

LETTERING AND TOPONOMY

Letters are verbal symbols

Letters and words have to be incorporated in the body of the map along with other symbols

Lettering has always been an important aspect of MAP DESIGN.

In past days ornate lettering was very common. It was partly used as a device to fill up vacant space in the Map.

Freehand Letters were very common in ancient days.

The style of lettering has changed with the changes in the Printing Technology and taste of People.

For lettering on a map based on the following

- 1. STYLE**
- 2. FORM**
- 3. SIZE**
- 4. COLOUR**
- 5. METHOD**
- 6. POSITION**
- 7. RELATION TO REPRODUCTION**
- 8. STANDARDIZATION**

STYLE OF LETTERING

There are three main styles of Lettering

- 1. CLASSICAL**
- 2. MODERN**
- 3. SANSERIF**

The origin of Classical style is Roman. In this style the proportion of thick to thin making of the letters is not great.

The strokes of the letters have long and curved. It is an ornate style difficult to read.

The modern style was developed on 1800 AD.

It has precise geometric shapes and the thick and thin line making the letters often gives an unbalanced design.

The SANSERIF style is the modern and recent one. It gives clear-cut non traditional appearance and it is the Best style from the point of view of Legibility.

FROM OF LETTERING

Sub Styles or forms within the letter styles

By changing

- **Slant**
- **Thickness and**
- **Complexity**

Style which one is good and Easy to read is GOOD and suitable for Map making

Ornate and Fancy styles are good looking but difficult for reading.

SIZE OF LETTERING

In the modern style of Lettering we can create different combination of letters by using capital and small letters by varying size and thickness.

- **Selection the letter size is very important in map design**
- **The size of the letters are designated by points,**
- **Point 1 is equal to one twelfth of an Inch.**
- **One fourth of an inch high is equivalent to 18 points**
- **Point 3 text size is the smallest it can be read from 1 foot.**
- **Normally 4 to 5 point letter size is safe**

RELATIVE VISIBILITY OF TYPE SIZE

SIZE IN POSITION	RELATIVE VISIBILITY FROM 18 INCHES
3	1.10
4	1.60
5	2.11
6	2.64
8	3.64
10	4.65
12	5.66
14	6.67
18	8.67
24	11.68

COLOUR AND BACKGROUND

Making lettering in varying colors and Contrasting Backgrounds to make legible and easily perceptible letters.

- **Greater the contrast between lettering and Background like Black lettering on white background stands at the top out of the top scale.**

POSITIONING

Positioning means placing the letters in the map in relation to other symbols

The layout of letters should be parallel to top and bottom of the neat line

Features to be named with area extent such as countries, mountain etc should be equally spaced and easily distinguishable

Rivers name should positioned along their course and slanting

Alignment of lettering for railway line, roads and canals etc should be the same as that of the object.

Settlement or place names should be placed little above or below on the right or left of the symbols to avoid mix up

Titles or legends if you put more than one line should be balanced around a central line (position should be placed carefully)

MECHANICS OF LETTERING

There are so many lettering devices available in the market

But most common methods are following three

- 1. FREE HAND**
- 2. STICK UP**
- 3. MECHANICAL**

FREEHAND LETTERING

Free hand lettering should be done by use of PEN with good planning

Guidelines should be drawn with the Help of ruler, curve or lettering angle.

For Guidelines two lines are needed for Capital letters but three lines are appropriate for mixed letters.

Freehand letters some sort of practice is enough but it is quick to certain crooked letters.

STICKUP LETTERING

To make lettering easier the words should be typed in appropriate style and size then cut off from the sheet and placed their appropriate place with help of Gum.

Individual letters or a group of letters can be used to build desired terms.

Besides this beautifully printed alphabets and figures of various sizes are also can be transferred on the map as per user requirements.

Photo type quick and precise letter also can use for map making.

MECHANICAL LETTERING

Mechanical lettering is one in which some instruments are used to control the size, style and thickness of letters.

Most common devices

1. Uno Pen (pen attached to small tube in which ink fed)

The size and style of letters are determined by the template in which the letters are stenciled.

2. Leroy set (it contains a scribe in that a pin and pen attached- pin moves along groove in the template and pen gives required letters.

Templates of variety of letter styles and symbols available for easy map making purpose.

3. Varigraph is mechanized lettering device. It consists of template with engraved letters and stylus letters.

It working principle is based on optical Pentograph- adjustment can me done to make letters large, small and elongated etc.

4. Wrico Stencils here Uno pen like can use but differ type.

Conventional pen drawing creates lot of problems like line breath variations, drying, ink spillage etc.

Hope Graph is recent lettering device for precision.

GEOGRAPHICAL NAMES

Lettering on the map is not a simple job, it is a complex processes and requires planning and creativity

To rationalize and standardize geographical Names have been made for nearly 100 years but still unsettled.....

The irrational changes in name of the local places are too common. In USSR almost most of names have been changed by the King Czar and his successors again changed.

MECHANICS OF MAP CONSTRUCTION

DRAWING MATERIALS

The consumable materials needed for the map preparations are called drawing materials such as

Drawing surfaces, inks, pencils, Plaster of Paris, stickup letterings and colours etc.

DRAWING SURFACES

Drawing surfaces are drawing paper, card board, plastic paper mounted on Zinc or Aluminium sheet, wall etc. surfaces determined by variety of factors.

STABILITY

Most of the drawing papers shrink or expand due to temperature and humidity; this makes variation in map scale.

Another problem associated with the shrinkage of expansion of drawing paper.

Problem in color reproduction, map registration because of changes in weather condition each sheet will undergo changes in dimension

INK ADHERENCE

Quality of drawing paper determines its capacity to intake of ink.

Some papers are porous medium hence soak ink and diffuse through fibers medium.

TRANSLUENCE

Translucence is essential for making tracing and prepare originals for direct contact prints (which is easier for register originals on tracing paper)

SURFACE QUALITY

Based on the surface roughness the Drawing quality can be smooth or not

The surface of the paper should be smooth and strong enough to erasing and should be good to withstand repeated rolling and unrolling.

REACTION ON WETTING

For drawing the originals we have to use wet inks or colors.

Before starting the drawing the cartographer should know about the drawing materials and which type of sheet are more stable and long life and suitable for ink and easy drying etc.

INK

The standard Indian Ink for map drawing

Modern Indian ink is a permanent suspension of fine carbon in a liquid medium.

It dries dense black and very good for reproduction and waterproof.

While using ink drawing surface should be easily pick-up

For photographic purposes all ink work should be absolutely opaque back.

TINTS AND PATTERNS

A number of standard line and dots are printed on transparent film with adhesive backing.

The name of American brand is Zip-A-Tone

Indian Brand name is Pal-Tones

These printed patterns can be pasted at appropriated places this easy process when compare with line drawing

Colours except the red are not used in original drawing (Red can be used because it reacts with black in photography because gives sharp images.

PENCILS

The leads of the pencils range also very important for map tracing

For most cartographic works 4 to 5 H is the softest

Coloured pencils are very useful for guide map preparation

DRAWING EQUIPMENTS

Equipments used for map drawing

- 1) DRAWING BOARD**
- 2) DRAFTING MACHINE**
- 3) TRACING TABLE**
- 4) T-SUARE**
- 5) STRAIGHT EDGE-12" SCALE AND SLIDE RULE**
- 6) CURVESOF VARIOUS TYPES**

Maps are usually drawn on the drawing tables specially manufactured for drafting purpose

Mainly consists of drawing board with soft wood (at least 24"x18" is preferable)

The height can adjustable and it can be tilt

The Drafting machine also fixed and it can be freely movable in all directions for easy drawing purpose.

A special kind of table called light table mainly for tracing purposes (glass is illuminated from beneath).

T square and set of triangle is used in line drawing work it is made up of metal or solid wood. One with transparent plastic edge is good and easy for drafts man to see the drawing below.

The curves of various types help to drawing of curved lines for smaller and sharp edges.

Recently flexible curves also available to make different curves on maps (Japanese flexible curve made of rubber with small steel balls).

PENS

For drawing purpose sharp pointed pens are used for fine drawing

Ruling pen – line drawing in various thickness and different types

.....

- 1) Leroy pens**
- 2) Stedlars mars**
- 3) Rotring**
- 4) Payzant pens**
- 5) Graphic**
- 6) Keo-Aristo**

Leroy pens come with Leroy lettering set pen numbered from 0000 to 8. Each line gives constant width of line and dots

Barch-Payzant pen is mainly for lettering, uniform lines and dots drawing (these are cheap and speed and easy for operate)

COMPASSES AND DIVIDERS

Compass is mainly for arc and circles drawing

Dividers mainly used for Layout Distances.

There are many types of compasses and dividers the other instruments called

- 1) Rotameter (for measuring length)**
- 2) Planimeter (for measuring Area)**
- 3) Slide rule(for quick calculation)**

DRAWING AN ORIGINALS

Accuracy and preservations are the two qualities of map making processes; the cartographer should possess in order to be successful.

Most of the cartographic works are line drawing with various thicknesses, the cartographers should be careful while using pen and pencils etc for map drawing.