PHOTOGRAPH READING AND INTERPRETATION

Definitions of Photograph

- Photograph is a picture made using a camera, in which an image is focused on to light-sensitive material and then made visible and permanent by chemical treatment, or stored digitally.

- Photograph is an image or a picture of an object which is recorded by a camera and then printed on a paper.

- Photograph is an image of an object which is recorded by a camera and then printed on paper.
- Photograph can be either:
  a) **Still photograph** is in newspaper, magazine, posters, calendars etc or
  b) **Motion photograph** as videotapes, television, computer discs and cinemas.

Photography: is the science of taking photograph.

Photograph interpretation is a process of reading, measuring and interpreting photographs for obtaining reliable information about natural or human features and their environment.

FACTORS AFFECTING THE QUALITY OF PHOTOGRAPH

1. **The size of the camera:** the photograph taken by camera with high focal length give high quality compared with pictured produced by camera with low focal length.
2. **The experience of photographer:** The photograph produced by photographer with high experience give high quality compared with one taken by photographer with low experience.
3. **Land forms or relief:** This include some features such as mountain, valleys, plains, depression, slopes, and so on they affect the quality of photographs.
4. **Time:** The photograph which taken many years ago differ in quality from one

produced currently time.

5. **Weather condition:** The photograph taken during the cloud cover differs from one taken from the sun light.

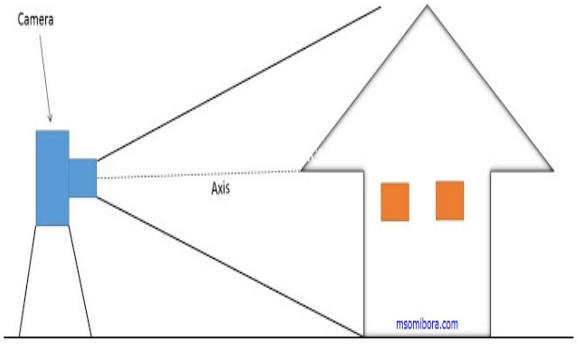
6. **The Color:** The colored photograph gives high qualities hence differ from the colorless photograph in quality.

Types of Photographs

1. Ground (Horizontal) Photographs
2. Oblique Photographs
3. Vertical Photographs

1. GROUND LEVEL PHOTOGRAPHS

These are the photographs taken on the level grounds when the optical camera axis is horizontal to the object. Or, these are photographs that are taken from the ground when the camera is at the same level as the object being photographed. Ground photograph can either be i) close up or ii) General view photograph.



Ground (Horizontal) Photographs

i) Close up ground photographs.

These photographs are produced as the photographic view focuses on a major item such as a tree a person an animal a house and others of the same reflection. The particular item obscures most of the other details behind it and thus the picture shows a **dead ground**

Close up Ground photograph

ii) General view photograph.

These are taken by the photographic views with mounted camera focusing the general scenery of areas commonly. The photograph gives the general view of the scenery this photograph shows horizons.

General view ground photograph.

Characteristics of Ground Level Photographs

1. They show only the (front) side view of an object
2. It is taken when the camera is near to the ground
3. Its scale decrease from the foreground to the background
4. They have the optical camera axis horizontal to an object
5. Objects are large and clearly shown in these photographs when they are close than those far from the camera
6. The ground and the horizon are seen but the back /dead ground is not seen
7. There is no fixed scale.
8. They are sometimes known as Terrestrial Photographs

Uses of Ground Level Photographs

1. They are used for the identification of the objects because the features are shown clearly
2. They are for ordinary photographs

2. OBLIQUE PHOTOGRAPHS

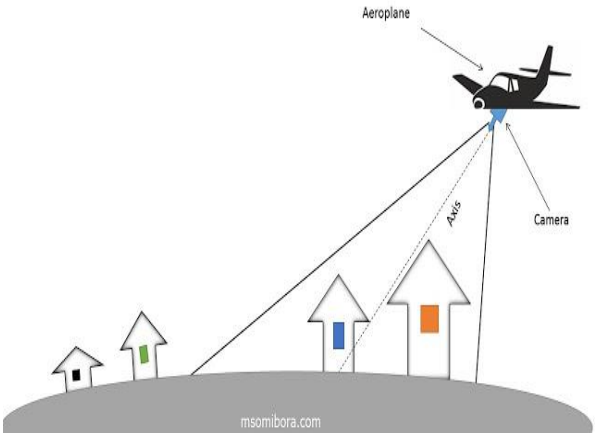
Oblique means sloping or slanting at an angle.
Are the photographs taken when a camera is slanting at an angle less than 90°. They are taken when the photographer is standing on an elevated ground such as hill, tall building OR an air plane and hold the camera on an angle towards the lower ground.

Types of Oblique Photographs

1. Low oblique Photographs
2. High Oblique Photographs

A) LOW OBLIQUE PHOTOGRAPHS

These are the photographs taken with camera tilted to low angle (30°) from vertical view of the photograph.



Low oblique Photographs

Characteristics of Low Oblique Photographs

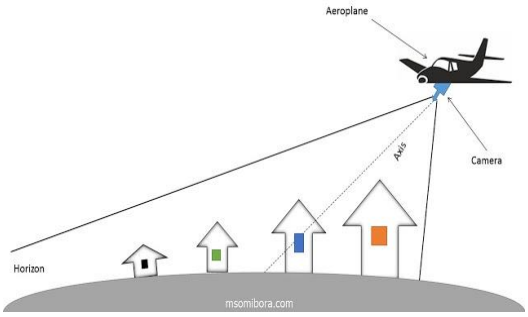
1. It covers a relatively small area
2. It does not show the horizon
3. It shows the top and front views of the objects
4. They are taken from an elevated area at 30°.

Uses of Low Photographs

i) They are used for the identification of the objects.
ii) They can be used for geographical research

B) **HIGH OBLIQUE PHOTOGRAPH**

These are photographs taken with the camera tilted to include the horizon. The photographer may take the photograph from an elevated surface of the earth or low flying aero plane. These photographs cover quite a large area of land.

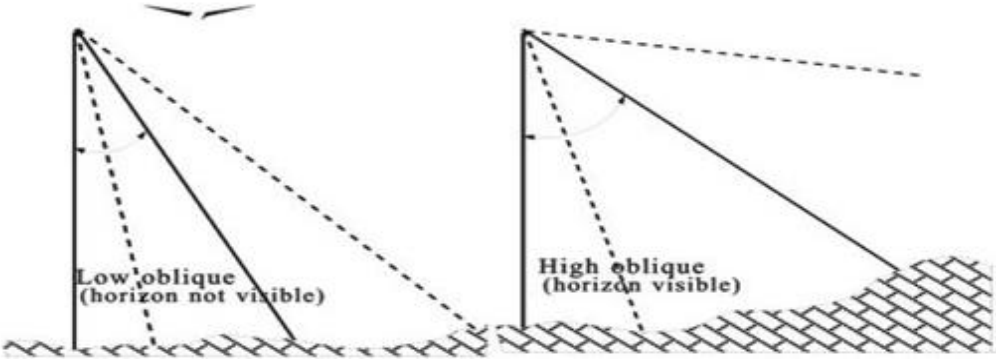


High Oblique Photograph

Characteristics of High Oblique

1. They show large area
2. They are taken at 60°.
3. They show the horizon
4. They show both the front and top view

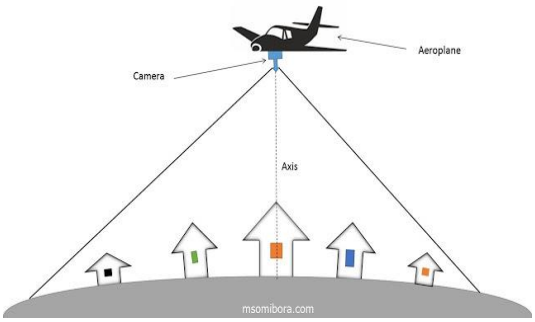
Oblique Photographs can be Low Oblique (if the horizon is not visible) or High Oblique (if the horizon is visible)



Low Oblique versus High Oblique Photographs

3. VERTICAL AERIAL PHOTOGRAPHS

These are photographs taken with camera whose axis tilted vertically to the ground at right angle (90°). These are photographs taken from the aircraft with the **camera directly above the object pointing vertically to the ground. Only the top view is seen.** Instruments used to capture pictures are called air crafts or the satellites.



Vertical Photographs

Characteristics of Vertical Aerial Photographs

1. They show large areas
2. They are taken from the air.
3. They are taken when the camera is placed vertically towards the object
4. They can be used in map making
5. They contain a lot of detailed information of a given photographic region since they print everything

Uses of Vertical Aerial Photographs

1. They are used for plotting contour lines
2. They are used for map making
3. They are used for military purposes
4. They can produce variety of scales like small scale and large scale
5. They are used for pilot studies before conducting field trip
6. They can be used for investigation or researches
7. They can be also used for rapid survey of unknown area like thick forests and high mountains

Differences between Oblique/Ground Photograph and Vertical Photograph

1. Vertical photographs show the top view while Oblique photographs show the top and front view
2. It is difficult to identify objects in Vertical photographs than in Oblique photographs
3. In Vertical photographs, all important features are seen while in Oblique photographs some important features are not seen.
4. Oblique photographs are less expensive than Vertical photographs
5. It is difficult to recognize the image of the Vertical photographs while the image or picture of Oblique photographs is easily recognized
6. It is easier to determine the scale in Vertical photographs than in Oblique photographs

Comparisons between Photographs and Maps

1. Both photographs and maps are important in learning geography
2. They both have scales
3. Both are used in military for techniques
4. Both show the physical and relief features on the earth
5. Both are used by planners when planning for something or a project
6. They both represent the three dimensional World on the flat surface

Differences between Maps and Photographs

MAPS	PHOTOGRAPHS
They have keys	They have not keys
They are selective	They are not selective as they print everything
They have titles	They do not have titles
They are very expensive	They are less expensive and fast
They take much time in making a map	They take less in producing a photo
The scale is constant or uniform	The scale is not constant or uniform
They need skills to interpret them	They are very easy to interpret

The Value or Importance of Photographs in Geography and Daily Life

1. Photographs store information for future generation
2. They act as main house of information of a place
3. Photographs are used to prepare the topographical maps
4. They provide quick and instant information than maps
5. They replace verbal description and save time
6. They show real feature of the earth and provide a good visual impression for observation and interpretation
7. Photographs are also used in geographical research

PHOTOGRAPH READING AND INTERPRETATION

Is the process of reading, measuring, translating and explaining the meaning of objects identified on that photograph. It is done so as to obtain reliable

information about the natural or cultural features on their environments. It involves the following;

Determining the Title

Photograph information determines the choice of the title. Photos show landscapes, activities on land, what is on the surface and the sky. The information contained in the foreground, middle ground and dead ground can help in determining a suitable title

Estimating Time and Season

1. **TIME**
It is possible to estimate the time of day when the photo was taken if we know where the photograph was taken If the photo was taken during the morning its evidence is through the shadow

i. **During the Morning**: The shadow of the object lies in the western side because the sun rises from the east

ii. **During the Evening**: The shadow lies in the eastern side because the sun sets on the west

iii. **During the Afternoon**: The shadow lies around the object because the sun is over head of the object

2. **SEASONS**

i. A bright sky with dry vegetation may indicate a **dry period** or season.

ii. Thick vegetation young crops or flowering plants in the field and a sky full of rain clouds indicate a **rainy season**

iii. Clear sunny conditions with health vegetation and flowering plants or plants with fruits indicate **summer season**

iv. Plants with young leaves others bloom and field full of grass indicates **spring season**
v. Hazy sky with leafless trees and some snow on the ground indicates **winter season**

vi. Also when people appear to be wearing heavy clothes with faces almost completely covered, hand gloves and heavy boots it indicates cold weather, likely **winter** in temperate regions

vii. People wear light clothes and some may even have broad-rimmed hats indicates **hot weather**

viii. When houses appear to have slanting roofs it indicates the region experiencing **a lot of precipitation** which facilitates the easy flow of water from the roof of the house

ix. If people appear to be planting then it is planting season the **rains** either are about to come or have just started

x. If the people appear to be weeding it is growing season for the crops and there is **reduced rainfall**

xi. If people appear to be harvesting a crop, its **dry season** because harvesting normally takes place during dry weather.

xii. If people appear to cultivate and plant various crops, it indicates **rainy season**.
xiii. If people appear to harvest the crops, it indicates **dry season** because harvesting is usually done during the dry season.

3. Estimating Direction

If the sun is in the east, the shadow will always be cast westwards and vice versa. If the shadow is pointing towards you and the photograph was taken in the afternoon (meaning that the sun was in the west), the photographer was facing westwards. With such information, it is then possible to fix compass points on a photograph.

IDENTIFYING AND INTERPRETING PHYSICAL FEATURES

Many physical features shown in the photograph can be identified and interpreted. These features include relief, drainage, and vegetation, among others.

RELIEF

In describing landscape and landforms, it is important to go even further and describe the forces and processes that are responsible for their formation and modification. This is an essential aspect of relief interpretation. Relief features in the photograph may include the following features:

1. **Ridge**. Ridge is a narrow and long relief feature with steep slopes on all sides.

Ridge

2. **Escarpmen**t
An escarpment is an area of highland with very steep slopes on one side and a gentle slope on another side. The steep slope of an escarpment is called the scarp slope and the gentle slope is known as dip slope.

Escarpment

3. **Plateau**

A plateau is an extensive highland region and whose top surface is almost flat. A plateau is easily identified on the map by the absence of contour lines on the higher land surface and with a series of contours close together on either sides.

Plateau

4. **Slopes**

A slope the inclination or slant of the land. This inclination varies considerably, resulting in the following types of slopes i) A concave slope and ii) A convex slope

Slopes

5. **Col**. A Col is the land between two peaks of a mountain or in the mountain ranges.

Col

6. **Saddle** (pass). A saddle is generally wider than a col. Saddles provide convenient passages across mountain ranges. Contours showing peaks are usually closed.

Saddle

6. **Valley**. Valley is the low lying part of the land which is bound over higher ground and steep slope. Valleys are indicated by contours forming 'V' shape pointing the higher ground and some valleys have rivers flowing in them.

Valley

7. **Spur**. Spur (Salient) is a projection of the raised land from the side of a hill or mountain into lowland, contours showing a spur form a 'V' shape pointing to the lower ground.

Spur

8. **Hills**/**Peaks**

A hill is a rounded upland area not as high as a mountain. Hill height is usually about 350m-650m. Some hills are regular while others are irregular. A hilly landscape is shown on photographs as having varied relief of hills and valleys that are not isolated on a flat landscape. Where hills appear to have the same height across the entire landscape, such a landscape is probably a dissected plateau.

Hills

9. **Cliff**

A cliff is described as a steep rock face that is vertical or nearly vertical. Cliffs are common in mountainous or hilly areas and along the shores of lakes and seas. On topographical maps, cliffs are shown by contours that are so closely packed that they appear to merge into one another. To emphasize the presence of the cliff, a special symbol is drawn on top of the contours as shown in the figure below.

Cliff

10. **Plain**

A plain is a continuous tract of relatively flat land covering a broad area of lowland. Some plains may be raised but the slopes are very gentle. Plains occur as lowlands and at the bottoms of valleys but also on plateaus or uplands at high elevations. On topographical maps, a plain is shown by contours that are very widely spaced. Some rivers, if present, may be seen to have meanders.

Plains altitudes are less than 500 metres while plateau altitudes are more than 500 metres above sea level. It is impossible to tell the average area of the land directly from a photograph. However, other features appearing in the photograph, such as part of the sea, crops and other economic activities may be used in estimating the altitude.

Plain

11. **Depression**.
A depression on a contour map is shown by contour lines with small marks pointing towards the lowest point of the depression. The first contour line with the depression marks and the contour line outside it have the same elevation.

Depression

12. **Mountain.** This refers to the upland or highland over 1000m from the mean sea level

Mountain

DRAINAGE

Drainage features such as rivers, lakes and seas may easily be identified in all types of photographs. Different aspects of rivers can be studied on a photograph. These include the shapes of river valleys, stages of development and various features. Based on the presence of certain features, one can tell the nature of the rock over which the river flows. For example, the presence of rapids and waterfalls is an indication that the river is flowing over steep land.

River meanders are an indication that the river is in it mature or old-age stage. Interlocking spurs indicate that the river valley is made of alternating layers of hard and soft rocks. Drainage patterns are easier to identify on vertical aerial photographs. The colour tone of areas covering deep water appears darker than those of shallow water. The various functions of the river can also be identified.

River

VEGETATION

Photographs show all types of vegetation in the photographed area. Planted (artificial) and natural forests appear to be distributed unevenly, with planted forests usually in clear straight lines. In planted forests trees tend to be of the same type, size and height because they were planted at the same time. The plant characteristics that may appear on the photograph can be used as a guide to the general types of vegetation, for example savannah or semi-arid vegetation.

Natural Forest

Planted or Artificial Forest

SOIL

A clue on the type of soil in a photographed area may be given by the types of crops grown and appearance on the photograph. For example:

1. Rice grows well in clay soil.

2. Tea and coffee require volcanic soil.

3. Coconuts and cashew nuts thrive well in coastal regions with sandy soils,

4. Variety of horticultural crops thrive in loam soils.

Clay Soil

Sandy Soil

Loamy Soil

Proper interpretation of the soil requires an application of one's general knowledge of geography learnt in classroom as well as knowledge from other disciplines.

CLIMATE

Weather and climate are not shown directly on photographs. Features contained in a photograph can be used to make conclusions about the climate of a photographed area. The type of crops grown and vegetation on the photograph can be used as a clue to establish the climate of a place. Vegetation types and crops can also provide evidence about the season or climate of a place. For example:

1. The presence of many cacti signifies an arid or semi-arid region, and hence a **desert** or **semi-desert climate.**

2. Crops such as sisal are grown in hot areas that receive low rainfall while sugarcane thrives in warm to **hot climate with high rainfall.**

3. The type of clothing people in the photograph are wearing can give an indication about the weather and possible climate.

Cacti

IDENTIFYING AND INTERPRETING HUMAN ACTIVITIES

Human activities on a photograph are depicted by various forms of land use. The uses of land may in form of agriculture (crop cultivation and animal husbandry), forestry, settlement, wildlife conservation, mining and construction of infrastructures, among other uses.

1. AGRICULTURE

This includes crop cultivation and livestock rearing. It is practised at subsistence and commercial levels. It is easy to identify agricultural activities on ground photographs. To be able to identify these features on vertical aerial photographs, it requires close examination of the features. Some evidences that can be used to establish the kind of agricultural activities taking place in an area shown on the photograph are summarized as follows:

Type of Farming Evidences

a) **Subsistence Crop Farming**
- Some houses are permanent while others are temporary
- The land is often divided into small plots owned and cultivated by individual farmers
- Mixed farming is practiced
-Simple farming tools such as hoes, mattocks, pangas and rakes are used
- Fields are separated by hedges

Subsistence Crop Farming

b) **Subsistence Livestock Farming**
- Indigenous and exotic animal breeds are kept
- Animals are grazed on grassland or semi-arid vegetation
- Large herds of local cattle (zebu), goats and sheep.

Subsistence Livestock Farming (Pastoralism)

c) **Commercial Livestock Farming**

- Large fields divided into paddocks
- Presence of cattle sheds near farm houses
- Windmills for water supply
- Presence of water tanks, ponds or reservoirs in the dry areas
- Evidence of livestock infrastructures such as cattle dips or spray races, abattoir, cattle bomas, slaughter slab, etc.
- High grade exotic or crossed cows with large udders
- Milking parlour with milking machines, and milk processing plants
- Indoor grazing units

Commercial Livestock Farming

d) **Commercial Crop Farming**
- Presence of cash crops on an extensive area
- Evidence of modern farming methods, e.g. farm machinery
- Facilities for collecting crops, e.g. sheds and stores
- Presence of access or feeder roads within the farm

Commercial Crop Farming

e) **Plantation Farming**

- A single crop covering extensive stretches of land, e.g. sugarcane, tea, coffee, sisal, wheat

Plantation Agriculture

2. PROCESSING FACTORIES

- Presence of storage facilities, e.g. silos
- Many labourers in the fields
- Nucleated settlement within the farm. These are usually for the workers' housing
- Presence of a network of roads crossing the farm to facilitate mechanization and haulage of inputs and produce to and from the farm, respectively.

Factories

3. INDUSTRIAL AND MINING ACTIVITIES

The following evidence can be used as a guide in identifying industrial and mining activities on a photograph:

1. Presence of Factory, buildings with tall chimneys that might be issuing a lot of smoke

2. Nucleated settlements in the neighborhood, likely to be the laborers' houses

3. Tall chimneys emitting flames and a network of pipes with large tanks in the distance could indicate an oil refinery

4. Large open pits, large excavators and lorries carrying loads of rocks could indicate open cast mining

5. A large area with derricks (oil rigs) could point to an oilfield where oil is mined

Industries (manufacturing)

Mining

4. **LUMBERING**

Lumbering activities could be indicated by the presence of the following features/activities:
1. Logs floating down the river
2. People cutting trees using manual or power saws
3. Large forest clearings with tree stumps and piles of logs
4. People loading timber onto lorries or tractor trailers e. Logs piled near a saw mill

Lumbering

5. TRANSPORT AND COMMUNICATION

a) The clues or indicators on **Transport**.
1. Presence of motor vehicles and roads Animals carrying loads on their backs Presence of railway line Presence of ports, boats, ships or large water bodies.

b) The clues or indicators for **Communication**
This may be indicated by the presence of telephone lines, telephone booths, satellite dishes, buildings with masts and wires connecting the masts, post office, radio or television station, newspapers or newspaper stands, etc.

Transport and Communication

6. **Tourism**: look on the presence of; National parks, Game reserve Recreational centre's e.g. museum, archives beaches etc Landscape e.g. crater depression etc.

Tourism

7. **Fishing**: look on the presence of; water bodies such as lakes, seasonal swamps, rivers, dams, ocean. These should be surrounded by settlement.

Fishing

8. Administration

Various administrative activities can be identified from abbreviations on the map. These are given in a list in the margin of the map. They include:
a) Provision of security as evidenced by the presence of a Police Station or Police Post
b) Judicial services as evidenced by the presence of courthouse
c) Other administrative offices such as District Commissioner (DC)
d) Regional Commissioner (RC).

Administration

9. SETTLEMENT

A settlement comprises of a group of buildings in an area where people live and carry out social and economic activities. There are two types of settlements; rural and urban settlement.

Rural Settlements

This can be indicated by the following features:

1. Many semi-permanent and a few permanent buildings such as grass-thatched houses or ironroofed houses with mud or brick walls
2. Evidence of farming, fishing activities etc.
3. Unplanned or unevenly distributed of settlement which associated with plantations etc.

Rural Settlement

Urban Settlements

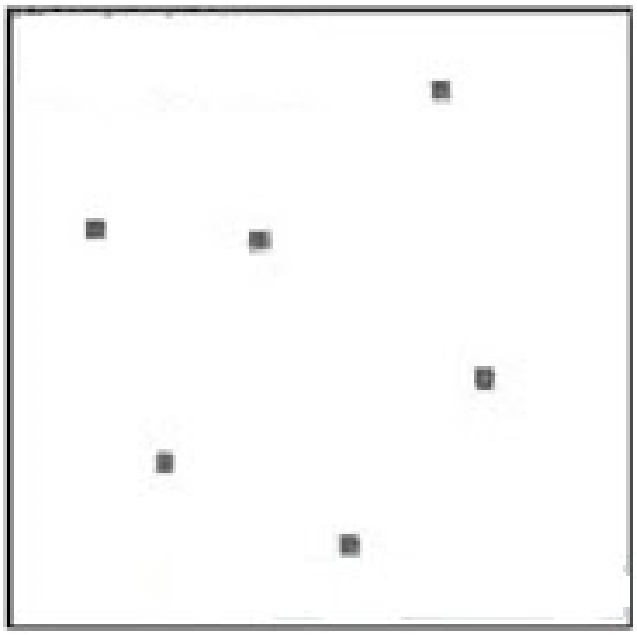
This can be identified by the following features:
1. Permanent buildings, which dominate the area
2. Regular street patterns
3. Many large buildings and warehouses indicating an industrial area
4. High numbers of people or population
5. Availability of Many motor vehicles on the road, which may lead to traffic jams

Urban Settlement

SETTLEMENT PATTERNS

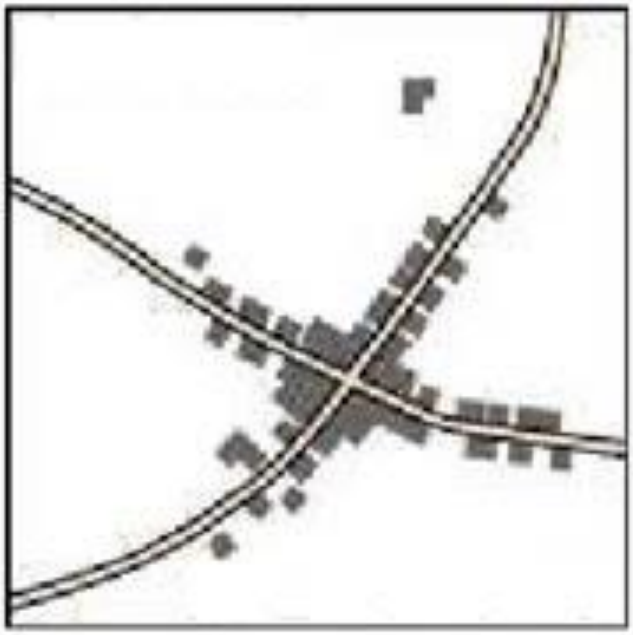
It is a layout of dwellings in a particular place. The signs showing settlements on topographical maps are observed to have varied arrangement. The most common pattern include the following:

1. **Dispersed Settlement Pattern**: It is alternatively called scattered settlement pattern. The houses are widely spaced one to another



Dispersed Settlement Pattern

2. **Nucleated Settlement Pattern**: Houses and other related form are compacted to another.



Nucleated Settlement Pattern

3. **Linear Settlement Pattern**: Houses are concentrated along an elongated objected of economic significance like a road, river, railway lines and others

Linear Settlement Pattern

Factors Encouraging Settlements

1. A reliable source of water supply e.g. presence of permanent rivers, lakes.
2. Gentle slope i.e. people prefer to establish settlement in less hazardous areas
3. Good soil for agriculture
4. Pleasant climate condition

5. Transport and communication.

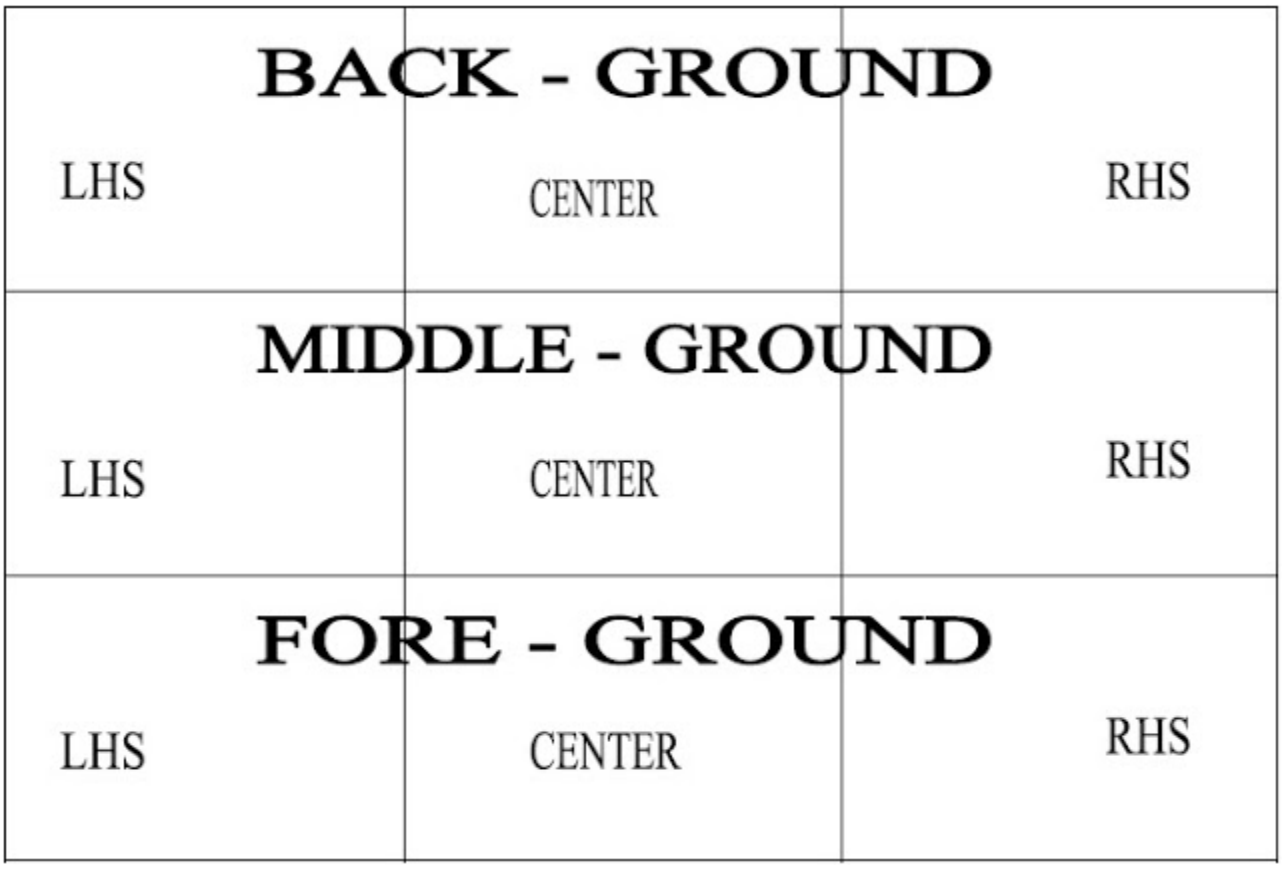
Estimating the Size of Features

Estimating the size of object in the photographed area sometimes is not easy, therefore some clues are used in order to estimate size of objects in the photographed area. Due to perspective nature of photographs, especially with regard to the ground general view photographs, it is not ease to

measure and calculate possible distances from them. It is, however, possible to work out approximate sizes of objects using familiar objects in the close-up photograph such as a person, ruler or coin. This gives an impression of the relative sizes of the objects and from this we can be in a position of estimating the size of a given object in a photograph. That is why, we normally see a coin, hammer or ruler or any known object placed against rock strata to give us an idea about the size of the rock.

Parts of Photograph

A photograph has main three parts or divisions. These parts includes:
i) Foreground
ii) Middle ground
iii) Back ground



KEY
LHS = Left Hand Side
RHS = Right Hand Side