

Architecture & Town Planning

Lecture 2: Urban Pattern, Structure, Form &
Morphology

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WHAT IS SETTLEMENT ??

A settlement is a place where people live.

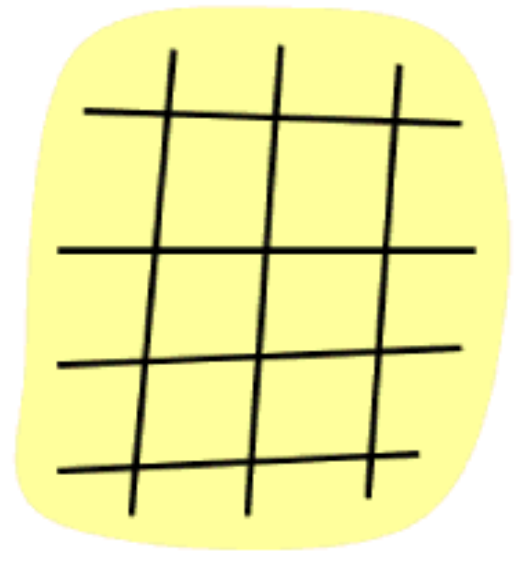
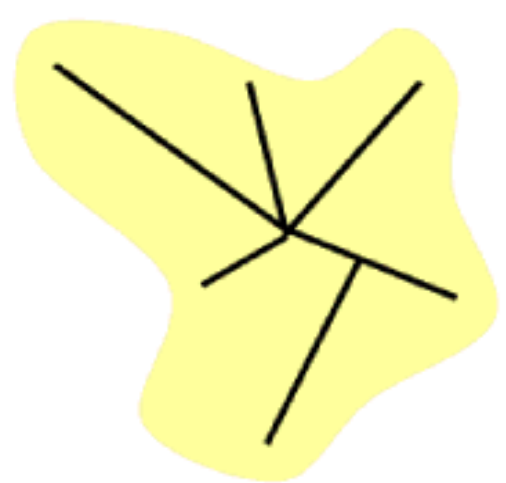
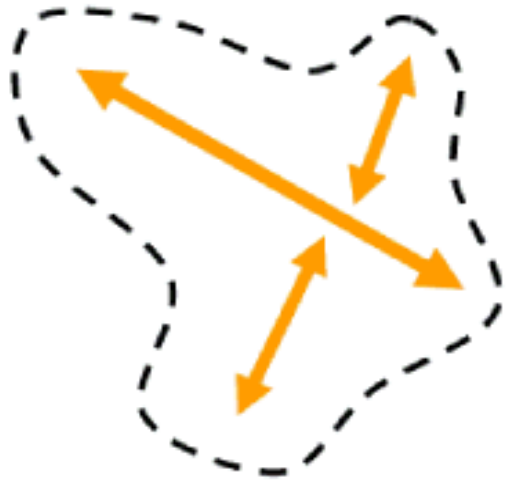
A settlement could be anything from an isolated farmhouse to a mega city (settlement with over 10 million people).

Settlements can either be temporary or permanent.

Temporary settlements include things such as refugee camps.

Some temporary settlements have become permanent over time, (the largest in Rio de Janeiro, Brazil).

The reason why a settlement developed in the first place is said to be its function.



Interactions

Pattern

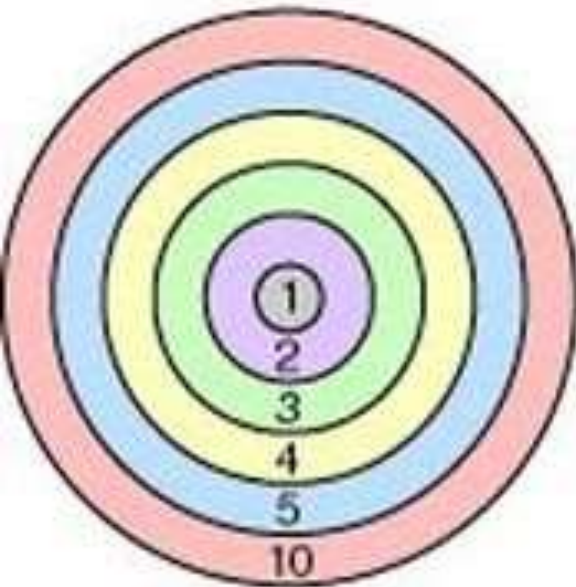
Form

Urban Pattern

Urban pattern is the arrangement of land use in urban areas. Several Land use Models have been developed, explaining where different types of people and businesses tend to exist within the urban setting.

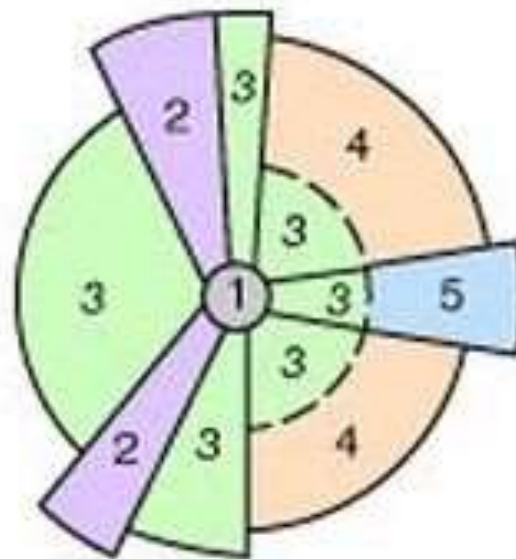
Types of Models describing Urban Pattern

concentric-ring theory



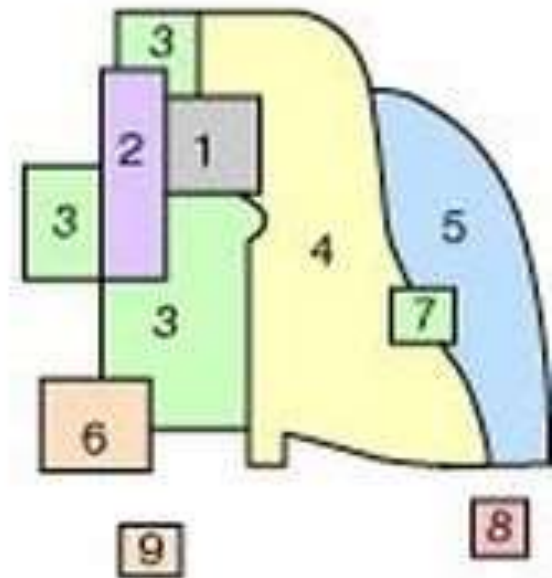
- 1 central business district (CBD)
- 2 wholesale light manufacturing
- 3 low-cost housing
- 4 medium-cost housing
- 5 high-cost housing

sector theory



- 6 heavy manufacturing
- 7 outlying business district
- 8 residential suburb
- 9 industrial suburb
- 10 commuter zone

multiple-nuclei theory

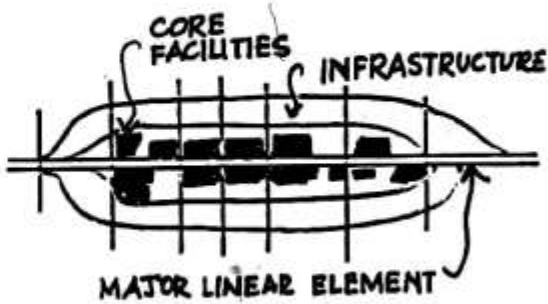
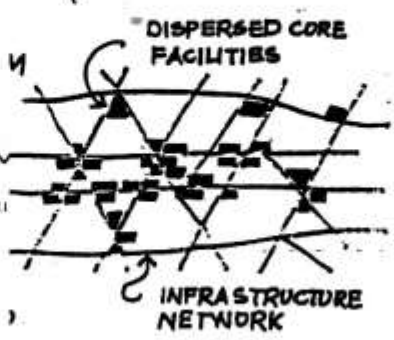
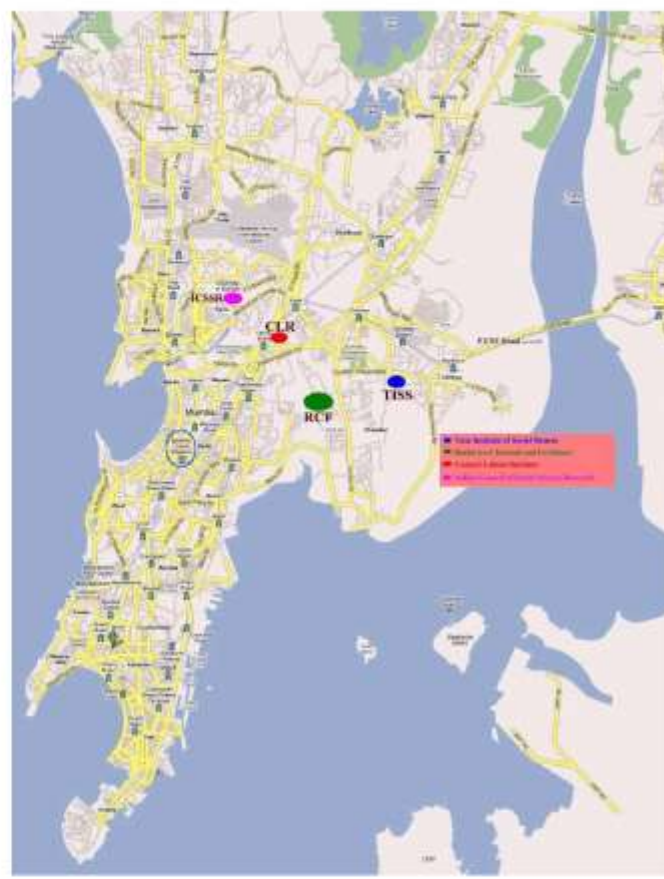
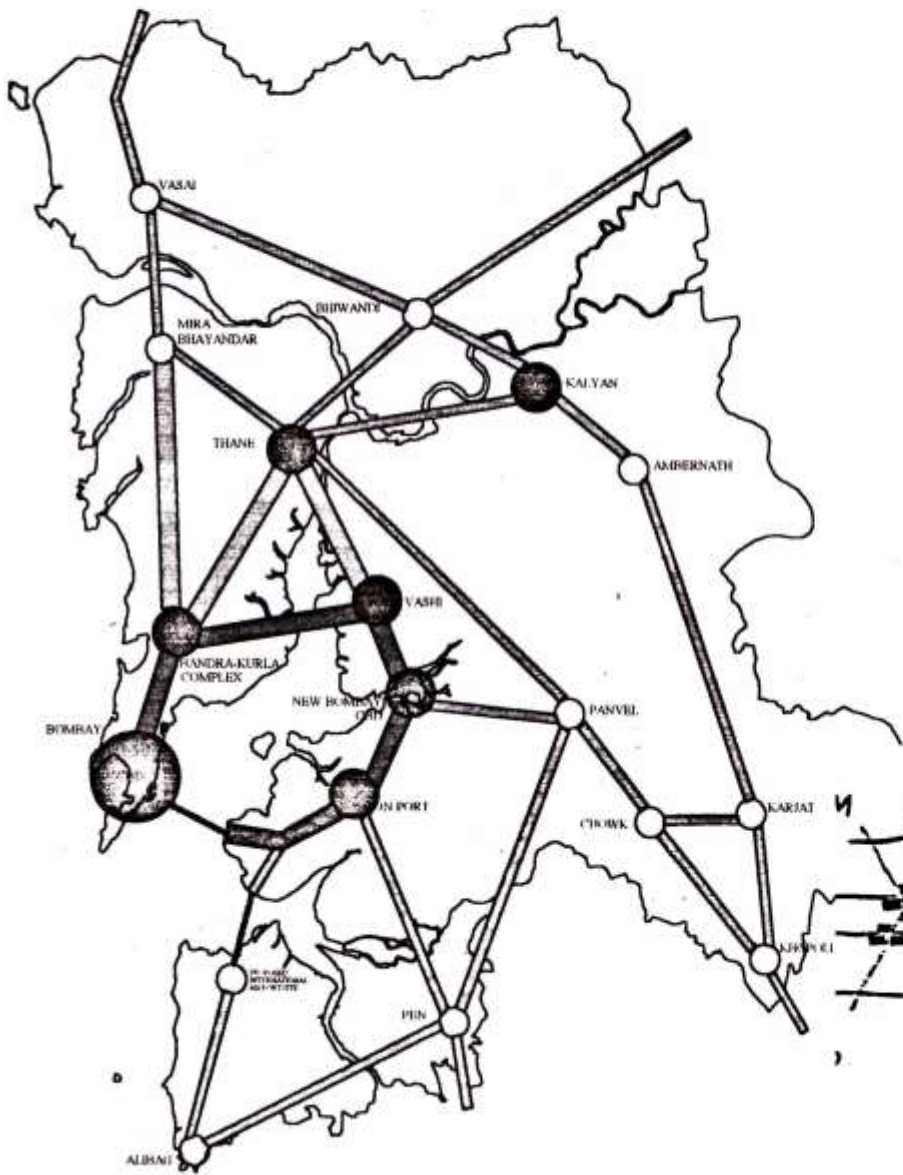


URBAN STRUCTURE

the urban form and its spatial structure are articulated by two structural elements:

- Nodes.**
- Linkages.**

URBAN STRUCTURE



MUMBAI

URBAN STRUCTURE

Nodes

- These are reflected in the centrality of urban activities,
- can be related to the spatial accumulation of economic activities or to the accessibility to the transport system.
- Terminals, such as ports, railyards, and airports, are important nodes around which activities agglomerate at the local or regional level.
- Nodes have a hierarchy related to their importance and contribution to urban functions, such as production, management, retailing and distribution.

URBAN STRUCTURE

Linkages.

- These are the infrastructures supporting flows from, to and between nodes.
- The lowest level of linkages includes streets, which are the defining elements of the urban spatial structure.
- There is a hierarchy of linkages moving up to regional roads and railways and international connections by air and maritime transport systems.

Street Network of Different Cities

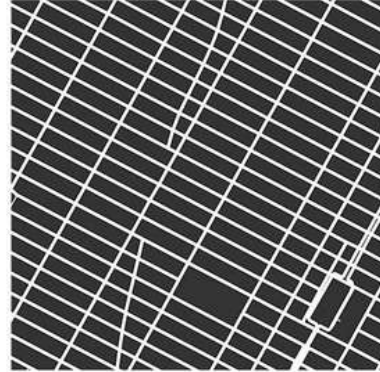
PORTLAND



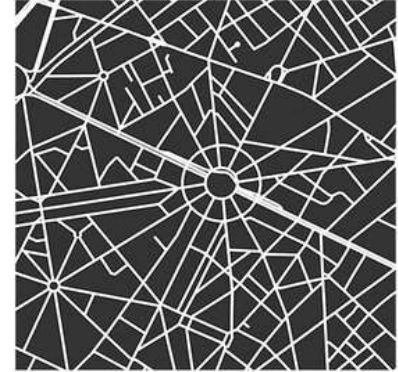
SAN FRANCISCO



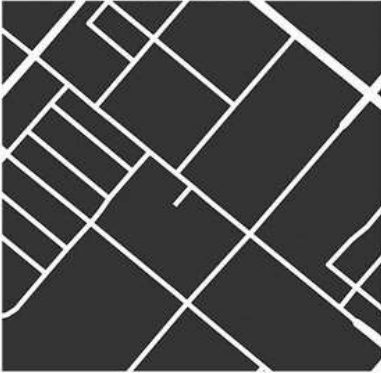
NEW YORK



PARIS



IRVINE



ROME



TUNIS



ATLANTA



BOSTON



DUBAI



SACRAMENTO



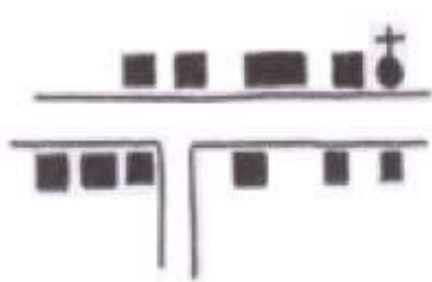
OSAKA



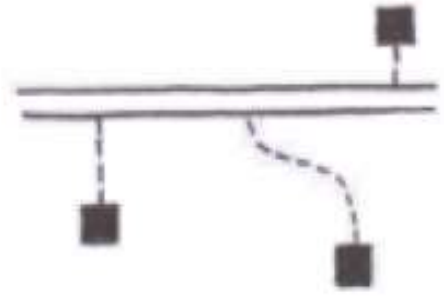
Urban Form

Urban form refers to the shape and arrangement of human settlement while structure is the way they are organized.

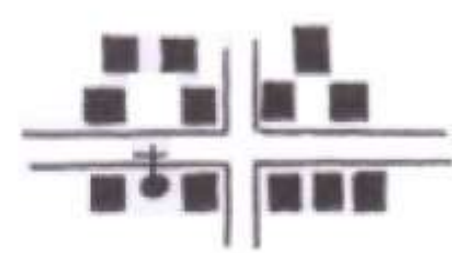
e.g. the physical elements within a city i.e. the arrangement, function and aesthetic qualities of the design of buildings and streets, which overlay the land use and transport system



LINEAR
 *along a road or valley or coastline (communication line)



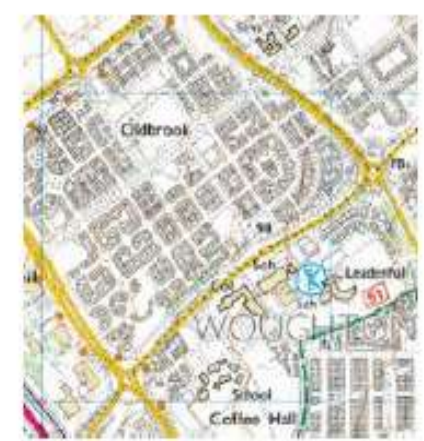
DISPERSED
 *isolated farms, often in areas of steep relief



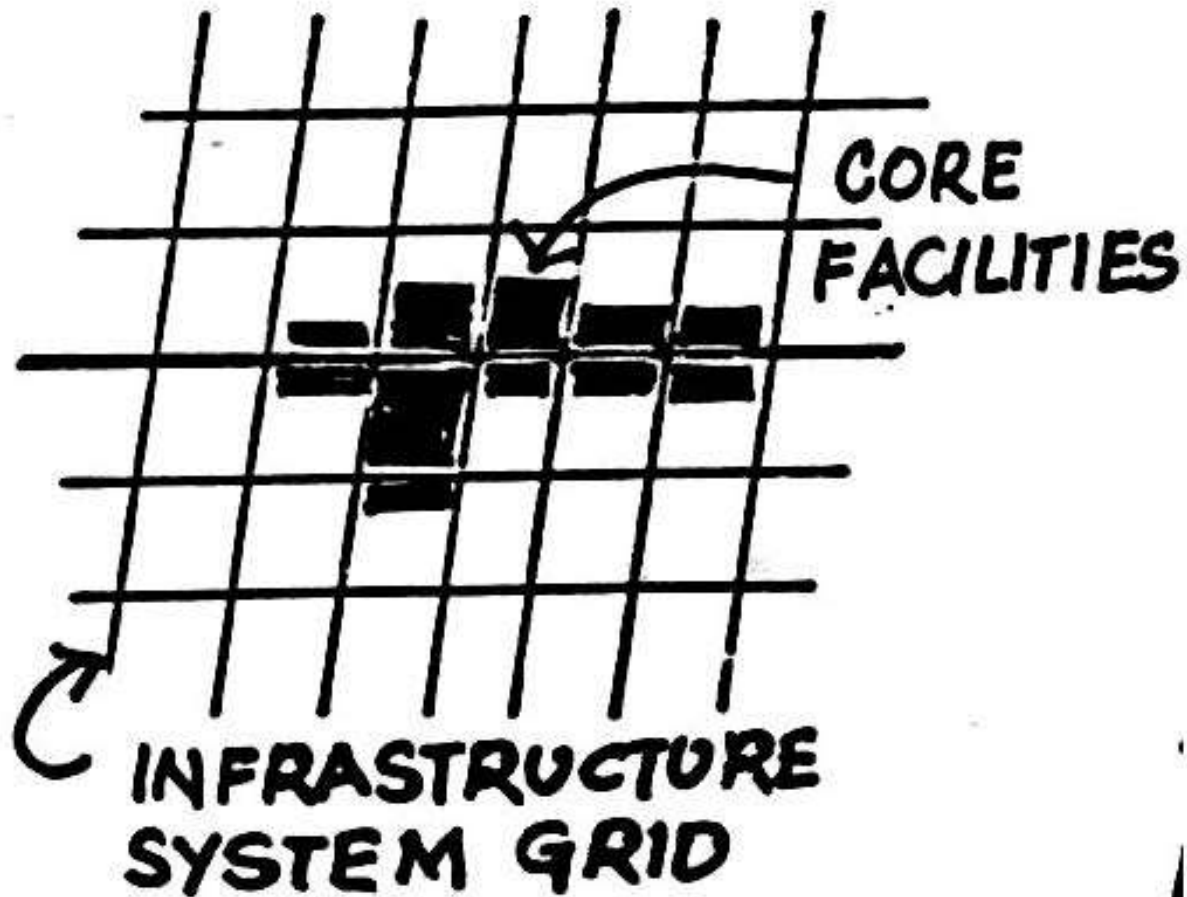
NUCLEATED
 *clustered round a water supply, or crossroads etc



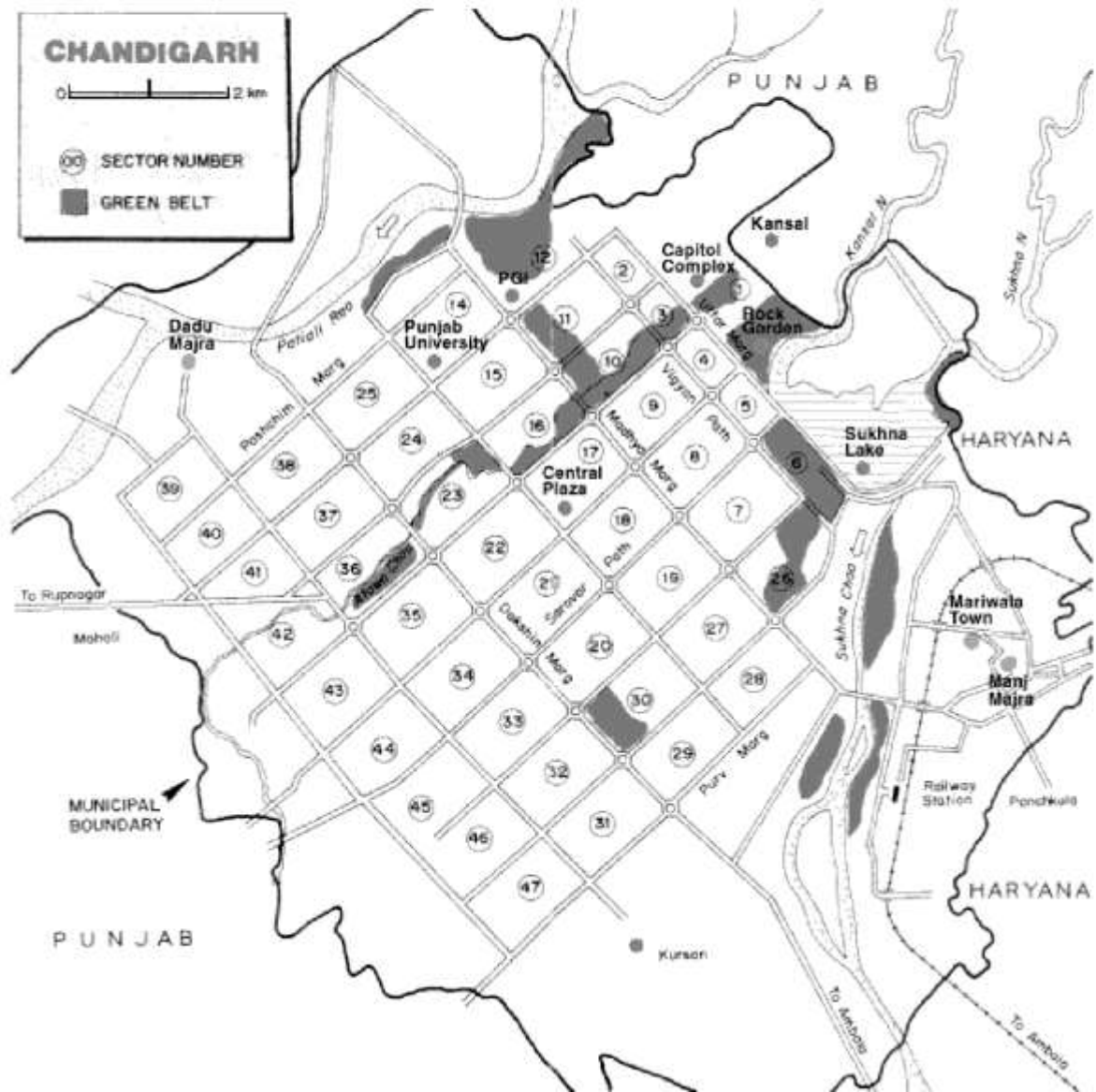
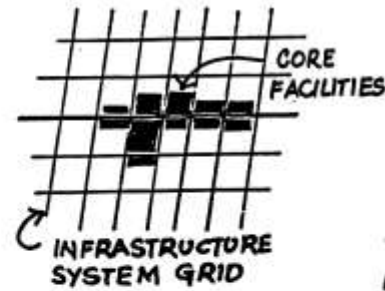
PLANNED
 *square, grid, found in new towns e.g. Brasilia = aeroplane



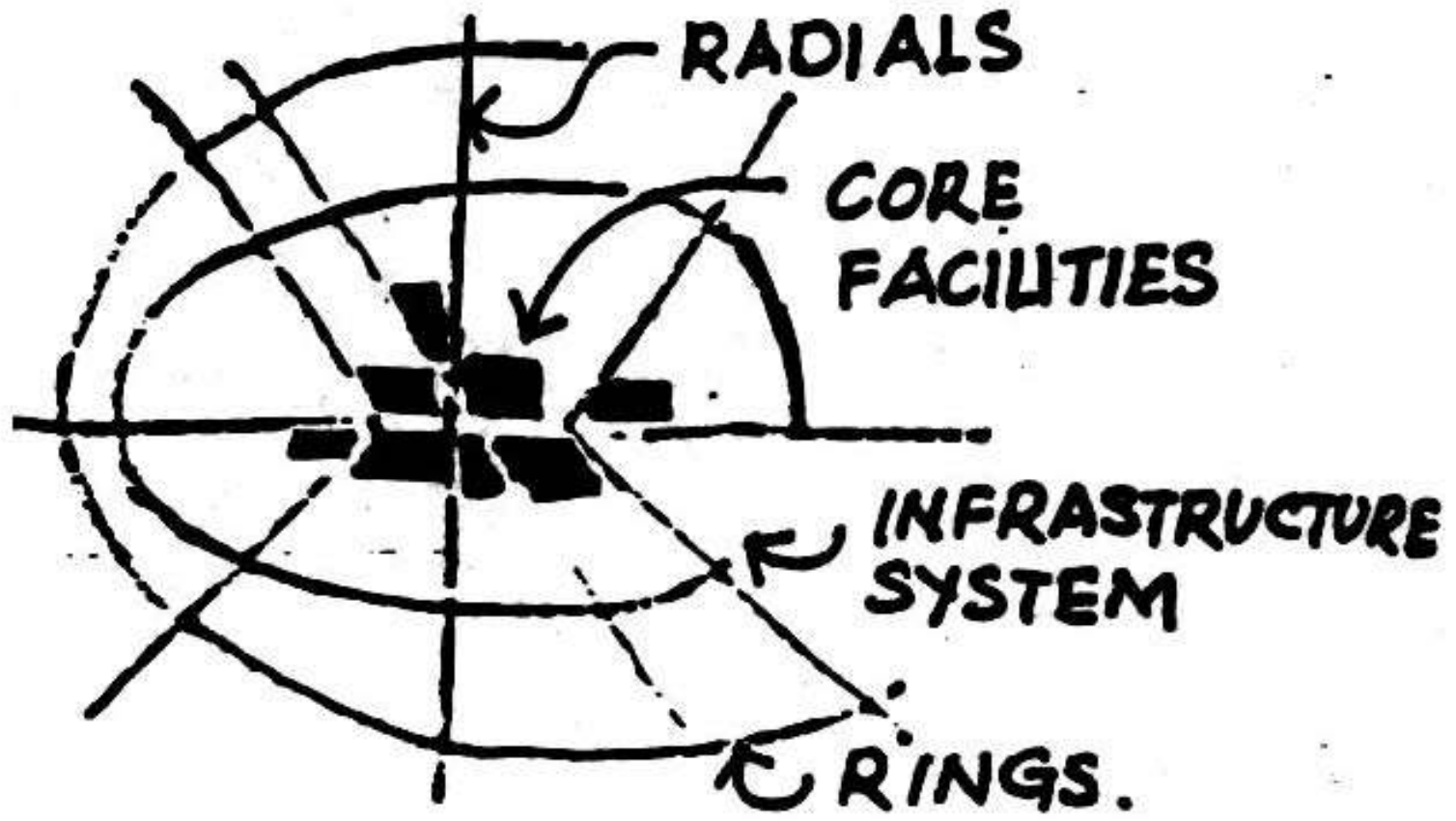
GRID SYSTEM



GRID SYSTEM EXAMPLES

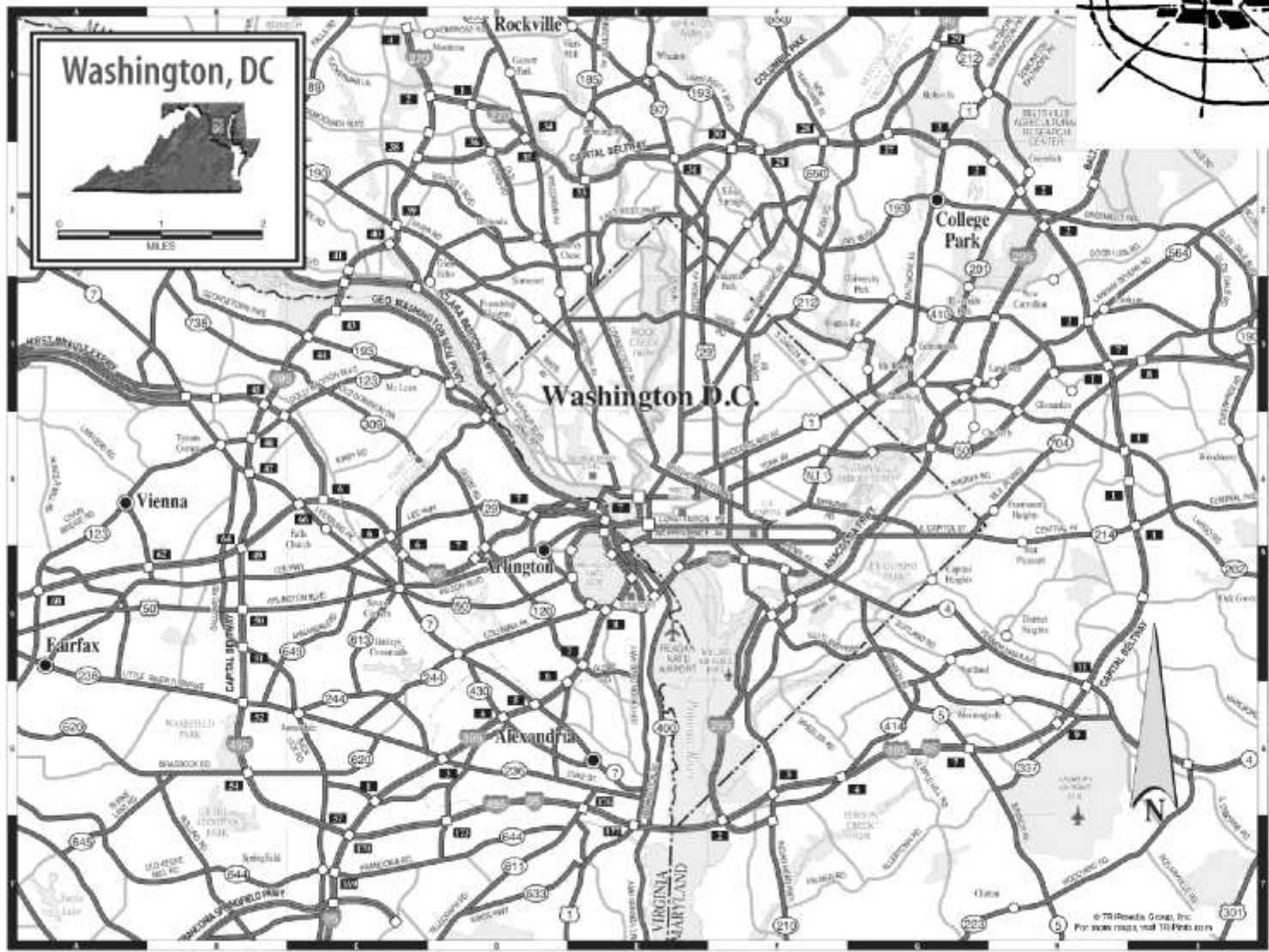
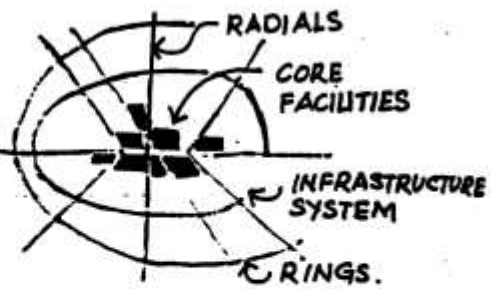


R



RADIAL / CONCENTRIC SYSTEM

EXAMPLES

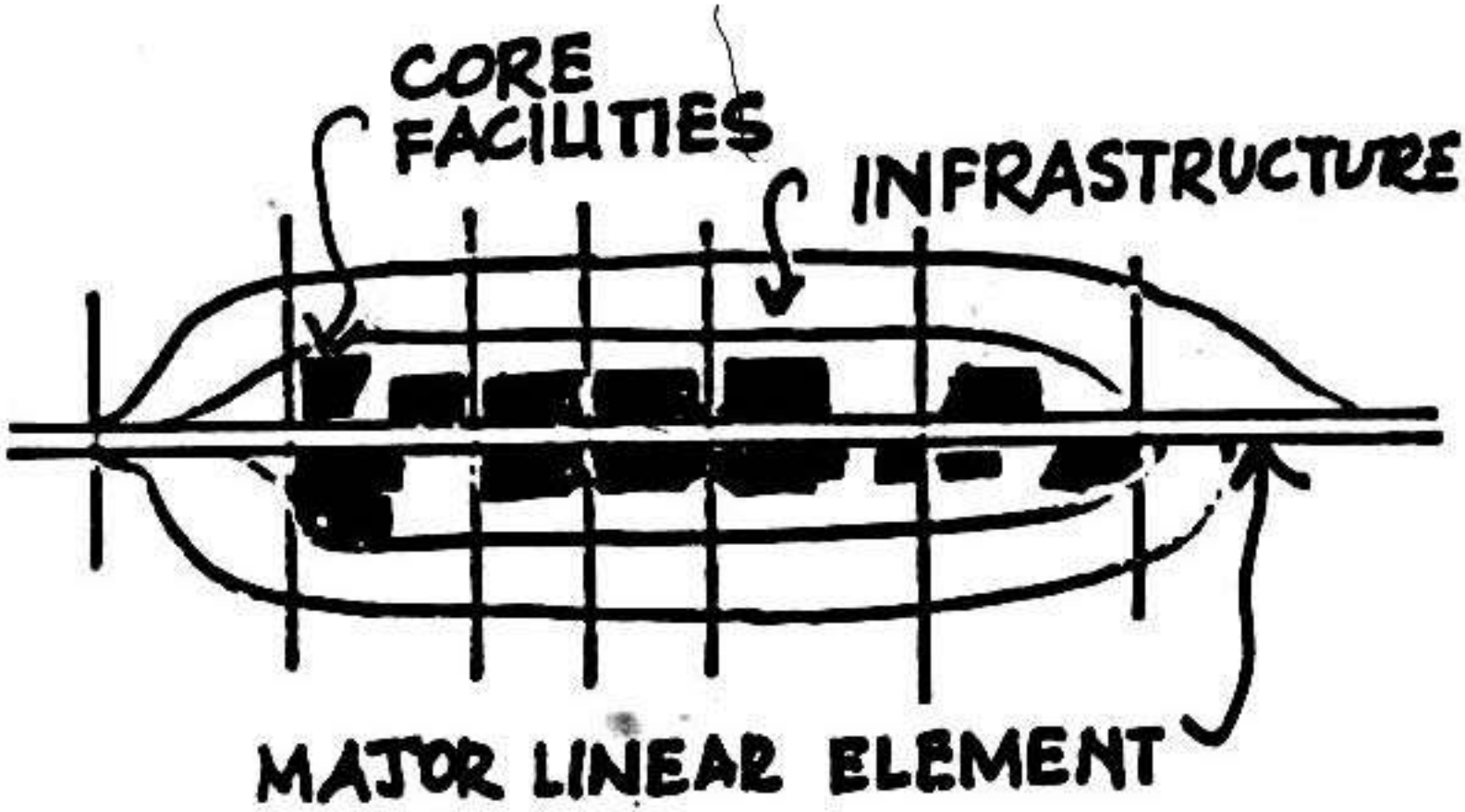


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Nucleated



LINEAR SYSTEM

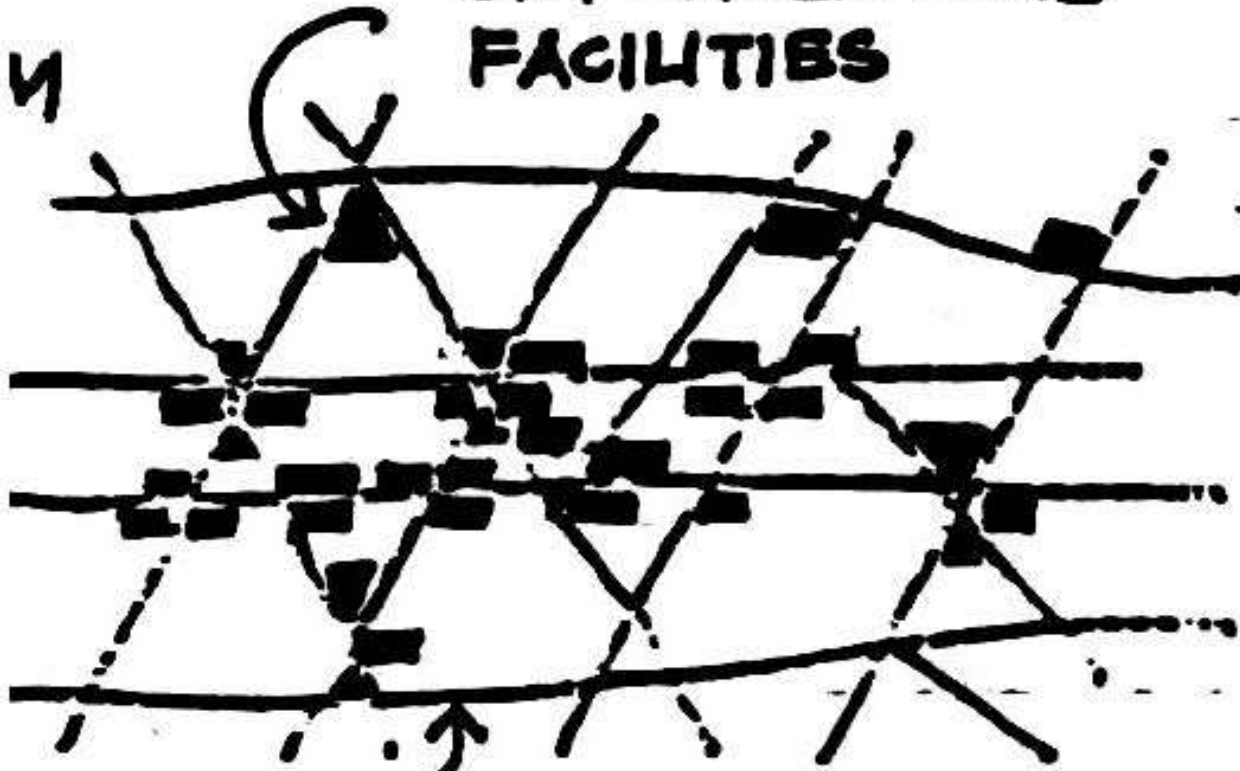


Linear



MULTI CENTRED SYSTEM

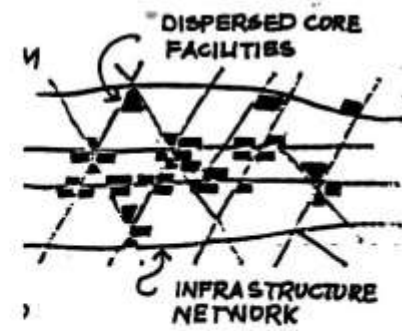
DISPERSED CORE FACILITIES



INFRASTRUCTURE NETWORK

MULTI CENTRED SYSTEM

EXAMPLES



ROME

Dispersed



What is Urban Morphology?

Urban morphology is an approach that provides an understanding of the form, creation and transformation processes. It is the study of urban fabric i.e. neighborhood morphology (open spaces, building, Land use), functions (human activity, pattern of movement)

It also seeks to understand the spatial structure and character of human settlements through an analysis of historical development processes.

Special attention is given to how physical or built fabric of urban form (street pattern and building pattern) of the city changes over time, the people and the process shaping it and how different cities compare to each other

Human settlements emerge over long periods, through city-building processes, such as land subdivision, infrastructure development, or building construction.

Urban morphology is used as an important assessment tool or method in determining the change transformation processes of urban fabrics

Major Morphological Factors

Natural determinants: Influenced by the geographical location of city which includes climate, topography and available construction materials.

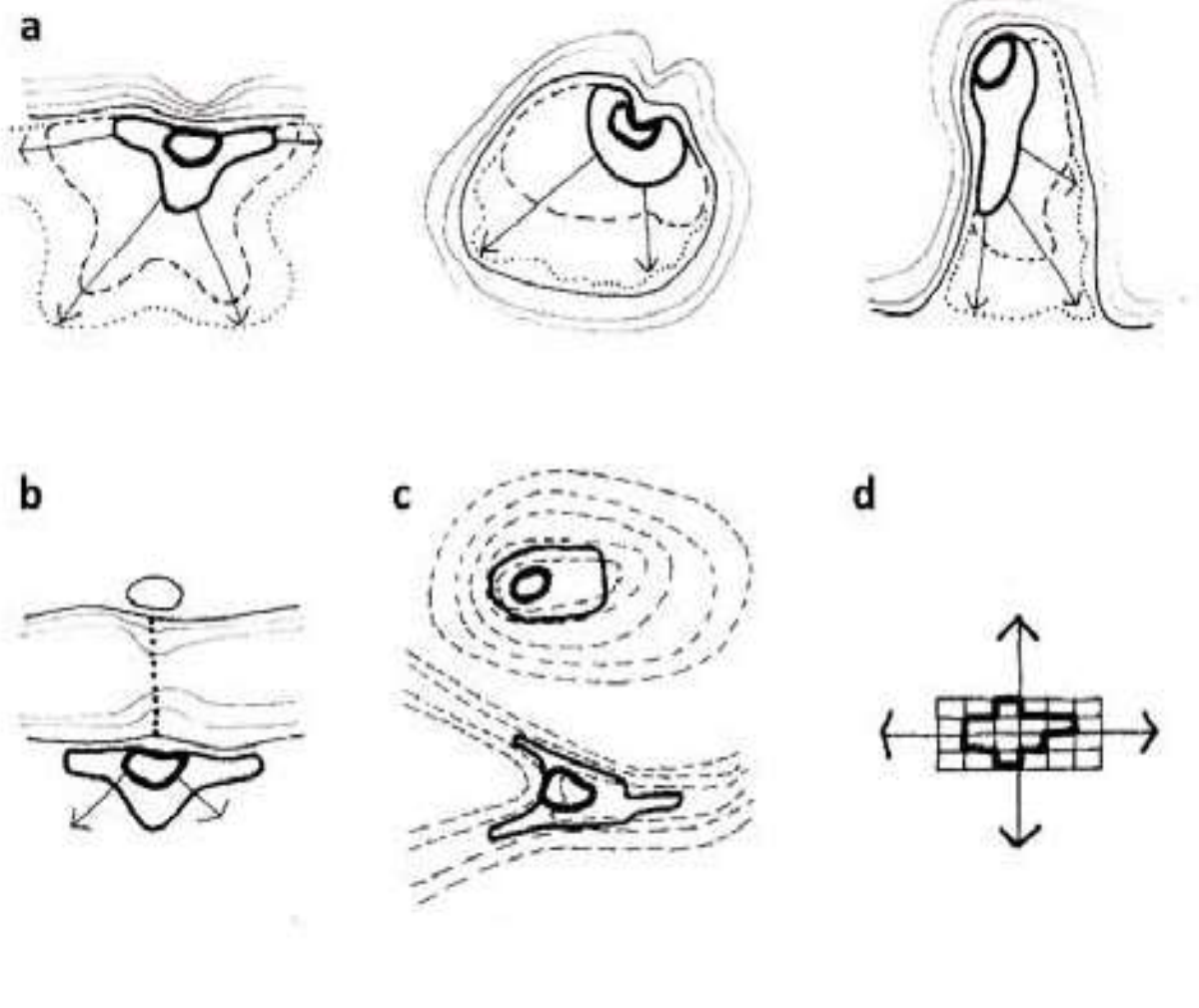
Example: The arrangement of houses for Islamic cities was particular due to its hot-humid climate.

The human-made determinants: They are influenced by human intervention which involve economy, politics, religions, social, cultural, defense, functional frame, transportation systems, Housing, Government policy, Service networks

Natural Determinants

Topography, Climate, Materials & Technology

Natural World Determinants (Topography)



- a. Seafront, Island or peninsular origins respectively e.g. (1) Brighton, (2) Manhattan Island, (3) Miletus
- b. River Bank origins initially with ferry or ford limitation on cross river settlement and awaiting later (Modern) construction technology for significant bridgehead development . It resulted in growth directions away from nucleus e.g. London
- c. Hill or ridge-top origins e.g. Edinburg and Valley base conserves e.g. Makkah
- d. Flat open "prairie" location, with no major topographical growth constraints e.g. Oklahoma city

Brighton, England (Seafront)



Manhattan Island, NY, USA (IsInad)



Florida Peninsula, US State



London (River Bank Development)



The Arms of the East India Company



The Arms of the City of London

To the Hon^{ble} S^r Robert
London Alderman K^t
This Mapp is humbly



Vyner of the City of
and Baronet
dedicated by Ric: Blome.



The Arms of the City of London



The Arms of the City of London

Makah (Hill Top Development)



Oklahoma City, US (Flat open "Prairie")



natural world determinants: climate



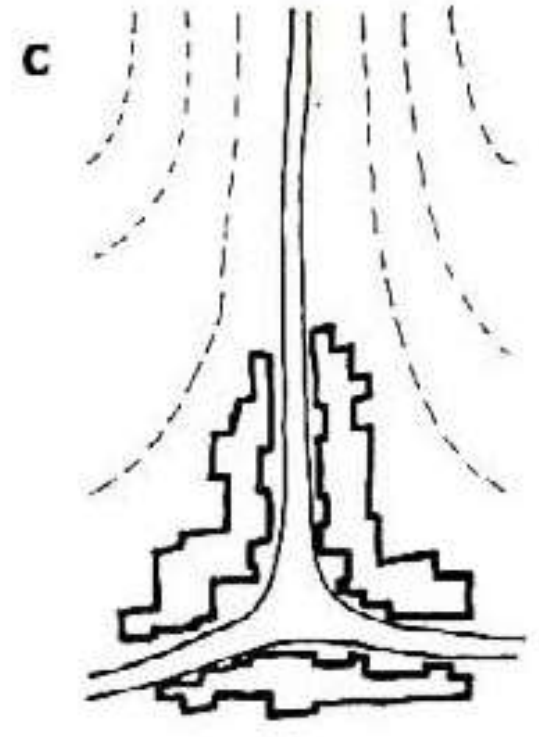
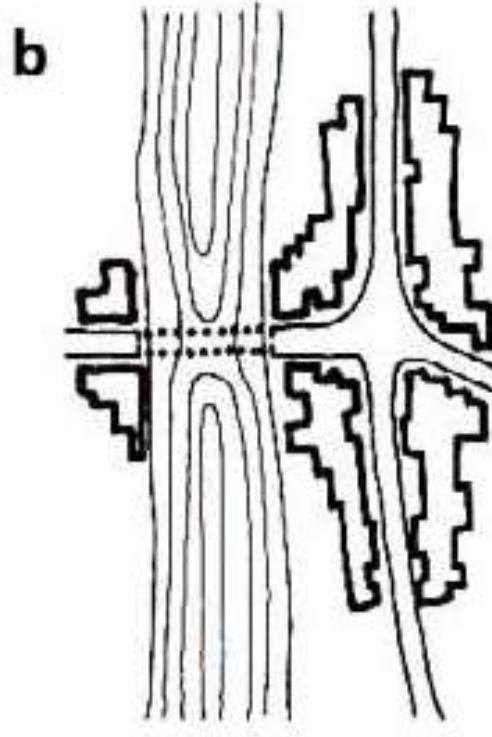
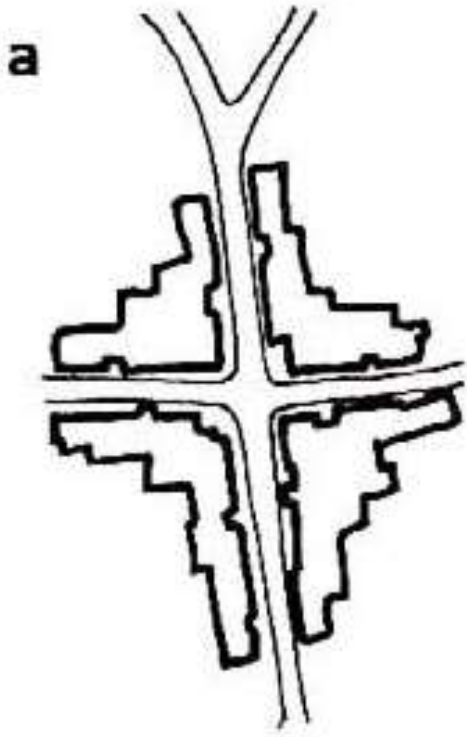
natural world determinants: materials and technology (vernacular)



Man-Made Determinants

Trade,

Man-Made Determinants (Trade)



Locational detriments: The Market Place factor exemplified at:

(a) Land route crossings **(b)** Intersection of land and water routes **(c)** At entrance to Mountain passes

Transfagarasan, Romania

(Land route crossings)



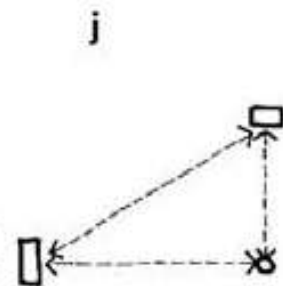
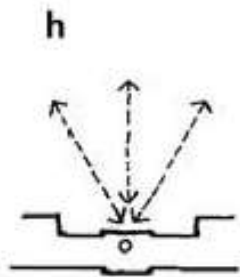
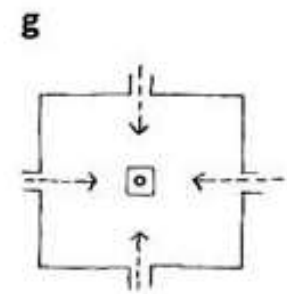
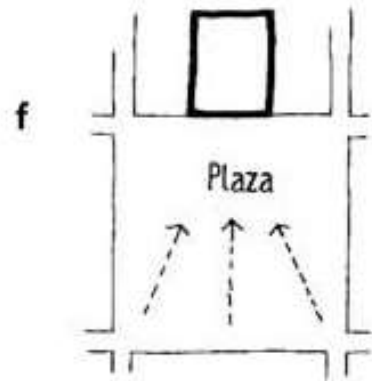
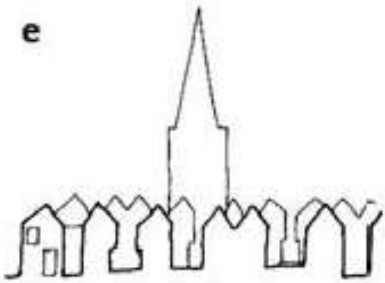
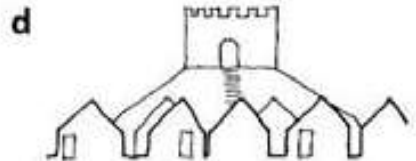
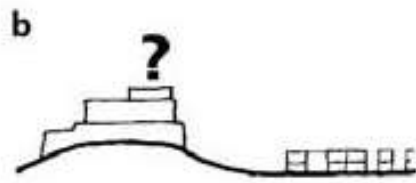
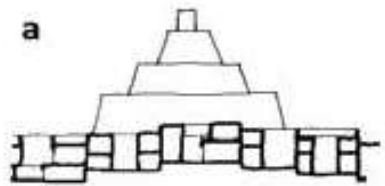
Fullerton Avenue, Chicago

(Intersection of Land and Water routes)



Alberta, CA (At entrance to Mountain pass)

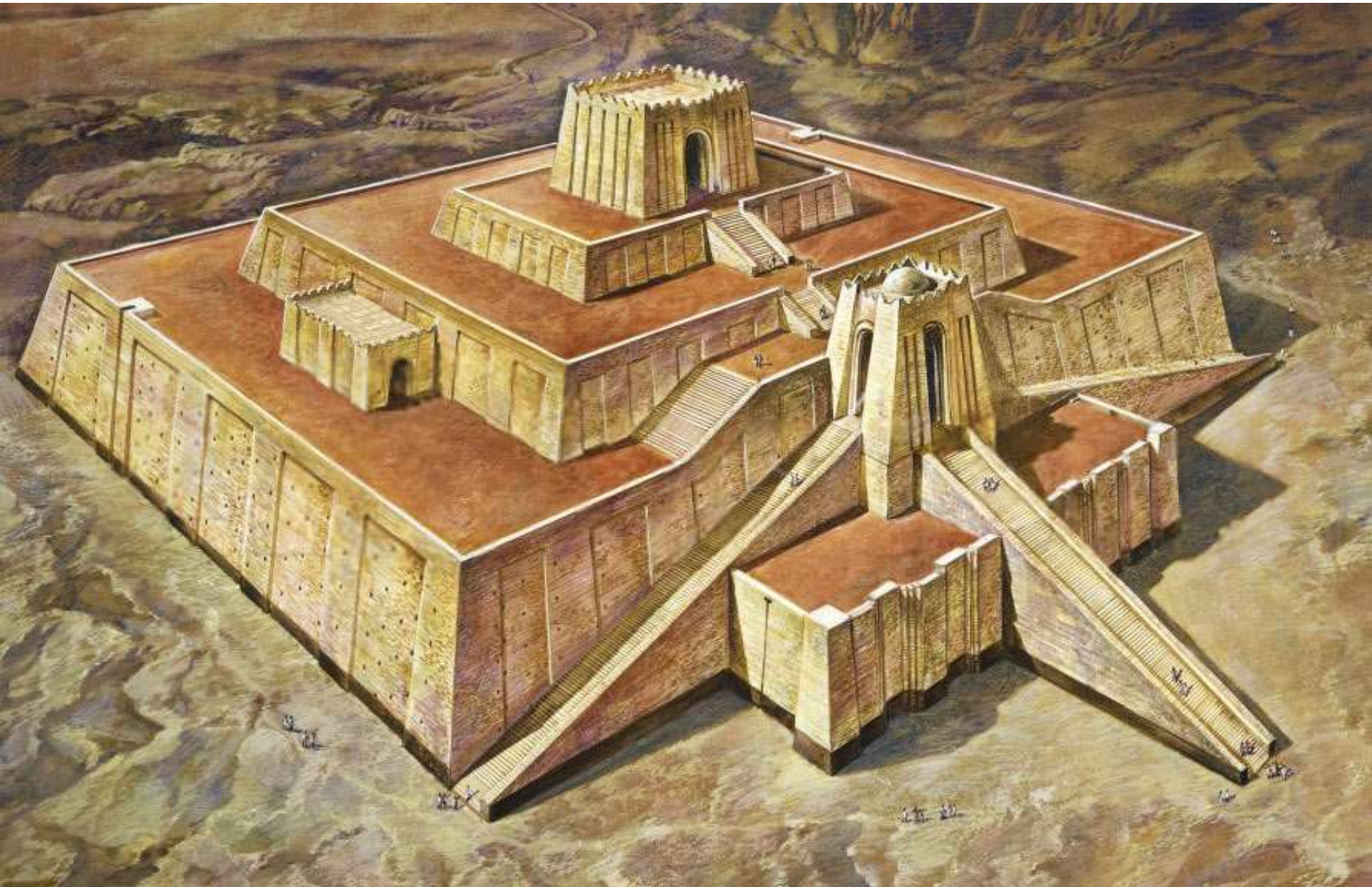




Man-Made Detriments (Political/ Religious plus Defense, Mobility & Ethnical issues)

- a. A typical Sumerian city with its ziggurat at Ur
- b. Harappa city with its western citadel at Mohenjo-Daro
- c. An ancient Greek city with temple on its Acropolis at Athens
- d. Norman Castle in eleventh century England lording it over a conquered Saxon town at Wallingford
- e. The church in medieval European village
- f. The church in Latin American city as Mexico city
- g. A royal statue square in Paris
- h. Royal aggrandizement at Versailles, France
- i. Democratic aggrandizement at Washington, DC

Ziggurat at Ur



Citadel (Fortress)

Core defensive area of a city. It may be a castle, fortress, or fortified center



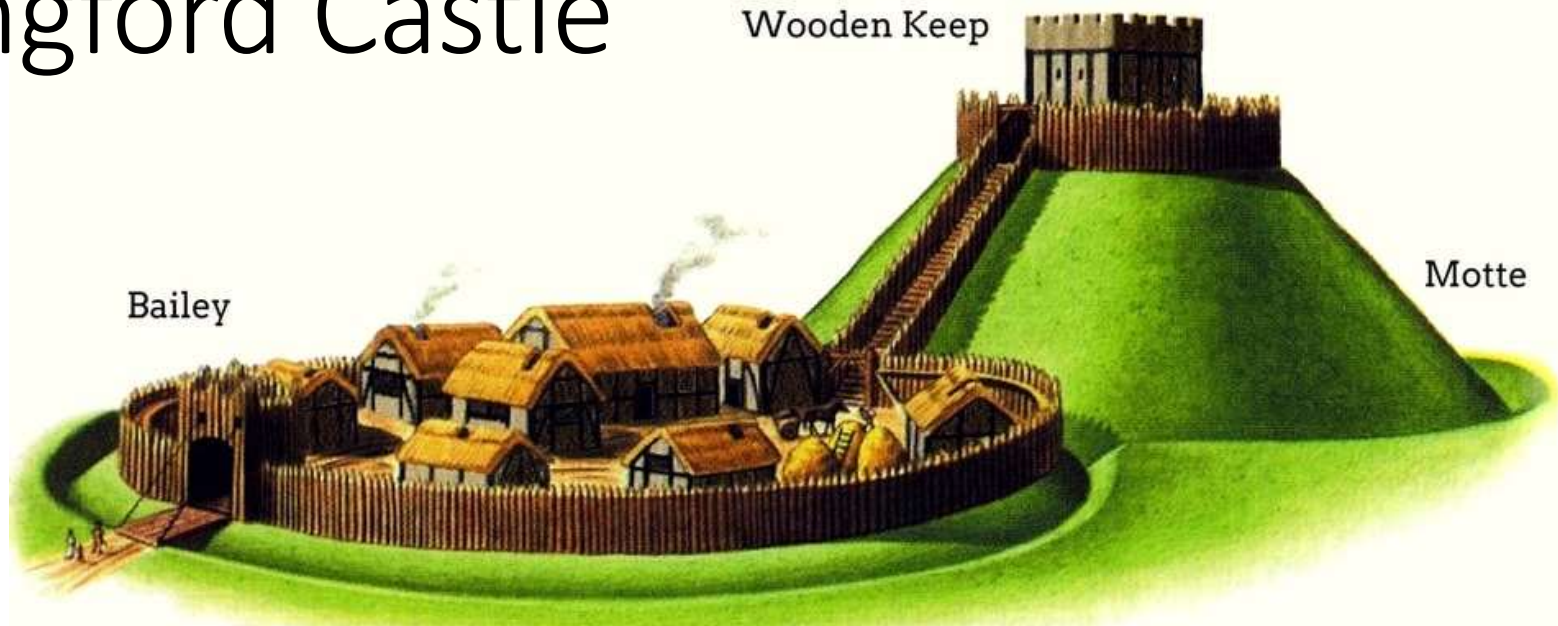
MOHENJO-DARO

Acropolis at Athens, Greece

(Temple resting on a raised platform)



Wallingford Castle



Wallingford Castle, UK

A 1912 plan of Wallingford Castle:

A – Wallingford bridge and ford;

B – River Thames;

C – City defenses;

D – Bailey (The outer wall of a castle)

E – Motte (A mound forming the site of a castle or camp).

