



THE STORY OF GRAPHIC DESIGN

Textbook for Class XI

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FOUNDATIONS OF



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Introduction to Graphic Design

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UNIT

FOUNDATIONS OF GRAPHIC DESIGN



The term graphic design refers to a number of artistic and professional disciplines which focus on visual communication and presentation. Various methods are used by combined symbols, images and words to create a visual representation of ideas and messages. A graphic design uses typography, visuals and layout techniques in varying degrees to produce the final result. It often refers to both the process (designing) by which the communication is created and the products (designs) which are generated.

A work might include a logo or other artwork, organised text and pure design principles and elements such as shapes, colour, balance, harmony which unify the piece. Composition is one of the most important features of graphic design especially when utilising pre-existing material or using diverse elements.



NDMC

**STOP Breeding
Danger**
in your home

INDIAN NAVY

JOIN THE MULTIDIMENSIONAL FORCE AND LIVE YOUR DREAM

**A FORMIDABLE
ARRAY OF
ABOVE
& UNDERWATER
CAPABILITIES**

GUNIA Mosquito breeds in the clean
sections right inside your home.

PRECAUTIONS TO PREVENT MOSQUITO BREEDING

1. Wash and dry the
containers weekly.

2. Wash the water
containers weekly.

3. Wash the water
containers weekly.

4. Wash the water
containers weekly.

5. Wash the water
containers weekly.

6. Wash the water
containers weekly.

7. Wash the water
containers weekly.

8. Wash the water
containers weekly.

9. Wash the water
containers weekly.

10. Wash the water
containers weekly.

1

CHAPTER

INTRODUCTION TO GRAPHIC DESIGN

When we look around we find that we are surrounded by a number of pictures, photos and images. These visuals are various forms of graphic design. Graphic design is part of our daily life from simple things such as postal stamps to huge hoardings and advertisements on clothes, etc. Graphic design makes it easier to interact and communicate, stimulate mind, attract attention and provide information to the user in an aesthetically elegant manner. Graphic design is a major component of visual communication and it comprises a variety of communication medium and strategies in order to convey a visual message to the target audience. These visuals are representations of thoughts, emotions, ideas and reality.

While communicating, if a person communicates using a language, then it is termed as 'verbal communication'. Radio-broadcast and loudspeaker announcements are very good examples of verbal communication. But if someone does not use a language and uses some other medium to communicate then it is called 'non-verbal communication'. Non-verbal communication takes place through visual images, logos, newspaper advertisements as well as other media such as music, dance, body gestures or acting. Films, television, theatre, animation, multimedia and the internet are some of the examples where verbal as well as non-verbal mediums of communication are successfully combined.

Among non-verbal medium of communication, visual media is the most widely used media. Graphic design deals mainly with visual communication. Contemporary graphic design practice has been engaged in digital technology also. Today most graphic designers are working in new areas, viz. new media, interaction design, information architecture and



THE STORY OF GRAPHIC DESIGN

graphical user interface (GUI) design. Therefore, a contemporary graphic designer requires a range of technical skills, aesthetic sense, an imaginative mind and creativity. You might, however, still be wondering what graphic design really is?

Graphic design is everywhere

The sun rises...
The birds chirp...
... Eyes open...



Figure 1.1 A peacock having beautiful patterned design on its feather

You get up on the bed and see newspaper headlines (typography- graphic design!)

You have breakfast and you see a 'logo' on the milk pack (once again graphic design!)

You drive a bike and see the 'traffic signs' on the road! (Graphic design)

You open your computer and click on the 'icon' (graphic design again)

... And it goes on...

Graphic design has merged with our lifestyle in a big way. From the moment we get up in the morning till the time we go to sleep in the night, we are surrounded by graphic designs.

Graphic design makes things intelligible

We wake up in the morning and see the time in the clock. Readability of numbers, colour of the dial, everything has an impact on us. Then we want information and read a newspaper. News flows through all the pages of a newspaper with appropriate attention to text, type sizes and layout.

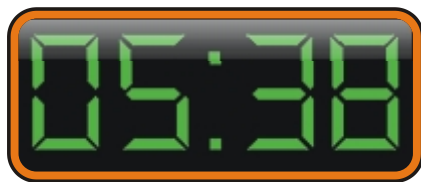


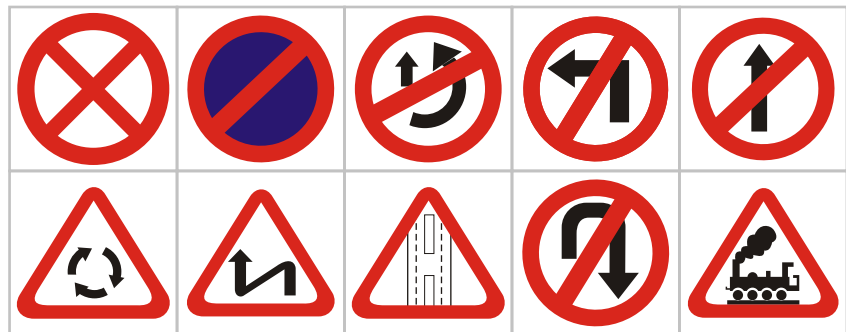
Figure 1.2 A digital clock

Figure 1.3 Books, magazines and newspaper have text and visuals



Can you imagine a newspaper with text scattered everywhere without any columns or layouts? Graphic design makes understanding simpler, organised and better. Graphic design has always contributed and impacted society in a constructive way by helping people to create a clear and imaginative visual communication. It helps to relate tendencies of people amongst each other, with culture, economics and social lives and thus creating awareness about environment and society. Can you imagine if an instruction booklet is not provided how will you operate a new device?

Figure 1.4 Traffic symbols should also have their meanings. Road signs provide information to follow



Graphic design provides safety

You step out of your house and see so many graphic images around you — a poster on the nearby wall, bill board and neon signs on the nearby shop, and many other signages and symbols. Do you know how many accidents will take place if the road signage does not exist?

The earliest road signs were milestones, showing distance or directions; for example, the Romans erected stone columns throughout their empire showing the distance to Rome. In the Middle Ages, multi-directional signs at intersections of roads became common. The basic patterns of most traffic signs were set at International Road Congress conference in 1908 in Rome. Since then there have been considerable changes in their design to make them more user friendly and meaningful.

Now it is very common in countries to install signage, known as traffic signs or road signs, at the side of the roads to give information to commuters. As different people speak, read and write different languages which can create barriers in understanding the written words and therefore uniform and similar looking international signs using symbols in place of words have been developed and adopted in most countries.



Figure 1.5 Roman Milestone



From road signs to technical reports, from inter-office memorandums to reference manuals, graphic design enhances transfer of information. Readability is enhanced by improving the visual presentation of text. Graphic design makes life convenient as it makes information more accessible and understandable. How many people will be lost if directional signage does not exist?

Milestones or the indicators of distance on Indian highways have white background with a yellow or green top. The names of cities and distances are painted in black. The names of nearest towns and cities are written along with distance in kilometres. On undivided highways, both sides of the milestones are used, indicating the distance to the nearest cities in both directions. The head of the milestone has the highway number written on it. The side of the milestone has a number that indicates the distance covered by the commuter and the remaining distance. With changing times, new generations of traffic signage with an intelligent information systems are being developed. Today, the signages are designed using various types of materials suitable even for night vision and low-light visibility.



Figure 1.6 Signals of different colours give different instructions. Zebra crossing is used by pedestrians to cross the road safely.

Graphic design and identity

It is evident that human beings have been relating to forms and symbols from primitive times and it helped them build up association and identity. From earlier times people are using flags to exhibit their identity. A flag is a piece of cloth, often flown from a pole or mast, generally used as a symbolic tool for signalling or identification. This was especially used where communication was difficult otherwise and still are used for signalling by railways, ships, even on airport runways including project, institution and national identity.



Figure 1.7 Flags of different countries

Flags were invented and first used by ancient Indians. The usage of flags spread from India and China to neighbouring Burma, Thailand and south-eastern Asia. Flags are also adopted by socio-cultural institutions or groups to represent religion, associations, sports and so on and so forth. Institutions and organisations represent their ideologies through flags. In fact, every institution is formed on certain strong thoughts and principles that need to be communicated to gain trust of people and establish their identity through flags.

National flags are patriotic symbols and have colours with varied wide-ranging interpretations. Many national flags and other flags have symbolic designs, reference or patterns. Flags are usually rectangular in shape (often in the ratio of 3:2 or 5:3), and of any shape or size that is suitable for flying, including square, triangular, or swallow tailed and usually in sets of different colours.

Logos are another form of identity. We find ourselves surrounded by different logos, symbols and brands. Graphic designs have a unique ability to sell a product or idea through effective visual communications. It is widely used in designing company identity using logos, text and colour. Branding has increasingly become important in the corporate sector and



Figure 1.8 National Flag of India

The Indian National Flag is the symbol of the land and people of India. Our National Flag is a tricolour panel made up of three rectangular panels or sub-panels of equal widths. The colour of the top panel is India saffron (*Kesaria*) and that of the bottom is India green. The middle panel is white, bearing at its centre the design of the Ashoka Chakra in navy blue colour with 24 equally spaced spokes. The Ashoka Chakra is visible on both sides of the Flag in the centre of the white panel. The Flag is rectangular in shape with the ratio of the length to the height (width) being 3:2.

Dr S. Radhakrishnan explained about the National Flag in the Constituent Assembly which adopted it, "*Bhagwa* or the *saffron* colour denotes renunciation or disinterestedness. The white in the centre is light, the path of truth to guide our conduct. The green shows our relation to the soil, our relation to the plant life here on which all other life depends. The Ashoka Wheel is the wheel of the law of *dharma*. Truth or *satya*, *dharma* or virtue ought to be the controlling principles of those who work under this flag. Again, the wheel denotes motion. There is life in movement. India must move and go forward."



Figure 1.9 Logos of different international organisations



Figure 1.10 AIDS (Acquired Immune Deficiency Syndrome)



Figure 1.11 Institutional and mathematical signs

'Logo' is a symbolic visual/textual representation of the ideology and principles of an organisation. Logotype is a logo designed by using letterforms or typefaces.

industry. When you go to market, you have various choices available for buying a product but there will be a few which will attract your attention, because of its attractive design and packaging. Packaging design is a part of graphic design which also has an important role in identification.

Graphic design expresses and informs

Every signage on the road side calls you and tries to capture your attention. In fact, literate as well as illiterate people are equally benefited by visual information or graphics. You step into a bus or a train and you will see lots of information surrounding you. Providing information about everything from shops, malls and doctors to festivals and cultural programmes in the city or town is done through graphics. Graphics are useful in providing information during natural calamities, earthquakes, disasters and even during a war.

Graphics are used in textbooks of all subjects and particularly in geography, science, language, history and mathematics to illustrate theories and concepts. Common examples of graphics in books are maps and diagrams. Graphic design is also used in designing of educational materials to make the instructional material more accessible, interesting and more easily understandable.

Graphic design combined with visual communication with user interaction makes information seeking a fascinating experience through aesthetically designed interactive websites. Websites create both the look and feel and enhance online experience to a web user. Every page of a website is full of icons. You click an icon in search of information and a whole world of information opens up in front of you. The further you search the more information you get. It has become important to understand the intricacies of the digital medium with translation of graphic ideas into experiential ideas.



Figure 1.12 Textual material with graphics



Figure 1.13 Home page of the website of NCERT with interactive icons and visuals

Design is not just about creating beautiful images, it generates new thoughts, provokes mind, creates or changes mindset and ultimately changes people and society.

The primary requirement for graphic designing is a creative mind. Observation, critical thinking and analytical thinking enhance graphic design capabilities. Traditional tools such as pencil, pen and brush are absolutely important. Apart from that, contemporary graphic design requires understanding of digital tools and technology. Selection of appropriate tools to address communication solution at hand is also a key skill in graphic design, and surely a defining factor for aesthetically appealing design.



1. Explain the difference between verbal communication and non-verbal communication giving some examples.
2. How do you think graphic design helps in providing safety?
3. Graphic design contributes to design identities. Discuss.

Collect images of at least twenty logos. Select five symbols that you like the most and analyse their graphic features.

Beggars receiving alms, etching by Rembrandt



2

CHAPTER

GRAPHIC ART DESIGN AND GRAPHIC DESIGN

Graphic art and design span the history of humankind from cave paintings to the dazzling neon signs of the modern era. In both its history and in the relatively recent expansions of visual communication in the twenty-first century, there is sometimes a blurring distinction and overlapping relation of advertising art, graphic design and fine art. They share many of the common elements, theories, principles, practices and language. The essence of graphic design lies in representing information, providing form to ideas, expression and feeling and giving shapes to artefacts that document human experience.

GRAPHIC ART

The word 'Graphic' has been derived from the Greek word *Graphikos*. It stands for writing, drawing (pictorial or symbolic rather than verbal) and 'Art' meaning skill applied to a production of beauty or to a work of creative imagination. In general, the phrase 'graphic art' covers a large number of activities from designing logos to book printing, from symbol designing to artistic print-making, from commercial arts to fine arts. Diagrammatical drawings, signs and symbols either painted or printed are also included under the rubric of 'graphic art', but the phrase is largely used for printing activities.

It is possible to trace back the roots of the graphic design in history. Humans always have the desire to communicate and preserve their knowledge, ideas, skills and life experiences for future generations. This drive has revealed itself in many forms. Their first attempts to communicate were



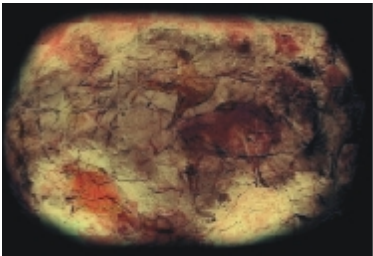


Figure 2.1 Cave paintings, Altamira, Spain



Figure 2.2 Bhimbetka cave paintings, India

through body signs, gestures and symbols. Later on through using words or language, through legends and story-telling; and then by means of some visible form through preserving in caves on stone, carving, engraving, etching and writing on clay, wood, metal, paper or any other available material.

The drawing expressions discovered in 1940 are considered to be the finest and the oldest examples of prehistoric art. Carbon dating suggests that images were created between 15,000 and 17,000 years ago in the caves near Montignac, in the Dordogne region, in south-west France. Whereas the earlier pictographic representations are about 5,000 years old while the most recent written language is around 1,000 years old. Similarly, in Europe, the cave drawings in the Altamira cave rocks of Mount Vispieres in Spain have similar artefacts of the Paleolithic Age or Stone Age. All are the significant milestones in the history of graphic design and other fields which have their roots in graphic art.

In India Bhimbetka caves surrounded by the northern boundaries of Vindhya mountain ranges near Bhopal have more than 600 caves that have the oldest prehistoric paintings in India. And out of the 24 world heritage sites Bhimbetka caves have been recognised by UNESCO in India, as one of the oldest. These caves had been used as a shelter by people from the earliest periods. Thus, you find paintings of all periods starting from the Paleolithic era to the medieval era. The paintings turn out to be a mirror showing evolution of humanity through time.

These are very old accomplished renderings of animals resting or in action. The depiction shows their draughtsmanship, sense of observation, memory and drawing skills which overrides the limitations of inadequate materials. These were drawn on rough walls of cave rocks. The meaning of some of them remains undiscovered.

Are these, symbols of magical power invoking favourable conditions, through the miracle of creative art?

Are these, drawings of animals to gain power for hunting?

Or perhaps they were primitive artists who had no message to convey but a desire to create?



Figure 2.3 'Los Caprichos'
Aquatint by Goya



Figure 2.4 Different designs

There are no simple answers to these questions. One thing is for sure that these are the earliest graphic documentation or representations of their experiences.

Across all the civilisations of the world, there is ample evidence of graphic practices for documentation and representation of life experiences. However, it was not called graphic design in those days. Historically, graphic design has originated from the art of painting during and after renaissance in Europe. Initially it was called graphic arts. The graphic arts were defined as the fine arts of drawing, painting, engraving, lithography, wood-cut, print-making and printing processes, etc.

During seventeenth and eighteenth centuries, engravers copied the works of other artists. Then the photographic techniques replaced the process of engraving, in print-making. By and large it denoted reproductive techniques and related processes and artists as well as craftsmen involved in this activity were called graphic artists. Many professional artists, viz. Durer, the first artist to engrave portrait, Lucas Cranach, used etching and woodcut for reproduction of their works. Rembrandt did more than 300 plates and explored the expressive possibilities of the medium of graphic arts. In the nineteenth century, many of the impressionist and post-impressionist artists such as Goya, Manet, Degas, Renoir, Gauguin used the lithographic process in new and original ways as an aesthetic and expressive medium.

INTRODUCTION TO DESIGN

Design (French- *deeseing*; Italian-*Disegno*; Sanskrit- *Kalpa*, *Rachna*)

During Renaissance, design was considered as an integral part of painting in Italy when a systematic vocabulary of design was worked out. Around the fifteenth century, the art theorists identified design (*disegno*), colour (*colorito*), composition (*composicione*), and invention (*invention*) as the four elements of painting.

During that period, i.e. fifteenth century art critics used to divide design into two parts: *disegno interno* and *disegno esterno*. In its wider meaning *disegno* means a creative idea in the mind of an artist, as this was often thought to be embedded in initial drawing or conceptual sketch. Thus Baldinucci, an art critic and theoretician, defined design as a visible demonstration by means of lines or sketches on the paper

which man had first conceived in his mind and developed picture in the imagination, then hand made them appear on a surface in the form of expression or design.

In seventeenth century, art critics who believed in the philosophy of Socrates and Plato attached certain mystique to the word 'design' due to the analogies drawn between creative activity of the artist and the creation of world by God. Accordingly, the power of design was held to distinguish an artist from the craftsman. On the other hand the art critics and historians who were the followers of Aristotle's philosophy insisted that design must be based on a careful observation of nature and does not require any mysterious powers.

In the modern context, usage of the term design in its widest sense denotes the planning of any artefact whether for use or for presentation. In the book titled *Nature of Design* (1964), David Pye, a twentieth century critic, specified six conditions of design. Firstly, design must follow essential principles of composition or arrangement. Secondly, each part of the design must be geometrically related with each other. Thirdly, the parts of a design must be robust or strong enough. Fourth condition of design is that it should communicate the desired intention or a message to its users or the audience. The fifth condition is that design should avoid the possible unwarranted results or interpretations. Finally, design should be properly accessible by the user or the audience. During this period, theory of functionalism influenced design thinking, which argued that form or the structure of an artefact should follow function. Later a more balanced opinion prevailed which argued that the function of design may act as a guiding principle but not dictate the form or beauty of the design. Thus the term design is used with special regard to appearance then beauty of the form, style, fashion or trend, etc.



Figure 2.5 'Transition'
graphic print in
aquatint medium

The word 'design' is used in different senses in different contexts. It has a wider meaning as well as a narrower meaning. In a narrower sense it is used as 'graphic design', 'industrial design', 'textile design', or 'fashion design'. In these cases the term 'design' refers to highly specialised creative activity pertaining to these fields. In a wider sense the term 'design' refers to purposeful activities that lead to creation of something significant. The term 'design' is used in different senses in different fields such as circuit design in electronics, design of a building in architecture and design of a logo in graphic design.

Commonly the term 'design' is used as a noun to refer some object or a pattern which is beautiful and/or useful. It can be a sketch of an idea, a concept or a thought. For example design of a washing machine, design of a car or design of a futuristic car. It also refers to a beautiful pattern on the shirt, sari or a cloth in the same sense.

As a noun the word 'design' is used in the following ways

'Design' as a drawing or a preliminary sketch.

'Design' as a graphic representation, especially a detailed plan for construction or manufacturing, such as an architectural plan of a building.

'Design' as a purposeful or inventive arrangement of parts or details as elegant design of an aeroplane.

'Design' as a decorative or an artistic work or an ornamental pattern.

The word 'design' is also used in another sense as a verb to refer to a process or an activity that results into a design. The process of designing involves a series of activities that finally leads to a product or an artefact. This process or activity of designing can be a mental process and/or a physical process of making artefacts or objects of design. The process can also involve a group of people, system or entire organisation. Thus, the process of design can be an individual process as well as a group process.

The word 'design' is used as a verb to denote some activity in the following sense

'To design' means to conceive or fashion in the mind such as 'visualising' a futuristic car or an aeroplane.

'To design' means 'to innovate or invent' something new such as a new type of mobile phone.

'To design' means 'to formulate a plan' for an event or making arrangements for a function in a planned and systematic manner.

'To design' means 'to devise a strategy' for launching a new product in the market.

'To design' means 'to have as a goal or purpose' or an intention such as to design a vehicle that will not cause pollution.

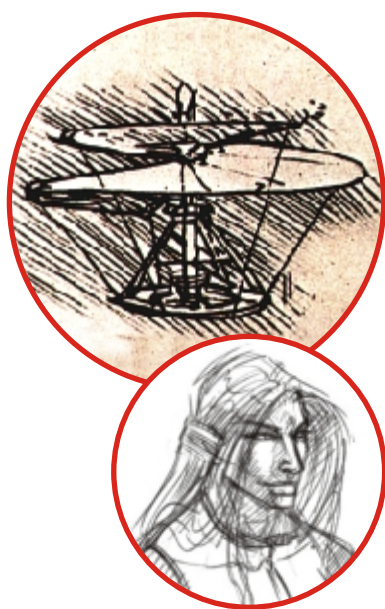


Figure 2.6 Drawings of different objects

‘To design’ means ‘to create or execute’ in an artistic or highly skilled manner for example creating an artwork for an advertisement.

Thus, the term design as a noun as well as a verb has many meanings and usages in different contexts. The word design is used to refer to the process as well as the output of the process. Now, you must have realised that when a concept is created and you are engaged in the process of developing an idea — design as a verb, as well as you are creating beautiful patterns/design on your creation — design as a noun and also finally there is a new ‘design’ of a concept at the end.

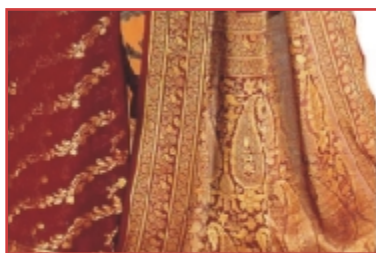


Figure 2.7 A textile design



Figure 2.8 Architectural layout design of a house



Figure 2.9 User friendly gadget design includes design of the whole gadget as well as user friendly graphic images and typography on it.

Broadly, design involves two stages: the first stage is a mental activity of imagination, visualisation and generation of new concepts or ideas. The second stage is the stage of manifesting or articulating these ideas using some medium of expression and/or communication. When an idea is generated in the mind, it is in an abstract form. Then at the second stage it is articulated in some form which is perceivable or understandable. One can draw a sketch of the concept, write it down on a piece of paper, act it out or express through gestures and so on and so forth. The first stage is termed as ‘*disegno interno*’ (generation of mental image or an idea) and the second stage is called ‘*disegno esterno*’ (externalisation of the mental image or idea into a physical form). Therefore, the simplest definition of design would be as follows:

Design is a purposeful or intentional activity to generate concepts or ideas which are new in some sense and manifest or represent them. The output of this activity is also termed as design.

INTRODUCTION TO GRAPHIC DESIGN

Graphic design differs from graphic arts because graphic design is goal oriented while graphic art is not. That is why graphic design comes under the rubric of design. Secondly, graphic design activity is always concerned about target user or target audience and attempts to fulfil user requirements. On the other hand, graphic art activity is not practised keeping the user in mind. Graphic art is practised for its own sake as well as for pursuing a higher aesthetic experience.

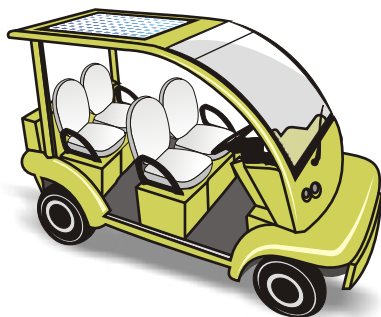


Figure 2.11 Solar energy vehicle

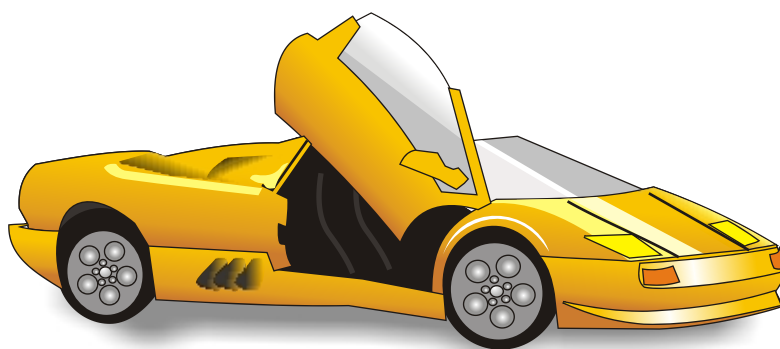


Figure 2.10 A modern motor vehicle

Graphic design involves the process of transformation of the mental concept into actual form through specific medium which is called representation. The activity of representation is the crux of graphic design.

Graphic design spans over but not limited to the activities mentioned below:

- ▣ Design of logos, graphics, letterheads, brochures, newsletters, posters, signs, advertisements and any other type of visual communication.
- ▣ Combining text and graphics to communicate an effective message.
- ▣ Representation, decoration, and writing or printing on two-dimensional and three-dimensional surfaces.
- ▣ Techniques and crafts associated with drawing, engraving, etching and lithography, photography, serigraphy and woodcut.
- ▣ Printing and bookmaking of all types for publications.

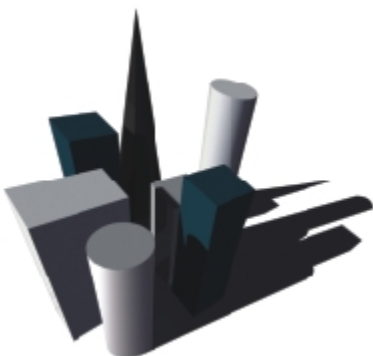


Figure 2.12 Structural design

THE STORY OF GRAPHIC DESIGN



Figure 2.13 Letterhead design



Figure 2.14 Logo design

Design for various media, such as print, digital media, motion pictures, animation, product decoration, packaging and so on.

Philip Meggs, a noted historian of graphic design defines graphic design in his classical book *History of Graphic Design*. He looks at graphic design from a historical point of view as follows:

"Since prehistoric times, people have searched for ways to give visual form to ideas and concepts, to store knowledge in graphic form, and to bring order and clarity to information. Over the course of history, these needs have been filled by various people including scribes, printers, and artists. It was not until 1922, when the outstanding book designer William Addison Dwiggins coined the term 'graphic design' to describe his activities as an individual who brought structural order and visual form to printed communications, that an emerging profession received an appropriate name."

Thus, it appears that the term graphic design was used in the context of book design and printing. However, prime motivation for graphic design activity was towards representing ideas and concepts for better communication and preservation. Graphic design achieves the task of representation of ideas and concepts in an elegant and aesthetically acceptable way.

Graphic design has a remarkable impact on individuals, society and culture in general. Starting from prehistoric cave paintings to the modern age, elements and concepts of graphic design are used to express, communicate or promote and provoke. We can see plenty of examples throughout the history of mankind where ideas, expressions, experiences, perceptions and stories are depicted through visual language.

Graphic design has always contributed and impacted society in a constructive way. It helps people for clear and imaginative visual communication to relate people with people, cultures, economies and social lives. Graphic design helps shape messages and images which create awareness about environment and society.

Therefore, a simple definition of graphic design would be as follows:

Graphic design is a purposeful activity of representation and communication of information in simple and effective ways. It involves processes of imagination and visualisation for

generating ideas and represent them through the medium of visual perception by using visual language of basic elements, viz., dot, line, colour, texture, shape, form, two-dimensional and three-dimensional space, typefaces and principles of visual language, viz., balance, rhythm, proportion, symmetry, contrast and harmony.



1. What is the difference between graphic art and graphic design? Explain by giving your own examples.
2. What is 'Design'? Elaborate on David Pye's concepts of design by using examples of graphic design.
3. Define 'graphic design' in your own language.

Design an invitation card for a school festival/annual day/sports day.



3

CHAPTER

ELEMENTS AND PRINCIPLES OF GRAPHIC DESIGN

Graphic design is about representation of ideas and concepts for communication or expression. It requires a visual medium of representation. A graphic design communicates through the visual language of dots, lines, shapes and colours. When we write something on a paper with black ink we 'read' it because we see it first and then understand the meaning. Reading is nothing but first and foremost, a visual perception. Similarly, when we see a beautiful painting, it is a visual perception. Visual perception has two basic components. Firstly, there should be some material medium such as the white surface of a paper, or black ink, colours that result into dots, lines, shapes and so on. This material is called 'medium' in graphic design. Material medium is a vehicle of visual perception. Secondly, visual perception happens through the eyes and, therefore, visual sensitivity is very important. Material medium and visual sensitivity, both play an important role in graphic design.

Any random scribbling of ink on paper is not called writing. Similarly, any random splash of colour on paper is not called a beautiful picture. Therefore, a disciplined or proper visual arrangement is required. Dots, lines, shapes, forms, colours are the basic elements of graphic design without which graphic design is not possible. Similarly, there are time-tested rules or laws of arrangement of these elements so that they will look beautiful and will be effective. These rules are called principles of visual composition. A graphic designer needs to learn and understand the role of basic elements and principles of composition in design. They are the core of graphic design. These elements and principles are discussed in detail here.



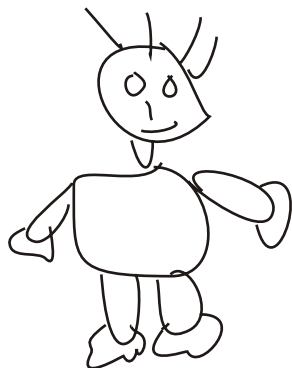


Figure 3.1 Scribbling drawing

Let us first discuss the elements of graphic design followed by principles of composition.

ELEMENTS OF GRAPHIC DESIGN

There are three major categories of these elements.

Basic elements

Relational elements

Intentional elements

BASIC ELEMENTS

Basic elements of composition are abstract concepts. They do not actually exist but seem to be present in a picture or in any visual representation.

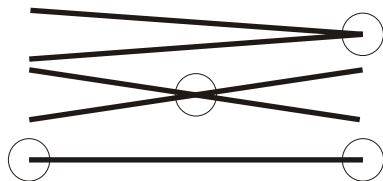


Figure 3.2 Points

Point

In geometry, a point is defined as an entity without length and breadth or an entity without any dimension. In graphic design, a point is represented in the form of a dot and it indicates a particular position. It is the end or the beginning of a line. A dot has a physical dimension which is a visual representation of an abstract concept also known as 'point'. For example, we feel that there is a point at the angle of a triangle or wherever two lines meet. This point is a basic element of design.



Figure 3.3 Dots of various thickness

There is another interesting notion related to a 'dot'. Assume that there is a bird sitting on a tree or near your window. You can see the bird in detail. When it starts flying and goes away from you, all the details get blurred and you just see a shape of a flying bird. As it goes further and further then even the shape also gets blurred and finally you see a 'dot'. This dot need not be round in shape. It can have the shape of a flying bird reduced to its limits of recognition. It appears as a 'dot'. Therefore, a 'dot' can have any desired shape.

Line



Horizontal straight lines of varying thickness

A line is defined as a one-dimensional entity having length but no breadth. In graphic design, it is metaphorically defined as 'a line is a dot gone for a walk', that is, a line is a point in motion. However, in graphic design a line is depicted where it has length as well as breadth. A line can be thin or thick. It can have many variations in thinness and thickness.

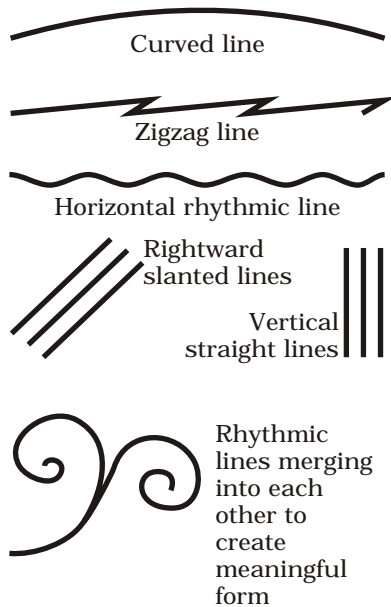


Figure 3.4 Lines of different characteristics

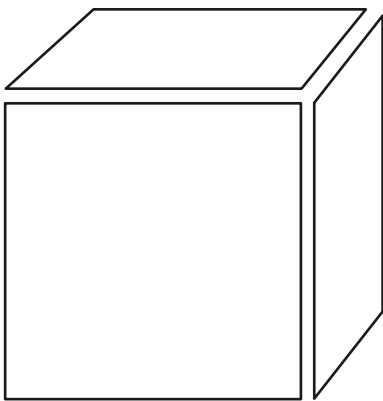


Figure 3.5 Visual plane of three-dimensional object



Figure 3.6 Visual effect of three-dimensional space by tonal variation

Thinness or thickness of line creates a visual impact. A thick line appears heavy and a thin line appears lighter in a visual composition. Lines can be of various types. They can be straight, curved, zigzag, decorative, ornamental, vertical, horizontal, inclined, random or showing free movement. Each type of line will create a visual impact. If lines are grouped together then they will create even more visual impact.

Straight horizontal lines create a feeling of calmness. Horizontal lines are stable. Vertical lines appear dynamic and may also suggest upward mobility. Inclined lines are unstable but may suggest growth or decay depending on the context of use. Curved lines create various types of rhythmic movements while zigzag lines create a feeling of harshness. Decorative and ornamental lines create an impact of Indian tradition. In all the above cases, thickness and thinness of lines will either increase the visual impact or reduce the impact.

Activity 1

Collect images or photographs of lines from news papers. Briefly describe the character and impact of lines in the collected images.

Therefore, depiction of line in graphic design is not just a representation of an abstract concept of a line but it is a representation of emotions, expression as well as a visual impact.

Plane

A plane is defined as an entity with length and breadth but no depth. It is a two-dimensional flat or level surface.

Space

Space is defined as an infinite expansion. It is also defined as a collection of points in three dimensions. However, in graphic design space is defined in terms of its visual representation in a composition. Using the other elements of design such as lines, colours and forms, it is possible to create an illusion of three-dimensional spaces or volume on two-dimensional



Figure 3.7 Visual effect of three-dimensional space by variation in size of trees, their reflection, tonal variation and also colour variation

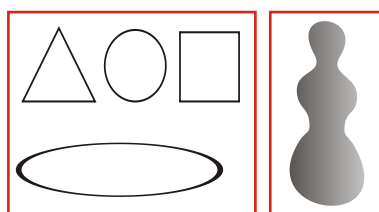


Figure 3.8 Two and three - dimensional basic forms

surfaces. Similarly, a physical space as well as conceptual (or mental) space can be represented in a composition.

Shape

A shape is a contour or well-defined outline of a two-dimensional form. In the case of a three-dimensional form, a shape will be the skeleton of a form. In the figurative drawings of humans, natural things or man-made objects initially shape, i.e., contours or outlines are depicted.

Form

Any shape, outline or structure of anything like the body of a person, animal, tree, leaf or object is defined as 'form'. Form is defined in two ways. In graphic design, form is understood as one of the basic elements of visual composition as well as the whole 'visual composition' is also considered as having a 'form'. As a basic element of composition form is defined as a shape that is 'meaningful'. A shape is just an outline, but when it is filled with some colour, texture or gradation it becomes 'meaningful' as well as it creates an illusion of three dimensions. In such cases a shape becomes a 'form'. Form also becomes 'meaningful' due to its position in the visual composition or its placement in the composition. Similarly, a form becomes 'meaningful' due to its relationship with other basic elements, viz. dots, lines, colour and other forms in the composition.



Figure 3.9 Three-dimensional form

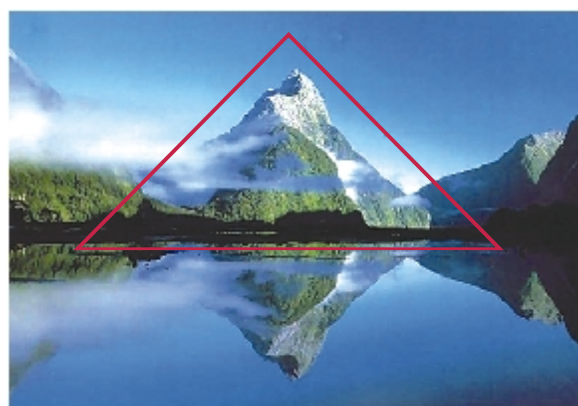


Figure 3.10 Form as composition, the whole composition is treated as a form as well as the mountain inside the red triangle is also treated as an individual form

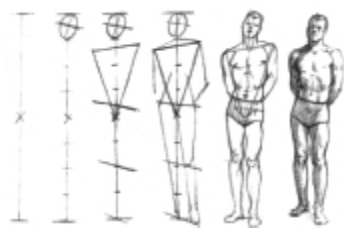


Figure 3.11 Basic form is also understood as a basic structure as indicated with lines in above figures



Figure 3.12 An irregular form of a leaf



Figure 3.13 A palette is used to mix colours with brush to get appropriate combination, tint, tone or shade of colours



Figure 3.14 Grey scale

Whole composition is considered as a 'form', when the overall visual impact of a composition is 'meaningful'. In this case, the overall impact is the cumulative result of all the basic elements and their arrangement in a composition. Also, it is the result of the overall relationship of each part of the composition to the whole. In both cases, form as a basic element as well as a whole, a 'form' becomes 'meaningful' since, it generates a psychological impact in creating mood, emotions and feelings in the minds of the audience. Apart from this a form creates an impact if it has some unique features. In such cases the audience recognise the form easily and remember it for a longer duration.

In graphic design written text that is made up of typefaces is also treated as form. Each word and sentence has a meaning in a particular language but apart from that, the word or sentence itself is treated as a visual form in a visual composition. You can achieve maximum impact from a word or sentence if its linguistic meaning and their visual treatment in a composition are complementary to each other.

Colour

Colour is the basic and core attribute of visual perception and therefore it is the most effective element of graphic design. Can you imagine a world made up of only black, white and grey shades? Colour is studied in physics, psychology, cultural studies and many other disciplines of knowledge. In fine arts and graphic design, colour is studied to understand its visual properties such as hue, luminosity (intensity) and value.

Grey Scale

Grey scale is an ordered arrangement of white, black and various tones generated by mixing of white and black in different proportions. When black and white are mixed in equal proportions then the resultant tone is called 'grey' or 'medium grey'. If there is more amount of white and less black then the resultant tone is called 'tint' or 'light grey'. If there is less white and more amount of black, then the resultant tone is called a 'shade' or 'dark grey'.

Hue

Hue is a unique quality of colour by which a particular colour is identified. Due to this quality, eyes can differentiate one colour from the other. The colour 'red' is called red because eyes



Figure 3.15 Colour hue



Figure 3.16 Colour value



Figure 3.17 Colour luminosity

recognise the quality called 'redness' of the colour. The same applies to other colours also.

Value

Value is a relative darkness or lightness of a colour hue in relation to a grey scale. Blue colour with light value comparable with light grey values on the grey scale as shown in the image.

Luminosity

Luminosity is the brightness or freshness of a colour hue. When a colour hue is pure, it is brightest. When a colour hue is mixed with other colour hue or black or white, it loses its purity and brightness. Graphic designers always try to preserve the luminosity of the colour hue. If you go on mixing again and again with different colour hues then finally the resultant colour will be dull. Green colour with maximum luminosity on the left side of the rectangle decreases luminosity as it is mixed with blue colour towards right side of the rectangle as shown in the image.

Texture

A visual texture is the characteristic of a surface that creates an experience or the feeling of touch in a visual composition. Many a time designers create an illusion of a tactile experience. This is termed as simulated texture or implied texture. Designers work with simulated texture as well as real texture or both. When we run our fingers over a stone or a bark of a tree, we experience the tactile feeling. The tactile experience could be smooth or rough and most of the time it is very difficult to express it in words. Designers create such tactile experience through their designs by using colours and any available material on a particular surface. Designers also try to generate the same effect or an illusion of the same tactile feel by using colours alone. People appreciate designer's skill in creating such an experience or creating illusion. Texture also helps in creating and enhancing subtle feeling and mood.

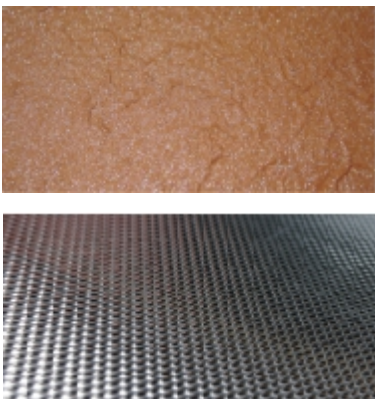


Figure 3.18 Various types of texture

RELATIONAL ELEMENTS

This group of elements governs the placement and interrelationship of the basic elements such as dot, line and form in a visual composition to enhance the visual impact of the composition.

Activity 2

On a white paper take impressions of interesting textures from your surroundings. For this, first select a surface in your surroundings, then cover it with the white paper and with a colour pencil, gently scratch over the paper and try to capture the impression of the surface texture. Now collect at least twenty such interesting impressions and make a composition

out of it.

Each impression should be at least 3 cm by 3 cm in size. Size of the composition should be 10 cm by 15 cm.

Activity 3

Collect different materials having different texture surfaces and then make a composition out of them. Size of the composition should be 10 cm by 15 cm.

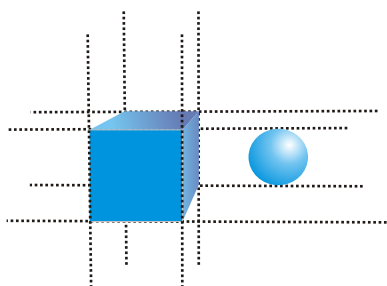


Figure 3.19 Relational elements

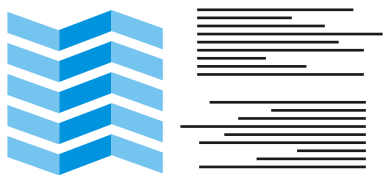


Figure 3.20 Aligned figure

Alignment

When a group of elements in a composition are arranged in a vertical or horizontal manner in such a way that they fall in line, then this arrangement is called alignment. The elements can be arranged in a diagonal manner also.

Direction

It is an arrangement of basic elements of graphic design that helps in organising various elements in the composition. It can be parallel or angular arrangement. Direction is perceived always with reference to the observer, with reference to the frame that contains it or with reference to the other major forms in the context.

Visual Thrust

It is an arrangement of graphic elements that helps or guides the audience's eyes to move in a desired way in the composition. It literally forces viewers to move in the expected direction. Above mentioned directional elements contribute to generate visual thrust. It is also termed as visual momentum.

Figure and Ground

Visual elements in a composition occupy space. The space occupied by the majority of visual elements is called positive space and rest of the space in the composition is negative space.

THE STORY OF GRAPHIC DESIGN

Figure 3.21 Negative and positive space. Here figures constitute the positive space while white background is treated as a negative space

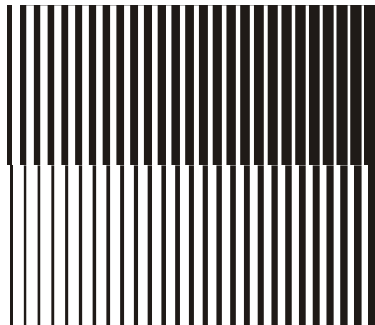


Figure 3.22 Visual gravity created by varied thickness of lines

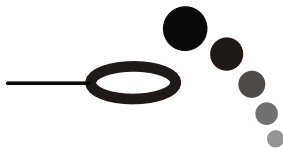


Figure 3.23 Form as a meaningful element in a composition

Visual Gravity

All of us experience earth's gravity and associate heaviness or lightness with it. Thus, the notion of gravity is established in our mind. In the context of visual composition we tend to attribute the notion of gravity in terms of visual heaviness or lightness, stability or instability to individual elements or group of elements in the composition. Therefore, big shapes in the lower part of the composition appear heavier and small shapes in the upper part appear lighter in the composition. Visual gravity is also termed as visual weight.

INTENTIONAL ELEMENTS

All designs have some purpose or an intention. Graphic works make an impact on the target audience. For example, an advertisement in a newspaper not only communicates the information but because of appropriate graphics makes an impact. This is possible due to the proper use of intentional elements. There are three types of intentional elements: Aesthetic, Content and Function.

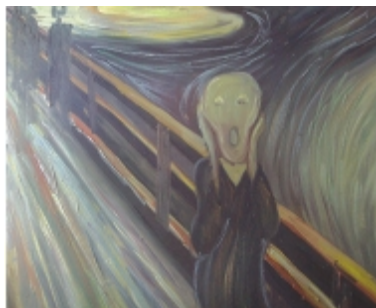


Figure 3.24 *The Scream*, Edvard Munch 1893, National Gallery, Oslo. The figures in the composition are aligned following direction by the railing and the whole painting create a visual thrust. Also all the lines create a visual thrust to support the emotions expressed in the painting.

Aesthetic

When a concept or an idea derived from nature is expressed using dots, line colour, texture, shapes, etc. it is called representation. The representation of a concept or natural forms is called realistic if it is depicted as it is. It is called stylised if the representation is decorative and ornamental. If the representation eliminates unnecessary details and representation is minimal then it is called abstract. All the styles produce distinctive visual and thematic impact.

Activity 4

Collect images or photographs from magazines and newspapers and classify them according to various aesthetic styles.

Content

A message or a theme of the design is called the content. The theme can be historical, socio-cultural, eco-friendly, or scientific and so on.

Activity 5

Collect images or photographs from magazines and newspapers and classify them according to the categories of content.



Figure 3.25 Science kit is designed to keep the tools and other material used in conducting experiments in class

Function

It is the purpose or application of the design to deliver results. Design can be informative, for instance, it can create awareness about something or provide information about something. Design can be expressive, i.e., it can be used to express thoughts or emotions. In that case the function of the design will be termed as expressive function. Sometimes graphic design is used for giving instructions to operate an instrument or machine or a kit, viz., science kit. Graphic design is used to design a textbook, instructional manual, educational CD-ROM, or it can be used as a teaching tool. In

all such cases the function of graphic design is instructive function. In advertisements, many a time graphic design is used to create an impact. It does not have any specific function as discussed above; creating impact itself is the utilitarian function of graphic design in such advertisements.

PRINCIPLES OF GRAPHIC DESIGN

There are several principles of design that have evolved over a period of time. Understanding and practical application of these principles is varied and diverse depending on the designer's attitude and overall approach. These principles are used in various fields, viz., graphic design, industrial design, fine arts, and architecture. They are understood and interpreted according to the need of the profession. However, there is a certain consensus among practising designers across all the disciplines about their nature and utility. Some of the definitions of these principles are accepted and shared across all the disciplines. By and large it is agreed that they are generic principles related to design sensitivity and designers use them to arrange or organise the basic elements of design so that overall composition looks appealing. These principles govern the relationship among various components and basic elements of design. These are the principles of aesthetic arrangement of components of design. They also govern the relationship of parts of design to the overall design. Successful application of these principles helps a designer to achieve the purpose of graphic composition and visual goals.



Visual balance

In any work of art or design the consideration of form, i.e., overall structure and its relationship with individual components, fitness and unity has become a great source of beauty. Every work of art or design supposes unity of graphical basic elements, depicted by the artist or designers in the composition. The beauty or elegance of design is considered as the expression of design emerging out of principles of design such as balance, unity, consistency along with careful implementation of variety with rhythm.



Figure 3.26 A plane is a balanced form

Balance

Humans always experience balance in everyday life, for example, riding a bicycle. It is used for controlling gravity. Graphic designers apply same principle to control the visual gravity or visual weight of various components in a composition or design. The principle of balance provides a

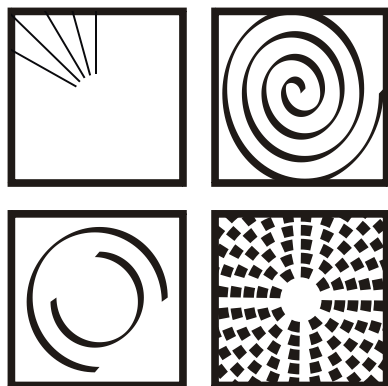


Figure 3.27 Different forms showing radial balance

visual stability to design. There are three types of balance: radial balance, symmetrical or formal balance and asymmetrical or informal balance.

Radial Balance

In radial balance, there can be multiple visual axes and all should converge to one single point. It is interesting to try out the possibility of having radial symmetry where the convergence point needs not be in the centre of the composition. The centre point can be anywhere in the composition. With little bit more practice you can achieve this. Radial balance generates radiating visual effect. Most of the flowers have radial symmetry.

Activity 6

Study the radial symmetry of different flowers and analyse it.

Symmetrical or Formal Balance

It is the most common balance and all of us are familiar with it. Designers achieve this by placing graphic elements in one part of the composition and then mirror it in the remaining part of the composition. You can divide the composition vertically, horizontally or diagonally. The line of division is called visual axis. In symmetrical balance preferably there should be only one axis. The main difference between the radial balance and symmetrical balance is that symmetrical balance needs one visual axis, while radial balance requires multiple axes and

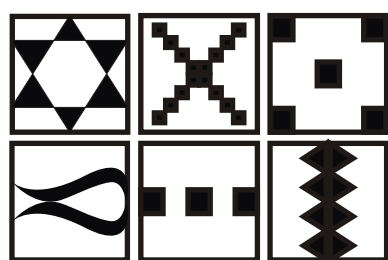


Figure 3.28 Formal/Symmetrical balance

Figure 3.29 Taj Mahal in Agra is a perfect architectural example of symmetrical balanced design



there should be a convergence point. Radial balance is the advanced and complex type of symmetrical balance. Symmetrical balance and radial balance are visually appealing and widely used widespread across all civilisations. However, beyond a point they become predictable and visually uninteresting. Many people do not favour them. Therefore, designers use them with caution.

Asymmetrical or Informal Balance

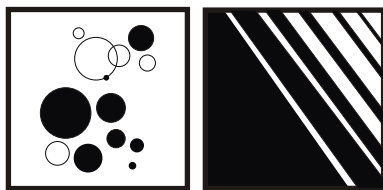
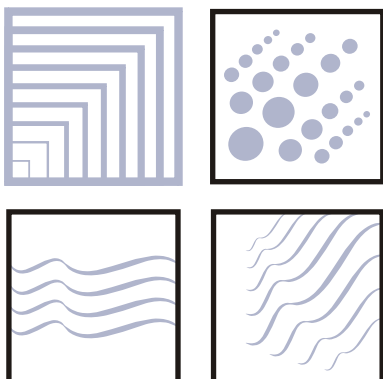


Figure 3.30 Asymmetrical/
Informal balance

Informal balance is achieved when the elements of composition are not arranged along with and/or across the visual axis. On the other hand informal balance is achieved only in terms of visual weight of all the basic elements spread over the entire composition. To achieve this you need to imagine or assume a visual axis of the composition and then arrange basic elements one by one in such a way that they should not appear like a mirror or repetitive image of each other. For instance, if you place one large form at one place in the composition then other part of the composition will create asymmetrical balance, as many elements may be of smaller size but having equal visual weight. You can continue this process of placing visual elements in a composition till you are satisfied with the overall visual balance of the composition. While achieving informal balance many factors play an important role. It requires proper understanding of visual weights of all the basic elements with their relational properties in the composition. For instance, dots and their sizes, lines and their thickness, thinness, and movement, positive and negative space, visual and relational properties of colours, various colours and their relative impact, relative visual weights of colour hues, colour values and colour luminosities. Therefore, achieving informal balance in a composition requires practice and deep understanding. However, it is not difficult because it is a natural tendency of humans to seek balance and therefore, designers follow their visual sensitivity and intuition to achieve informal balance in their compositions.



Rhythm

When a basic element or a motif in a composition is repeated with variation to guide the eye movement of the audience gradually from one part of the composition to other parts of the composition in an elegant way, then it is called visual rhythm. If one motif is repeated again and again then that will create a

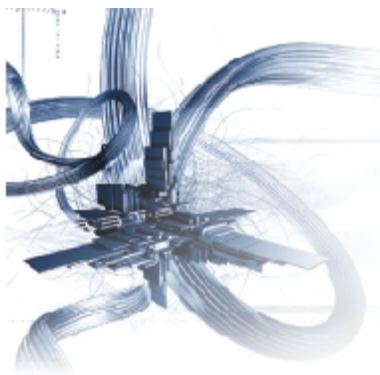


Figure 3.31 Rhythmic forms are created by repeated curved lines and dots with variations

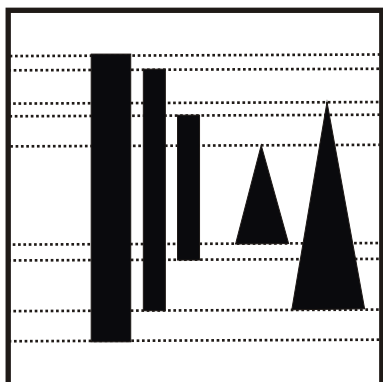
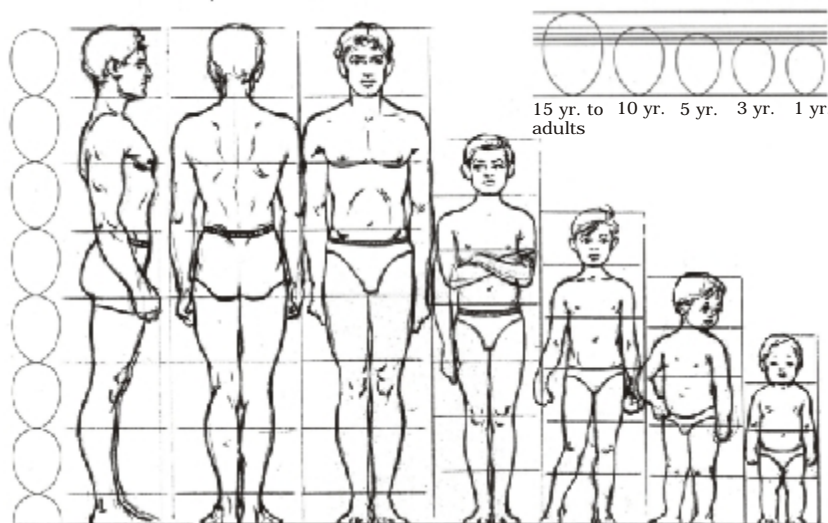


Figure 3.32 Human body grows in proportion from childhood to adulthood. Relative proportion of each part of body with other parts as well as the whole body changes as we grow old.

rhythm but it will be boring. But if while repeating the motif there is a little variation with each variation in terms of orientation, size, colour or any attribute of the motif then the resultant rhythm will not be boring. Basic elements and the relational elements can be organised to achieve interesting patterns of rhythm. Visual order leads to a generation of rhythm in a composition.

Proportion

Proportion is the relative ratio between or among various components of a composition as well as between a particular component or a group of components and the overall 'form' of the composition. The ratio can be expressed as a mathematical formula, however, in visual composition, proportion is understood as a relative ratio in terms of visual weight, size, visual thrust and other visual relational properties of the components. There are few well established ratios accepted in



the fields of art and design. 'Golden Mean' or 'Golden Ratio' (golden proportion) is based on the Fibonacci series. If two sides of a rectangle follow the ratio of 1:1.618 then that rectangle is called a golden rectangle. A famous painting titled the Last Supper, painted by Leonardo da Vinci follows the golden ratio. Many such ratios are well known and can lead to interesting visual composition. For instance some of the following ratios can result in interesting compositions: 1:1, 1:2, 2:3, 3:4, 4:5, 5:6.



Figure 3.33 Last Supper by Leonardo da Vinci is the ideal example of all the elements and principles of visual composition and organic unity. The original painting adheres to the 'golden ratio'. Relative proportion of its height to width is 1:1.618. Christ's face is the centre of interest in the painting. All the human figures are either looking at him or their body actions are directed towards his face including all the lines of perspective of the background architecture. Light coloured sky visible through window creates an impact of an aura around his head. The light sky, dark colours of the interior creates maximum contrast. Due to all this a visual thrust is generated so that our eyes come back to his face repeatedly.

Harmony

When two or more components in a composition are in complete conformity or unison with each other then their combination results in harmony. If the components are not in perfect unison but adhere to certain ratios then it is considered proportionate unison. Various colour schemes discussed earlier are good examples of proportionate colour harmony. There can be harmony of colour, shape, size, form, etc. Skilful application of the principle of harmony leads to a pleasant visual impact.

Contrast

When two or more components of a composition have an opposite visual impact in terms of certain attribute then the resultant impact is called contrast. There can be a contrast of color, value, size, etc. There can also be a proportionate contrast. For example, if white and black come together then they will produce maximum opposite visual impact in terms of value. On a grey scale white has highest value while black has the lowest value in terms of tonality. But if grey and black are put nearby each other then they will produce medium contrast. If any two nearby grey values from the grey scale are put together then they will produce low contrast. Therefore, there can be three categories of proportionate contrast—high, medium and low. If you look at the colour wheel, then any two colours which are opposite to each other on the colour wheel will produce high colour contrast. Therefore we have standard pairs of contrasting colours, viz., yellow-violet, orange-blue, and red-green. Any two nearby colours on the colour wheel will produce low colour contrast. Any two colours on triads will

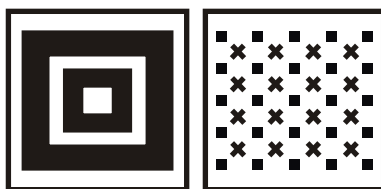


Figure 3.34 Visual harmony

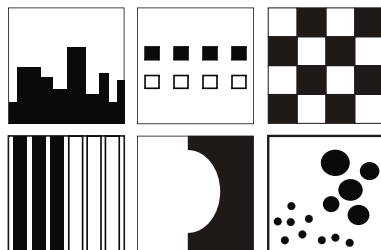


Figure 3.35 Visual contrast

Activity 7

Colour also produces value contrast. Now select any two colours from the colour wheel and find out whether they belong to high, low or medium value contrast.

Activity 8

Explore various possibilities of high, low and medium contrast of lines in terms of width of lines or expressive character of lines.

produce medium colour contrast. There can be contrast of value, colour, shapes, size, lines, and form and so on and so forth.

Centre of Interest

In a visual composition, a component or a group of components are placed in such a way that they attract the attention of the viewer. Visual composition should always have a centre of interest. It is achieved by skilful application of the principle of contrast. It is also achieved through deliberate emphasis on certain elements in a composition and deliberate subordination of certain other elements in a composition. There is another way of achieving it by isolating one element or component from the rest of the components in a composition. The isolated component will capture the attention of the viewer.



Figure 3.36 Centre of interest in a visual composition

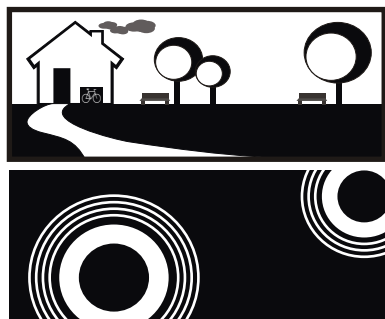


Figure 3.37 Organic unity in different forms

Organic Unity

Organic unity is the most important principle of composition. It is the quality of a composition that makes it visually complete. In such a composition neither you can add an extra element nor you can remove any. It is the state of achieving visual perfection in a composition. In nature, for instance, if a branch of a tree is cut then you always feel something is missing from the tree. A tree looks incomplete because by

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cutting a branch, the organic unity of a tree is disturbed. In a visual composition, organic unity is achieved by optimum, appropriate and skilful use of elements and principles of composition.

Activity 9

Observe nature and find out how principles of design or composition are manifested in nature and how they contribute in achieving organic unity. Collect images and photographs of natural things from newspapers or any available source and recognise the presence of principles of balance, rhythm, proportion, contrast, harmony, centre of interest and classify your images accordingly. Write brief description of how a particular principle is visible in the image or a photograph.

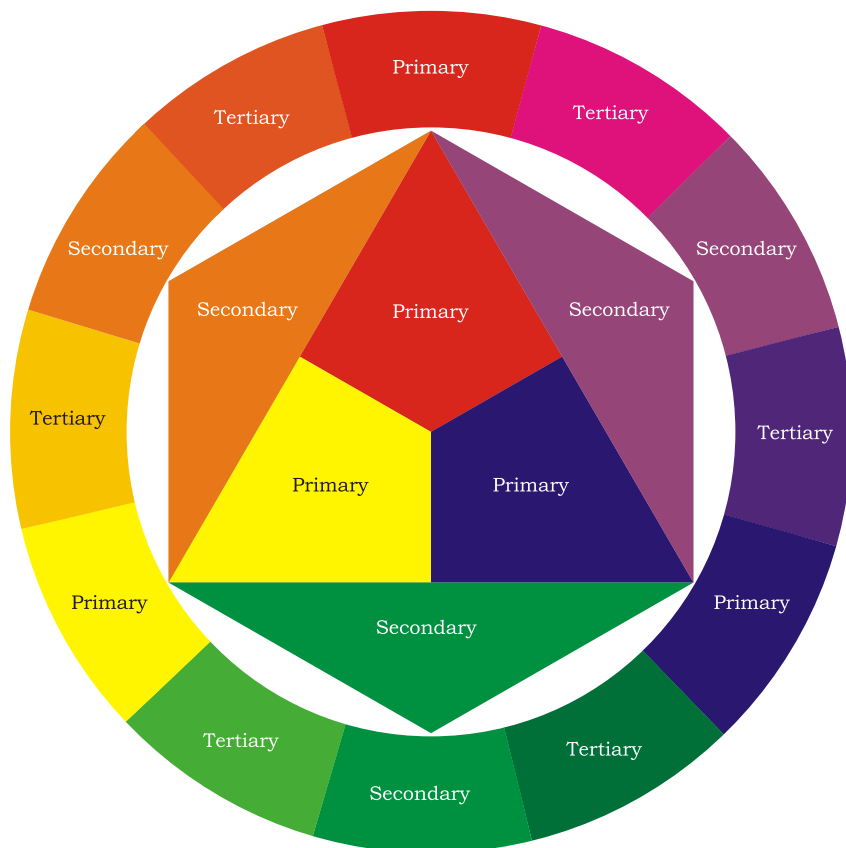


Figure 3.38 A colour wheel, a new colour is obtained by mixing one or two secondary and/or tertiary colours with primary colours

Activity 10

Draw a rectangle of 10 cm by 15 cm (use pencil to draw the rectangle). Using compass, draw a circle of any size inside the rectangle (do not draw a circle in the centre of a rectangle). Then you can draw four rectangles or squares of different sizes. They can overlap each other as well as the circle. Now draw three triangles of different sizes in such a way that overall composition looks good. These triangles can overlap each other as well as circle and rectangles. Now you have a composition with many divisions. Now trace the composition and make at least ten copies. Now fill up these compositions using the above-mentioned colour schemes.



1. What is the difference between elements of graphic design and principle of graphic design? Explain with your own examples.
2. Explain various types of balances with your own examples?
3. What is organic unity?
1. Take a compass and draw a circle in the centre of a white paper. Now fold the paper vertically and then horizontally. Then open it again. The vertical and horizontal lines of the fold act as the axis of symmetry for the circle. So the circle is divided into four parts. In one of the parts draw any shape with a pencil; preferably this shape should touch the centre of a circle as well as both the axis. Now trace this shape on the nearest quarter of a circle (Teacher may explain the process of tracing) so that it will look like a mirror image. Now you have a half circle with a drawing. Trace this half on the remaining half of the circle. You have created radial symmetry. You can try this exercise with eight folds and sixteen folds. More interesting is trying this exercise with three folds, six folds, five folds or any number of folds.
2. Develop a grey scale of nineteen steps.
3. Develop a value scale for any one colour that will match your grey scale.
4. Develop a colour-wheel of twenty four colours as shown in the diagram.

The background of the entire page is a photograph of two individuals from behind, wearing large, intricately folded red turbans. They are wearing light-colored clothing. The image is set against a dark blue background that features a subtle pattern of lighter blue squares in the upper portion.

GRAPHIC DES


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UNIT II

GRAPHIC DESIGN AND SOCIETY



Throughout India from time immemorial an idiom of simple form provided the language of inward searching, a vocabulary of signs to express human relationship with the universe. This ability of design to embody, to symbolise, could be seen in various symbols that we encounter in our daily life not only secular, but also political, religious and even common. It may be a *rangoli*, *kolam*, *alpana* or *mehendi*, it is a deeply rooted essential practice in our society.



4

CHAPTER

INDIGENOUS GRAPHIC DESIGN AND CULTURE

The word 'indigenous' has the common meaning of 'having originated in or being produced in a particular region or environment'. Therefore, in this sense any ethnic group or community as well as their artistic and cultural expressions and practices may be described as being indigenous in reference to some particular region or location.

In the Indian context, the first ever documented use of the words that may mean 'design' is found in Vedic literature. Vedic hymns always postulated that the entire cosmos is created as 'pre-designed' or 'pre-planned'. In the tenth *Mandala* (Chapter) of *Rigveda* there is a hymn called *Aghamarshanam*. It is a hymn of creation that describes a step-by-step process of creation of the universe. It is said in the hymn that the universe is created as 'pre-designed'. The hymn uses the word *kalpa* to denote the process of design. The word *kalpa* is a Sanskrit word which means imaginative composition or a plan. Similarly, in second *Adhyaya* (Chapter) of the *Brahmasutra* (a philosophical treatise that captures the essence of Vedic wisdom), it is argued that this universe has a design. In this context *Brahmasutra* uses the word *rachana* meaning thereby that the universe has a design, a structure or a composition. The Sanskrit word *rachana* means composition, construction or organised structure. Also *Adhyaya 221* of *Brahmasutra* argues further that since the universe has a definite design, one cannot think of a design without the designer—indicating that there must be a creator as well as the designer of this universe. Thus, it can be stated that there are two words, *kalpa* and *rachana* to denote the activity of design or imaginative composition or organised structure. Apart from the Vedic concept of design, we come





Figure 4.1 Tribal wearing headgear and painted face reflects status of tribe



Figure 4.2 *Pagri* also represents



Figure 4.3 *Mehendi* Design

across the discussion about design and related artistic activities in many treatises on fine arts, architecture and in other classical literature. These treatises provide a theoretical basis for design by laying down the canons or the rules of artistic and architectural design practices. Design has been an integral part of the profession for many of the communities in India. Communities which were involved in the professions of making artefacts and products, wood-work, jewellery, metal-work, stone-work, ceramics, textile, toys, painting and architecture possessed the traditional wisdom of designing and it was passed on from one generation to the next.

Indigenous design practices encompass a vast area of enquiry. This ranges from adornments of various complexities, pertaining to different functional modalities, religious, social and communicational, to religious symbolism of various kinds—the *yantras*, the pictographs on the walls, to the *alpna* or *kolam* done by the woman on the floor to the body tattoos and *mehendi* outfit and headgear. These expressions are used with formal peculiarities evolving out of specific needs both religious and secular in the particular context or environment.

In a country like India with diverse socio-cultural traditions and customs, design forms change from place to place, from one ethnic group to another with formal peculiarities and each of them are unique. As evident indigenous design practices vary in different functional modes such as religious and social, so the communicatory to objects of use with formal features evolving out of specific religious and secular utilitarian needs also vary. For instance style of wearing *Pagri* in Rajasthan, keeps on changing after every 15 km.

Thus, social and religious life has affected the design forms of various regions in India and can be classified in various ways. One of the ways of classification would be as ritualistic and utilitarian.

Ritualistic

Tattoo and *mehendi* designs are excellent examples of ritualistic indigenous graphic designs which have survived from ancient times to modern days. These designs are used in the social rites associated with some beliefs and religious practices. Indigenous designs are also applied to an individual in person in the form of surface ornamentation and decorative



Figure 4.4 A decorative body tattoo

Tattoo is a permanent imprint. There are instances when a tattooed person wants to remove tattoos later, but the removal process is too expensive and painful. And at other times they are unable to remove the tattoos completely and might just be left with a partial tattoo or a permanent scar.



Figure 4.5 A place on the wall for keeping lamp

devices like graphical marks made on walls or on objects to various forms of jewellerys, headgears and so on. We see girls adorning their hands and feet with *mehendi* designs during marriage ceremonies and on festive occasions. These are worn not merely for decorative intent. Aesthetic considerations also play an important part in it.

Mehendi is a temporary form of body art done with naturally prepared paste obtained from a plant, usually found in the Middle East and in other Asia-Pacific regions, where the weather conditions are hot and dry. The leaves are dried and grounded into a fine powder. This powder is mixed with water, eucalyptus oil, tea, coffee, and lime and then applied on the body. *Mehendi* is traditionally used for its medicinal qualities. Its use became popular in India because of its cooling effect in the hot Indian summers and is still used in sacred and ritualistic ceremonies in India. Mainly used by women, the fine curvilinear lines of the *mehendi* design are testimony to its feminine essence.

Other than *mehendi*, more permanent forms of body adornments are also practised in the form of *godna*, *pachakottu*, *oolki* or you may call it a *tattoo*, which means tapping or marking something. Tattoo designs were initially used to identify specific tribes. Certain communities used it as a status symbol. Apart from using as a form of permanent tribal identification it was also used for decorating bodies even though it is a very painful procedure. The ritual was performed very carefully as putting on the wrong tattoo would jeopardise chances of being one of the tribe and might just permanently mark a person as an outsider.

The tattoo design practice involves piercing into the body, which is done by dropping a sharp-pointed comb into lampblack ink and then inserting it into the skin. Despite the trouble involved, many people got their bodies tattooed, especially arms. Tribal tattoo designs have taken ideas from the tribal art that was pursued by the native and indigenous tribes. Wearing these can variously be attributed to fertility, magical rites of various kinds, to ideas of beauty, social status or as markers of tribe identity.

Utilitarian

Social customs demand the objects, modes of manufacture and material values determine the form of indigenous designs.

Figure 4.6 *Ghara* and *Kalshi*



Motifs seem to dictate the design of various objects with modifications and adjustments in forms, shapes and sizes done to serve specific purpose. The shapes and forms of pots have variations according to its particular usage and locality. Forms of containers vary depending upon its use from *Handi* - a cooking pot, *Kalshi* - a water pitcher, to larger containers *Gharas* with wide mouth for storing waters brought in pitchers attesting their specific usage. *Gharas* are made of porous sandy clay with beaten and rounded bottom which keep water cool through evaporation.

There are separate shapes of pots for carrying on the head, at the waist or by hand and special sizes of pots to contain certain measures of rice, oil, milk, etc. Storage pots of different kinds have different local names and their shapes squat or tall with necks broad or narrow, are according to the use they are meant for.

Different sizes and forms of large mangers are used for feeding cattle and other animals which hold hay and large round-bottomed bowls for boiling paddy to make parboiled rice.

Religious activities have also dictated the form and shape of containers and objects needed during the observance of various rites.

The architectural make-up of a holy place or shrine, encapsulates within its design, ideas of hierarchy - the architectural setting itself acting as a tool of worship. For example, the elongated dominical structures peeking to a summit that we generally associate with religious sites or the flurry of stairs leading to the main structure all encapsulate within it, ideas of hierarchy, distance and sublime reverence.

The four lions
back to back
symbolise
four

The wheel
symbolised
the *Dharma*
Chakra or the
wheel of law.

Four animals
alternated with
the wheel
illustrate the
extent and
persuasive
command of the
Buddha's
Sermon:

The Horse
symbolised the
South

The Bull
symbolised the
West

The Elephant
symbolised the
East

The Lion
symbolised the
North

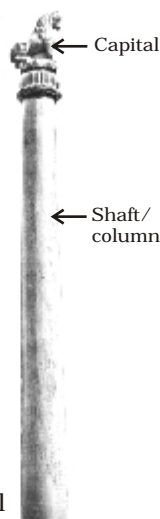


Figure 4.7 Lion Capital



Figure 4.8 Lahenga

Let's us now take up a symbol that we often come across on currency notes, coins, sign boards in front of government organisations or defence forces or on stamps or on top of the dome of Rashtrapati Bhawan and so on.

What is common to all of them?

The Lion Capital.

The Lion Capital, erected by Emperor Ashok at Sarnath commemorating the first sermon of Buddha has been adopted as an emblem for modern India. Known as edict columns these capitals are originally surmounted over a long shaft or column, erected at places associated with events of Buddha's life or marking pilgrim routes to holy places. These columns function similar to that of a modern day hoarding, is not it! Both perform certain promotional functions while one advertises *dharma* the other a particular commodity. Both are displayed above the eye level and placed at prime location for maximum attention and aspiration. This makes a great visual appeal and impact on commuters and observers.

The shaft of the edict appears to be a culmination of an older pre-Buddhist religious tradition of the axis head (*mundi*). The axis *mundi* is a symbol representing the point of connection between the sky and earth. It offers means of travel and correspondence between the two realms. The axis *mundi* appears in all cultures and takes many forms.

The above ritualistic and utilitarian classifications are made for better understanding of indigenous designs. However, we normally find that designs can be classified under more than one category. While understanding indigenous design one needs to look at it from various perspectives. Indigenous design always has some specific meaning. It also has beautiful and aesthetic form which is an integral and important part of a design. Lastly, the design emerges out of necessity and it has specific function or purpose to perform. Therefore, indigenous design can be understood from the following perspectives.

Contextual Perspective

Objects change their meaning, significance or utility value according to its contextual placement. A rectangular yardage of cloth could be wrapped around or tied in various ways to

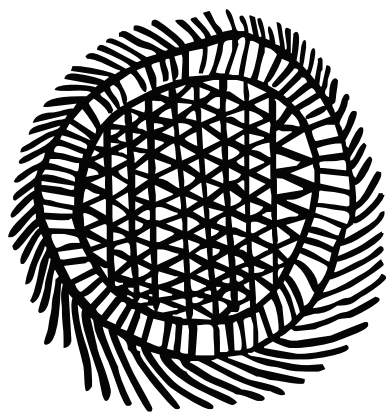


Figure 4.9 Symbolic Sun

create different articles of clothing. When wrapped around the head it acts as a *pagri*, when draped around the upper torso it becomes the *shawl* or the *uttariya* and when wrapped or tied around the waist, covering the lower part of the body, it becomes the *antariya*, the *kanccha* or the *lahenga*.

Semiotic Perspective

Throughout India from time immemorial an idiom of simple form symbolises a language of inward searching, and a vocabulary of signs to express the human relationship with the universe. This makes designs meaningful in some or the other sense. Semiotic perspective create an understanding, the relationship of indigenous designs which evoke a meaning in the minds of the users. Since graphic symbols are visually appealing and effective, the issues are even more important.

On the other hand the ability of design to embody, to symbolise, could be seen as another functional obligation it lends itself to as seen in the various symbols that we encounter in our daily life not only secular, but also political, religious and cultural. This creates a great visual appeal and impact on the observers.

Symbolised design depicting deities could also be observed in the amazing structure of Anga, the supreme deity of Muria tribe in Bastar, Chhattisgarh. The Anga has a specific form created by three parallel poles joined together by crossbars and tied up, with peacock feather sticking at its

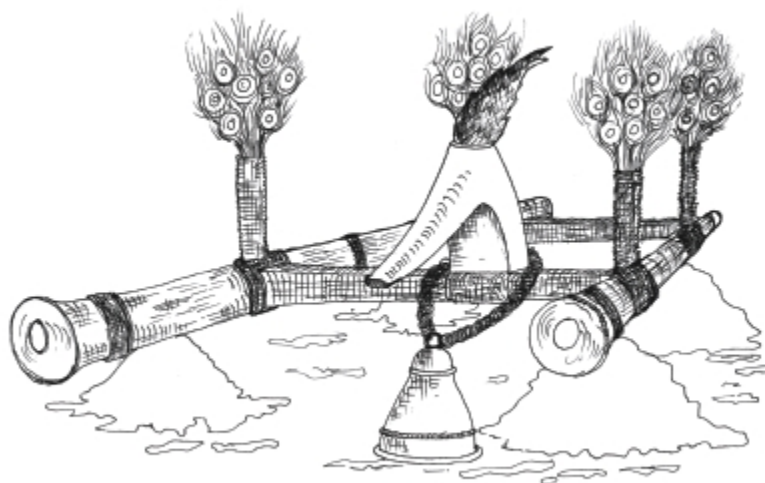


Figure 4.10 Anga

joints. Coins are fixed on the upper surface of two sides of poles. Anga is carried on shoulders by its bearers. The central pole is Anga himself, with front part bending upwards at an angle and then bend again parallel to the pole to form the head, providing a feeling of tremendous forward thrust. Anga dominate its powerful presence as it is polished by a dull black colour. It strikes admiration to the beholder and when possessed, moves along with great speed on the shoulder of its bearer.

Functional Perspective

Designs are used to perform a function. Let us see an example from Sanchi to illustrate that how form follows function. The Yakshi bracket figure is an architectural design. The notion of supporting the weight of the lintel which a bracket practically does is not only understood in the dynamic stance of the figure but also in flayed gesture of the feet carrying the connotation of the weight.

Figure 4.11 Yakshi



Let us look into how the scarcity of urban space is being utilised for maximum utility. We see space orientation of a small shop or any road side tea stalls; where the claustrophobic space is divided vertically into a series of tiers; the upper space for the daily transaction and servicing to take place while the lower section utilised either as a workspace or storage. This experience of functionally organised space around us contributes to nurture our sense of visual space and graphic sensibility.

Figure 4.12 Terracotta form from Ider, Gujarat for ritual use



Figure 4.13 Various symbols of indigenous rituals

Cultural and Social Forms of Signification

Our social and cultural life leads to the creation of various forms of signification like

Pagri/turban (to signify class, caste, profession or religious affiliation)

Mangal sutra (confirming the marital status of a woman)

Religious drawings like *Swastikas*, geometric diagrams like triangles and inverted triangle to signify male and female faculties of creation as seen in the *yantras* and wall decorations or the *mandalas* presenting a microcosmic view of the macrocosm, etc.

Memorial pillars erected by the tribal communities in memory of the deceased (like the *Gatha* for male and *Sati* for the female erected by the Bhils, also a practice among Korkus known as *Shadoli Munda* or the Maria memorial pillars carved out of whole trunks of trees).

Marriage pillars also known as *Mangrohi Khambs* were erected by the Gonds not only as a fertility symbol but also to ward off evil eye. They used to immerse the pillars in the river after performing the ritual.



Figure 4.14 Votive terracotta elephant from Bastar

The broom and the chappal/slippers tied on a long bamboo pole in construction sites to ward off the evil eye.

Votive figures (terracotta horses, buffaloes, elephant and camels are made as devotional objects).

Deities signified through pieces of stones arranged under trees, flag poles and tridents, peacock feathers arranged on top of a pole (*chandi* by the Gonds) or the polished boulders from river beds arranged on top of the other signifying Shiva.



1. What do you understand by the term indigenous design? Explain with few examples.
2. What do you understand by body designs? How is a *mehendi* design different from the body *tattoo*?
3. What do you understand by the term memorial pillars? Elaborate with few examples.
4. What are Edict columns? What do you understand by the term Axis Mundi?
5. Discuss in brief the role a culture plays in creating symbols. Explain with examples.
6. Explain that the society and objects are related to their ritual and utility.

1. Identify five traditional or contemporary forms/objects from day-to-day uses based on their function and make pictorial analysis.
2. Collect some (three to five) designs from your local environment and modify them to make more effective and aesthetically appealing.
3. Design a motif and convert it into three-dimensional drawing.



5

CHAPTER

INDIGENOUS GRAPHIC DESIGN PRACTICES

Is graphic design only a modern idea or do we have art practices from earlier times which could be called graphic design practices? Do only the urban educated practise graphic design or can we find art practices in tribal and rural areas among people and communities that are not educated in a modern way?

What do you think? Yes, we can see many art activities that come under graphic design among the pre-modern and traditional people and communities. It ranges from drawings on thresholds to corners, walls, roofs and front-yards of houses. The list goes on to the handloom cloth, ceramic decorations, *tattoos*, designs on hands and palms such as the *mehendi* to religious icons and *yantras*, talismans, walls and roofs of temples and forts in India and so on. All the art activities can be distinguished from the modern or contemporary graphic design practices and may be called indigenous graphic design traditions or traditional graphic design practices.

Based on the tradition to which they belong, living Indian indigenous graphic designs and motifs may broadly be classified as under:

- ▣ Vedic and earlier design practices
- ▣ Folk and popular traditions
- ▣ Tribal design practices
- ▣ Tantric design practices



Figure 5.1 A *Yajna* ritual



VEDIC AND EARLIER DESIGN PRACTICES

To an extent, the above traditions are mutually connected. But there are several possible ways in which these strands could be connected to each other. The connection between earlier traditions is well known and undisputed. The early design practices are widely accepted as the later and popular form of the Vedic. But the problem whether Tantric has Vedic connections or it is an autonomous tradition or it has folk/tribal origins is not yet settled. There is a possibility of connecting both Puranic and Tantric traditions to Vedic traditions on the one hand and to folk and tribal traditions on the other.

In Vedic rituals, *Yajnas* are the rituals of dedicating materials through fire to various gods and goddesses. These *Yajnas* such as *Shraaddha karmas* (ancestor worship rituals), rites such as marriage-rites, etc., shapes such as circle, square and triangle are used to represent and invoke different gods and goddesses. For example in a *Shraaddha karma*, a circle is drawn by the *Karta* (performer of the ritual) with his finger on water smeared by him on the floor, to invoke the spirit of the ancestor being worshipped by him in that ritual and a square is drawn in a similar fashion to invoke the gods called *Visvedevas*.

More complex figures are drawn with finger with white rice powder on the raised platform or floor prepared by mud to invoke various Vedic gods as part of *Yajnas*.

The script symbol for the most vital speech sound of Vedic culture, pronounced as *Om* and called *Pranava*, is one of the most significant graphic representation in this culture.



Figure 5.2 Vedic symbols



Many other such powerful graphical symbols such as swastika can be traced to Vedic graphic symbolism.

FOLK AND POPULAR TRADITIONS

Non-vedic, non-modern, rural traditions are usually classified under 'folk' traditions. There is a controversy about whether these traditions are pre-vedic or not. Whatever is the truth in this regard, as we find them today most folk traditions are either influenced by or usually in some way are connected to vedic tradition. There is evidence of influence of folk traditions on Vedic tradition or absorption of folk tradition into Vedic tradition also. There is a great part of folk tradition that is continuing with little influence from Vedic tradition.

Folk and puranic traditions include popular cultural and artistic practices that may be religious or secular in nature. These practices, by and large, have evolved in the form of customs, profession or artistic traditions. Some of such folk and puranic design practices are discussed below.



Figure 5.4 A swastika is designed on wall

Threshold Decorations

Traditionally in Indian villages, front yard or threshold is either plastered by mud or cow dung and some drawings are made on specially prepared walls and floor. The threshold could be understood as an intermediary space between the outer and the inner world of the home. The function of this, at a superficial level, seems to be purely that of a decoration. But there are studies that show the origin of this practice in

Figure 5.3 A front yard decoration with space to keep oil lamp



the notion of fertility and magical (supernatural) beliefs around them.

Usually, the drawings are made in powder. This powder appears to be white in colour in most parts of India. In some parts this white powder is powdered from a soft brittle white stone. But today, in most places, rice flour is being used for this purpose.

Although they vary in name, material, and part of the house they are made in from region to region, these are exclusively done by the women folk on the threshold of the house, according to knowledge passed on from one generation



Figure 5.5 Threshold decoration on floor

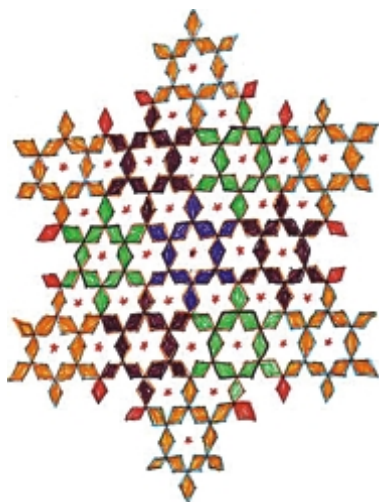


Figure 5.6 Making design on floor



to another, from mother to daughter. This gender exclusivity has given this design form a feminine identity understood in a social setting where women were limited to a certain work-area of the household.

The practice of decorating floor is known with different names as *Alpana* or *Alpona* in Bengal, *Aripa* in Bihar, *Jhuniti* in Orissa, *Mandna* in Rajasthan and Madhya Pradesh, *Salhiya* in Gujarat, *Rangoli* in Maharashtra, *Muggu* in Andhra Pradesh and *Kalamezhuthu*, *Kolam* in Karnataka, Tamil Nadu and Kerala and in Uttar Pradesh it is known as *Chowkpurna* or *Aripa*.



In Kerala, the design's outlines are filled in by flowers, while in Orissa, Rajasthan and other parts of North India, the design is made from a mixture of rice flour and water and is applied with the finger, piece of cloth or a brush. While in North India, they are mostly done during religious festivals or during *vratas*. In South India the *Kolam* is practised daily.

Alpana/ Alpona/ Aripa/ Rangoli/ Jhuniti

Alpana is made by women of the household during the days of festivities and religious functions in front of households in Bengal. They are drawn on the ground by means of a small piece of cloth wrapped round a finger which is soaked in thin paste of grounded rice mixed with water.



Figure 5.7 Different forms used as motifs

These drawings are connected with certain rites performed exclusively by matrons (*nari vrata*) and virgins (*kumari vrata*) or by priests on behalf of women (*sashtriya vrata*). *Vratas* are rites

for the realisation of special wishes and performed according to rules transmitted from generation to generation not confined to any religious cult or special sect. As evident, these are done by people with rudimentary skill inputs. The forms could be understood as a kind of picture-writing using simple-forms and shapes (calligraphic simplification of objects). These forms are utilised to create designs/narratives of varying complexities as a testimonial of their desire and wishes through an *alpana*.

Also prevalent among them is a sense of decoration/ornamentation as seen in the various innovative creeper and lotus motifs associated with the *alpana*. But when they are taken out of this contextual setting of rituals as part of fulfilment of vows they become mere objects of decoration.

In the Mithila region in Bihar *Aripana* is done by Brahmana and Kayastha ladies closely associated to religious rituals. Using their fingers they create graceful lace like designs on the mud floor of homes and courtyards. Colour is added with the blood red vermilion powder in the form of dot like patterns. The material like turmeric, rice and wheat powder used is called *Aripa*.



Figure 5.8 *Kalamezhuthu*

Moving out from the domestic threshold drawings done by women we look into another form of sand painting practised in the temples of Kerala. This requires more accomplished skill and greater precision through traditionally prescribed and mandated at different hierarchy levels.

Temporal in nature this *Kalamezhuthu* is conducted as part of the general festivities in the temple, or as part of a major ritual, and is immediately erased after the ritual is over. This colourful ritual is done by hands without using any tools using powdered pigments extracted from natural mineral, vegetable or combined sources.

Kolam

Kolam is mainly done with the belief to bring wealth and prosperity into the household. The welcoming/inviting gesture of the *Kolam* could be understood in a larger context, where the coarse rice material ingredient with which the *Kolam* is done acts as a means to invite insects, birds and other small creatures to eat it, thus inviting other-beings into one's home and everyday life as a tribute to harmonious co-existence.



Figure 5.9 *Kolam*



This becomes more ironic in today's world of fragmentary values, and overall environmental degradation.

On the other hand, the designs are also believed to sanctify the threshold and make the house auspicious, pure and protected from the inauspicious, impure and dangerous outside world. The closed lines symbolically prevent the evil spirit from entering the shapes and therefore prevented from entry into the house. If the threshold is not constantly sanctified by the *Kolam*, inauspicious forces may trespass into the home and eventually disrupt the health and well-being of the family. Thus, this function of warding off inauspicious forces at the threshold is performed.

The structural basis of a *Kolam* is the predetermined matrix of dots (*pullis*), that acts as simple structural unit on the basis of which the patterns are formed either by joining the dots or looping around them to create the designs.

Work circuits of various strata with varying degrees of sophistication, skill inputs could be seen in any culture ranging from people with rudimentary skill trying to fashion

Floor decorations of various kinds could be seen all over India and it would be interesting to research into the formal peculiarities and nuances in floor decoration pertaining to one's locality.



Figure 5.10 A *Kalamkari* with events from Ramayana

out symbols to render the visual facts around them, to the more complicated, more individual and sophisticated forms of design on textiles.

Kalamkari

Kalamkari or *Qalamkari* is a type of hand-painted or block-printed cotton textile produced in parts of India for hanging on walls. The word is derived from the Persian words *kalam* (pen) and *kari* (craftmanship), meaning drawing with a pen. *Kalamkari* tradition is very old and flourished in Coromandel and the wealthy Golconda Sultanate of Hyderabad, in the middle age it was traded to Persia. This art was patronised by the Mughals particularly in Golconda.

There are two distinctive styles of *Kalamkari* design in India — one, the *Srikalahasti* style and the other, the *Masulipatnam* style of art. Both the styles are different in practice. The *Masulipatnam* style of *Kalamkari* is influenced by Persian art. The motifs used are trees, flowers and leaf designs are printed using blocks. The *Srikalahasti* style flourished around temples with Hindu patronage, thus has an almost religious identity, wherein the *kalam* or pen is used for freehand drawing of the subject, and filling in the colours is entirely done by hand. The themes and deities are drawn from great epics like *Ramayana*, *Mahabharata*, *Puranas* and other mythological classics. These are depicted on scrolls, temple hangings and chariot banners.

In the execution of design in both the styles only natural dyes are used. The cotton fabric gets its glossiness by immersing it for an hour in a mixture of myrobalan (resin) and cow milk. Then contours and themes are drawn with a pointed bamboo (*kalam*) soaked in the mixture; and then one by one the vegetable dyes are applied by hand and/or block. After each colour the *Kalamkari* is washed. Thus, each fabric can undergo up to 20 washes. Various effects are obtained by cow dung, seeds, plants and crushed flowers.

Ikat

Ikat or *Ikkat* means ‘to tie’ or ‘to bind’ and describe both the process and the cloth itself. *Ikat* and duble *Ikkats* have cultures with long histories of production in South-East Asia. *Ikat* is a process of weaving that uses a resist dyeing technique similar to tie-dye on either the warp or weft before the threads are

Figure 5.11 An *Ikat* cloth

woven to create a pattern or design. When both the warp and the weft are tie-dyed before weaving it is known as double *Ikat*.

Patola cloth, a double *Ikat* from Gujarat and *Pochampally Ikat* from Andhra Pradesh are indigenous practices of textile designing in India. Like any craft or art form, *Ikats* vary widely from place to place and region to region. Designs may have symbolic or ritual meaning. *Ikats* are often symbols of status, wealth, power and prestige. Perhaps because of the difficulty and time required to produce an *Ikat*.

The easiest way to create *Ikat* is that the warp strings are arranged into bundles before they are attached to the loom. Each bundle is tied and dyed separately, so that a pattern will emerge when the loom is set up. This takes a good deal of skill. The tightly bound bundles are sometimes covered with wax or some other material as resist. In resist technique a medium (wax) is used, it keeps the dyes (water soluble) from penetrating, as both (wax and dye) repel each other. The process is repeated several times for additional colours. Sometime each strand of the cloth may be dyed differently from the ones next to it. After the threads are dyed the loom is set up. *Ikat* fabrics are woven by hand on narrow looms in a laborious process. The pattern is visible to the weaver when the dyed threads are used as warp. Threads can be adjusted so that they line up correctly with each other.

Double *Ikats* are the most difficult to produce, the warp and the weft are precisely tied and dyed so that the patterns interlock and reinforce each other when the fabric is woven. The uniqueness lies in the transfer of design and colouring onto warp and weft threads first and then weaving them



Figure 5.12 A tribal design

together. The fabric is cotton, silk and sico on a mix of silk and cotton. Increasingly, the colours and their blends themselves are from natural sources. The weavers from the older and new generation have adapted themselves to the changing tastes of society and are creating untraditional design.

TRIBAL DESIGN PRACTICES

The tribal society has been practising their rituals with pictorial writing which could be argued further in the wall decorations done in various parts of India from the Saora pictographs to the Madhubani or Warli. All these depict their lore and ritualistic functions. These pictographs also act as modes of communication repository of mythological tales, history and even glimpses of daily life as seen in the Warli wall decorations: painting figures and diagrams was the only way for these unlettered people to transmit their hereditary knowledge, folklore and good wishes.

The pictorial format of these wall decorations uses extremely basic graphic vocabulary to create their pictorial narratives. Simple elements like square, circle, triangle, semicircle act as elementary form units like alphabet in a language to build up signifiers of varying degrees of correspondence. The circle and triangle come from their observation of nature; the circle representing the sun and the moon, the triangle derived from mountains and pointed trees. Only, the square seems to obey a different logic and seems to be a human invention, indicating a sacred enclosure or a piece of land.

The figures as represented in a Saora or Warli pictographs are the inverted triangle or two triangles joined at a point. The upper triangle represents the upper torso while the lower as the abdomen. Head is represented by a small circle and a smaller circle in conjunction with larger circle is for the female. When circle drawn together with lines for the legs and hands, a human form appears. Through this kind of similar other signifiers, they create the narratives of various complexities. These narratives evolved a kind of picture writing which forms an essential aspect of these wall decorations.

Saora Pictograph: A Case Study

Saora (Saura) in Orissa is a traditional way of their life. The elaborated pictographs drawn in white is also called *ittals*



Figure 5.13 A Saora pictograph

or *idittal*. The practice is done on both inside and outside walls of their houses. The *Saora* or *Ittal* is created to appease the god. As a testimony of charming flattery, it tries to show what a powerful person Jaliyasum is, how many servants he has, how lavish a marriage he can afford and so on.

Let us now look into a *Saora* pictograph to delve more into the communicational efficacy of these signs. *Saora* paintings or *Ittals* are made in honour of the dead, to avert disease, to promote fertility and on occasions of certain festivals. Done on the wall of the house, freshly washed with red clay which acts as the canvas, the paint made with a mixture of powdered rice mixed with water is applied with twigs slightly frayed at the end.

In the given pictograph, there is a palace in the centre which is represented by the rectangular enclosure with people dancing in it. The human forms are depicted through a combination of rudimentary graphical elements like triangles, circles and simple lines for hands and feet. On a tree outside, monkeys are dancing with joy. Approaching the building is Jaliyasum's mother, sisters and daughters dancing in a row and is protected by police carrying guns on their shoulders. Sun, moon and stars represented by circle, semicircle and dots shine upon the scene. Another god comes to attend the marriage on an elephant. For making drawing of an elephant, they first make the body with triangles then add legs, tail and the trunk and eventually white is filled in the body and rider is drawn. The horse is drawn by two opposite triangles like that of the human figure but tilted on the side. The potter brings pots for rice-beer. A local chieftain comes on a mare followed by its foal; he brings two she-goats for the marriage feast. Two men bring in a sambar killed by God's servants. The range officer also attends and sits with his family on chairs (indicated by the parallel lines). An unwanted guest is caught by Jaliyasum's dog — a tiger (indicated by the stipples) and another dog attacks a lizard while a man shoots at it with bow and arrow.

Simple marks like the hatched line, dots or curvilinear lines not only gives a graphical splendour to the motifs but also are ritualistic symbols of hair, quills, leaves, etc. With this repertory of characters of finite elements they create infinite number of signifiers. These signifiers represent their dreams and folklore in pictorial poetry and prose with vibrant details for effective communication which is attested in the charming simplicity of these designs.



Figure 5.14 A Bhil painting

Pithora –Bhil Paintings: A Case Study

Pithora paintings are much more than ritual colourful images on walls for the tribes of *Rathwas*, *Bhils*, and *Naykas* of Gujarat and Madhya Pradesh. They signify the advent of an auspicious occasion for celebrations like wedding, childbirth, festivals in the family or community. This celebration and joy reflect in *Pithora* paintings with their colours and animated figures. These paintings on the walls of their houses have belief that it would enhance their fortune and keep poverty out of their lives.

These paintings mostly depict the marriage procession of Baba Pithora and Pithori Devi, the two gods worshipped by the tribals. Other gods, animals and characters from the Hindu mythology are also included in the paintings. The complete process of making these paintings reflects and reminds the art practice inspired by tradition and culture. Apart from this, the paintings also depict the daily lives of the people. Therefore, farmers, women, animals and insects and other objects are also represented in the paintings.

The materials for painting are prepared by mixing colour pigments with milk and liquor prepared from the Mahua tree. *Pithora* paintings are more of ritual practice than an art form. The first wall of the house is considered to be the right place for a painting of *Pithora*. The identified walls to be painted are first plastered with a thick mixture of mud and cow dung. This is done by the unmarried girls in the family. Then it is coated with chalk powder and this preparation process is called *lipna*. After *lipna* the painters proceed to create their work which is done by males. *Pithora* painting ritual is a male performing process unlike that of *alpana*, *kolam*, *warli* or *madhubani*.

A *Pithora* painting is drawn or composed within a rectangular enclosure with an opening at the centre from the bottom border. Everything which has concern with Bhil tribal life is represented and painted. The figures included are tigers, elephants, goats, camels, banyan trees, insects, scorpions, chameleons, beehives; deities and mythological figures, farmer ploughing the field, women churning butter and hunters carrying games and so on. Above all, the boldly drawn and centrally placed figures of horses of the Baba Pithora and the deities. These are shown either riding the horse or represented as horses. The horse also represents as the



Figure 5.15 Tantra design

repository of fertility and power which is an important preoccupation of the Bhil tribe.

TANTRIC DESIGN PRACTICES

Tantra is one of the most prominent traditions of religious practices in India. Though what *Tantra* is and what its origin is interpreted differently by different people. The most conspicuous and well known aspect of *Tantra* is its association with graphic icons known as *Yantras*.

Yantra is one of the three essential elements of *Tantra* tradition, namely *Mantra* (the syllables viewed as magical spells), *Yantra*, the graphic icon and *Tantra*, the actual action such as meditation, offerings, etc. The practitioner of *Tantra* concentrates his/her appearance on *Yantra* and meditates on it. This action is believed to be capable of giving supernatural powers and experience to the practitioner. Since *Tantra* is often practised by the learned, there is a large amount of literature giving theoretical interpretations to each element of the *Yantra* figures. This literature shows how the *tantra* metaphysics is represented by these drawings. But an interesting aspect of this tradition is that the *yantras* are believed to be capable of giving their intended effect irrespective of whether the person meditating on it knows this meaning or not.

Mandala

In Hindu and Buddhist Tantricism, a symbolic design is used in performance of sacred rites and also as an instrument of meditation. For this purpose, a design is created and is called Mandala.

The concept of Mandala was prevalent during the Vedic age. All the hymns of *Rigveda* are classified in ten classes which are called Mandalas. Mandala indicates cyclical property. There was a strong Vedic tradition to recite Vedic hymns in a cyclical manner. For instance, there are 191 hymns in the tenth Mandala of *Rigveda*. Therefore, 191 Vedic priests used to sit in a circle. Then the first priest used to recite the first hymn of the Mandala. Then the 96th priest used to recite the second hymn. Then again the second priest used to recite the third hymn and the fourth hymn is recited by the 97th priest. Likewise, all the hymns of a Mandala were recited in this fashion. In this arrangement, there are two interesting

Figure 5.16 A Mandala



graphical patterns. Firstly, probably the circular sitting arrangement is visualised to symbolically represent the cyclical nature of the world phenomenon and secondly, the pattern of recitation follows diametrically opposite sequence or order of recitation of hymns indicating that the Mandala is formed by connecting diametrically opposite points. The symbolic meaning of the ritual is not known today. However, it is evident that the word Mandala was ascribed to the classification system of Vedic hymns due to this tradition of cyclical recitation.

The Mandala is basically a representation of the universe, a consecrated area that serves as a receptacle for the gods and as a collection point for universal forces. Men (the microcosm), by mentally 'entering' the Mandala and 'proceeding' towards its centre, is by analogy guided through the cosmic processes of disintegration and reintegration.

Mandalas are rich with symbolism that evokes various aspects of Buddhist teaching and tradition. This is part of what makes the creation of a Mandala a sacred act for imparting the Buddha's teachings. Mandalas are works of sacred art in Tantric (Tibetan) Buddhism. The word Mandala comes from a Sanskrit word that generally means 'circle' and Mandalas are indeed primarily recognisable by their concentric circles and other geometric figures. Mandalas are far more than geometrical figures and are rich with symbolism and sacred meaning. A Mandala is usually made with careful placement of coloured sand, and accordingly is known in Tibetan as

dul-tson-kyil-khor, or Mandala of coloured powders. Later on, the concept of Mandala is used in many religious and cultural practices. In China, Japan and Tibet, Mandalas are also made in bronze or stone as three-dimensional figures.

Constructing a Mandala

The process of constructing a Mandala is a sacred ritual with a meditative, painstaking process that can take days or even weeks to complete. Before participating in the construction of a Mandala a monk must undergo a lengthy period of artistic and philosophical study and this period may last up to three years. Traditionally, four monks work together on a single Mandala. The Mandala is divided into quadrants with one monk assigned to each. Midway through the process, each monk receives an assistant who helps fill in the colours while the primary monk continues to work on detailed outlines.

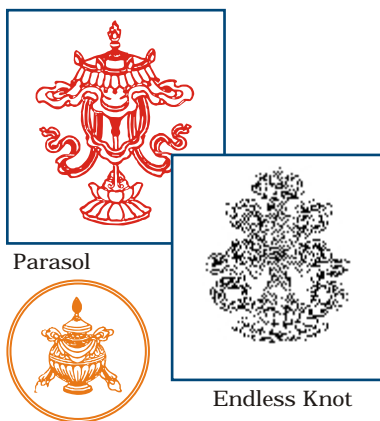
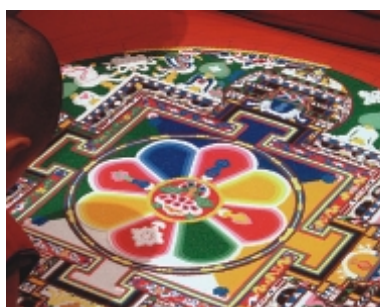


Figure 5.17 Graphical symbol in Buddhism

Mandalas are constructed from the centre outward, beginning with a dot in the centre. With the placement of the centre dot, the Mandala is consecrated to a particular deity. This deity will usually be depicted in an image over the centre dot, although some Mandalas are purely geometric.

Lines are then drawn through the centre dot to the four corners, creating triangular geometric patterns. These lines are then used to construct a square palace with four gates. The monks usually keep to their own quadrant at this point. From the inner square, the monks move outward to a series of concentric circles. Here the monks work in tandem, moving all around the Mandala. They wait until each section is entirely completed before moving outward together. This ensures the maintenance of balance in composition.

The square structure in the middle of a Mandala is a palace for the resident deities and a temple containing the essence of the Buddha. The square shaped temple's four elaborate gates symbolise a variety of ideas, including:

- ▣ The four boundless thoughts: kindness, compassion, sympathy and equanimity.
- ▣ The four directions: east, west, north and south.

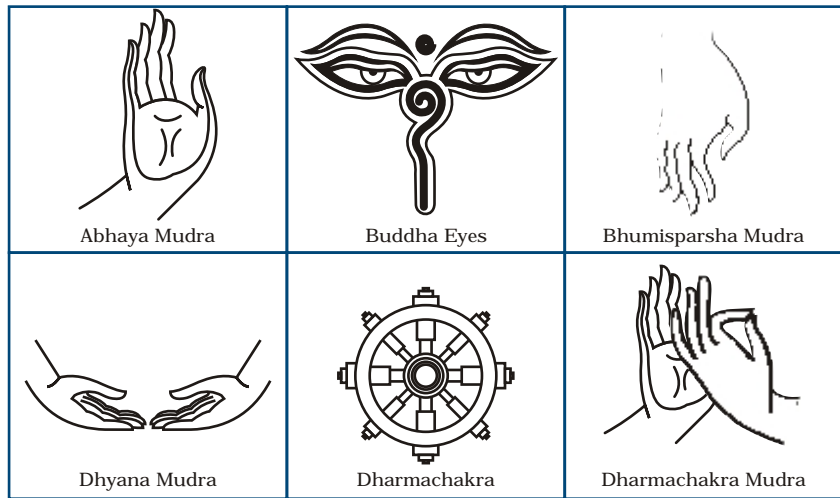
The images of the deities are within the square palace or temple, which are usually the Five Dhyani Buddhas (the Great Buddhas of Wisdom). The iconography of these deities is rich

Figure 5.18 Buddhist symbols used as motifs in graphic designs

Common features:

The following are some of the common features of the living indigenous graphic designs all over the world in general and in India in particular.

- ▣ Magical/religious/supernatural beliefs about graphic design (attribution of supernatural powers to graphic designs).
- ▣ Transcendental/supernatural response in the beholding tradition bearers.
- ▣ Ritual use and ritual origin of the design.
- ▣ Religious association of the designs.
- ▣ Use of natural/nature-friendly tools and materials for drawing and the consequential environmental/ecological influence on the form (lines, shapes and colours and the technique, structure and style of their use).



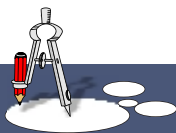
in symbolism in itself. Each of the Dhyani Buddhas represents a direction (centre, south, north, east and west), cosmic element (like form and consciousness), earthly element (of air, water, earth and fire), and a particular type of wisdom. Each Buddha is empowered to overcome a particular evil, such as ignorance, envy or hatred. The Five Dhyani Buddhas are generally identical in appearance, but each are represented iconographically with a particular colour, *mudra* (hand gesture), and animal.

Outside the square temple are several concentric circles. The outermost circle is usually decorated with stylised scroll work resembling a ring of fire. This ring of fire symbolises the process of transformation for humans to undergo before being able to enter the sacred territory within. It symbolises the burning of ignorance. The next circle inward is a ring of thunderbolt or diamond scepters, which stands for indestructibility and illumination. This is followed by a circle of eight graveyards, representing the eight aspects of human consciousness that bind a person to the cycle of rebirth. Finally, the innermost ring is made of lotus leaves, signifying religious rebirth.

In the centre of the Mandala is an image of the chief deity, who is placed over the centre dot described above. Because it has no dimensions, the centre dot represents the seed or centre of the universe.

Although some Mandalas are painted and serve as an enduring object of meditation, the traditional Tibetan sand Mandala, when completed, is deliberately destroyed.

PROJECTS



1. Develop a project on “Objects change their meaning according to their contextual placements”. The entire project should be presented in a documentation format using drawings, pictures or photographs taken by the students themselves. Choose interesting ways of presenting your files.

2. Document similar practices with objectives in other forms of wall decorations in the immediate environment.

The sand is poured into a nearby stream or river to distribute the positive energies it contain. The ritual reminds of those who painstakingly constructed the ‘Mandala’ — the symbolism of ‘impermanence of all things’ — the centrality of the Buddhist teachings.

Apart from these living traditions, there are certain extinct traditions which could be found only on archaeological sources and other such documents that are no longer in use by any community. But the purely aesthetic/artistic/decorative aspect of graphic design is still not totally absent in these indigenous traditions. In fact, some of the graphic design traditions that started as religious traditions used in a ritual context gradually got transformed into artistic and decorative practices.



1. How are *kolam* designs different from *alpana* designs? Explain with drawings.
2. Write 10 lines about the cultural aspect of a *alpana* design.
3. What form of design practice has a feminine identity? Explain.
4. With reference to the *Saora* describe the importance of tribal art.
5. *Tantra* is one of the most prominent traditions of religious practice in India. Explain.
6. How the process of constructing a Mandala is a painstaking process?

1. Study and identify design practices within your own locality and document their peculiarities and diversities.
2. Explore the floor decorations of various kinds in the immediate environment and document their pictorial formal peculiarities and nuances.
3. Prepare a colour design with pattern formation in the size of 5 cm by 15 cm.
4. Select a few utilitarian objects of your choice and design five different ways of their representational use.

GRAPHIC COMMUN



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UNIT III

GRAPHIC COMMUNICATION TECHNIQUES



Graphic Design, simply defined, is the use of communication to promote development and ideas through various techniques and medium. More specifically, it refers to the practice of systematically applying the processes, strategies, and aesthetic principles of visual communication to bring about positive social change. Communication is characterised by conceptual flexibility and diversity of communication techniques used to address the problem by information dissemination.





6

CHAPTER

DEVELOPMENT OF SCRIPT

Books, magazines and other forms are recent developments in the history of civilisation for seeking information. Prehistoric men lived without such visible means of communication for many centuries. Nevertheless, man's mind made them curious about their environment. This led them to invent ways to communicate with each other. Sign language which developed because of this desire was probably the first method of communication which early men had. Sign language, however, did not suffice. Men sought some way of recording and preserving their ideas. These initial efforts were crude and could not adequately express detailed information.

Memory aids and picture writing were developed to enable men to give a more accurate version of their deeds and expressions than was possible by means of signs. The experiences of early men and their historic and religious traditions were communicated orally from generation to generation usually by narrators with keen memories. The societies, however, were not satisfied to depend entirely upon a man's memory. They soon learned that men forget, and that the more a story is told the further it varies from the original. The words of religious songs and stories of important events must not vary if they are to keep their values. For this reason, picture diagrams were used to help recall ideas in correct order to make the meaning more certain.



Cairn

Buddhist tradition records that the principle of Buddha was inscribed on sheets of gold in Sri Lanka (Ceylon) in 88 BC and on sheets of copper in Mathura during the reign of Kanishka (1st century AD) in India. None of these has survived, but from a very early period offerings on gold or silver inscribed with the Buddhist creed are found, which would appear to have been placed in stupas or buried in the foundations of monasteries or similar religious foundation.



Figure 6.1 Ajit Garh

There has been an ancient practice for reminding an important event or experience where cairns were used as memory aids. A heap of stones piled up in a conical form is known as cairn. An event was recorded by the people who already knew the event by gathering stones in a pile to serve as a reminder of the event for the tribe. Memorial cairns, time and again, have been erected, for instance, the Ajit Garh in North Delhi erected by the British in the memory of the soldiers died during First Indian Independence Movement, 1857. Buddha Stupa and Taj Mahal also serve the purpose of reminders. Even in modern times cairns are often erected as landmarks or as reminder monuments.

As the tribes grew larger and become more numerous, the need for labelling one's personal property became important. It was also necessary to mark the graves of the dead so that they might be remembered for a longer period than was possible by a mere memory aid. Personal property such as cattle also bore the marks of the owner. These marks were crude at first, but soon took the form of simple pictures known as 'ideograms'. Modern brands and trademarks are an outgrowth of this early system. Stone and metal inscriptions were put on graves, land and posts, etc. Maps of the tribal camps were drawn in pictorial style. As their characteristics became more and more well-known the details were dropped and figures began to take form as symbols rather than pictures.

As the most important characteristic of graphic art is considered to be the momentum of reproducing identical copies by means of mechanical process of taking impression, or printing. This explanation may be extended to include all those pre-industrial impressions, which are represented by



Figure 6.2 Bull Seals



Figure 6.3 Inscription on Ashoka Pillar at Qutab Minar

the relief prints (taking impression from raised surface). These were printed from seals, coins, and larger mould cast surfaces specifically invented for this purpose. This mould casts were used in the earliest Indian civilisation, especially in the Indus Valley at Mohenjo-Daro and Harappa. Later, the alphabetical signs were segregated more and more from the pictures.

Throughout the ages, the evolution of writing from the image of pictograms and then later on inscriptional images were inspired from calligraphic strokes. There seems to have been a kind of cyclical process. This recurs whenever we have to teach the child the phonetic meaning of an alphabetical sign for easy memorisation, the practice being uniformly adopted, simply because image often precedes idea. In fact, in India the alphabet is called *Varnamala*, or band of colours, and may owe itself to the coloured seal impressions used for instruction in ancient India.

The sound symbols thereafter became more and more simpler in form. The changing characters slowly led towards the development of a complete set of sound symbols (phonetic symbols) which are now called the alphabet.

The ancient Indian grammarians had, by the 5th century BC, scientifically analysed the phonetic system of the Sanskrit language. They also arranged the letters of their alphabet on a thoroughly rational system, i.e. vowels before consonants. The latter being grouped according to their class palatals (*talavya*-the word/sound pronounced with the tongue raised against or near the hard palate in mouth), glotturals (*kanthya*-pronounced from vocal cards), retroflexes (*murdhanya*-pronounced with the tip of the tongue raised and bent slightly backward), dentals (*dantya*-word/sound formed by placing the tip of the tongue against or near the upper front teeth) and labials (*oshthya*-produced/formed with the lips like b,m,p) each in a separate group. They had probably achieved this without the help of writing, so the introduction of the written alphabet caused them no difficulties in relating sounds to symbols. *Brahmi* (The divine script) used in the inscriptions of Emperor Ashoka in the 3rd century BC is found all over the subcontinent. All the multitudinous scripts of India developed from this. Their offshoots in Central Asia, Tibet and South-East Asia, with the exception of *Kharoshthi*, were derived from Aramaic, which was used in north-western India for a few centuries.



Figure 6.4 Indian alphabet

Figure 6.5 A metal inscription



In India, the earliest concept of the book was as a collection of leaves or sheets of bark strung together between covers by a cord. Similarly all the manuscripts from south India have their texts written on leaves through incision with an iron stylus. After inscribing, the leaves were usually smeared with carbon based ink and then cleaned with sand, leaving the ink in the incised letters, which otherwise would have been almost invisible. As it was difficult to write directly on to the leaves of the palmyra, the method of inscribing became the only one used in southern India after its widespread adoption as the normal writing on palm leaf.

Later Indians turned naturally to stone and metal when they wanted to record a text for all time. The long lasting stones were used widely for inscriptions from the 3rd century BC. This was occasionally used by a royal author to demonstrate his literary as well as martial talents. Buddhist texts were frequently inscribed on metal plates, and strung between covers like palm-leaf manuscripts. The copper-plate charters (*tamrasasana*) were more in practice than the stone inscriptions, which recorded the granting of land to individuals from the king, represented by his chief minister or chief of staff. Some examples of these survived from the 4th century. These records were first copied on cloth, birch bark or palm leaf, before being handed over to the copper smith (*ayaskara*) for engraving. The originals were apparently kept in the royal chancellery and the plates were given to the recipient.



Figure 6.6 Cuneiform writing

The smiths copied not only the letters but also the shapes of the original. The text was incised parallel to the long side. Usually several sheets were required to complete the text, and these were usually in *pothi* (book) format. They were then strung through a hole to which a royal bronze seal that was cast from a mould could be affixed. Some dynasties of northern India preferred to issue grants in large single sheets with the seal welded or riveted on. They were usually of same type kept in secure storage, but buried at the boundaries of the granted land. They were especially important as the only permanent records of land holdings and were frequently altered by beating out the important details and recarving; and in later centuries entirely spurious grants are commonplace. China, Japan, and Korea have employed the phonetic forms of writing for more than 2000 years. Even today their prints, made in many colours from carved cherry woodblocks, are excellent examples.

While the art of printing and paper making was quite advanced in China, the people of middle-East were inscribing their records on stone and clay with characters known as cuneiform writing. The Chaldeans are credited with having been the originators of cuneiform writing in Egypt.



Figure 6.7 Hieroglyphics writing



Figure 6.8 Latin calligraphic inscription

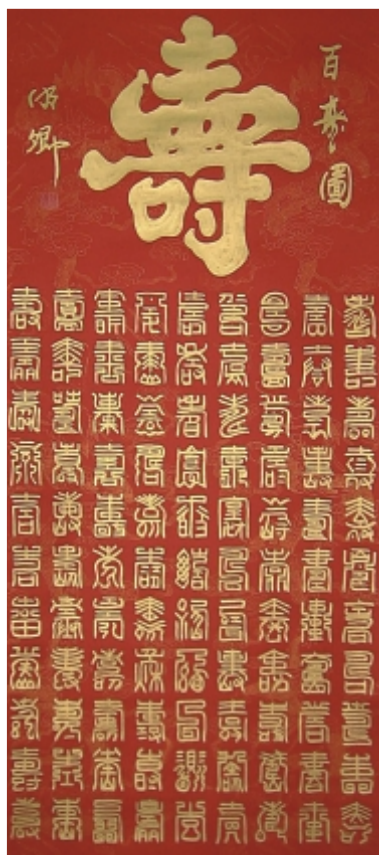


Figure 6.9 Chinese calligraphic writing

The splendid examples of cuneiform writing on clay tablets and clay stamps were first found in Mesopotamia. Cuneiform writing was inscribed on clay tablets and cylinders and on the great monuments of Assyria and Babylon. Since all these countries lie in the Middle-East, it is possible that the Chaldeans, Assyrians, and Babylonians got their ideas from the Chinese. Clay tablets, being lighter than stones, were easier to work with and easier to store and move. The inscriptions were made by wedge-shaped tools, or styli, from which the tablets acquired its name 'cuneiform' which means wedge shaped.

Hieroglyphics or picture writing (symbol representing a word) was another form of the early stages of writing. True hieroglyphics were used only for decorative purposes. The most picturesque forms were carved by the early Egyptians on tombs, pillars, buildings, temples, palaces, and wherever else the need for record and communication arose. Hieroglyphics were given their name by Greeks (*hieros* — sacred; *glyphic* — to carve). Later the art of writing was freed from any constraints of mechanical means or technological devices and calligraphy developed.

Calligraphy

The art of beautiful handwriting is known as calligraphy. Calligraphy reached its highest point of development in Chinese and Japanese art. Also some remarkable achievements took place in Islamic art and certainly traditional Indian art.

Handwriting was preceded by cutting of the characters in stone or metal using some sharp tool and therefore development of calligraphy is influenced by this. Angular letter style is supposed to be inherited from epigraphy and then changed to rounded characters. Greek papyri of the Roman period show great variety but the noticeable qualities are roundness of the shape of the letters, continuity of formations and regularity.

In Europe, there was a marked difference between the hand used literary works which is known as 'uncial' style and the hand used for documentation and letters known as 'cursive' style. Within each of these styles many sub-styles emerged. The Latin calligraphy also developed from epigraphic style called 'majuscule' writing known as 'capitals'. By first

century AD, the cursive style started transforming into a running hand called 'minuscule' style for rapid writing and in the process many letters gradually changed from capitals to small case letters. During the renaissance, artists and scribes adopted the geometrically formed letters of Roman inscriptions. They are the originators of the fine round letterforms which are the foundations for present-day 'Roman' type used in printing. Gradually, calligraphy paved the way for typography as printing took over handwriting.



1. What were the means of communication before the picture diagrams existed? Why were they considered insufficient?
2. Write in your own words, why was there a need for a written script?
3. Describe in stages the development of script.
4. How were the early books produced?
5. Write a short note on the Indus Valley script and its relation with image.
6. How did image later evolved into calligraphic art of writing?



1. Prepare a design using Chinese calligraphy style.
2. Design images with Roman alphabet.
3. Write expressing words reflecting or expressing particular feeling of the word. Example: Space/storm/stop/ relation, etc.
4. Write a page about yourself and your family in calligraphic style.
5. Find out the calligraphic styles of different languages/ cultures with examples.
6. Recognise the characters of any script from your surrounding and then design your name using those characters in Roman or Devnagari script.
7. Design a book cover of a textbook on 'Language Learning'.
8. Represent a text in graphical form. Using graphical images depict a particular word and then a sentence in English or any other language.



7

CHAPTER

EVOLUTIONS IN REPROGRAPHY

Reprography is the reproduction of any design or text in print form. This print form for communication is understood as a basic human need, a need that stems from a desire to relate not only to the creator but also with others at large. Various means of visual communication find their outlet in different formats—ranging from manuscripts, books, scrolls (with a narrator to narrate the various pictorial sequences), puppet shows, theatres, dance, leaflets, posters and hoardings. The list is endless.

Technology has aided in the growth and diversification of communication techniques. Nowadays, with the aid of the internet, cable networking and various forms of other electronic and digital media, communication has become truly global. And these developments could be understood as a process that started with the invention of the first printing press by Gutenberg in the 15th century. That made the mechanical reproduction of scripts possible and revolutionised learning which was otherwise concentrated within a selected few by making it possible to reach out to the masses.

Let us now pause for a moment and look into some of the features of mechanical reproduction as we encounter them in our daily lives. Take the instance of this book that you are reading.

Does your friend just sitting by your side have the same book? Is that book identical in every sense of the terms?

In a larger context, millions of students like you will or can possess copies of the same book. Imagine a situation where we may have to reproduce these books by hand. Think of the time consumed, the labour required or the cost involved.



Look at this image.

It could have been sourced from

Books

Newspaper

Magazine

T-shirt

Posters

Television

Internet

Hoardings

Various scraps

Or all of the above



Figure 7.1 Eiffel Tower, Paris, France

How many of you have visited the real?

May be a few.

But you can see the image of the real without going to it. It is available and comes to you in the form of representation or reproduction on a television screen or in a movie or in a poster, etc. The reprography has made convenient to get information from across the world through a number of medium.

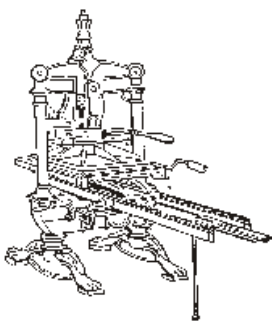


Figure 7.2 Hand operated earlier relief printing press

The books produced by hand, firstly won't be cheap; secondly, would lack timely production; and also would be available only to a select few.

Don't you think mechanical reproduction overcomes these problems? And in the process, helps in spreading education, ideas and that in essence were limited to a selected few before the advent of printing processes. Mechanical reproduction has increased the mobility of images with information to unprecedented levels providing unlimited contextual interpretation and use.

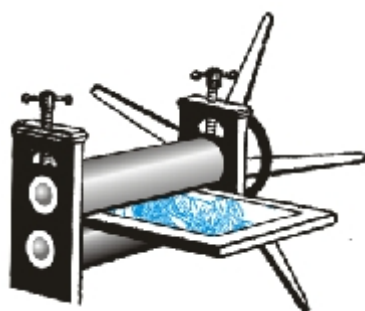


Figure 7.3 Intaglio printing press

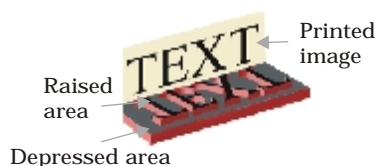


Figure 7.4 Relief printing



Figure 7.5 Intaglio printing



Figure 7.6 Planography printing

Let us now look into some of the few basic graphical printing techniques.

Printing is understood as the process of creating identical multiples from a single matrix that forms as primary block from which the prints are taken. The block or surface is prepared in such a manner that the printing and non-printing area (raised and depressed) remain distinguished. Before we discuss different printing processes, it is important to note that principally there are three types of printing processes – relief printing, intaglio and planography. They follow different techniques, processes and tools.

In relief printing, the area or design to be printed stands above the non-printing area, the ink is applied to the raised printing area in such a manner that the non-printing depressed area remains untouched and clean on the printing surface. Generally in relief printing, the ink is either applied by means of an ink roller or by dabbing the block into an ink pad, which happens to be a relatively flat surface.

In intaglio printing, the printing area or design is cut into a flat surface and is made depressed from the non-printing area. The ink is rubbed into the grooves and the upper area is then wiped clean before the plate is brought in contact with a pre-dampened paper. An even pressure is applied on the paper which has a soft padding. This printing results in a very fine print, the deeper the grove on the plate, the darker the printed image will be.

The third process is planography. In planography, as the name itself suggests, the printing and the non-printing areas have virtually no difference in height. This is basically a combination of water and oil based ink resist technique. In this process, the printing area is made receptive to ink while the non-printing area repels the ink either by means of a stencil or the physical properties of the surface of medium using water which repels oil based ink. When an inked roller is passed over the whole surface it delivers ink or colour only on the design.

RELIEF PRINTING

Woodblock

When you walk on floor with wet feet, you leave foot prints. This could be a simple way of understanding relief printing.

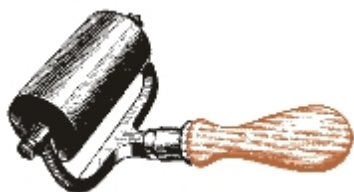


Figure 7.7 Hand-roller



Figure 7.8 A block of wood

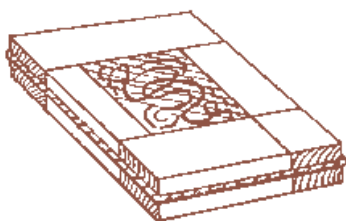


Figure 7.9 The inked wood block ready for hand printing

This is the method which is being practised everyday. It could be in the form of a thumb impression or in the form of a rubber stamp. We dab the area to be printed on an ink pad and simply bring it in contact with the surface on which the print is required.

The invention of paper helped the printing widespread. Paper was invented in China by Tsai Lun in 105 AD. Paper was formed by pulping and shredding materials of vegetable origin in a solution of water and gum and catching the suspended fragments on a fine mesh; when allowed to dry, a malleable and durable sheet of considerable strength is obtained. The Chinese after perfecting the process used the bark of the mulberry as the vegetable basis of their paper. With the invention of paper, printing became widespread in China.

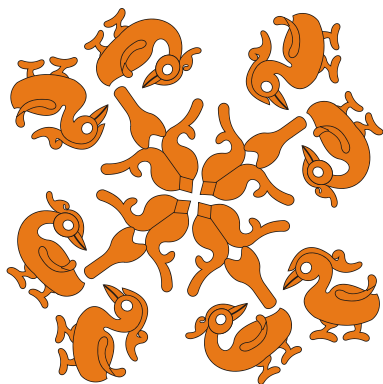
The word paper is derived from the word papyrus, which is a plant found in Egypt along the lower Nile River. The process was learnt by the Arabians after the conquest of Samarkand in 751 AD, and spread throughout the middle-east. Later linen rags were substituted for the mulberry bark. As China developed, business increased and the recording of transactions and exchange became difficult. Since printing was far advanced in China by 807 AD, paper money came into use as a simple means of exchange and was widely used throughout the empire. This paper money was the first form of block printing encountered by foreign visitors and also carried to Europe through the middle-east.

In India, growing of cotton-weaving and dyeing cotton cloth for garments were an ancient tradition. A fragment of madder dyed cotton cloth had been found from Mohanjo-Daro, establishing prevalence of knowledge of cotton weaving and of the fabulous process of mordant dyeing even five thousand years ago. The cotton established the genius of the Indian weaver, printer and embroiderer for its richest and boldest expression.



Figure 7.10 Engraved wood blocks

The printing on fabrics with blocks of wood, carved, cut or engraved, to produce designs and images on cloth, is a very ancient craft of India. The earliest impeccable numerous historical evidences of archaeological nature of woodblock printed textiles of Indian origin were supplied by a large number of finds from Fostat on the river Nile, southern outskirts of Cairo in Egypt. The site excavated during the latter part of the 19th century, reveals that between the 10th and



14th century, Cairo developed as a major centre of east-west trade and one of the principal meeting points of merchants between the Mediterranean and Red Sea. A considerable trade from India also took this route as Cairo was the centre for Indian goods intended for the Egyptian market.

These objects, described as the Fostat fabrics, are best seen at the *Musee de L'Impression sur Etoffes*, at Mulhouse in France. In India Calico Museum of Textiles at Ahmedabad, Gujarat has also some very good Fostat fabrics. From the character of designs and on the evidence of the history of trade and commerce, historians have come to the conclusion that the Fostat fabrics are undoubtedly of Indian origin. There are three types of Fostat fabrics — block printed, hand painted and a mixture of the two techniques. The consensus is that the earliest known block-printed Fostat fabric can be dated back to the fourteenth century. The Calico Museum also has a fifteenth century piece of Fostat in the mixed technique.

A cotton fragment found at Fostat has a design printed on white cotton now weathered to a soft brownish tint. It is printed with two red and a colour possibly violet, which has now become brown. The design is block printed from a single block. It seems that the block had been used to print the outline using a resist process, probably wax, which prevented the dye from adhering to the outline. Colours were applied to the design with some kind of brush. After the cloth was dyed and washed the three colours appeared separated by a fine outline of white.



Figure 7.11 A printed piece of cloth, the goose are printed as motif



Figure 7.12 Diamond Sutra

The design is most ingeniously planned. Four pairs of *hansas* (goose) are arranged in the design in a circle around a lotus flower in the centre. The meeting point of the imprints appears at the center of the quarter fold. The combination of printing and hand painting is a feature of the work of Gujarat.

Printing of Books

Before the invention of the mechanical types practically all books were produced by hand writing by scribes in temples and monasteries. This hand writing process was very laborious and slow. People experimented to find quicker ways of reproduction of books. A number of books were reproduced by cutting both illustrations and letters on the same solid blocks of wood, and printed from these. Such books were known as block books. These books were written, illustrated and decorated partly for private study and reference, and also for public circulation.



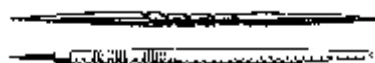
Figure 7.13 The earliest known woodcut,

The world's oldest known printed book is the *Diamond Sutra*, a collection of Buddhist scriptures printed from wood blocks. The book was printed on 11 May 869 AD by Wang Chieh for free distribution. The impressions were taken by hand from carved and inked wood blocks on to crude sheet of paper made from bamboo. As civilisation developed, the need for keeping records in large numbers became important not only preserving the holy scriptures but instructions for the people.

During invasions of the Chinese Empire, Chinese taught their ancient art to the invaders and it spread to the middle-East and then to Europe. Initially, in Europe crude and somewhat immature pictures of saints and religious scenes were created, by a few lines of reading matter cut on the block, similar to our present day captions below illustrations or pictures. Eventually whole pages of text were cut in blocks, and from these the early block books were printed. The best known of these books was the *Biblia Pauperum*, or Poor People's Bible. Wood cutting for printing slowly improved in technique all through the fifteen century and reached its peak as an art in the first quarter of the sixteenth century.

INTAGLIO PRINTING

The main examples of intaglio printing are line engraving, line etching, soft ground etching, drypoint, stipple and crayon



Etching needles



Scraper



Pointed burin for copper engraving



Burnisher



Scraper

Figure 7.14 Different tools used for creating design in intaglio method



Figure 7.15 A lithographic stone

method, aquatint, sugar ground aquatint, mezzotint and photogravure.

Among all, the engraving is the oldest technique, and in many ways the most satisfactory method. The entire process is executed on polished copper plates. Zinc, iron, steel and even silver plates have also been used, but copper remains the most commonly used. In this technique a design or image is carved or engraved deep in the surface.

The tool used for creating images is known as burin or graver. It is a strip of highly tempered steel, square in section, fitted into a wooden handle and sharpened at an angle to a fine point. All drawings are done mainly with graver. While working, the handle rests in the palm of the hand and at a low angle the point is pushed into the metal surface to create an image. The tool is controlled by the thumb and right forefinger which hold the sides of the burin and rest on the plate. The quality of thickness or thinness of line varies partly by choosing the kind of burin. The square section will give a thicker line than the pointed section, and partly by the angle of working. If the graver is held at a higher angle to the plate, the point will go deeper and the result will be a thick line. The metal removed by the burin is cut out as a curl in front of its point, and it leaves a slight burr on either side of the engraved line. This burr is removed by a scraper, a tool with cutting edges which taper to a point. The scraper is also used to make corrections and alterations in all intaglio techniques.

In common with all intaglio methods, it cannot be printed with types and requires a roller press for printing. The plate is inked by dabbing all over and then the ink is wiped smoothly from the surface, leaving ink only in the engraved cavities. Engravings are mostly printed on slightly damp pliable paper. For taking the printing, the inked plate is placed on the platen of press by keeping the image side up. A damp paper is placed on it and is covered by a padded blanket. As the plate, paper and the blanket padding pass through the strong rollers of press, force the paper to take up the ink from the cavities.

PLANOGRAPHY (LITHOGRAPHY) PRINTING

During the middle ages, engraving and etching were added to wood cut and at the beginning of the 18th century, lithography made its appearance. With lithography the technique of

THE STORY OF GRAPHIC DESIGN

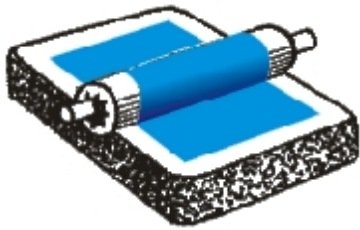


Figure 7.16 Hand roller and inked stone



Figure 7.17 Lithography press

reproduction reached an essentially new stage permitting graphic art for the first time to put its products in the market in large numbers. Lithography enabled graphic art to illustrate everyday life, and it began to keep pace with printing.

The origins of most of the methods of graphic art are quite obscure, but lithography can be firmly credited to the long research of Aloys Senefelder of Munich in the year 1796. Senefelder was not a painter but worked in the theatre as a performing actor and playwright. He was experimenting with etching to find a cheaper method of reproducing his own scripts. By chance, he discovered the unique characteristics of the Bavarian limestone which became the basic printing surface of the medium. He experimented with limestone for two years and achieved the perfection of the method. He also designed a press suitable for litho stone as neither the existing platen nor the intaglio roller press were capable of accommodating the thick stone.

But only, a few decades after its invention, lithography was accompanied by screen printing and photography. For the first time in the process of pictorial reproduction, photography freed the hand of the most important artistic functions, which henceforth, devolved only upon the eye looking into a lens. Since the eye perceives more swiftly than the hand can draw, the process of pictorial reproduction was accelerated so enormously that it could keep pace with the requirement.

Figure 7.18 Marc Chagall
1966 Lithograph
(Part)

Visit

Visit a nearby printing press and understand the printing techniques used and also the process from layout to finished printing.





1. What do you understand by block printing?
2. What are the main reasons which made man feel the need of printed books?
3. What is the meaning of block books?
4. Principally there are three printing processes—(relief, intaglio and planography). Elaborate.
5. How was block printing used in ancient India? What influence did it have on the Egyptian civilisation?
6. Make a scrap book of different printing media/techniques available around you and write briefly about them.
7. Write the difference between engraving, wood block and lithography printing. Give examples.



1. Repeat a pattern to make a design with direct printing technique (any raised material that can be printed on a surface) e.g. cut an eraser to make a relief pattern and apply colour on the surface. Get the impression on the surface or discover and use other materials and technique from which a print can be taken.
2. Get the impression from the raised surface on a paper by rubbing pencil and then try to duplicate the effect with other media.
3. Make two illustrations using the effects achieved from the earlier exercise.
4. Use Red (R), Yellow (Y), Blue (B) colours to mix and create different colours. By increasing or decreasing the quantity of the colours prepare as many combinations possible and make a chart of the achieved colours.
5. Make a design based on a given subject or product and then recreate the design fit for printing as a Black and White image as used for planography.
6. Design your own name and then create the reverse of the letter in a manner fit for printing.



8

CHAPTER

MOVABLE METAL TYPE TO DIGITAL IMAGING

The first printing machine came into existence during the renaissance period. Till then the books were written by hand and each one was decorated and illustrated individually as already discussed in previous chapters. With the advent of a lithographic press, things became a little easy. But still the text was written by hand either directly onto the sensitised stone or on the gum coated transfer paper. Writing with hand was a tedious process. When the letter press (treadle) machine was invented, reproduction became easier. There were individual matrices cast out of lead or woodcut blocks of individual letters which were arranged and fixed in a temporary frame known as the format. The format needed to be mounted on the machine and in a very short time it was ready for printing. After the printing was over, the format was again removed and the type went back to the compositor tray after a thorough cleaning. These could be reused until the shapes of type are deformed or damaged. In case a picture or an illustration was to be inserted, a block for the same was also required which was either a half tone block or a line block. The reusability of the type and the blocks was one major advantage of this type of printing and above all it was quite compact and fast as compared to the lithographic press.

The invention of printing from movable metal type is credited to Johann Gutenberg of Mainz, in 1450. Gutenberg invented a method of creating type which can be transported, moved and used for number of printings. The new invention made possible the production of a book just in a matter of days in contrast to the years of labour put in by scribes and illuminators. This new technique suggested a set of



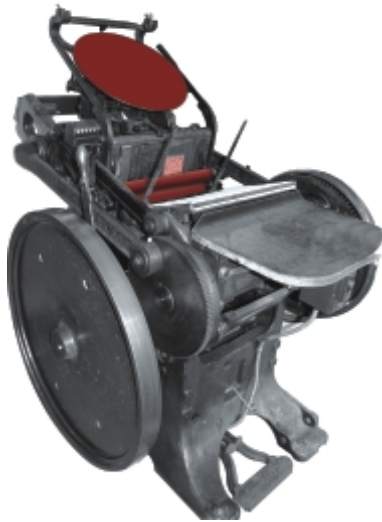


Figure 8.1 Letter press

ABCDEF GHIJKLmn
OPQRSTU VWXYz

abc defghi jklmn
opqrstu vwxyz

DEFGHI Light
DEFGHI Medium
DEFGHI Bold
DEFGHI Extra Bold
DEFGHI Condensed
DEFGHI Shadowed

conventions and method already established for many generations. Gutenberg invented the method of casting of individual metal types for each character of the alphabet. A punch or die was cut in the shape of a type character. This was stamped into soft metal to create a mould into which molten lead could be poured to cast the piece of type in a matter of seconds. A printer could rapidly compose type to form words, lines and pages of books and by using the newly developed screw press could take a hundred impressions.

In spite of the startling innovation of this method, Gutenberg at first kept the process a secret, his printed works (mainly Bibles) were produced as blunt imitations of the manuscript books. The body of the printed text matter and the design of his type closely followed the hand written words of the illuminators, which required very close examination to identify a page as printed.

The invention of Gutenberg introduced many new terminologies in reproduction techniques.

Letterform

When the signs and symbols which constitute the means of communication known as writing are painted or engraved on wood or stone with mechanical devices then they are called letterforms.

Typefont

Type font is a set of letters having some common elements resulting in a distinctive style of lettering, and is used to compose a linguistic text. A standardised digital version of a type font is usually designed by a type designer and released or marketed by a type casting developing firm. The terms type font and a typeface represent a common concept of prefabricated lettering styles.

Typeface

The difference in typefont and typeface is technological in nature. In the early days of hot metal technology an image of a letterform had to be transferred on to the top (face) of a rectangular metal piece called a type; hence term the typeface.

The term type font is indicative of the typeface created through using digital technology consisting of bits and bytes.



It also reflects the new profile of a typeface which contains, digital information of a lettering style, and is not an object or an analog image of a letterform. An operating system stores the information of digital fonts through an application such as a word processor. A user can select a type font of his/her choice and generate, view, edit, process, print and transmit linguistic text.

Art Lettering

The difference between art lettering and a typeface can be at two levels. Art lettering is constructed by a lettering artist for a given purpose and for single use in short headline. It is not a permanently documented lettering style, whereas a type face is a design activity of a permanent nature and can be used for various purposes. A variety of documents can be created using typefaces.

Calligraphy

Calligraphy is an artistic handwriting as an art. The expressive and aesthetic visual qualities can be associated with calligraphic lettering as compared to hand drawn lettering. Calligraphic letters are usually the authentic outcome of writing tools and the sensitivity of a calligrapher. Once manifested, calligraphy cannot be (or should not be) retouched or modified.





Figure 8.2 Calligraphy writing

Typography

The art of printing with movable types is described as typography. Typography is a discipline. It is the art and science of laying out the text as per the requirement of the content/theme. Various type faces are used in a printed document to create the required effects through typographic design. Typography will make use of prefabricated type faces/fonts.

Type Design

Type design is a discipline which deals with planning, designing, executing and testing letter forms for a given purpose in a required script. Type design activity requires sensitivity towards aesthetics of letterforms, as well as knowledge of type face production technology.

Type Designer

A type designer is a professional responsible for type designs.

Typographer

A typographer uses his understanding about type faces and technology of text composing. He is responsible for designing the text.

Calligrapher

A calligrapher through his or her commitment to the aesthetics of letterforms spontaneously draws/paints letters, words, sentences and/or statements; with maximum expressive quality using appropriate writing tools and writing surfaces. In the process each work produced by a calligrapher is unique work of art.

Importance of Type

Without a type font, no printed text will ever exist. The effectiveness of written communication will depend upon the visual qualities of a written text. The proper use of type fonts and effective typography would result in an effective piece of written communication, in any language, in any script, anywhere, anytime. The role played by type fonts in printing is extremely important. Printing technology caters to both text and images. In context to text composition and text printing,



Figure 8.3 Posters with image and type

| | Technical | Text Normal | Text Italic |
|------------|-----------|-------------|-------------|
| Mono Space | a | | |
| Regular | a | a | a |
| Bold | | a | a |

Font family

type fonts are vital input elements. The publishing industry can establish its unique identity, if needed, through a specific type font style. Reputed newspapers have initiated type designs according to their requirements. For example, Times Roman type designed by Stanley Morrison was initiated by *Times London* as their new identity. Information technology and information design are two vital sides of the information industry. The usage of innovative ideas in information technology, as well as creatively designed and typographically well presented text/images as part of information design, are the two key factors that enhance the quality of content in a visual. Well chosen type fonts and well presented visuals, play an important role in information design.

Font Family

Type font family consists of type font members. The type font family can be identified through its stylistic renderings of elements, weights, transformation variations and sizes. For example, Times Roman has thin smooth serifs at the end of vertical strokes, so this stylistic feature will be observed in all its family members. Different weights of a letterform such as extra light, light, medium, demi-bold, bold, extra bold can expand a given type family. The angular slope given to vertical strokes would result in italic variation of the same font. Condensed, extra condensed, expanded, extra expanded proportions of a letterform would form another feature of a typeface family. For example, Universe type designed by Adrian Frutiger is an excellent example of a Sans Serif type font family in Latin script. Nirnaysagar typeface, a pioneering style in Balabodh Devanagari, is an excellent example of a type face family in India. Generally, a light, medium and bold weight typeface along with its slant (Italic) versions are designed as a minimal font family.

Impact of Typeface on Society

It is a well known fact that copper plates, litho stones and wooden blocks with images of pictures or linguistic signs were used as reproduction tools in the early days. The concept of using an individual letter of a script again and again, as an individual master tool, was initiated by Gutenberg. This revolutionary concept to compose text was handled in a soft material like wood. After many experiments movable types in metal were introduced using hot metal technology.



Fig 8.4 The Type Moulds
Moulds for 225 different characters are contained in the frame



Fig 8.5 Gallery
As the type is placed in its consecutive order it is passed into a long channel or 'gallery' where it is broken up into pages or any desired form. Corrections are also made at this stage.

The original image of a letter had to be engraved on top of a steel punch. The execution of engraving activity in actual size and shape of a letter on a hard steel was a laborious and painstaking, yet artistic achievement. This punch was to be struck into the side of a metal piece (called Matrix). Then hot metal was poured into such matrix moulds, resulting in individual type metal pieces. On the top face of such metallic rectangular pieces the impression of a letter would emerge as a mirror image.

When such pieces are composed together in a linear fashion, ink applied, pressed and printed on paper, it is called letter press printing technology. From this brief description, one can conclude that it was indeed a long drawn and an individualistic approach to create design and produce a type font. In spite of such pioneering and revolutionary efforts, printing was treated as black magic and learned people did not accept this process of reproducing a text as compared to a handwritten text or calligraphic text. Yet, the art of printing caught on and helped to spread the written word all around. It helped society in general to get literate faster by reading ready-made printed text. Economy and speed of this printed text were two crucial factors. It is now obvious that Gutenberg as well as printers, designers who followed him designed type fonts based on handwritten models, as if the text was handwritten and not printed. 'Gothic' styled typefaces were the outcome. Fraktur and Swachbacher, German text fonts would reflect the same spirit. When the typefaces were designed on the basis of 'Gothic Calligraphy', in England they were loosely called old English typefaces. The usage of such

Indian Typography

The type design activity on the Indian scene was also based on the handwritten styles (calligraphy) from old manuscripts. Many European scholars and missionaries such as Dr. William Carey, Sir Charles Wilkins, Thomas Graham, etc. had engaged themselves in creating typefaces and developing composing technology for Indian texts. This era was quite important and relevant for the spread of literacy in the Indian continent. Some attempts of type designing and print were also observed in European countries—(V&J Figgins, London, 1884 (Devanagari), Tamil type cut in Germany (1716), Schlegel's Devanagari, Bonnae, 1848, Devanagari typecast in Rome (1771).



and similar typefaces still gives us the ambience and aura of the olden times.

In India the printing machine arrived in Goa in the mid 15th century by accident. Indian font designing and text composing activity started on the Malabar Coast, then Madras in early 18th century, and established its strong identity at Serampore Press near Calcutta in the early 19th century. Then it shifted to Bombay. Influenced by such activities, Indian printers such as Ganpat Krishnaji and others then followed the trend of type designing and text printing in Indian languages.

This era can be described as the pre-Nirayasagar era. The dedicated all-round efforts to design typefaces was truly introduced by Nirayasagar type font foundry in Bombay in early 19th century. This all-round activity including type designing, content creation in the Sanskrit language, casting typefaces, printing and publishing books in Sanskrit and other Indian languages was undertaken by a great pioneer by name Jaojee Dadajee. He established the Nirayasagar Type Foundry, Nirayasagar Printing Press and Nirayasagar Publishing House. This great institution was the centre of scholarly linguistic activities guided by Sanskrit scholars and *shastris*. The publications printed in Sanskrit by this institution are still treated as the most authentic printed editions of ancient Indian texts all over the world. A punch cutter named Aaru was at the helm of type design activity at the institute. The efforts of Jaojee Dadajee and Aaru had created an unparalleled instance of a type family which comprised different weights and variations in early 19th century.

This Nirnayasagar era is a golden era in Indian language font designing and text printing using hot metal technology with international standards. Unfortunately, very little documented archives of this activity are available apart from type catalogues and printed books. Post Nirnayasagar era marked the emergence of many dedicated printers and publishers equipped with modern technology for type foundry and text printing. This printing and publishing activity spread all over India and contributed towards creating content in various fields of art, science and other disciplines. The exposure to western technologies made many of them adopt modern facilities to reproduce Indian languages and scripts. Linear composition of text in the Latin script was the basis of the development of technologies for type designing and text composing/printing in the West. This forced Indian printers and publishers to consider changes in Indian scripts, and thus script reform activity took root in Indian soil. Many Indian engineers, linguists, politicians and enthusiasts have contributed their bit since 1884 till the end of 20th century. Some of the script reforms were incorporated on mechanical machines in order to get faster reproduction of Indian texts.

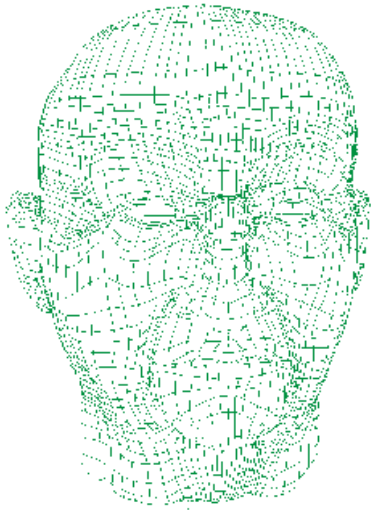
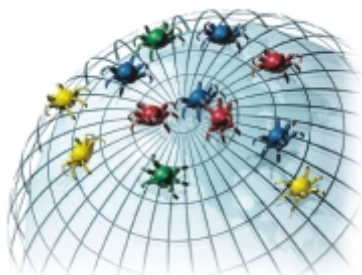


Fig 8.6 Structure of developing digital character

Digital Imaging

As already explained design existed from the time we existed. Design had been a part of our lives since the world began. When humans got hungry they designed weapons to kill, when they wanted shelter, they designed houses, and when they needed to communicate, they designed symbols and scripts.





Wherever there is a need to communicate visually; there is potential enhancement of communications through graphic design. With the advancement of modern techniques a simple press of a button unfolds the whole world before us on internet. Different sites offer different modes of information both passive and interactive or with minimal effort. We watch different Television Channels with the help of a remote control sitting in the comfort of our room.

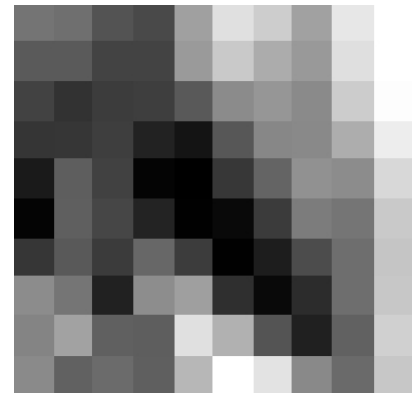
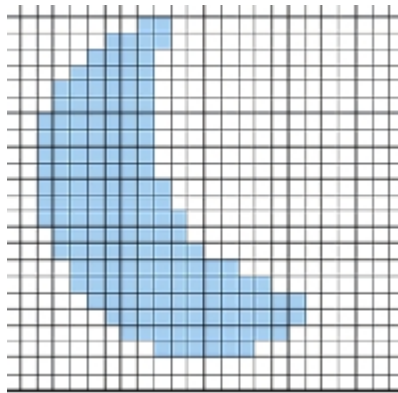
During mid 1980s, the arrival of desktop publishing and the introduction of graphic art software applications introduced a generation of designers to computer image manipulation and 3D image creation that had previously been laborious. Computer graphic design enabled designers to instantly see the effects of layout or typographic changes without using any ink in the process, and to simulate the effects of traditional media without requiring a lot of space.

A computer is now no more a mere accounting machine. If it is a toy for a kid, it is also an office in itself. Just see the flexibility of the medium. For a designer on the move, it is an office on the go, a compact work studio full of innumerable tools. This helps you working without mixing colours with water or oil on a pallet and away from clogging air brush, cleaning brush after every use and also a wrong colour stroke. It has an undo command that comes to your rescue, if you have done something unwanted and want to go back to your previous work.

The computer is loaded with varied software and tools. This huge array of tools follow your command. The precision of a computer remains unmatched. A line can be drawn in curve, straight, angular, thin, thick, etc. of a choice with the help of a line tool. The attributes are defined in the dialogue box. You can cut it, copy it, and paste it any number of times, at any desired place in the design. It can be undone if anything goes wrong and can repeat any command without any problem. Most software provides a whole range of calligraphy tools with varied styles.

All computers use an operating system and some softwares to follow commands. Software is basically of two types, vectors and rasters. Let us see what these vector and raster based softwares are?

THE STORY OF GRAPHIC DESIGN

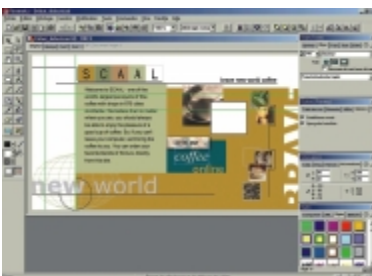


Vector Based Software

This software is linear in nature, all kind of line based work is done through this kind of software, and when enlarged the image remains sharp.

Raster Based Software

This kind of software produces images that are softer at the edges. They are ideal for editing photo and image activities. When enlarged beyond its actual size they become hazy.



Traditional tools such as pencils or markers are often used to develop graphic design ideas, even when computers are used for finalisation. Computers are generally considered to be an indispensable tool used in the graphic design industry. Computers and software applications are more effective production tools when combined with traditional methods.

The thumbnail sketches or rough drafts on paper can be used rapidly to refine and produce the idea on the computer in a hybrid process. This hybrid process is especially useful in logo design.



Visit

Visit a nearby graphic/ advertisement/ multimedia/ art studio to understand the entire sequence of processes from the layout stage to final design.

Rapid production from the computer allows designers to explore multiple ideas quickly and with more detail than could be achieved by traditional hand-rendering or paste-up on paper. Software enables the designer to venture through the creative process more quickly experimenting with tools and methods, be they traditional or digital. Ideas explored using pencil and paper are executed using fonts, clipart, stock photos, or rendering filters on the computer. One of the key features of graphic design is that it involves selecting the appropriate image making tools out of its ability to generate meaning rather than preference.



1. What do you understand by the word typography?
2. Describe the importance of type.
3. How did Johann Gutenberg's hot metal technology make printing simpler?
4. Write a brief history of type foundry in the Indian context.
5. How have computers influenced the life of graphic designers and what role do computers play in the printing industry?



1. Draw six parallel lines with equal space and design your own typography, using basic shapes like circle, square and triangle with geometric tools, starting with alphabets and then your name followed by a whole sentence, keeping in mind the geometric relation between all the alphabets.
2. Make a design using your own initials (i.e. the first alphabets of your name and surname).
3. Write a quotation in your own designed typography.
4. Copy typography styles of different products available around you.
5. Make a logo type on a given subject or product.
6. Use roman alphabets to make few 2D/3D designs like a chair, accessories, apparel, a futuristic car, a cartoon or comic character, etc. and then digitally generate the design. Take a print of your work.



GLOSSARY

Autolithography : Drawing original work on the stone or plate as distinct from chromolithography in which a drawing or painting is copied by a professional lithographic artist or photolithography in which the work is transferred to the plate photographically. Autolithography is not restricted to any form of lithographic drawing and can be in colour or black and white, with pen, chalk, airbrush, ben day tints or splatter.

Bed : The table of a press or machine on which the forme lies.

Ben Day Tints : Named after the American inventor, mechanical tints applied to line blocks.

Bite : The action of acid in the etching of a metal plate.

Black Letter : An alternative term for a type face based on the gothic hand of the late middle ages.

Bleed : An illustration or block which spreads over the margin to the edge of the page.

Blind Stamping or Tooling : The impression of a design on the leather cover of a book without using ink, gold or foil. The heated tool makes the leather somewhat darker, when impressed.

Block : A generic term applied to any relief printing surface other than type or typographic ornament.

Block Book : A popular type of book printed entirely from woodblocks. They were perhaps the earliest form of printed books but continued in production in the Netherlands long after Gutenberg's invention.

Blocking : The impression of a design or lettering on a book cover by machine.

Body : The shank of the type.

Bold Face : Type with a heavy black appearance, but in the same style as the medium weight of the font.

Bolts : The folded edges of a sheet or section of a book on three sides which will eventually be trimmed off.

Book Hand : A formal style of handwriting as used by professional, copiers of books before the invention of printing such as uncial, half uncial, caroline minuscule, cancellaresca.

Book Sizes : The standard sizes (in inches) of British books (untrimmed).

Box Wood : Hard wood used as end grain blocks for wood engraving.

Brochure : A pamphlet or other small work which has its pages stitched but not bound.

Burin : A graver or tool used for engraving on either metal or wood.

Burnisher : A smooth curved metal tool used in copper plate engraving for polishing the plate surface when making corrections or additional work. Special burnishers are used for gold leaf work (agate) and for taking impressions by hand from a woodblock.

Calligraphy : Decorative handwriting or handwritten lettering. The creation and practice of pen scripts to adorn and decorate books, documents and letters for the church, the law or commerce.

Capitals : Large letters such as A E B D which derive from Roman inscriptional lettering.

Dabber : An inking pad of cotton, silk or leather.

Deckle : The rough edge of hand-made paper.

Em : Spacing metal, the square of any size of type, popularly known as a mutton. A 12 pt or pica em is the printer's unit of measurement and all areas of type on the page are expressed in ems. Approximately 1/6".

Emblems : (Icons) are more effective than a written name, especially for logos being translated into many alphabets; for instance, a name in the Arabic language would be of little help in most European markets. A sign or emblem would keep the general proprietary nature of the product in both markets. In non-profit areas, the Red Cross (which goes by Red Crescent in certain countries) is an example of an extremely well known emblem which does not need an accompanying name. Branding aims to facilitate cross-language marketing. For example, a soft drink company's logo can be identified in any language because of the standards of colour and design.

En : Half an em, popularly known as a nut.

End Papers : Leaves of paper at front and end of a book which help to secure the body of the book to its case or binding. At one time they were decorated with a printed pattern or marbling, now more usually quite plain.

Engraving : A generic term used loosely to cover all methods of printing a picture. Properly, it refers to copper plate engraving with a burin in which the subject is rendered and printed in intaglio. See Appendix.

Etching : Using acid to erode areas of a metal plate instead of engraving with the burin. See Appendix.

Face : The printing surface of a type.

Fecit, fee., f. : A term used in the lettering of old prints to denote 'etched' or occasionally 'engraved'.

Figuravit : A term used on old prints meaning 'drew', and particularly a drawing made from a painting which is in process of being reproduced.

Format : The size and layout of a book or other printed work.

Forme : The complete type and blocks necessary for printing a sheet, usually containing 2, 4, 8, or more pages, imposed and locked up in a chase.

Formis : A term used on old prints to denote 'issued' or 'published'.

Foul Biting : Accidental dots or other irregular areas bitten into a plate, caused by imperfect grounds.

Fount (Font) : A complete set of any particular type.

Foxed : Brown spots on the paper of old prints and books brought about by damp.

Fraktur : Gothic type, batarde style, used in the 15th and 16th centuries and still surviving for occasional use in Germany at the present time.

Frame : A rack or desk at which the compositor works, usually containing the various type cases.

Frontispiece : An illustration or other picture facing the title page of a book.

Furniture : Pieces of wood or metal used for spacing type.

Galley : Flat metal tray used for holding type after it has been composed on the stick and before it is made up into pages and put in chase. The first proofs from type, made for literal corrections, are pulled from a galley.

Gathering : Placing the sections of a book in the correct order for binding.

Gothic Type : Type faces based, like Gutenberg's, on the hand used by scribes in Northern Europe in the 15th century, known as black letter types for their heavy colour on the page.

Graver : See burin.

Grotesque : A form of sansserif type introduced in the early 19th century and like many other types of that period enjoying a revival at the present time.

India Paper : A very thin but strong opaque paper made from rags and used for printing bibles and dictionaries with their many pages in a convenient size.

Intaglio : A printing image below the surface of the plate.

Intertype : A type setting machine which casts a line of type, automatically justified in one piece.

Invenit (Inv.) : Terms used in the lettering of old prints meaning 'inventor' or 'designer'.

Italic : A type face based on the sloping chancery hand (cancelleresca) of the 15th century introduced by Aldus Manutius in 1501 for printing small octavo volumes of verse. At first used with upright roman capitals, its main advantage was its condensed nature and the resultant saving of space.

Jacket : The paper wrapper in which the book is sold. Not regarded as a permanent part of the book but as an aid to sales promotion.

Layout : The design and arrangement of copy for setting.

Leads : Strips of lead under type height used for spacing out lines of type.

Leaders : Type characters which print as rows of dots as used in tables and charts.

Legend : The caption or descriptive matter below an illustration.

Letterpress : Printing from a relief surface as from type or blocks.

Lettre Batarde (Bastarda) : Gothic type in a cursive style used by the early printers chiefly for works in the vernacular, the Schwabacher type of Germany.

Lettre de Forme (Textura) : Gothic type of a condensed nature as used by Gutenberg in printing his Bibles. It became the usual type for religious books in the 15th and 16th centuries.

Lettre de Somme (Fere Humanistica) : Gothic type with roman tendencies used for printing classical and scholastic works in Latin.

Line Block : A printing plate of zinc or copper consisting of solid areas and lines reproduced directly from a line drawing without tones. Mounted on a wooden block it prints with type.

Lino-cut : A relief printing surface of linoleum on which the background to the design is cut away with a knife, gouge, or engraving tool.

Line Engraving : An intaglio method of engraving lines on a copper plate by the use of the burin, removing the metal turned up by using a scraper. With its wide range of work from boldness to great delicacy it superseded the woodcut for book illustration in the 16th century, reaching its zenith in France in the 18th century.

Linotype : A type setting machine, which casts a line of type, automatically justified, in one piece.

Lith. : Drawn on stone.

Lith. by : Indicates the lithographic printer.

Lithography : A method of surface printing invented by Alois Senefelder in 1796, making use of the chemical reaction of grease and water and the absorbent qualities of the Bavarian limestone to both.

Logo : (from the Greek $\lambda\omicron\gamma\omicron\tau\iota\pi\omicron\varsigma$ = logotipos) is a graphical element, symbol, or icon that, together with its **logotype** (which is set in a unique typeface or arranged in a particular way) form a trademark or brand. A logo is typically designed to cause immediate recognition by the viewer, inspiring trust, admiration, loyalty and an implied superiority. The logo is one aspect of the brand of a company or economic entity, and the shapes, colours, fonts and images are usually different from others in a similar market. Logos may also be used to identify organisations or other entities in non-economic contexts.

Today there are many corporations, products, services, agencies and other entities using a sign or emblem as logo. As a result, only a few of the thousands of signs people are faced with are recognised without a name. It makes less sense to use a sign as a logo, even together with the name, if people will not duly identify it. Therefore, the trend in the recent years has been to use both images (icons) and the company name to emphasise the name instead of the supporting graphic portion, making it unique by its letters, colour, and additional graphic elements.

Logo design is commonly believed to be one of the most important areas in graphic design, thus making it the most difficult to perfect. The logo, or brand, is not just an image, it is the embodiment of an organisation. Because logos are

meant to represent companies and foster recognition by consumers it is counterproductive to redesign logos often.

Matrix : A mould used for casting type or blocks. In the making of stereotypes a papier-mâché, rubber, or mould of other material is used.

Matter : Manuscript or copy to be printed.

Measure : The length of line to which type is set, expressed in a number of pica or 12pt ems.

Mezzotint : A method of engraving in tone which was very popular in the 18th century in England for reproducing oil paintings, particularly portraits, and therefore known generally as *la manière anglaise*.

Minuscule : The lower case or small letter which developed during the Middle Ages as a more convenient and quicker method of writing.

Modern Face : A typeface with flat unbracketed serifs and with a sharp contrast between thick and thin strokes and a vertical stress on the curves, such as Bodoni or Walbaum.

Monotype : Making a painting on glass or metal and then taking an impression on paper, only one of which is possible.

Monotype : The trade name for a machine for setting type much used in book printing. First invented by Tolbert Lanston of Ohio in 1887, it casts type singly and justifies them in lines automatically.

Movable Type : A general term applied to individual type characters as distinct from slugs.

Muller : A stone, glass, or metal block used in grinding inks and pigments.

Nick : A groove on the body of a piece of type. The compositor places the type in his stick with the nick uppermost, which ensures that the type though upside down will read from left to right.

Octavo : A standard broadside divided into eight parts. A sheet of paper folded into half three times, making eighths or sixteen pages.

Offset : The normal lithographic printing machine which transfers the impression from the plate to the offset cylinder (of rubber or composition) and then to the paper. Thus two reversals of the image are made which means that the work on the plate is identical with the print.

Offset Printing : The process of offset printing had evolved out of lithography. Actually it is lithography technique which is done with the photo-mechanical process. Therefore, it is also called photolithography. Just as in the case of lithography which is a resist process (planography), here also we use water along with the oil bound inks the only difference being that instead of lime stone, we use zinc plates.

The upper surface of the plate is roughened on a machine which is called whirler the process of roughening is called graining. The plate is placed in the whirler and some sand and a little water are put into it then some glass marbles are dropped in it so that they rub sand when the machine vibrates vigorously.

Next is the process of sensitising the plate. The plate is sensitised with a solution of gum acacia and potassium bichromate. Since an even coat of the sensitising solution is required therefore the density of gum had also to be taken care of. There is a machine designed for the purpose of coating the plate too. This entire process is carried out in subdued light (away from ultraviolet light) this type of plate is called the heliographic plate. Most offset printers use the pre-sensitised plates also known as the 'ps' plates or the deep etch plates the difference between the heliographic plate and the ps plate is that in case of ps plates we need the film positive of the image to be printed.

The plate is then processed in a wash out solution the commercially available solution for ps plates is called the developer. After this the plate is ready for printing. The plate is then mounted on to the drum of the offset machine. Where it is dampened before the ink roller could apply the ink. Another padded roller (rubber blanket) now lifts the ink from the plate and transfers it onto the paper, the density of ink is gradually increased so as not to spoil the non printing area. An important thing to note is that in offset the plate is not the mirror image as commonly seen in other printing processes. It is in the case of offset printing only that the plate never comes in direct contact with the paper hence the name offset (off set).

Just because in offset process the ink is transferred to the paper indirectly there is a loss in the density of the ink. In order to compensate that loss in density a fourth colour is printed that is black. Conventional printing processes require only three colour inks (yellow, magenta and cyan) to make the entire range of spectrum. Colour separation from the coloured originals when done through the process camera needs coloured filters. The three colours used as colour separation filters are red, blue and green. An image that is produced using a blue filter is printed in yellow, an image that is produced using a red filter is printed in cyan and an image that is produced using a green filter is printed in magenta.

Old Face : A typeface based on the roman first used by Aldus, and subsequently by Garamond and Caslon. It has a light even colour, diagonal stress on the curves, bracketed serifs and no great contrast in strokes.

Overlays : Sheets of paper or other material pasted on to certain parts of the impression cylinder in a letterpress printing machine to improve the printing of a block by varying the pressure on its different parts. Part of the make-ready.

Page : One side of a leaf.

Pagination : Numbering the pages of a book.

Palimpsest : A parchment or vellum on which the original writing has been almost erased in order to write on it a second time.

Papyrus : Writing material manufactured in ancient Egypt from the stalk of a rush. An excellent early form of paper of which many examples survive. Also used by the Greeks and Romans.

Photogravure : An intaglio process of printing in which the impression of pictorial and type matter is made from a copper plate or cylinder on which the work has been transferred photographically and etched.

Photolithography : A lithographic printing method in which the pictorial and type matter is transferred to the plate photographically and printed by the lithographic printing machine, sometimes known as offset.

Photosetting (Photocomposition) : In photolithography and photogravure, only the impression of type is used, being transferred to the plate or cylinder by the camera. Recent developments have produced machines for setting type photographically, such as the 'Monophoto' film setter. Also used in letterpress where the printing is done from plates.

Pica : An abbreviation of pica em (the printers unit of measurement of 12 points approximately 1/6" (0.166").

Pie : Type which has been accidentally mixed.

Plank Grain : When the grain of the wood runs parallel to the block as in the woodcut.

Plate Mark : The imprint of the level of the plate on all intaglio prints caused by the damp paper, when passing through the press under considerable pressure. As many old prints are frequently cut, the plate mark is valued by collectors as indicating that the complete work is present.

Platen 1. : An iron or steel plate in a printing press which forces the paper on to the type or blocks to obtain an impression. A type of small printing machine.

Point : The standard typographic unit of measurement in England and USA of approximately 1/72" (0.0138"). Type sizes are expressed as a number of points.

Printing : reproduction of words and pictures with ink on paper or other suitable media. Despite the advent of information retrieval systems, the storage and dissemination of knowledge are still based primarily on the printed word. Modern printing began with the work of Johann Gutenberg, who invented movable type and type metal in the 15th century. Individual characters could be used several times. The process was little changed for 400 years, until the invention of machines that could cast type as it was required. Letterpress and lithography are today the two most used printing techniques. Letterpress uses raised type that is a mirror image of the printed impression. The type is inked and the paper pressed to it. Lithography depends on the mutual repulsion of water and oil or grease. In fine art a design is drawn with a grease crayon on the surface of a flat, porous stone, which is then wetted. Water is repelled by the greasy areas; but ink is repelled by the damp and adheres to the greasy areas. Modern mechanised processes use the same principle. Commonest is photo-offset, where the copy to be printed is photographed and the image transferred to a plate such that the part to be printed is oleophilic (oil-loving), the rest hydrophilic (water-loving). Gravure is another major printing technique. The plate is covered with a pattern of recessed cells in which the ink is held, greater depth of cell increasing printing intensity. Little-used for books, it is used extensively in packaging.

Proof (Pull) : An impression obtained from an inked plate, stone, screen, block or type to check the progress of the work.

Relief : Raised form in which the elements of the design, whether figures or ornament, project from their background. In high relief the elements stand out prominently and may even be undercut; in low relief they hardly emerge from the plane of the background.

Resist : An acid-resisting ground applied to a plate before etching.

Rocker : Mezzotint tool for preparing the plate surface. A curved blade with numerous tiny sharp teeth which when rocked on the surface produces a line of evenly spaced indentations.

Roller Press : The type of press used for intaglio methods, sometimes known as an etching press. The plate covered with its paper and a protective blanket lies on the moving bed which passes through two rollers that are adjustable to provide considerable pressure.

Romain du Roi : The series of complete fonts of roman and italic type instigated by Louis XIV for the Royal Printing House of France produced under the direction of Phillipe Grandjean de Fouchy and his pupil Alexandre. The last size cut by Louis Luce in the early eighteenth century.

Roman : Type based on the humanistic hand of the Italian Renaissance scribes. First introduced in Venice by John of Speyer and later by Nicolas Jenson whose type has been the model for many designers up to the present day.

Sandground Aquatint : An aquatint ground produced by running a plate with a normal etching ground through the press with a sheet of fine sandpaper face down upon it.

Sans Serif : A typeface without serifs, usually with strokes of even thickness as in Gill Sans.

Scraper : A tool having a three-sided tapered blade used for removing the unwanted burr in copper plate engraving or mezzotint work.

Scorper : A wood engraving tool with slightly rounded edges for clearing spaces.

Scraperboard : Prepared card with a surface of gesso which can be first inked over and then scratched or scraped with a point or blade giving the effect of a white line engraving. Much used in drawings for newspaper advertisements.

Serifs : The horizontal or vertical finishing strokes of a letter.

Serigraphy : Practised today is the subsequent development of the stencil. Prehistoric cave decorations are the earliest examples of stenciling. Discovered and described by the Abbe Breuil as 'stenciled hands', they are supposed to have been created by blowing very finely grinded earth colours around actual hands. Most traces of early stenciling are found in the far east, as in the Tun Huang caves of the 'Thousand Buddhas' in China. The ceremonial robes of the Japanese are later but splendid examples of stenciling.

Whereas, the stencil is centuries old the silk screen came into being during the early years of 19th century. Today stenciling in its widest sense enters every aspect of our daily life, from the light stencils in the forms of windows to the perforated stencil principle of selective shutting out and letting through.

In the more limited sense stenciling may be understood as squeezing pigment powder or paint through or around a surface onto another surface. Screen printing is also known as serigraphy in modern world.

Set : The width of a type body which may vary according to the face. An alphabet of a widely set type will occupy a greater space than the same size of a type more narrowly set.

Type Height : The standard height for type and blocks is 0'.918".

Upper Case : In type capital letters.

X Height : The distance between the base line and the top edge of the lower case letter x, and consequently all other lower case letters excluding the ascenders and descenders.

SUGGESTED READINGS

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NOTES

