vital communication to serve the need for the churches and monarchs. Print and illustration of religious theme are recognized to have made their beginning in Europe in the 15th Century or earlier. The Christian churches used prints for prosylatisation purposes in Goa in mid-sixteenth century and gradually used in an increasing scale in different parts of India. (Chatterjee: 1985)
The primary function of art is communication. Its purpose is not fully served merely by creating a work of aesthetic value- aestheticism is its indispensable ingredient, not the objective. The artist therefore, must have an audience-his work is not merely a soliloquy. The earliest forms of art still existing today, the cave drawings in the south of France and northern Spain are perhaps 30,000 to 60,000 years old, showing early human’s sense of recording observation and memory. Again, in approximately 3,000 years of its existence, the civilization of ancient Egypt produced an unique art form, had an entirely utilitarian purpose-the preservation and protection in the after-life of the dead. (Cleaver: 1963)

The artist has a point of view, an experience, which he wishes to share with his audience-the larger it is, more satisfying it is for him. It may be interesting to discuss in, an artist point of view about art-making as a learning experience and to some extent to explore the interrelations between mind and the unknown universe which certainly deserves deep study and contemplation. (Reddy: 1998)

The desire to make works of art available to those, who could not afford to buy original paintings, was perhaps the main incentive for making multiples of originals through the medium of print making. The functional meaning is that the image has been made through and for printing and that it has involved the artist directly in all stages of the image formation. A key requirement is that the image could not be formed in any other way and that it realizes the artist’s vision for the piece. The artist is in the driving seat and their freedom of choice is sacrosanct. (www.theprintstudio.co.uk: 2013)
Printed pictures had hardly less importance, for without them the printed book could not have replaced the work of the medieval scribe and illuminator so quickly and completely. The pictorial and the literary aspect of printing indeed closely linked from the start. But where is the start? When and by whom was printing invented? Mechanically speaking, in fact, it lies in the ancient Near East 5000 years ago. The Sumarians were the earliest ‘printers’, for their relief impression on clay from cylindrical lime stone seals were carved with both pictures and inscriptions around 3500 B.C. (Plate 2.1). From Mesopotamia the use of seals spread to India and eventually to China. The Chinese applied ink to their seals for making impression on wood or silk, and in 2nd century A.D., they invented paper. By the 9th century, they were printing pictures and books on paper from wooden block, carved in relief, and 200 years later they developed movable type. Some of the products of Chinese printing surely reached to medieval West through the Arabs, the Mongols eventually, which had led printing in spreading in entire world. (Janson: 1995)

Print making has shaped culture in all parts of the world. Originally used as a form of communication, print making is now valued as an artistic medium with unique technical qualities. To make a print, the artist typically creates an image on a surface made out of metal, stone, wood, or other materials; the surface is then inked, and pressed onto paper to create an original print. By repeating the printing process, the artist is able to create multiple original works of art. “Impression art or print making, finally, as picture making and the difference is in the technology” (James: 1985). The technology does afford that are not possible with the conventional
technologies and that makes the print making of atypical interest. The technology consists of preparing a matrix as a metal plate, wood block or flat stone surface so that one can, with it take multiple of the artist proof.

The print makers working with accessories and materials have given rise to quite distinctive skills and for this reason the print has come to be valued just as a print. At an extreme, therefore, the print could get to be both the medium and the message. The history of print making in world-wide is an account of the practice of this technology, the first attempts, the growth of interest and practice, adaptations and distinctive achievements, if any.

"Mechanical reproduction of a work of art, however, represents something new. Historically, it advanced intermittently, historically and in leaps at long intervals, but with accelerated intensity. The Greeks knew only two procedures of technically reproducing works of art: founding and stamping. Bronzes, terra cottas, and coins were the only art works which they could produce in quantity. All others were unique and could not be mechanically reproduced. With the advent of woodcut, graphic art became mechanically reproducible for the first time, long before script became reproducible by print." (Benjamin: 1936)

An original print is the printed impression produced from a block, plate, stone or screen on which the artist has worked. By choosing to use a fine art print medium, it is possible to produce a number of identical images, each one a hand-made original by the artist. Normally there is a separate inking, wiping and printing of each color and for each copy within the edition. One of the leading etchers of the world in the nineteenth century, Whistler clearly
described that an original print must necessarily be worked initial design to the final print. However, presently, the concept has undergone substantial change- the original art work has to be that of the artist, but the actual printing can be done by a technician, who often prepares the plate or the screen. So, more recently it has been accepted that the involvement of skilled collaborators should be allowed within the definition. The Print Council of America in 1961 merely emphasized the fact that the original design must be the unaided work of the artist. A Convention of Plastic Arts Congress held in Vienna in 1960, while preparing rules for print makers, attached greatest importance to the signing and numbering of each print by the artist, apart from the preparation of the original. The charter also put down that the plate for printing must also be prepared by the artist. With the advent of photo-mechanical or computerized processes, however, the assistance of a technician becomes essential. In that case, the print has to be conceptualized by the artist and its execution at all stages has to be done with his/her authorization and approval. (Das Gupta: 1985)

The total number of prints is predetermined by the artist and thereafter; the blocks, plates, stones, or screens are destroyed or recycled so that no further impressions may be taken. Only in modern times have editions been limited to make them more desirable as an investment. Each original print must bear the signature of the artist (usually in the lower right-hand corner or margin) and also an indication of the total edition and serial number of the print. This appears like a fraction; 1/5 meaning the first print out of an edition of five. Besides numbered prints, a fine art edition usually includes artist's
proofs. These artist’s proofs are abbreviated as A/P. The number of these proofs is usually 10% of the total number of the edition, more would be considered abusive. So an edition of 50 would have a maximum of five artist’s proofs. Sometimes these proofs are numbered with Roman numerals, e.g. I/V, II/V, III/V etc. Some of the most valuable proofs do not form part of the edition. These are the trial proofs, P/E, which the artist pulls in the process of creating the final print. A series of trial proofs represents a unique record of the work in process, and as such is highly sought after by fine art print collectors. Sometimes H/C is seen written in the margin of a print. This is a French annotation “hors de commerce”, which means the print was a gift or unsuitable for selling. Every edition has a final preparatory proof. It stand for Bon a tirer, ‘good to pull’, sometimes marked ‘right to print’. The edition run is matched to this proof. (www.theprintstudio.co.uk: 2013)

Print making as a process of creative self expression holds possibilities unique to itself. On the other hand, there are obvious pictorial qualities generated by the procedure of printing a picture from a block of matrix. (Mallick: 2011) An extensive diversity of print making techniques day by day from woodcut to lithography, from screen printing to photo-montage, with a wide variety of advance technological aids, which are growing in their variety and complexity. It is intricate to foresee the future trends in print making as it is closely allied the progress of technology which is constant.

The history of prints, in the accelerated momentum during last little more than hundred years parallels that of other media, a remarkable artistic legacy has developed. How different these years is from its predecessors of
previous time is found in the necessity now to refer to unique art and multiple art as genre terms; since the Print making media have also become more diversified as photographic techniques have been introduced and accepted. (Castleman: 1988) For the reasons that perhaps of economic and technological considerations there is usually a time lag between the appearance of new stylistic developments in unique media and their environment in prints. However, there is no question that these concepts have been modified and extended towards utmost attainment in both technological and aesthetic concepts through the process of print making.

Print making as a process of creative self expression holds possibilities unique to itself. On the other hand, there are obvious pictorial qualities generated by the procedure of printing a picture from a matrix or block. But these technical possibilities are invariably filtered through choices exercised by the artist, since the block does not function merely as a mode of mechanical duplication but is prepared directly by the artist and carries the imprint of his individuality. An expert print making individuality in general may be defined or described as commitment and originality which the individual possesses this unity and is separated off from other being as defined by St. Thomas as “quod est in se indivisum, ab aliis vero divisum” (a being undivided in itself but separated from other beings). (Goswami: 2011)

Print making extends a greater democratic relationship and that democratic identity leads easily to an alignment with commune-based activity and proximity with a viewing audience. Print making as a medium then gains a significant and instinct political dimension while providing a different
definition of the modern self-expressive gesture of an artist. Print making does not allow many corrections to be made as compared to painting and sculpture. One needs to be more definite, profound in one's work and that itself is one of the greatest qualities of the medium.

There is an entire process through which Print makers tear up conventions and ways of seeing and saying. The real importance of present art practice is not only to challenge representation as a 'redoubtable tool of domination' but to contribute to a redefinition of realism, abstraction and cultural representation. (Ganguly: 2011) Print making is a unique language in comparison to painting and sculpture in terms of its technical orientation and the distinctive character of a print. The sheer pleasure of making a block for printing in any existing method is joyous and the excitement of the ultimate result can be again compared with blissful engagement.

2.2 FOUNDATION OF IMPRESSION ART AND ARTISTS: IT'S AESTHETIC AND TECHNICAL MODULE

In the long history of Impression art and in all the variety of printing images, there are three basic types of prints. Printing is strictly defined as the transferring of ink from a prepared printing surface (the block, plate or stone carrying the image) to a piece of paper or other material. Above the surface, below the surface, on the surface - there can be no other way. (Gascoigne: 1986). But within the trio there are major differences, and it is these which provide all the important clues in the identification of print. There are differences deriving from how the image is created on the printing surface, from how it is inked, and from how the ink behaves when transferred to the
Banknotes, which are usually excellent examples of printing, will provide the most readily available examples of the basic characteristic. There are three basic methods of printing to consider as stamping, rubbing and printing in a press.

Stamping was used for many fabrics, and most early European woodcuts (1440-90). These items were printed by putting paper or fabric on a table or a flat surface with the block on top, and pressing, or hammering the back of the block.

Rubbing was apparently the most common for Far Eastern printing. The block is placed face side upon a table with the paper or fabrics on top. The back of the paper or fabric is rubbing with a "hard pad, a flat piece of wood, a burnisher or a leader frotten". (Plate 2.2) shows a rubbing of Chinese Han dynasty (202-220 B.C.) pictorial stone i.e. the Yinan stone carving of Shandon Province China. The technique of manufacturing paper too, came to Europe from the East, the Chinese silk and porcelain were imported in small quantities from the 14th century on. (Zigrosser: 1956)

Paper and printing from wood block were both known in the west during the later middle Ages. The earliest printed books in the modern sense in the Rhineland, situated at north of Alps in Europe soon after 1450 as priority given to Johan Gutenberg for his endeavor as first printer in Europe. The technique quickly spread all over Europe and developed into an industry that had a profound effect on western civilization, ushering in the area of general literacy. All the more astonishing is the development, beginning about 1400, of a printing technology that surpassed that of the Far East and proved
of far wider cultural importance as increasing numbers of printing towns of incunabula since fifteen century onwards. After 1500, in fact, no basic changes were made in this field until the Industrial Revolution.

In the course of history and its origin, print making is an array of laborious and meticulous processes that include numerous materials and technologies in its fray as wood block printing (200 B.C), movable type (1040 C.E.), printing press (1454), etching (1500), mezzotint (1642), aquatint (1768), lithography (1796), chromolithography (1837), Rotary press (1843), Hectograph (1869), offset printing (1875), hot metal typesetting (1886), mimeograph (1890), screen printing (1907), spirit duplicator (1923), inkjet printing (1956), dye sublimation (1957), photo typesetting (1960), dot-matrix printer (1964), laser printer (1969), thermal printer (ca. 1972), 3D printing (1984), digital press (1993), etc. (Wikipedia: 2013)

The Chinese were at the forefront of developing the printed word in almost every respect. Ts'ai Lun invented the process for manufacturing paper in 105 A.D., introducing the first use in China. The paper was superior in quality to the baked clay, papyrus and parchment used in other parts of the world. The *Diamond Sutra*, the earliest known complete woodblock printed book with illustrations was printed in China in 868 A.D. In 1155 A.D., Liu Ching produces first printed map in China. (www.minestachinapartnership.com: 2011) The impact these inventions had on the educational, political and literary development of the world is simply incalculable.
The woodcut illustration in the *Diamond sutra*, Tang Dynasty, China, 868 A. D. (Plate 2.3) is a detail from the earliest known printed book *Diamond sutra* of Tang dynasty China, which the Chinese Buddhist monk Wang Chieh produced on 11 May 868 'in order in deep reverence to perpetuate the memory of his parents'. (Gascoigne: 1986) In this case the printing is by the oldest relief method. Wang Chieh had to cut around each separate Chinese character and every line of his picture to achieve the flat raised printing surface on his plank of wood.

In a separate development, block printing was practiced in Christian Europe as a method for printing on cloth, where it was common by 1300. Images printed on cloth for religious purposes could be quite large and elaborate, and when paper became relatively easily available, around 1400, the medium transferred very quickly to small woodcut religious images and playing cards printed on paper. These prints were produced in very large numbers from about 1425 onwards. Around the mid-century, *block-books*, woodcut books with both text and images, usually carved in the same block, emerged as a cheaper alternative to manuscripts and books printed with movable type between about 1400-1460. These were all short heavily illustrated works, the bestsellers of the day, repeated in many different block-book versions: the *Ars moriendi* and the *Biblia pauperum* (Plate 2.8) were the most common.

A printing press is a mechanical device for applying pressure to an inked surface resting upon a medium (such as paper or cloth), thereby transferring an image. The systems involved were first assembled in Germany
by the goldsmith Johann Gutenberg in the mid-15th century (Plate 2.5). Printing methods based on Gutenberg’s printing press spread rapidly throughout first Europe and then the rest of the world, replacing most block printing and making it the sole progenitor of modern movable type printing. As a method of creating reproductions for mass consumption, the printing press has been superseded by the advent of offset printing.

Johannes Gutenberg, of the German city of Mainz, developed European movable type printing technology around 1439 and in just over a decade, the European age of printing began. Movable type is the system of printing and typography using movable pieces of metal type, made by casting from matrices struck by letter punches. Gutenberg was also the first to make his type from an alloy of lead, tin, and antimony, known as type metal, printer’s lead, or printer’s metal, which was critical for producing durable type that produced high-quality printed books, and proved to be more suitable for printing than the clay, wooden or bronze types used in East Asia. However, the details show a more complex evolutionary process spread over multiple locations. Also, Johann Fust and Peter Schöffer experimented with Gutenberg in Mainz.

Compared to woodblock printing, movable type page-setting was quicker and more durable. The metal type pieces were more durable and the lettering was more uniform, leading to typography and fonts. The high quality and relatively low price of the Gutenberg Bible (1455) established the superiority of movable type, and printing presses rapidly spread across Europe, leading up to the Renaissance, and later all around the world.
Gutenberg is also credited with the introduction of an oil-based ink which was more durable than previously used water-based inks.

Gutenberg Bible (Plate 2.6) the first major book printed with movable type in the West has an iconic status, written in Latin and which is an edition of the vulgate. Forty eight copies or substantial portion of copies, survive and they are considered by many sources to the most valuable books in the world. Preparation of it perhaps began soon after 1450 and the first finished copies were available in 1454 or 1455 (Plate: 2.7). The first precisely datable printing is the Gutenberg 31 line indulgence which is known to already exist on 22 October 1454. In his Book Collecting (London, 1945), P.H. Muir explains the achievement and impact of printing on human society: There are few inventions that have more radically affected the outlook and daily lives of every one of us, and almost every invention since owes a great deal to printing. (Gascogine: 1963) Of all the visual art media being practiced all over the world today, graphic art is one of the most powerful and universal. The ‘Renaissance’ in Europe would not have been successful without the invention of printing; it was during those times that mechanical printing became a reality and enlarged the scope of communication by producing quantities.

During the last part of the fifteen century, graphic art emerged in a new direction when Albrecht Durer, the most illustrious personality in fifteen century European art history, explored the woodcut and wood engraving medium with a different aim and attitude as his woodcut The Four Horsemen of the Apocalypse (Plate 2.10) wood engraving Knight, Death and Devil (Plate
From this time onwards, when many artists in Europe took a special interest in exploring the medium, graphic art became one of the most important media for artistic expression and began to flourish through commercial printing.

The printing and the mechanical reproduction of writing has brought the massive changes about in literature are a remarkable story. However, within the phenomenon which we are here examining from the perspective of world history, print is merely a special, though particularly important, case. “During the Middle Ages engraving and etching were added to the woodcut; at the beginning of the nineteenth century lithography made its appearance. With lithography the technique of reproduction reached an essentially new stage. This much more direct process was distinguished by the tracing of the design on a stone rather than its incision on a block of wood or its etching on a copperplate and permitted graphic art for the first time to put its products on the market, not only in large numbers as hitherto, but also in daily changing forms. Lithography enabled graphic art to illustrate everyday life, and it began to keep pace with printing.” (Benjamin: 1936)

Print making originated in China after paper was invented around AD 105. Relief printing appeared in Europe in the 15th Century, when the process of papermaking was imported from the East. Stone rubbing predates any form of woodcut. To enable Chinese scholars to study their scriptures, the classic texts and accompanying holy images were carved into large, flat stone slabs. After lines were cut into the stone, damp paper was pressed and molded on the surface, so that the paper was held in the incised lines. Ink was applied...
and the paper was carefully removed. The resulting image appeared as white lines on a black background. This technique was the foundation of printing.

While for the earliest recorded example we must go to China, as far as A. D. 828, for the *Diamond Sutra*, as this early Buddhist elastration is known, which was the earliest dated print. Its technique suggests a set of conventions and method already established for many generations. During Roman times and right through the Middle Ages the wood-block was also used for printing designs onto fabrics. (Cleaver: 1963)

Woodcuts are the oldest method of print making. It is called a relief process because the lines and surfaces to which the ink adheres are higher than the parts that are not printed. To create a woodcut, the artist draws a design on a piece of wood sawed lengthwise across the grain. Pine is the wood most commonly used, although fruitwoods such as pear or cherry may also be used. After smoothing the surface, the wood may be hardened by treating it with shellac. This makes it more durable under the pressure of a press and also makes it easier to carve strong, bold images. The artist then paints or draws an image on the surface. The wood between the drawn lines is cut away, leaving only the drawn image standing on the surface. To make the cuts chisels, gouges or knives may be used. A roller holding a film of oil-based ink is rolled completely over the block. A sheet of paper, ideally an absorbent paper like rice paper, is placed over the block and the artist may then print the image by hand rubbing the surface with the bowl of a spoon or with another burnishing instrument.
The block and paper may be run through a press; under the pressure of the press the image is transferred to paper. The impression is pulled by carefully lifting a corner of the paper and peeling it off the block. Separate blocks are used for color woodcuts; one block is used for each color. In the middle ages woodcuts were used to print patterns on textiles. Beginning in the 1400’s, artists made woodcuts to portray religious subjects, to decorate and illustrate books, and to make playing cards. In the late 1400’s and early 1500’s the German artist, Albrecht Dürer brought the art of woodcuts to a new level with his expert artistic and technical skills. European woodblock prints with colored blocks were invented in Germany 1508 and as known as Chiaroscuro woodcut as depicting playing cupids done in 16th Century (Plate 2.9).

During the 1700’s and 1800’s Japanese artists produced outstanding woodcuts. Prints of Hiroshige (Plate 2.21) and Hokusai (Plate 2.22) greatly influenced such European artists as Degas, Manet, Toulouse-Lautrec and Van Gogh. In the 1900’s expressionist artists such as Ernst Ludwig Kirchner of Germany (Plate 2.32) and Eduard Munch (Plate 2.30) of Norway created many fine lithograph and woodcut.

The revival of relief printing for book illustration was made possible by a drastic change in the craft towards the end of the eighteenth century. In place of this the English engraver Thomas Bewick, perfected wood engraving medium of working across the end grain of very hard wood such as box wood (Plate 2.23). On this much more dense and stable surface he was able to use a version of the conventional copper engraver’s tool, driving a graver through
the wood away from him. Wood engraving done in 1804 (Plate 2.25) is a typical effective instance of the famous vignettes within the miniature medium. He illustrated books on British quadrupeds and birds as another wood engraving entitled ‘Bison’ (Plate 2.24). Bewick has not tried to imitate the black lines of a pen drawing, but he has taken out the white shapes with his graver in the most economical way to achieve a convincing black image. Paul Gauguin’s wood block print entitled Offering of Gratitude (Plate 2.28) is such an evidence of 1896-97. Linoleum cut is a relief print carved into linoleum rather than wood. Linoleum is composed of burlap coated with linoxyn; polymerized oil mixed with ground cork and pigments. The best grade, battleship linoleum, is usually brown or gray. Linoleum is more easily cut than wood and lighter weight tools are now made and sold for this process. Generally speaking, linocuts are less esteemed by artists than woodcuts. Linoleum will not take very delicate or subtle cuts. The end result may appear block or poster like. However it is a good medium for artists who enjoy producing less exacting, more casual work.

The intaglio method of printing involves cutting or incising an image into a metal plate with various tools or acids. The wide variety of methods used gives this medium enormous range. The two basic typed of intaglio printing are engraving and etching. In engraving the image is cut into the plate with tools called needles, burnishers, scrapers or rockers. In etching the image is cut into the plate with acids. Engraving is a form of intaglio printing (from Italian meaning to carve or to cut) in which the lines that print are incised into the surface of the print form. The print form is a thin metallic plate,
usually made of copper. A sharply pointed steel instrument called a burin is used to cut the grooves into the surface of the plate. Burin engraving requires considerable force and is done from the strength of the arm (this differs from etching which is done more from the fingertips like a fine drawing). The finished plate is inked with heavy, viscous ink and wiped with a rag, leaving ink in the grooves. Slightly moistened paper is applied to the inked plate. Plate and paper are run through a printing press, which can apply sufficient pressure to force the paper to pick up the ink in the grooves. The resulting printed lines are sharply defined and slightly raised. Several hundred prints can be made before weak lines on the print reveal the plate is wearing down. Most early engravings were book illustrations and religious images intended for popular use. Today these are sought after by museums and collectors. Today engraving is used for producing currency and certificates.

One of the four major types of print making techniques (the others being relief printing, stencilling, and planographic printing) whose distinguishing feature is the fact that the ink forming the design is printed only from the recessed areas of the plate. Among intaglio techniques are engraving, etching, dry point, aquatint, soft-ground etching and crayon-manner etching. Japanese print makers added a new twist, printing uninked plates to achieve white-on-white relief designs, a practice (called in Spanish, "golpe en blanco") which quickly found favour in the west. The first etching on record was that of the Swiss artist, Urs Graf, who printed from iron plates. Albrecht Dürer, though a consummate engraver, made only five etchings, and never really dominated the technique. That was left to later artists like the
Italian master Parmigianino as his etching print entitled *The Entombment* done in 1535 (Plate 2.12) and of course, Rembrandt, perhaps the greatest etcher of all time as his etchings as entitled *Christ Preaching* and *The Crosses* done in 1652 (Plate 2.13) and (Plate 2.14).

One of the most distinctive of all English artists, William Blake (1757-1827) was a brilliant poet as well as a great, painter and print maker. He started his career as a commercial engraver, but in his thirties began illustrating his own poems. In 1788 Blake made his first experimenting with ‘illuminating painting’, that is combining words and images on a single copper plate as his print entitled *The Ancient of Days* done in 1794. (Plate 2.20) It was a completely personal style and original technique that perfectly expressed the full intensity of his visionary experiences. Using this method, he printed copies of *Songs of Innocence* and *Song of Experiences* in 1794. On the subject matter from wide range of sources including Biblical theme, Shakespeare and Milton, Blake used various methods of engraving, but they all involved cutting a design into a plate of metal or block of wood, rolling ink over it and taking an impression. (Gaisford: 1985) Meanwhile, Blake had been experimenting with a new method of print making, using thick pigments of his own invention based on Carpenter’s glue. And in 1795 he composed a series of 12 large colour prints, which were not associated with any text.

Later adepts of acid etching were Tiepolo and Canaletto in Italy and, of course, Francisco Goya in Spain. The 20th century saw important bodies of work by Pablo Picasso, Henri Matisse, Marc Chagall and Georges Rouault.
Dry point is an engraving method in which the design is scratched directly onto the (usually copper) plate with a sharp pointed instrument. Lines in a dry point print are characterized by a soft fuzziness caused by ink printed from the burr, or rough metal edge lifted up on each side of the furrow made by the etching tool. Dry point is most often used in combination with other etching techniques, frequently to insert dark areas in an almost-finished print.

Mezzotint or "black manner" is the technique which, contrary to the other methods in use, works from black to white rather than white to black. This is achieved by laying down a texture on a plate by means of a pointed roulette wheel or a sharp rocker. The burrs thus created trap a large quantity of ink and give a rich black. The mezzotint artist then scrapes away the burr in areas he wants to be grey or white. The process produces soft, subtle gradations and is usually combined with etching or engraving which lend clean-lined definition. Historically the technique has been associated with England, and is often referred to as the English method.

Soft varnish or "vernis mou" became popular in the 18th and 19th centuries as a method of drawing or transferring designs and textures directly onto a plate. When used for drawing, a paper is placed on top of a soft sticky ground and then drawn over. The resulting line is broad and soft, sometimes thought to resemble pencil or chalk drawings. When used to capture textures directly the subject (lace, leaves, flowers, etc.) is laid directly on the soft ground and then passed through the etching press with the resulting image being exposed to acid. Both effects can be interesting.
Aquatint technique is so called because its finished prints often resemble watercolours or wash drawings. It is a favourite method of Print makers to achieve a wide range of tonal values. The technique consists of exposing the plate to acid through a layer (or sometimes successive layers) of resin or sugar. The acid bites the plate only in the spaces between the resin particles, achieving a finely and evenly pitted surface that yields broad areas of tone when the grains are washed off and the plate is inked and printed. A great many tones can be achieved on a single plate by exposing different areas to different acid concentrations or different exposure times. “Aquatint techniques are generally used in combination with etching or engraving to achieve linear definition. Aquatint was little favoured by etchers until Francisco Goya used it to such great effect in his celebrated edition of 80 etchings entitled *Los Caprichos* done in 1798 (Plate 2.15). (Janson: 1995)

Lithography is a method of print making based on the chemical repellence of oil and water. It is a process of printing from a smooth plate; the printing and non-printing surfaces are all at the same level, as opposed to intaglio or relief processes in which the design is cut into the printing block. Designs are drawn or painted on a level, porous surface with a greasy material, such as conte, crayon, grease pencil or a greasy substance called tusche. The most commonly used surfaces are limestone or plates made of metal or plastic. After the image is drawn, the stone is dampened and ink is applied with a roller. The greasy image repels the water and holds the oily ink while the rest of the surface does the opposite. The stone is chemically treated after the image is created in order to enhance the effect. The artist
then places a sheet of paper on the printing surface and runs the paper and the stone or plate through a printing press under heavy pressure. The pressure transfers the inked design onto the paper. To make additional impressions the artist re-dampens and re-inks the surface.

It is interesting to note that because of the equipment used and the knowledge and skill required for the printing process, lithography lends itself to collaboration between artist and printer. Also pulling a large print requires two people. Lithography was the first fundamentally new printing technology since the popularity of relief printing in the 15th Century. Alois Senefelder discovered 'chemical printing' or termed as lithography in Germany in 1798. He was a comedic playwright looking for a way to publish multiple copies of his works. Realizing the commercial possibilities of this technique, Senefelder patented it a year later in Munich. Within 20 years lithography appeared in England and the United States. (Gilmour: 1988)

Although lithography enjoyed early commercial success as a leading method of printing books, magazines and newspapers, it took a while longer to be accepted as a legitimate art form. In the 19th and early 20th century many people saw it only as a less expensive means to own a work of art by a well-known painter. However many European artists began experimenting with lithography soon after its invention in 1798. They liked the spontaneous effect they could achieve by drawing directly on the printing surface. As Senefeder embarked for London in 1809 after experimentation his newly discovered process in Bavaria, after that year Benjamin West, then Royal Academy drew *The Angel of the resurrection*, the earliest dated lithograph by
an artist (Plate 2.16). The lithograph, one of six included in the first issue of *Specimens of polyautography*, 1803, was drawn with pen and tusche in a manner that resembles drawing made with ink on paper. (Adams: 1988) Later period, due to some of early masters as Eugene Delacroix, Francisco Goya (Plate 2.17), Honore Daumier (Plate 2.26) Pierre Bonnard, Paul Cezanne (Plate 2.29), Henri de Toulouse-Lautrec, Kathe Kolwitz (Plate 2.31) and Edvard Munch (Plate 2.30), today it has come to be seen as a well-respected art form with very unique expressive capabilities.

Toulouse- Lautrec was a dedicated craftsman who knew much about technical matters, especially in print making. He was so involved at the workshop to supervise the printing of his lithograph. In his lithograph posters as entitled *La Goulue* done in 1891 (Plate 2.27) he also perfected a novel technique called *crachis* (spitting), in which he flicked ink to the lithographic stone with an old toothbrush to give the print a speckled effect. (Cavandish: 1993) Many artists combine lithography with other Print making processes, such as silk-screen. Some leading lithographers since 19th century included Marc Chagall, Pablo Picasso (Plate 2.34), William de Kooning, Jasper Johns (Plate 2.36), Robert Rauschenberg (Plate 2.35) and David Hockney (Plate 2.38).

Almost immediately after lithography was invented, attempts were made to create works in color. In 1837, Godefroy Engelmann patented a color printing technique called "Litho color printing or Lithographs in color imitating printing". His use of the word "imitating" illustrates the initial attitude toward this procedure as accepted art form. Color lithography or chromolithography is
a complex process that usually involves multiple pressings, one for each color in the image. The original color drawing should be treated as a guide for the final print, not as a finished work to be exactly duplicated”. When different stones are used for each color (the same stone may also be used for multiple colors), it is very important to keep the print in register each time it passes through the press. This means insuring that the print is lined up exactly each time it goes through so that each color is in the right position and the overlaying colors merge correctly.

Serigraphy (silk-screen printing or screen printing) is a 20th Century Print making technique that was developed in America. It was introduced as a fine art technique with an exhibition of serigraphs at the New York World’s Fair in 1939. Anthony Velonis of New York City developed the term serigraphy. In 1940, Velonis was working for the WPA as head of the Fine Arts Project. The WPA was a depression era project aimed at finding work for the unemployed. The Fine Arts Project was developed to find government projects for unemployed artists to work on. The work was mostly of a commercial nature, such as producing poster and other mass media type work. Velonis noticed that many of the artists in his employ were suffering depression and a lack of self-esteem due to their situation. He consulted with gallery owner Carl Zigrosser about this problem, and also spent much of his own time thinking about and researching the situation. Finally he came up with the word. This simple word change did much to elevate the feelings of fine artists such as Elizabeth Olds, Ruth Chaney and Harry Gottleib, who were working with the FAP at the time.
Serigraphy is to differentiate the creative art in silkscreen produced by the artists from the commercial applications. Seri comes from the Latin work for silk and graphein, from the Greek, means to write or draw. The origin of screen-printing may have been in Japan, where artist made large, delicate paper cuttings in which the elements were joined and held together by human hair. The hairs served as stencil ties without interfering with the Print making process. Hand-coloring of prints by stencil has been practiced since the earliest days of Print making, and there was a fashion for book illustrations colored by the method from the early years of 20th century in 1930s. (Gascoigne: 1986) In the 1930's and 1940's artists used the touche-washout method. This involves painting directly on the top surface of the screen fabric with a grease crayon or touche. Once the image is drawn, the screen is elevated and a water based glue solution is pulled evenly across the fabric. When this solution dries, the grease marks on the fabric are removed leaving the image areas of the fabric open for painting. It is interesting to note that according to Velonis these depression era artists used fabric remnants for mesh, literally “anything they could get their hands on!” They used paint from the hardware store in lieu of today’s fine art inks. Today many artists use photographic techniques to make stencils directly on the screen. During the 1960s, artists such as Andy Warhol (Plate 2.37), Albers, Motherwell, Stella, and Robert Rauschenberg have all worked in Serigraphy. Rauschenberg, like many other pop artists, has increasingly used silkscreen transfers to create a kaleidoscope of images deriving from the daily press and motion pictures, not only in the trend of abstract expressionism but of expressionism in its broader subjective sense. (Arnason: 1985)
Giclee is a relatively new and exciting form of fine art reproduction. It is a French term, pronounced "zhee-clay", meaning "that which is sprayed". This plate less fine art printing method was developed in 1989, and was used mainly for printing posters and proofs. Giclee prints are sometimes referred to as Iris prints due to the fact they were printed on an Iris printer, one of the first high-end digital printers. Giclee prints can be original works of art generated with a computer, multiple originals based on artwork (created with or without a computer) made with the Giclee process in mind, or high quality reproductions of original artwork.

Giclee has several advantages over other Print making methods such as streamlining production, reducing upfront costs and eliminating the need for storage. The artist works with the printer to approve the Giclee print; he can then order prints as needed without huge upfront costs and storage problems. This method gives the artist a chance to test market a new idea without investing time and money on an image that may not sell in large quantities. Also artist can build inventory slowly over time in response to the market.

Taking a continuous tone image and processing it through a screen makes offset lithographs. The result is an image created with a series of dots, each one proportional in size to the density of the original at the location of the dot. The human eye is tricked into seeing something that approximates a continuous tone image. Most printed material such as newspapers and magazines are made this way.
Giclee prints have advantages over both of these methods. The color available for giclee processing is limited only by the color gamut of the inks. Therefore, literally millions of colors are available and the limitation imposed by the screening process does not exist. The giclee process uses such small dots and so many of them that they are not discernible to the eye. So a giclee print is essentially a continuous tone print showing every color and tone nuance. And lastly, giclee prints are available to "print on demand", meaning you only print what you need and can reorder additional quantities as needed.

Giclee prints are not "computer-generated" in the way we usually know and think of that term. Computers control the complex and technologically advanced printers that create the reproductions, much as computers are used to create offset lithographs and serigraph. The giclee process is simply a new and significant step in the creation of limited edition fine art prints. It is also interesting to note that many photographers are using giclee-reproduced photographs. They like the soft, painterly look of giclee prints, and photos reproduced in this way do not have the reflectance of traditional photographic prints. Artists such as Robert Rauschenberg, Jim Dine, David Hockney (Plate 2.39) and Andrew and Jamie Wyeth are using giclee to create original works of art, multiple originals or reproductions. Also, giclee prints are shown at the Metropolitan Museum of Art in New York, the Los Angeles Museum of Modern Art and the Corcoran Gallery in Washington, DC. But it isn't just high-profile artists and galleries who are making and showing giclees. Artists at all levels are working in a wide variety of media to create prints and original works using giclee technology. (Janson: 1995)
2.3 EMERGENCE IN INDIA

The place of carving is the oldest for searching of prime stratum of impression art in India. The oldest evidence of carving in India has been found in Kashmir as stone carving of descriptive hunting scene. The old manuscript has also been mentioned about actions of carving in the hymn. No 35 of the text *Nalachampu* authored by Tribidrumbhatt as *Jaisarborito solakaiyer likhitoidigviktoya nichitrita*. Here the word *Solakalekh* stands for the pertaining of carving. (Mukhopadhyay: 1888)

Mechanical printing was introduced in India during the middle of sixteenth century, about a hundred years after the first printed book appeared elsewhere in the world. The concept of re-duplication or reproduction which is the basis of printing was known in this country well before the establishment of printing press during the middle of Sixteenth century. The Indus Valley civilization for instance, records evidence of stamped votive seals which were used for mass reproduction. Grant of land was recorded by copper plate engraving and engraved images for religious and secular use on metal ware was traditional practice. The expertise of engraving on different surfaces like bone, wood, shell, ivory and conch was popular.

The art of stamping with a master block was used from ancient from the record of the Indus Valley civilization concentric designs created by pressing a block on clay have been discovered (Plate 2.40). To make a print using a block and pigments such as sandal dust or lamp black or vegetable colours was a ritual that began in the Vedic Period. Of all those stamped imprints, printed calico done with an engraved wooden block (Plate 2.4) which
was a common practice since medieval times is possibly the technique closest to the modern method of wood block relief printing. However the execution of particular art of chalcography or engraving on metal surface and stamped imprints into mechanical printing with that combination of master block and printing ink on paper put through a printing press produced a printed page, did not take place in ancient India. (Das: 2008)

There were modern innovations, namely printing technology and the process of mechanical reproduction that flourished in India independently since Sixteenth century onwards before emerging western academic art in Bombay and Calcutta enjoyed British Raj patronage. The mechanical production of images opened up endless possibilities for the rise of pictorial journalism as well as graphic artists, for instance, served their apprenticeship as illustrators and cartoonists on books, magazines and newspapers. Nevertheless, print making as a media for artistic expression, as it is recognized today, emerged in India less than hundred years ago.

It seems that the print makers or the Impression artists are still outsiders in the Modern Indian Art. Contemporary Print making came to India in 1556, about a hundred years after Guttenberg's Bible was first printed. At this time, Print making was used merely as a device to duplicate and reproduce. (Mukhopadhyay: 1994) In the beginning employed as artisans and craft persons in European entrepreneurships, Indians went on to emerge as entrepreneurs and pioneers in printing in both vernacular and foreign languages, and be able illustrators.
The Europeanism of India began in the early sixteenth century when the Portuguese opened factories at Calicut, Cochin and Goa. From this period on, the presence of the Dutch, the English, the French and others began to grow, there was greater interaction with Europe. It was in 1556 that mechanical printing became a reality in India. From 1556 to 1561, five books were printed in Roman and in the local Konkani language using Portuguese characters; they were *Conclusoes e Outras Coisas* 1556; *Doctrine Charistam*, 1557, *Confectionaros*, 1557; *Tratado.....Contra os emross scismaticos dos Abexius*, 1560; *Doutrina Christa*, 1556-1561. The book, 'Compendio Spiritual da Vide Chiristaa' (Spiritual Compendium of Christian Life) by Gaspar De Leo was printed in Goa in 1561 (Plate 2.41). This book has been recorded as the earliest surviving printed compilation in India, at present housed at the New York Public Library. It is embellishment with historical ornamental wood cut initial on each opening page. A few years later, in 1568, the first illustrated cover was printed in Goa for the book entitled “Constitviones do Arcebispado de Goa, Appro Vadas Pello Primeiro Cocilio Provincial” (Plate 2.42). The illustration, a classical entrance, was done with a wooden block using the relief printing process. (Das: 1984)

The process of intaglio printing was introduced in India by the Danish missionary, Bartholomew Ziegenbalg. He published a book titled The Evangelists and the Acts of the Apostles, which was printed in Tranqueber (a district in Tamil Nadu, which was then a colony of Denmark). The opening page of this book had an etching printed in a shade of brown. This became one of the first recorded instances of colour printing in India. Another book of
Ziegenbalg’s, Gramatica Damulica, displays the earliest example of plate engraving.

The evidence of first printed woodcut cover page can be found in *Doctrina Christian* on Tamil language printed in Quilon in 1578 (Plate 2.43) and earliest printed illustration (a woodblock print) can be found in the book entitled *Balbodha Muktavali* (Plate 2.44), printed in Tanjore in 1806. (Das Gupta: 1985) However, the first example of an illustration printed by an Indian artist was part of the Bengali book, *Onoodah Mongal*, a compilation of tales of Biddha and Soonder. The book was published by Ganga Kishore Bhattacheryee and printed at the Ferris and Company press, Calcutta, in 1816. There are two engraved illustrations in this book, which are accompanied by the inscription “Engraved by Ramachand Roy” (Plate 2.52).

In 1780, James Augustus Hickey set up his press in Calcutta and printed and edited India’s first newspaper *The Bengal Gazette*. By 1785, the East India Company had its own press in Calcutta. The turn of the century saw the establishment of William Carey’s well known press at Serampore. (Das Gupta: 1985)

Another brilliant early practitioner, Ramananda Chatterjee, had a remarkable flair in blending literary and illustrative journalism. Coincided with Bengal Renaissance and the founding of the Indian National Congress in 1885, Ramananda Chatterjee’s most successful ventures as editor, publisher and owner were *Prabasi*, A Bengalee organ and Modern Review, high-grade illustrated monthly magazine, launched in English in 1907. The cover of the first issue of Prabasi (1901) proudly displayed a cultural conspectus of Indian
architecture: Hindu, Muslim, Sikh and even Burmese (Burma then being under the British Raj); the editorial announced the pan-Indian sentiments of the editor. Ramananda’s main objectives after all were to bring art to the public as part of the nationalist agenda. (Mitter: 1994)

Modern Review was read nationwide on account of its attraction lay in its superior illustrations. In India Ramananda Chatterjee and his printers Upendrakishore and Sukumar Roy at their at, Messers U, Ray & Sons, regularly machine printed Bengal art production for Prabasi, Modern Review and subsequently Chatterjee’s Picture Albums, but that fine art reproduction of Abanindranath and his illustrious band of band neo-Bengal School by the Kokka publishing, Company, Japan of a hand printed Japanese woodblock image was unachievable from half-tone colour block. (Ukil: 2013)

Later period Ramananda replaced the earlier lithographic illustrations with half-tone block, made possible by photography, essential for faithful rendering of naturalism. During first quarter of the nineteenth century lithography reached in India. By 1825 the Asiatic Lithographic Press was working in Calcutta and was making illustration for the Asiatic Researches. One of the first lithographic presses, the Behar lithographic press was set up in Patna in the year 1828 by Charles D’oyly who trained a local Patna artist, Jairam Das, to operate it. A number of D’Oyly’s works were printed at the Behar press including The Behar Amateur Lithographic Scrape book, a periodical that he started with his friend in the same year. (Ray: 1974) Charles D’Oyly joined East India Company’s service in 1798 as a civil servant and is
remembered as one of the most competent amateur artists of the time. He may be ranked among the best landscape artists of his genre.

In the 1840-60, Kalighat painter in Calcutta adopted the technique of engraving by British craftsmen or lithographs for mass production intended for Indian market. A faint outline was printed and the subject then painted by hand. The technique used for mass production of cheap pictures that villagers or city dwellers could buy to pin up in their houses. The prints were two types, a penny plain and two pence coloured. (Archer: 1978) They were either printed in black ink or rapidly enlivened with touches of red, yellow and green. The subject matter of the woodcut was chiefly religious as pictures of God and Goddess as such print entitled *Shri Shri Durga* done in 1840 by Nityalal Dutta (Plate 2.53), also including scenes from the Mahabharata and more popular *Vaishnava* subjects. These pictures were on sale at the book stalls in the Upper Chitpore Road and around the Kalighat temple.

During the eighteen sixties chromolithography had reached India and their shiny loud products appealed to the popular market. Calcutta woodcuts suffered from the competition of cheap lithographic printers in the cause of Kalighat painting.

2.4 COMPANY RULE: WESTERN PRINT MAKERS IN INDIA

The advent of printed picture as we know it today occurred in the colonial era in the Indian subcontinent. Printing in which lie the origins of print making, was introduced to India in 1556 by Portuguese settlers in Goa and became a flourishing industry by the mid-18th century under British rule.
British East India Company gradually came to be the ruling power in India, after the battle of Plassey (1757), the Carnatic war with the French (1756-63), the battle of Buxar (1764), and Mysore wars of 1767 to 1799. Eventually, Calcutta and its contiguous area had become the headquarters of administrative centre and became virtually the capital of British India. Among all the presidency cities, Calcutta had developed a way of life similar to that of an English provincial town and consequently the English life style and culture slowly influenced Bengali life style. (Das: 2008)

In the socio-economic scene of India, nineteenth century could be demarcated as an era of new horizon. No doubt, Industrial development and rapid technological growth in India, a real turning point, thus made an impact upon the education and mass communication. So the demand for new educated society and for mass communication was growing. With that, printing of books, journals and magazines started to flourish.

Since the beginning of nineteenth century the European educational system slowly replaced the Indian traditional educational system as Toull and Madrasha education and the growth of English education first took place in Bengal presidency. To make the printed matter more attractive, publishers later added illustrations and this opened a new chapter in the history of Indian art.

The initiative regarding publication of intaglio prints in Calcutta through few British print maker W Carpenter as his newspaper illustration in metal engraving entitled The Hindu Raja Ooncar Mandata of the Nerbudda done in 1857 (Plate 2.47), William Hodges as his intaglio print entitled A View of
*Gwalior* done in 1786 (Plate 2.49), it is evident that intaglio print presses were well established in the city by 1780s. However, the first lithographic single sheet print was printed there only in 1822 by a French artist, De Savignac. Savignac re-created, as a lithograph, a portrait of Hastings originally painted by George Chinnery. The first examples of lithographic illustrations were printed for a book, at the Government Lithographic press in Kolkata in 1824, such as the hand tinted lithograph entitled *Our Wedding* by G. F. Atkinson and F. Jones (Plate 2.50). As the demand for printed pictures for calendars, books and other publications grew in the 1870s, and as single sheet display prints (fine art prints) gained popularity, several art studios and Print making presses flourished all over India.

In 1767, the British painter Tilly Kettle travelled to Madras and he had done several canvases in oil on Indian theme as such painting entitled *Portraits of Shujatullah and His Ten Sons* during late 18th century (Plate 2.51). Several other artists followed soon after, and between 1767 and 1820 about sixty amateur artists from other countries visited India. (Muhopadhyay and Das: 1985) A number of these artists worked and eventually settled in Calcutta, then the capital of British India. The many foreign artists who worked in India and took a special interest in Print making were Caleb John Garbrant, William Daniell, James Maffat, Henry Hudson, F. B. Solvyns Avon Apjan, Charles D'Oyly, Richard Brittridge and William Baile. Whether single sheet Print making on a large scale could be possible in India was first explored by William Danielll and Thomas Danielll. In 1786 the Daniellls published the album, *Twelve Views of Calcutta*, containing twelve original etchings of
William's drawings of the city (Plate 2.48). All the etchings were printed in monochrome and individually stained in colour ink. The uncle and nephew team of Thomas (1749-1840) and William Daniell (1769-1837) toured entire India extensively, making sketches and watercolours which they took back to England where they produced the famous six volumes of aquatints as *Oriental scenery*. (Ganguly: 2011) The example of Daniell evoked interest among his contemporaries and led them to publish their art works. These foreign artists published their drawings based on topographical scenes, manners and customs, ethnological antiquities, natural history, and so on, printed in etching and engraving, and following the intaglio printing process. From the evidence available, the local artists and craftsmen perhaps learnt the Print making technique from visiting European artists who worked in India and at the Company's printing office, which was set up in 1779 in Calcutta. Though, in the beginning, the local artists were unable to grasp the technique, as it was not in their traditional practice, they slowly adopted the process.

During their time spent in India, the British were keen to introduce their education system and encourage the talent of craft and design-oriented artists. This in turn provided them with a means to fulfil the demand for Indian crafts in the foreign market they supplied. Proposals for the setting up of art schools were being considered since the thirties of 19th century. The art school in Madras was founded by Dr. Alexander Hunter on 1st May 1850. Other schools that were established during the same period by the British included the School of Industrial Arts in Calcutta, on 16th August 1854 with M. Rigaud at its head; the Sir J.J. School of Arts in Bombay, on 2nd March 1857;
the Jeypore School of Industrial Art in Jaipur, in 1866; and the Mayo School of Art in Lahore, in 1875. By 1856, David Garrik who was teaching at Madras moved to Calcutta. It was under his tutelage, that we find the first Print maker of India in Annoda Prasad Bagchi, an accomplished engraver and lithographer. (Chatterjee: 1985) Annoda Prasad left the school in 1876 to start his own Calcutta Art Studio along with few artists’ friends as such evidence as lithograph entitled *Portrait of Surendranath* done in late 19<sup>th</sup> Century (Plate 2.45). Earlier, another group of students from the Calcutta school had established the Royal Lithographic Press. A monochrome portrait of Raja Rammohan Roy in profile by Nabinchandra Ghosh and printed at the Royal Lithographic Press in 1858, is now in the collection of the Victoria Memorial Hall, Calcutta.

However the Impression arts were taught in the newly established art schools during British reign as a medium of mass-reproduction or re-duplication of a picture rather than a creative medium. On the other hand, in Europe print making precisely had already established itself as a creative medium from the middle of fifteen century and European teachers were aware of these developments. However, graphic art failed to make headway in the newly organised art schools in India, because priority was to teaching illustration and copy work. Apart from the art schools, graphic arts were already in vogue in India as illustrations for printed books, journals and magazines in the vernacular and in English from the beginning of the nineteenth century. The illustrations were made out of wood-cuts, wood engraving, plate engravings, etchings and lithographs.
2.5 INDIAN PRINT MAKERS

The nineteenth century saw the birth of print making in our country, but the media was used only as a means for graphic reproductions and not as an end in itself. Even in Europe, though print making had gained certain respectability, through the works of Durer, Rembrandt, Goya, Lautrec, the media was never explored as a means for creative expression. It was only in the twentieth century that print making graduated itself into an art form and was accepted as a medium of total pursuit for creative expression.

In the early period relief-printed design, image or picture, initials of printed books at Goa, Quilon, and Tranquebar, the illustrations and display pictures by the intaglio process are by no means of Indian artist. However, the earliest example of printed illustration which announces the name of an Indian artist could be seen in the Bengali book entitled Oonodah Mongol (Exhibiting the Tales of Biddah and Soonder to which is added the memories of Raja Prutapadutya) of Bharat Chandra Published by Ganga Kishore Bhattacharya, printed at the press of Ferris and Company, Calcutta in 1816 which is the earliest book to be published with printed illustrations, having been ‘embellished with six cuts’. Two of these copper plate engravings (Plate 2.52) and four are wood engravings (end-grain wood blocks, with lines). The engraved illustration under the title of ‘Soonder’ and “Soonder and Durrown” bears the declaration- ‘engraved by Ramchand Roy’. Thus as far evidence is concerned the history of Indian Print-makers start with the name of Ramchand Roy. (Roy: 1974)
Calcutta, as the seat of the British Empire in India since the Eighteenth
till the early years of the twentieth century saw many a cultural symbiosis, one
of the outcomes of which was the mid-nineteenth century lithograph. The
western style that arrived with colonialism was soon synthesised into a local
style by absorbing the local taste and view point. It became a vehicle of mass
communication by the end of the nineteenth century.

Alongside developed a style of wood-cut or cameo in the line of the
popular Bazar painting to meet the demands of the newly set up vernacular
press. Bat-tala, a name derived from a giant Banyan tree in the Shova
Bazaar and Chitpur areas of Kolkata, and presently the name of a police
station in the city, was the hub of Indian Print making activities in the 19th
century. The printing and publication industry that developed in the vicinity of
the banyan was also known as Bat-tala, and maintained its reputation as one
of the country's most important publication centres until the end of the 19th
century.

With the growing interest in vernacular literatures arose an increasing
demand for book illustrations; this, in turn, led to the gradual emergence of an
indigenous printing industry. From 1816 onwards, hundreds of illustrated
books were printed in Calcutta and its environs by indigenous presses that
sprang up in the bazaars. The hitherto anonymous Indian print maker
gradually began to evolve as an 'artist'. In the mid-19th century, art schools
were established in different cities in the country, and a new breed of
'gentlemen' artists with Western sensibilities, came into prominence. They
established print studios (the Calcutta Art Studio, for instance) that emulated European academic art tenets.

19th Century Bazaar Print making schools, engaged in making plates for book illustrations, soon started producing broadsides. These schools were influenced by classical and folk painting traditions from Bengal, Punjab, Rajasthan, and Mughal India. In terms of taste and technology, prints emerging from these schools were influenced undeniably by European culture. It is to these schools that the first indigenous evidence of Print making activity, as we know it today, can be traced.

Lithography was practiced widely and was extensively popularized by the British. There is bound to have been a high degree of interaction between the British lithographers and the Punjabi artisans. Almost as prolific, though nowhere near as sophisticated, were the Punjab lithographs that flourished in the bazaars of Amritsar and Lahore. However, it is likely that the Punjabi Print makers learnt more from observation and practice rather than from direct instruction, and given the naivety of the Punjab prints, it is highly unlikely that they were the handiwork of trained art school graduates. The Tughra lithographs (from the Punjab school) represent the earliest evidence of indigenous polychrome printing in north India (Plate 2.54), were produced, perhaps, in Lahore and Delhi. In Bombay too, there emerged an indigenous school of lithography as Poona Chitashala Press (Plate 2.46) by the late 19th century. Prints here drew from the classicism of Tanjore painting and the academicism of European art.
The artists who executed them definitely had some exposure to the tenets of European academic drawing (including the production of perspective). Soon, with the advent of Raja Ravi Varma and Bampada Banerjee in the last quarter of the 19th century, the European way of making art began gaining in popularity. Chromolithography and oleograph were used to reproduce oil paintings of popular myths, legends, gods, and goddesses, thus making mass circulation possible.

Raja Ravi Varma was the first artist in India who used Print making, not as an artistic medium in itself, but as a means for his art to reach the masses. To achieve his purpose, he set up his own lithographic press towards the end of the 19th century, known as the Ravi Varma press in Ghatkopar, Bombay. Here he copied several of his religious and secular paintings and printed them as glossy oleographs as such evidence of his chromolithography print entitled *King Santanu proposes to a low caste girl fisher girl Matsvagandha* done in early 20th Century (2.55). The Ravi Varma press was founded in 1892.

Mumbai was chosen as the best possible location for two reasons: the port (all the machinaries for the press came from Germany, and they were large in dimension), and the availability of local labour. These labourers were supervised by European master Print makers from Berlin. The Oleograph and lithographic production of Ravi Varma has been divided into four categories by Eurico Castelli and Giovanni Aprilli from Italy who presented a researched exhibition of the lithographs within an inter-university agreement between Pune and Perugia Universities. Casterelli and Aprilli considered the works as devotional, mythological, historical and feminine for a better understanding of
Ravi Verma’s role in the history of modern visual arts in India. (Mukherjee Ghose: 2011)

Bamapada Bannerjee (1851-1932) was born in the Burdwan district of West Bengal. His early education was at a local school after which he joined the ‘training school’ of J. D. Bethune where he received some form of technical training. After that Bamapada studied few years the Government School of Art under H. H. Locke and then he began to take lessons in oil paintings from Pramathanath Mitra and later from a visiting German artist, Becker. And it was during the 1890 that Bamapada provided a huge body of oleographs (Plate 2.56) on mythological themes for the popular art market in Bengal. (Thakurta: 2012) The first artist to put Print making to pictorial use was Chanchal Bannerjee (1900-31) of the Indian Society of Oriental Art. He had learnt the technique of woodcut in Paris. He was purely academic in style and his total output was meagre as he died very young. (Chatterjee: 1985)

With the advent of industrialisation during mid-19th century, British art education in India acquired more emphasis on the industrial arts in addition to the fine arts. To recount the history that led the establishment of Government College of Art and craft, Kolkata witnessed a new Victorian approach to the arts, but with certain colonial overtones. During that period Indian crafts and decorative arts, which, though appreciated, were referred to the sphere of the ‘lesser arts’, whereas ‘fine’ or ‘high’ art continued to remain monopoly of the British. While surveying the potential of art schools all over the country, Alexander Hunter, who later became Principal of the first school of Art in Madras, enthusiastically noted that ‘Indian aptitude for acquiring art, quite
equal to that of students in Europe’ and the great moral duty of the British ‘to try and lead their art into some of the best and purest channels. (Sengupta: 2011)

Government School of Art, Calcutta, and the institution had a long tradition of graphic arts. It dated back to Anandaprosad Bagchi (1849-1905), who as a student and also teacher in the school during the turn of the 19th century had taken a great interest in graphics, like Raja Ravi Verma and Bamapada Banerjee. Bagchi also initiated Calcutta Art Studio as mass producing graphic reproductions of deities of the Hindu pantheon along with icons and also portrait of Indian eminent personalities as his lithography print entitled Portrait of Surendranath (Plate 2.45). Radhacharan Bagchi, other alumni of Government School of Art, Calcutta later joined the Kala Bhavana, Santiniketan at the request of Rabindranath Tagore. His print entitled Kalighat Market (Plate 2.58) represents Bengal School love of rural subject matter and celebration of daily life among Indian masses. (Sunish: 2012) Afterwards, five major schools of art were founded in British India in the second half of the 19th century- the school of Industrial Arts in Madras in 1850, the Calcutta School of Art in 1854, the Sir Jamsetji Jeejibhoy School of Art in Bombay in 1857, the Jaypore School of Industrial Art in 1866 in Jaypur, and the Mayo School of Arts in Lahore in 1875. The entire curriculum implemented in these schools was aimed not at producing artists but native drawing masters, skilled draughtsmen, architects, modellers, wood-engravers, lithographers and designers for manufactures, with the best employment prospects in British India.
The beginning of the 20th century witnessed the rise of the nationalist art 'movement'-there was a marked shift in the aesthetic preferences of the Indian public at large, leading to the gradual emergence of a group of painters engaged in evolving a fresh, 'new' Indian aesthetic. Slowly, distinctions began to arise between 'committed' artists and 'professional', commercial artists. Soon, artists like Raja Ravi Varma and Bamanapada Banerjee began to give way to artists like Abanindranath Tagore and Nandalal Bose.

Print making involves both the technique for making pictorials for printing as well as the aesthetics of visual arts. A print maker persists in learning the technicalities of making the matrix simultaneously adding innovations to build a personal style. Favorable public attitude towards Print making had not developed during 20th century. Even in the first half of the century, there were Print makers as Gaganendranath Tagore, Nandalal Bose, Suren Kar, Biswaroop Bose, Mukl Dey and Ramendranath Chakraborty.

An earlier organization, also established by the Tagores, was the Bichitra Club - where new styles of painting and Print making were explored. The three Tagore brothers, Abanindranath, Gagendranath and Samarendranath (nephews of Rabindranath Tagore), transformed the veranda of their Jorasanko residence into a meeting ground for the club and frequently hosted art salons there. Genius of Gaganendranath Tagore had a genuine endeavour to resuscitate graphic media from their mimetic use. In 1917 he bought a lithographic press to project his satirical comments on the hypocrisy of parasitic urban Hindu gentry through lithographs and thus began a new chapter in the history of Print making in India. (Roy: 1974) Meanwhile
Gaganendranath Tagore explored the medium of lithography and published an album of his prints to re-produce cartoons with social comment as such his lithograph print entitled *Ati Bhakti* done in 1917 (Plate 2.57). It was an effort in isolation and he did not explore it as an art medium. His contemporaries including those of the Bengal school did not venture into this domain of the creative artistry.

Rabindranath Tagore, the first non-European to be awarded the Nobel Prize for literature, was a world-renowned poet, novelist, playwright, musician, visual artist and educational and social reformer. Tagore was supposed to be wary of nationalist agendas, instead producing highly abstracted, self consciously naive compositions that spoke to a universal human condition and shared a kinship with western modernism.

The practice of print making as a fine art medium gained immense popularity with the establishment of Kala Bhavana founded by the Rabindranath Tagore in 1919. He specifically stressed that nationalism and patriotism are not the criteria to judge the value of art. Art is the expression of intuition or the inner image of the artist: it should be free, universal and beyond the political boundaries. He also had showed his own instincts by his own experiments in painting a new area of artistic creation i.e., the inspiration from the unconscious (Vashishtha; 2010).

Gaganendranath experimented with print making as lithography technique and made cartoons and caricatures to register his violent protest against ugly and vulgar customs prevalent in the society. These were published in the *Birupa Bajara, Adbhuta Loka* (The Realm of Absurd) and
Reform screams in 1917 and 1921. In the preface of Birupa Bajara he writes as when such deformities has been grown unchecked but are cherished by blind habit it becomes the duty of the artist to show that they are ugly and vulgar, therefore abnormal. (Tagore: 1918)

The perspective of Rabindranath Tagore was nourished by his many travels abroad. It included a visit in 1921 to Bauhaus, the radical arts and crafts school founded in Weimer, Germany, by Walter Gropius. One year later—at the behest of Dr. Stella Kramrisch, the art historian from Vienna and authority on Indian art and mythology who was teaching at Tagore’s new Visva Bharati International University- around 175 works by Bauhaus artists Vasily Kandinsky, Paul Klee, Lyonel Feninger were brought to Calcutta for the fourteenth annual exhibition of Indian Society of Oriental Art. In 1923 an exhibition of Bengal school artists was mounted at the National Gallery in Berlin with works and prints and paintings by pioneering Bengal artists Nandalal Bose, Jamini Roy, and Mukul Dey reveals complex range of modernism in India during that time. (Alfred: 2009) It was Rabindranarh Tagore who gave an impetus towards print-making as an art form. He encouraged his pupil Mukul Dey, Surendranath Kar, Ramendranath Chakrvorty to visit the U.S.A. and U.K to learn modern print-making, while Biswarup Bose sailed for Japan to learn the intricacies of Ukiyo-e colour woodcut prints. (Som: 1983)

Another prominent member of the Bichitra Club was artist Mukul Chandra Dey, who went to America in 1916 to learn the technique of etching from James Blinding Slone. He travelled again, in 1920, to England where he
studied etching and engraving under Muirhead Bone before returning in 1926. Mukul Dey was the first Indian artist who went abroad to learn graphic art.

Mukul Dey studied under Sir Muirhead Bone at the Slade School of Art (1920-22) and at the Royal College of Art (1922-23). After returning from England he started working at the Society of Oriental Art and in 1928 joined the Government School of Art, Calcutta as the principal. Mukul Dey was an etcher and the credit of introducing etching in India goes to him. His intaglio prints as entitled *Villagers Visiting Rabindranath Tagore* in hand coloured dry point done in 1916 (Plate 2.59) and also dry point print entitled *Festive Season* of 1974 (Plate 2.60) are two significant evidences in this regard. (Das Gupta: 1985)

Ramendranath Chakravarty (1902-55) who had joined in Santiniketan in 1921 took Print making with great earnestness. He had seen Madame Karpeles’ demonstrations and had benefitted greatly. He started with woodcuts and created a pattern in black and white, texture was used only to add variety in his prints of landscapes, rural life and genre scenes as his print entitled *Chitrangada* in colour lino cut (Plate 2.65). Ramendranath received training from Government School of Art and Crafts, Calcutta, Kala Bhavana, Santiniketan and Slade School, London. At Kala Bhavana, graphics prints brought back from the Far East also impacted him. Sir Muirhead Bones, his mentor in Slade, not only taught him the technique of various Print making media but also ushered him to the world of modern Print making. As a teacher and later Principal of the Government Art School (which became ‘college’
during his tenure), he influenced the careers of Saffiuddin Ahmed, Haren Das and Shomnath Hore. (Sarkar: 2007)

Ramendranath was an astute technician, but he never let technique rule pictorial content or content underscore technique. He believed in controlled spontaneity and emotive precision. He strove for linear accuracy, perfection of visual representation, graceful form and affirmative of aesthetic purpose. Ramendranath joined as the Head Assistant Teacher in 1929, during the principal ship of Mukul Dey from 1943 to 1946 he was officiating Principal there and more importantly he introduced the Graphics Department to the School in 1943. During his tenure as principal in September 1949, he created a landmark in his administrative career with the conversion of the school to a College in September of 1951. It was christened as Government College of Art Craft. (Majumdar: 2011)

Nandalal Bose was another artist closely associated with the Bichitra Club. He left Calcutta to take charge of Kala Bhavan, which was newly established at that time. As soon as Nandalal Bose took charge of Kala Bhavana in 1922 he was alarmed by the general lack of aesthetic sense in our society at large and he was convinced that only redress for this lay in spreading art education amongst common people Nandalal inclination to Okakura’s concept of the magnetic triangle of ‘Nature, Tradition and Originality’ and believed that they worked mutually feeding on each other. Therefore Nandalal’s next crucial pedagogical step was making outdoor sketching and drawing a compulsory activity for everybody. Besides, Nadalal invited indigenous artists and craftsmen to demonstrate their skills and artistic
process. (Sengupta: 2011) Thus Kala Bhavan’s focus on the roots of art, emphasising the constituent factors of art and looking at the possibilities of redefining the traditional logic or exploring fresh methods as print making to address new circumstances. His interest towards various print making techniques had been created some remarkable prints entitled as *Jagai and Madhai* in lithography done in 1907-08 and *Bapuji* in linocut of 1930 (Plate 2.61) and (Plate 2.62).

Initially, only a few artists demonstrated and taught the various processes of print making at Kala Bhavan. However, with time, more and more artists grew familiar with Print making as an art form and pursued it frequently. Ramendranath Chakravorty, Binode Behari Mukherjee (Plate 2.64), Ramkinker Baij (Plate 2.63), Manindra Bhusan Gupta and Biswarup Bose are some of the Indian artists who generated and sustained the great interest in print making during the 1930s and 40s. They experimented freely with its various techniques and created several intaglio and relief prints. This was the turning point for print making in India, as artists no longer associated the techniques with their reproductive value, but instead, concentrated on using them to make fine art.

The Department of Kala Bhavana, Visva Bharati University, Santiniketan is a dynamic centre in the world of Print making. Print making as a self sufficient media for artistic expression in India began with the establishment of Kala Bhavan in 1919. Kala Bhavan was also the first art college in India to think of a separate print making Department and thus the Department of Graphic Art was born in 1968- initially for graduates &
afterwards for postgraduate studies. This was spearheaded by active initiative of Somnath Hore. (Das: 2007) Soon that Department became not only the centre for the artistic print making but also played a major role for research & experimentations towards technical achievements. This department made successful platform for all of us to build up confidence to use materials available in the Indian market. A new era commenced in Indian art scene. Since then this department is being the hive of Print making activities. A majority of practicing print makers in the present art scenario are products of this department. University Grants Commission in its Tenth Five year plan reports has accredited the achievements of this department of this university as the best of its kind in India.

A thematic group of examples in print would trace thematic groups of which initial examples would be those that one could directly identify with the artist–activist Chittaprosad of the early and mid 1940s. Consider for the example, numerous relief prints (Plate 2.68) mainly linocut of angst on the streets of famine-stricken Kolkata, which has been representing Chittaprosad signature idiom. (Mallick: 2011) The strength of the image, much like his ink-soaked forms from the famine sketches, lies in the potential of the form to communicate the leanness of emaciation in the ghostly silhouette of a body where the ribcage and skeletal structure are emphasized through understatement.

The two decades that followed the declaration of Independence were characterized by a will to experiment. The 1950s witnessed the organized promotion of the arts by public bodies. The atmosphere was one of
international exchange and camaraderie: there was, after all, so much to be learned and so much to be developed. The year prior to 1947 saw an increased engagement with international art movements. This period also saw a shift to focus from rural to urban areas. Cities became the focal point for the creation of a forward-looking nation that was soon to be born anew. Simultaneously, print making, painting and sculpture practitioners along with other art & cultural activists came together to form groups and collectives that looked ahead, basing inscribed as the bedrock of the new Indian state. Bombay, Delhi, Calcutta and Madras emerged as the key players in the formation of a new art for India; one that emphasised the creation of a new visual language and modernist identity that could be expressed through art. (Lochan: 2010)

Modern Indian art, from its early start in the pre-Independence times, was now blossoming. Post-Independence India saw the art of Print making at its zenith, complying with a language of its own. The 20th century saw the rise of some prominent print makers from present metro cities of India where the benchmark had already been established in the first half of the last century during the colonial period. Devyani and Kanwal Krishna are other important Indian print makers who deserve a mention here. Kanwal Krishna initially received his training in painting from the Government College of Art in Calcutta. In 1951, he went to Europe to further his education. While in Paris, he learnt the newly developed printing technique of multi-colored intaglio as his viscosity print entitled *Lama Milarepa* (Plate 2.71), under the guidance of renowned Print maker William Hayter. When he came back to India in 1955,
Krishna set up his own printing press where he practiced the processes of multi-coloured intaglio and collography. Krishna's prints were vivid in colour and had highly textured surfaces, qualities that made his work tremendously popular amongst his contemporaries. Foremost among those who aspired to the quest for spiritual abstraction were Devyani as her print entitled *Allah Series-No. 13* in viscosity done in 1968 (Plate 2.72) and Kanwal Krishna who made a vital contribution to the early days of print making in Delhi. (Sengupta: 2012). Jagmohan Chopra, another eminent print maker of that period who contributed a lot with his rich intaglio prints as his intaglio print entitled *Composition* of 1967 (Plate 2.81).

Krishna Reddy, an internationally acclaimed master, has elevated the art of Print making to lofty heights, and is today, among its greatest exponents and most innovative practitioners. Initially trained in Fine Art and later in sculpture, Reddy, who is also a well-known sculptor, has led an eventful life since his birth in a small town (Chittoor) in Andhra Pradesh in 1925. Put on a firm grounding at the Santiniketan (1947) and Slade School, London (1952), Reddy made his mark at Atelier 17, Paris first as its student at Atelier 17 (1955) and later, as an Assistant Professor before rising to become its Co-director (1964 – 1976). Thereafter, the renowned artist took up a position at the New York University, where he continues to direct the Graphics and Print making Program. (Sengupta: 2003)

Reddy is specially recognized for his pioneering effort in viscosity etching, a technique in which a metal plate is deeply etched at multiple levels, before the actual act of printing is performed using inks of different viscosities.
as his viscosity print entitled *The Great Clown* done in 2011 (Plate: 2.73). One can respond to a Krishna Reddy print in three ways: with one’s eyes, with one’s inner eye and with one’s hands. The spectator is fascinated by the tactile qualities of the print and he is inclined to touch. His images manifest themselves in the form of embossed lines and impregnated colour both of which are variegated and subtle. There is nothing esoteric about the images. They are universal. By 1958 he was already Associate Director of Atelier 17 in Paris, perhaps the most fecund single institution which, under Stainley William Hayter and Krishna, disseminated the art and craft of print making. (Bartholomew: 2012)

Though not resident in India, Krishna Reddy proved to be an unquestionable influence on and a significant contributor to the development of print making in the modernist era in India. Most print makers of the modernist generation not only encountered Reddy and the technique of viscosity print making, but also influenced by his spiritual approach to print making as ’a living experience’. It was radically different from the narrative trend that dominant Indian art of 1950s and the 1960s- it presented a new challenge, a new approach to aesthetic understanding.

The prominent names of Kolkata Print makers itself in the last century who laid the paving stone in the form of art after independence would be Haren Das (1921-1993), Chittoprosad (1915-1978), Arun Bose (1934-2007), Somnath Hore (1921-2006), Amitava Banerjee (1928-2013), Suhas Roy (1926) and Lalu Prasad Shaw (1937). (Maiti: 2011) The last five names in the list also belonged to the Society of Contemporary Artists that played a big role
in setting a new discourse in the art world and its sustainable potentiality over a period of fifty years. The society had a strong interest in the propagation of Print making, and some works by artists associated with the Society have become a recognized pinnacle of graphic art in Indian art history.

Somnath Hore contributed greatly to the development of print making in India. During his time as a student at the Government College of Art in Calcutta, he printed just a few wood engravings as his print entitled *Threshing Grain* done in 1946 (Plate 2.69). After his graduation in 1958, he left Calcutta and moved to Delhi to take charge of the print making section at the Delhi Polytechnic. In Delhi his focus shifted further fro art with obvious political content to the aesthetics and techniques of art, especially print making. He engaged himself research and experiment with various processes in the field of practical print making. Somnath Hore sought to express the miseries of mankind in an altogether new medium of Print making that was most suitable for his expression as his intaglio prints as such aquatint print entitled *Carriage* (Plate 2.70). It also indicates the strong urge for experimentation in new field of expression. (Vashishtha; 2010)

Around 1954 he moved from wood engraving and wood cut to etching and dry point. With colored intaglio he was entering a new area of Print making, that was still emerging and few had used in India, and none successfully or extensively before him. The exhibition of Krishna Reddy’s coloured intaglions, printed at one goes from a single relief-etched plate, within a month of Somnath’s arrival in Delhi in 1958 thus served as an inspiration and a challenge to him. (Shiva Kumar: 2010) Almost independently, He
perfected multicoloured etching and colour lithography by 1964, replacing painting, his main means of expression.

Haren Das's name was synonymous wood engraving and woodcut. He was the complete Print maker who could do woodcut, wood engraving, lithograph, dry point, etching and acquaint with equal ease as his woocut prints as entitled *Dressing Time* and *Across the Stream* in 1960 and 1962 respectively (Plate 2.66) and (Plate 2.67). One might see his deep identification with rural folk and urban poor as nostalgia of a refugee for the place he has left. The content area of his prints is simple but his technical competence is unbelievable. (Sarkar: 2007)

Instituted along with other departments at Faculty of Fine Arts, M. S. University of Baroda in 1950, the Graphic Art Department, in the initial decades has been growing slowly though steadily, working within the limitations of basic requirements and limited range of mediums as prints done in black & white through the facility of having the technical expertise of N. B Joglekar and H. R. Patel. (Panikkar: 1994)

K.G. Subramanyan is an extraordinary artist who effortlessly incorporated several Print making processes and materials into his already diverse oeuvre. A large range of lithographic prints make up the portfolio he produced during his time at Santiniketan as such his *Untitled* lithography print done in 2011 (Plate 2.74). Besides lithography, Subramanyan is also fluent in serigraphy and single sheet display prints. He has also printed illustrations for several children's books, which were published during his stint as a teacher at the M.S. University in Baroda.
However, since the second half of the 60's and the early 70's had been a fruitful period of accelerated growth due to contribution of some factors. Among which may be that the annual fine arts fair gave scope to the artists in the creation of original prints in the form of portfolios, calendars, greeting cards and designing of children's books, all of which to be printed in silkscreen process, lino-blocks, and litho offsets which were executed as group undertakings. The involvement of K. G. Subramaniyan in these activities had been a guiding inspiration for his younger colleagues like Gulammohmmed Sheikh (Plate 2.76) Jyoti Bhatt, Vinod Ray Patel, V. S. Patel, P. D. Dhumal and Rini Dhumal.

The 1960s and 70s brought to the fore print makers like Jyoti Bhatt, who also received his training in Baroda. Jyoti Bhatt went on to study at the Pratt Graphic Centre in New York, where he mastered the various techniques of intaglio and also serigraph print as entitled Dentist's Plate Chart (Plate 2.75). On his return in 1966, he created a studio for himself in Baroda and dedicated himself entirely to print making. Meanwhile Rini Dhumal after learning viscosity method from Paris and has contributed a great deal in the overall growth of the facilities. Her viscosity print entitled The Man during late 20th century can be mentioned in this regard (Plate 2.77).

Another artist who has made an outstanding contribution to Indian Print making is K. Laxma Goud. Originally from Hyderabad, Goud spent his student days at the M.S. University in Baroda, studying under masters like K.G. Subramanyan. He excelled in Print making and went on to play an important
role in the evolution of the field, especially in etching and aquatints as such his *Untitled* intaglio print done in 1970 (Plate 2.88).

Other prominent print makers of period immediately following Indian independence include Sanat Kar (Plate 2.78), Lalu Prasad Shaw (Plate 2.79) and Amitava Banerjee (Plate 2.80). "During 1960, the Society of Contemporary Artists was established in Calcutta by Sanat Kar, Lalu Prasad Shaw, Shyamal Dutta Ray And later, Amitava Banerjee, Arun Bose, resident in New York, was their mentor and friend. Under the aegis of the society, Print making activity in Calcutta surged ahead with great enthusiasm and vigour. The society contributed much to promote and project the cause of Print making in India, consistently organising print shows and workshops at different venues across the country from 1960 onwards. Some of these workshops represent significant landmarks in the history of modern Print making in India. The society of Contemporary Artists continues to survive to this day in its modernist ethos. (Sengupta: 2012)

The teaching of graphic art was first introduced at Sir. J.J. School of Art, Bombay, in 1952 under the guidance of Prof. Yongeswar Kalyanji Shukla, a specialist in etching and engraving on metal and wood, who completed Diploma in these techniques at Royal Academy of Fine Arts, Rome, Italy. Initially held as evening classes twice a week, with only two students for the session 1952-53 were Rasiklal Raval Parikh and Vasant Parab. Professor Parab from 1961 conducted the evening classes. In 1963 Professor B.N. Sukhadwalla for the first time introduced basics of graphic art to the students of drawing and painting, introducing linocut for the subject of Design, without
adding into curriculum. In the early 60’ under the guidance of Prof. Parab the evening classes were growing into a workshop. Print making was introduced in the regular courses in painting since 1962, though in 1970 onwards the subject was included in the curriculum as a subject for study and public examination. (Panikkar: 1994) Prof. Parab painstaking effort and contribution in building up facilities in graphic medium, as multicolour intaglio print from a single plate based on viscosity of ink, is significant, which has also enabled his students like Paul Koli, Kashinath Saslve, Lalitha Lajmi among others, to come out successful on the national level such an example of print entitled The Planets by Paul Koli done in 1971 can cited in this regard which has included in the Jahangir Art Gallery Publication edited by Ram Chatterjee (Plate 2.83).

The technical improvement in the different Print making mediums at Sir J. J. School of Art over the years, has also got impetus with numbers of works conducted by some world renowned Print maker as Paul Lingren (during the year 1969-70, 1985), Krishna Reddy (1984) and also through initiative and dedication of some brilliant teachers as Paul Anton Koli, Anant Nikam. Arist like Prayag Jha, Vilas J. Shinde Yogesh Rawal and Tukka Jadav are a few, who in different situations of life and work had been in Print making profession with varied consistency and intensity.

Print as a means of artistic expression/ appreciation and its history in the southern region of our country begins with certain attempts at during fifties at Govt. School of arts and crafts, Madras. The earliest, perhaps are two undated, colour prints by Devi Prasad Roy Choudhury, the principal of the
school, the first dated print is dated 1954 and it's a intaglio print of a line drawing by, an instructor in the same institution with the technical apprentice of Gangadharan Achari, Kalyanasundaram and Sivabhushanam of engraving department of the school and the prints were pressed out with an old American press. (James, 1985)

Print making activity in the school multiplied after K.C.S. Panikar took over from Ray Choudhury as principal in 1957. In 1961 Advisory Committee for the reorganisation of the School of Arts and Crafts, Madras recommended among other things that the institution started regular courses in the graphic arts: lino-cut, woodcut, stencil, lithography, etching, engraving and silkscreen printing. The school, upgraded into college, started these courses from 1963. A. S. Jagannathan, Varadharajan, Akkitham Narayanan, A. P. Panneerselvam were some of students practiced Print making during that period and the graphic work of those artists came to be noted.

It was against the rather fertile phase of self-discovery, after the mid-60s, that a new generation of Print makers emerged. Paneer Selvan, Bimal Banerjee, Usha Rao, Shoba and Rameswar Broota, and members of Group 8 comprising Anupam Sud (Plate 2.87), Priya Mukherjee and Paramjeet Singh (Plate 2.82) in Delhi; Jai Krishna in Lucknow; Lalu Prasad SAhaw and Sanat Kar in Calcutta; Bhaskaran (Plate 2.90) and Vishwanathan in Madras; Jyoti Bhatt, Vinodray Patel and Laxma Goud in Baroda; Gouri Shankar, Devraj Dakoji (Plate 2.89) and Doraiswamy in Hyderabad. (Bartholomew: 2012) Nirmalendu Das (Plate 2.85) and Pinaki Barua (Plate 2.84) are two names of eminent print makers in this regard.
Other such print making collectives and spaces include the Garhi and Lalit Kala studios in New Delhi; Lalit Kala Akademi Regional centre and studios in Madras; The Kanoria Centre for Arts of Ahmedabad; the Rashtriya Lalit Kala Studio in Lucknow; Bharat Bhavan in Bhopal; the Print Studio and Academy of Fine Arts in Mumbai; and the Kanoria Centre for Arts in Ahmedabad, among several others.

Garhi studios, near East of Kailash, New Delhi was the hub of artistic activities in the capital city, out of many activities, the most challenging and exciting one was Print making. Garhi studios set up by the Kendra Lalit Kala Akademi (Central Fine Arts Academi) in 1976 under the leadership of late Sankho Choudhury became the byword for print making in the capital city. (Johny: 2011) The activities are still on artists are still making use of their studio facilities in etching, lithography and silkscreen under headship of Devraj Dakoji, Jogelkar and Manjit Bawa respectively in its inception.

This department became further more active with the arrival of artists like G R Santosh, Surinder Chadda, Tapan Bhowmik, Gogi Saroj Pal, and Damodaran by 1977. Veteran artist, Bhabesh Sanyal also used the facilities there. Richard Bartholomew was the secretary of the Lalit Kala Akademi whose presence and influence brought art critics like Prayag Shukla and K G Goel to the studios. Jogen Choudhury also did his silk screen experiments in Garhi studios.

Eminent Print maker Ramanathan Palaniappan was instrumental in the set up of the Lalit Kala Akademi Regional Centre in Madras (presently Chennai) in 1982. Palaniappan himself broke the moulds of conventional Print
making, and took the use of etching plates to exciting new levels in his series of works on space and topography as his mix print entitled *Alien Planet X 3* done in 1988 (Plate 2.91). (Sunish: 2011) Chennai print making studio gave numerous artists in the space to work and became the veritable backbone to the local print making movement.

The Kanoria Centre for Arts of Ahmedabad is a very good example of the possibility of setting up artist’s workshops outside the art schools or the government sponsored institutions, where the upcoming younger artists after their art school training can avail basic studio and technical facilities. Instituted in 1984, the graphic section there began functioning with appropriate studio space in 1987. (Pannikar: 1994)

The studio set up offers the facilities of working in lithography, etching, silkscreen and woodcut. Walter D’ souza, a post-graduate in graphics of Faculty of Fine Arts, Baroda, who was the studio in charge of that centre has to be given credit for setting up the necessary infrastructure and technical facilities right from the beginning of the centre. Such an evidence of print by Walter D’souja as entitled *Prints VII* in woodcut done in in 1992 can be mentioned in this regard (Plate 2.86). The artists hailing from different parts of the country used to spending short duration of a year or two, that works there are mostly those who are in the initial stages of their entry into the professional art world. Artists like Ajit Dube, Kavita Shah, Ravindranath Gupta, Prakash Chanwarkar, Yogesh Raval, Debnath Bose and Mita Biswas were those worked there from time to time.
In 1990, the Indian Printmaker Guild was established. Over the years, it has been successful in building awareness about the medium and creating appreciation for it. The members of the group include Ananda Moy Banerji (Plate 2.92), Dattatraya Apte, Jayant Gajera, K.R. Subbanna, Bula Bhattacharya, Jayant Gajera, Kavita Nayar, Kanchan Chander, Moti Zharotia, Sushanta Guha, Sukhvinder Singh, Subba Ghosh, and Shukla Sawant. They are all devoted print makers, and apart from being practicing artists, they run several programs and workshops for aspiring print makers.

Chhaap, literally meaning stamp or impression, is a Print making workshop in Baroda established on a cooperative basis in 1999. Chhaap is promoted by the artists and Print makers Gulammohammed Sheikh, Vijay Bagodi and Kavita Shah. The organization aspires to promote Print making and continually offers new work opportunities to artists, enabling them to investigate and experiment with the different techniques. The infrastructure of Chhaap is well equipped for all mediums of print making and is often visited by many senior and international artists. The facilities are also open to art students and other print making enthusiasts.

In recent years, with the advent of computer graphics, different software programs, scanners and printers, the notion of Print making has changed dramatically. The classic hands-on approaches have now been replaced by entirely automated ones. Prints of images created or manipulated on a computer can now be created at the push of a button. This technology has led to some interesting variations on traditional prints, as can be seen in the works of artists like Bharti Kher, Jyoti Bhatt, Nataraj Sharma, Ravi Kashi,
Gulammohammed Sheikh, Kavita Shah (Plate 2. 93) and Shukla Sawant amongst many others. It is questionable as such works can be classified as fine art prints, but definitely adding something artists’ own concepts in terms of both print making technique and imagery; however, that is a never ending debate of coming day.

2.6 CONCLUSION

Print images, in general, always compete for our attention. “We all live surrounded by prints from Bill boards and brochures, from books and magazines, printed images compete for our attention. Impression art indeed has shaped culture in all parts of the world.” (Gascoigne: 1995). This chapter focused some essential quarries as basic necessities of origin of Impression art and activities, its development towards purposeful spreading of knowledge and along with more intimate individual creative expression in all over the world over few hundred years and also studied great achievements of human race the research as exploring core aesthetic and technological aspect in global/local context.

In this chapter a specific study has been taken to identify those credentials of print makers in larger perspectives of our country as well as entire globe which are developed towards more creative and pedagogical approach from previous conventional purpose as multiplication of Impression art and artists. As the nineteenth century saw the birth of print making in our country, but the media was used only as a means for graphic reproductions and not as an end in itself. It was only in the twentieth century that Print
making graduated itself into an art form and was accepted as a medium of
total pursuit for creative expression.

The word 'Impression' is an integral principle of any print making
medium which operates in two different areas; one is matrix making (how we
can make the plate) and another is impression taking. And in both the areas
need equal attention to make the print stand up. "History and techniques of
Impression art & artist: its origin and development" has been discussed
elaborately in few sub divisions as Foundation of Impression art and artists: its
aesthetic and technical module, emergence in India, Company rule: Western
print makers, Indian print makers and conclusion.

In the course of history and its origin, print making is an array of
laborious and meticulous processes that include numerous materials and
technologies in its fray. A general overview has been taken to evaluate the
significance of Impression art and its impact in our society in the modern
civilization. The research traces history and aesthetics of three basic methods
printing as stamping, rubbing and printing in a press. The study analyzed four
major types of print making techniques like relief printing, intaglio printing,
planographic printing and stenciling. There are few inventions that have more
radically affected the outlook and daily lives of every one of us, and almost
every invention since owes a great deal to printing. Of all the visual art media
being practiced all over the world today, graphic art is one of the most
powerful and universal. The 'Renaissance' in Europe would not have been
successful without the invention of printing; it was during those times that
mechanical printing became a reality and enlarged the scope of communication by producing quantities.

This chapter identified those credentials of print makers in larger perspectives of our country as well as entire globe which are developed towards more creative and pedagogical approach from previous conventional purpose as multiplication of Impression art and artists. As the nineteenth century saw the birth of print-making in our country, but the media was used only as a means for graphic reproductions and not as an end in itself. It was only in the twentieth century that Print making graduated itself into an art form and was accepted as a medium of total pursuit for creative expression. The technique of printing evokes in Europe required continuous research in the field. Generally speaking, from the middle of the nineteenth century Impression art became a personal expression that parasitic, more aesthetic than merely reproductive or illustrative. With the evolved language and its special character, impression art became self-sufficient, independent and more forceful and expressive than previous work in the area which was more far removed from trade and commerce. Since the last century's new techno-crafts of printing and the combination of photomechanical process enlarged the scope and possibilities of impression art for artistic expression.

The innermost purpose of any art activity or work of art refers to communication unfolding; as evidences of earliest art forms of cave painting of primitive ages in Europe and also mysterious civilization of ancient Egypt. It shows early human's unique rapport of recording observation, memory and also the preservation/protection in the after-life of dead which perhaps the
main motivation for making multiples of originals through the medium of Impression art or print making in precise. Print making, originally used as a form of communication, it is now valued as an artistic medium or visual art discourse with unique aesthetic and technical qualities.

In the ancient Near East 5000 years ago, the Sumarians were the earliest ‘printers’, for their relief impression on clay from stone seals were carved with both pictures and inscriptions. From Mesopotamia the use of seals spread to India and eventually to China. The Chinese applied ink to their seals for making impression on wood or silk, and in 2nd century A.D., they invented paper. By the 9th century, they were printing pictures and books on paper from wooden block, carved in relief, and 200 years later they developed movable type. Some of the products of Chinese printing surely reached to medieval West through the Arabs, the Mongols eventually, which had led printing in spreading in entire world.

The chapter also studied the evolution of print making practices in India. In the research, it is interesting to investigate several frameworks within which Print making has been practiced and extended as a fine art and also a commodity in artistic transaction in India. Print making pedagogy in the studio format has also been discussed in the research.

Print making as an art form emerged in India less than eighty years ago. However, printing, in which lie the origins of contemporary print making, came to India in 1556, about a hundred years after Gutenberg's Bible. Calcutta, the capital of British India, was the hub of printing and publishing in colonial times. While European printing establishments were at the helm of all
printing activities in India, the need for manpower gradually drew in Indian participants. The advent of printed picture as we know it today occurred in the colonial era in the Indian subcontinent. Printing activities in which lie the origins of print making, was introduced to India in 1556 by Portugease settlers in Goa and became a flourishing industry by the mid-18th century under British rule.

In the beginning employed as artisans and craft persons in European entrepreneurships, Indians went on to emerge as entrepreneurs and pioneers in printing in both vernacular and foreign languages, and be able illustrators. The printed picture, in the form of the book illustration, developed in early 19th century British India. European Print makers in 18th century India remained entirely disconnected from mainstream, indigenous printing activity since they had little or nothing in common with Indian culture and tradition. Their prints depicted exotic Indian landscapes that tended to appeal mainly to the colonial European sensibility.

The printed picture, in the form of the book illustration, developed in early 19th century British India. European Print makers in 18th century India remained entirely disconnected from mainstream, indigenous printing activity since they had little or nothing in common with Indian culture and tradition. Their prints depicted exotic Indian landscapes that tended to appeal mainly to the colonial European sensibility. Raja Ravi Varma was the first artist in India who used Print making, not as an artistic medium in itself, but as a means for his art to reach the masses. To achieve his purpose, he set up his own lithographic press towards the end of the 19th century, known as the Ravi
Varma press in Ghatkopar, Bombay. Here he copied several of his religious and secular paintings and printed them as glossy oleographs.

The artists who executed them definitely had some exposure to the tenets of European academic drawing (including the production of perspective). Soon, with the advent of Raja Ravi Varma and Bampada Banerjee in the last quarter of the 19th century, the European way of making art began gaining in popularity. Chromolithography and oleography were used to reproduce oil paintings of popular myths, legends, gods, and goddesses, thus making mass circulation possible. This marked the beginning of calendar art and the first instance of 'high' art intermingling with the 'popular'.

While this transition occurred most evidently in approaches to painting, and later, in approaches to sculpture, Print making was by no means unaffected. The implications of the distinction between 'printing' and 'Print making' slowly began to become clearer and Print making as a mode of artistic expression finally began to come into its own. It was only after half a century, that 'Print makers' were spoken of as being distinct from painters and sculptors. During mid 19th century colonial British raj founded five major school of art for boosting newly established industrialization in India- the school of Industrial Arts in Madras in 1850, the Calcutta School of Art in 1854, the Sir Jamsetji Jeejibhoy School of Art in Bombay in 1857, the Jaypore School of Industrial Art in 1866, and the Mayo School of Arts in Lahore in 1875. Though the entire curriculum implemented in those schools was aimed not at producing artists, but native drawing masters, skilled draughtsmen, architects, modellers, wood-engravers, lithographers and designers for
manufactures, with the best employment prospects in British India. In the
august art schools of the mid-19th century British India, Print making remained
imprisoned within the rigid confines aimed not to producing artists but skilled
craftsperson and technicians with the best employment prospects in British
India. At a time when Europe had already taken graphic art to great heights of
creative expression, it was encouraged in India merely as an Industrial art. As
more and more, Indian faculty and students entered these schools Print
making began to make gradual inroads into the aesthetics consciousness of
the educated and intellectual elite that were at the forefront of the artistic
revolution. This led to the slow but gradual emergence of artistic Print making
in the pre-Independence years. The beginning of the 20th century witnessed
the rise of the nationalist art movement—there was a marked shift in the
aesthetic preferences of the Indian public at large, leading to the gradual
emergence of a group of painters engaged in evolving a fresh, ‘new’ Indian
aesthetic. Slowly, distinctions began to arise between ‘committed’ artists and
‘professional’, commercial artists. Soon, artists like Raja Ravi Varma and
Bamapada Banerjee began to give way to artists like Abanindranath Tagore
and Nandalal Bose.

Against the rising fervor of the freedom movement in India and
paradigm shifts in artistic thought, the greatest thrust to the emergence of
artistic print making came from the Tagore family in Calcutta. The three
brothers, Abanindranath, Gaganendranath and Samarendranath (nephews of
Rabindranath Tagore) transformed the south verandah of their Jorasanko
residence in north Calcutta into Mecca for the art world. It began to host
regular art salons and formed the venue of the informal Bichitra Club, where Abanindranath Tagore and his disciples practiced new style of painting and even Print making. For the first time, artists such as Gaganendranath Tagore and Nandalal Bose began to practice ‘artistic’ Print making as opposed to Print making as a mere medium of reproduction. In 1917, Gaganendranath published the socially and politically critical lithographic cartoon album *Adbhut Lok*, marketing the first such endeavor, and in 1916, Mukul Dey returned from the U. S. as India’s first trained creative Print maker. This was the birth of modern print making as we know it today.

The operating structures that enter into the research are the history of art institutions and the quality of art pedagogy in India that in many ways lays the foundation for art practices; the regular shift of artistic centers to places with newer and more powerful ways of upholding an artistic culture; and the art market that has in the last two decades has changed the dynamics of art production/consumption in India. In the discussion of print making, the fact that it is associated with outdated modes of production, and with the idea of multiple editions, has often made it a subject of discrimination.

The practice of print making as a fine art medium gained immense popularity with the establishment of Kala Bhavan founded by the Rabindranath Tagore in 1919. An earlier organization, also established by the Tagores, was the Bichitra Club - where new styles of painting and Print making were explored. The Department of Kala Bhavana, Visva Bharati University, Santiniketan is a dynamic centre in the world of Print making. Print making as a self-sufficient media for artistic expression in India began with the
establishment of Kala Bhavana in 1919. By the first quarter of the 20th century, Nandalal Bose had introduced graphic art to the Kala Bhavana curriculum. Kala Bhavana was also the first art college in India to think of a separate Print making Department and thus the Department of Graphic Art was born in 1968- initially for graduates & afterwards for postgraduate studies.

Indian Print making is indebted to Nandalal Bose not only for establishing new limits in graphic imagery, but also for spearheading a graphic art movement in Snatiniketan. In the early years, his students namely Ramendranath Chakravorty, Manindra Bhusan Gupta, Biswaroop Bose, Ramkinkar Baij, Benode Behari Mukherjee, Surindranath Kar and many others were responsible for the intense interest in creative Print making that occurred and consequently emanated from here.

By the 1940s, print making was being intermittently practiced in different parts of the country. Modern Indian Print making got a fillip, however, in the 1950s-when a fledgling nation struggled to create for itself a modern independent identity. Amidst the many political, social, economic, and cultural explorations, the search for a truly modern Indian aesthetic was of primary concern to artists in the early post-Independence years.

Modern Indian art, from its early start in the pre-Independence times, was now blossoming. Post-Independence India saw the art of Print making at its zenith, complying with a language of its own. The 20th century saw the rise of some prominent Print makers from present metro cities of India where the benchmark had already been established in the first half of the last century during the colonial period.
After 1950 Indian artists also find wider scope to explore various media. A new breed of artists, successors of the gentlemen artists, educated and socio-politically sensitive, strode on the art scene. The world too had become a smaller place; geographical boundaries were no longer insurmountable. Several emerging artists travelled to Europe and the Far East, thus absorbing varied aesthetic influences and learning new technologies. There was a healthy and energizing exchange of cultural influences as artists and exhibits from near and far travelled to India. With greater access to diverse cultural ideas, Indian art liberated itself. Painting and sculpture acquired a fresh purpose, alongside which, sophisticated and artistic Print making made its appearance. At the controls were stalwarts such as Somnath Hore, Jagmohan Chopra, Kanwal Krishna and Krishna Reddy. Though not resident in India, Krishna Reddy proved to be an unquestionable influence on and a significant contributor to the development of print making in the modernist era in India. Most print makers of the modernist generation not only encountered Reddy and the technique of viscosity print making, but also influenced by his spiritual approach to print making as ‘a living experience’. It was radically different from the narrative trend that dominant Indian art of 1950s and the 1960s- it presented a new challenge, a new approach to aesthetic understanding.

From the 1950s onwards, Bombay, Baroda, Calcutta, Santiniketan, Delhi, Hyderabad and Madras emerged as prominent centres of modernist Print making. The medium came to be largely practiced either in institutions or by artist initiatives as a community activity. In later decades, active community studios, both publicly and privately supported, emerged as a significant
support to proliferating print making practice across the country, thus ensuring its survival into the era of post-modernism.

During 1960, the Society of Contemporary Artists was established in Calcutta by Sanat Kar, Lalu Prasad Shaw, Shyamal Dutta Ray And later, Amitava Banerjee, Arun Bose, resident in New York, was their mentor and friend. Under the aegis of the society, print making activity in Calcutta surged ahead with great enthusiasm and vigour. The society did much to promote and project the cause of Print making in India, consistently organising print shows and workshops at different venues across the country from 1960 onwards. Some of these workshops represent significant landmarks in the history of modern print making in India. The society of Contemporary Artists continues to survive to this day in its modernist ethos.

The existence of print making Studios is also researched upon in this chapter. These studios have provided the space and technology for artists to continue making prints outside of a college department, and also became centers of continuing pedagogical support – both supplementing and replacing academic discourse. The medium, best produced in the collective, has thrived in various studio facilities across India, including Garhi in Delhi, the Lalit Kala Academi Regional centre graphics unit in Chennai, Kolkata, Luknow, Bhubeneswar and Chhaap Studio in Baroda. These have also turned into hubs for artistic and theoretical movements and characterize significant local inputs in the promotion of the medium.
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