THEORIES OF URBAN MORPHOLOGY

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<td>Module Id</td>
<td>UG-09</td>
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<td>To Study about the theories of Urban Morphology</td>
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<td>Keywords</td>
<td>Urban Morphology, Internal structure, Burgess, Hoyt, Harris and Ullman, Models</td>
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Theories of Urban Morphology
Taruna Bansal

I - Introduction:
Urban geographers have made important contributions in the field of spatial transformations that have been witnessed by urban landscapes in the material and symbolic aspects during the twentieth and twenty-first centuries. Some of the landmarked attempts in this direction were the analyses of urban morphology done by Burgess, Hoyt, Harris and Ullman. Although cities at present have changed significantly since the models were developed; yet they are frequently cited in debates of urban morphology even if to dismiss their continued relevance. That is very true say that a large extent of each city possesses a distinctive combination of varying types of land uses, but a common pattern is can be traced some time. The models provided by Burgess, Hoyt, Harris and Ullman today are part of the philosophy of urban geography and one needs to discuss them in order to understand the basic foundations of this field.

The morphological pattern of a city has been discussed by three theoretical explanations. These are - 1. The Concentric Zone Model 2. The Sector Model and 3. The Multiple Nuclei Model

II - The Concentric Zone Model:
The concentric zone model was given by E.W. Burgess in 1923 based on his extensive and detailed case studies on Chicago and its various neighbourhoods. His model is radiating out from the Central Business District and represents increasing degrees of cultural assimilation with greater economic and social status through each successive residential zone. In the words of Duncan (1996) the zonal model became a significant and long standing representation of the North American city especially to study the correlation of social and spatial distance among the various classes of the society.

Before understanding the Burgess’s model of Concentric Zone one has to study the tendency of the city to expand. In the words of Park (1925) the typical processes of expansion of the city can be best demonstrate by a series of numbered concentric circles as shown in Figure 1. In the figure, Zone I ‘the Loop’ represents the Central Business District (CBD). Encircling this is an area in transition which is usually surrounded by business and light manufacture Zone II. The Zone III is inhabited by the workers in industries who have escaped from the area of deterioration (Zone II) and have the desire to live within easy access of their...
work. Next is the residential area Zone IV of high-class apartment buildings or a district of single family dwellings. Zone V is beyond the city limit – the commuter zone comprising of satellite cities or suburban areas; within a thirty to sixty-minute ride of the CBD. And each inner zone has the tendency to extend its area by the invasion of the next outer zone. This basically deals with the physical growth of the city and with the extension of the technical services that make city life liveable, comfortable and luxurious.

**Figure 1**
The Growth of the City

![Diagram of the Growth of the City](image)


Burgess through his model presented an image of the progressive movement as residents of the inner city had a tendency of moving outward to zones of better environmental conditions. According to Burgess, the American city should take the form of five zones. These zones are:

**Zone I- Central Business District (CBD):** It represents the area of CBD revolves around social, commercial and civic life. It is also the hub of transportation. While Burgess explains its two parts:
(i) The downtown retail district and
(ii) The wholesale business district encircling the downtown.

**Zone II- Zone in Transition:** It is an area of which surrounding the Central Business District (CBD): It is a zone of residential deterioration of old private houses consisting of largely sub-divided dwelling units. The transition area is settled by immigrants and overrun by ‘vices’. The Zone II full of rotten business and light manufacturing units from Zone I
encroach upon residential belts. Some portion of this zone is likely to be found in the city’s slums or poverty areas and crime. In other words, this is a zone with mixture regions of poverty, disease and their criminal activities and vice.

**Figure 2**
Concentric Zone Theory

![Concentric Zone Theory Diagram]


**Zone III - Working Men’s Homes**: It is the third ring sum up with the houses of working people’s homes. This is predominately inhabited by factory and shop workers who are skilled and thrifty. In other words, it is the zone of old residential blocks occupied by social groups of working class groups and families those are stable in their jobs. People of this zone moved out of Zone II to live nearer to their work place. This is an area of second immigrant settlement, generally of the second generation. It is the region of escape from the slum or over crowded places.

**Zone IV**: It is the zone with concentric space still farther from the CBD and is settled by spacious dwellers. In Chicago, this was dominated by native-born Americans of middle-income groups. The population residing in this zone are likely to be small proprietors businessmen, salesmen, professionals and different official clerks.

**Zone V**: It is the areas farthest from the city centre; and almost one hour’s to two hour’s travelling time from centre to this zone. This zone may be an open country or country side region. People of this region seem to commute on a daily basis for their livelihood in the centre.
Criticism:
With the few modifications Burgess,’ theory is popularly and widely used by current authors. But the Burgess’ theory is criticized on the several grounds like local topographical features which affect the residential areas location. While this type of criticism looks invalid because Burgess himself criticised that point i.e. those zone distortions may result from variations in relief features. Davie (1972) is the most active critic of the Burgess’ theory who criticised the theory on following grounds:

(i) The size of CBD’s is irregular in the pattern; and is often rectangular than circular,
(ii) Commerce and business areas of usually extend along streets from the CBD’s in a radial way.
(iii) Along the lines of transportation, near water or rail network Industrial units lie.
(iv) Near to industrial and transportation areas in every zone the houses are low grade generally, and
(v) Lastly, Burgess’ theory lacks universal acceptance as a whole.

The critics of Burgess’s concentric zone theory focus on that the theory is not applicable in the case of its treatment of wholesaling market. Similarly, in the modern city the large and heavy industries do not take the form of the concentric belt just outside the CBD, instead, it forms wedges like areas along transportation lines.

The theory of Burgess seems weak, in the historical perspective too. The houses, streets, and railroads of culture areas developed during historical phases very hard to change their location. The theory was considered generally in time and space, and it was outdated and limited only to large Western industrial cities by the late 20th century.

The concentric scheme for the ‘pre-industrial city’ neglected by Sjoberg (1960)’ in which privileged classes – the elite, gather at the centre due to the nearness of governmental and religious buildings. While religion and politics in feudal cities had far more important than the economic –in which the centre’s main market being subsidiary to religious and political structures.

Merits of the Concentric Theory:
The chief supporter of the Burgess theory is Quinn (1950) says a common-sense observations which tend to the theory confirmation. The probability of the concentric structure around the dominant retail area in various cities indicates by the Urban-gradients’ researchers.

The symmetry of concentric may be violated by Local irregularities; the most cities conformed at least roughly to the Burgess pattern opined by Quinn. The contribution of
Burgess’s model too had appreciation by Haggett and Chorley (1965); according to them it was a normative model, ‘which is based on simple structure of reality presenting supposedly significant features of relationships in a generalized form. To conclude, the illustration of burgess’s model of concentric zone theory; is an expansion of the city in its comprehensible manner by a series of concentric zones.

II. The Sector Theory:
Burgess’s concentric zone theory was based on the American cities morphology in 1920s. Homer Hoyt observed that the cities structure had changed and therefore, Hoyt propounded the sectoral theory in 1939. He emphasizes on the ribbons of development that extended along commercial streets leading out of the central business district and the tendency of industrial establishments to concentrate along railroad lines and rivers. He further notes the existence of poor and middle-income housing along the rich residential areas in the peripheries of the cities. He opined that the internal structure of the American cities was more axial than concentric resulting in the formation of different sectors. In other words, as the city grows, activities expand outward in a wedge or an axis or a sector from the centre (Figure 3).

**Figure 3**

Hoyt’s sector theory, which explains only with residential land use patterns; the other types of land uses are considered because of their influence upon the residential areas of the city. The cities’ areas which are on rent tend to more and less sectors rather than of concentric zones (Figure 4). The areas located in one or more sectors of the city tend to be the highest rent areas. But it is not necessary that all areas are rent areas. The migration of outward sectors is clearly visible in high-quality residential areas; where the older settlement remains behind to become medium-quality residential areas. Hoyt stated that the sector theory is of fundamental importance in analysing neighbourhoods especially in the American cities for locating markets for retail sales. The high rent neighbourhoods of a city do not skip about at random in the process of movement—they follow a definite path in one or more sectors of the city. No city conforms to the ideal pattern but the general figure is useful as in American cities the different types of residential areas tend to grow outward along rather distinct radii and the new growth on the arc of a given sector tends to take on the character of the initial growth of that particular sector (Figure 4).

**Figure 4**

*Shifts in Location of Fashionable Residential Areas*


The basis of Hoyt’s theory is a bundle of empirical work. The 64 American cities were the sample size of Hoyt's theory which is collected by the Works Progress
Administration. The surveys of New York, Detroit, Chicago, Washington and Philadelphia supplemented the small and medium sized cities. Thus, to empirical generalizations it is a very bulk part of observation. Nevertheless, the theory has not gone unchallenged.

**Criticism of Hoyt’s Theory:**
The theory of Walter Firey’s (1945); carried out a land use study of central Boston. In which he explored the urban land use shaping by the role of social factors. He pointed out various aspects of sector theory on this basis of his survey. He argues that there is less validity of comparing the internal structure of number of cities when physical features like relief, location on a waterfront and other factors affect the pattern of some cities. Firey also criticised that Hoyt theory has not sufficiently considered the roles of social and cultural characteristics in land use explanation. It is obvious that richer residents can choose to settle anywhere and may not follow the ‘normal’ pattern i.e.; either concentric or sector pattern.

**III. The Multiple Nuclei Theory:**
Harris and Ullman (1945); brought together their work on central palace theory and classification of cities respectively to represent a metropolitan area that was not defined by distances from the central business district but was based on patterns of land-use of the surrounding areas of the CBD. During the time of its inception to the present day, taking place in cities, residential, business, industrial or other elements to accommodate the growth of multiple nuclei model suggested by them.

Harris and Ullman unlike Burgess and Hoyt stressed upon the development of special purpose districts instead of social differentiation of residential areas. These districts were nodes of economic activity that needed specialized facilities and benefitted from agglomeration economies of different activities centred there. The rise of such special districts or nuclei was due to numbers of factors which affect the human activities expansion within a city. These are as follow:

(a) Some activities require specialized facilities like, CBD; which can function at the point where maximum accessibility possible.

(b) There are also numbers of activities which is present in cohesion. The densely packed inner districts of large cities are clustered with clothing industry. Due to cohesion they get profit.
(c) Some activities are detrimental in nature to one another, and generally seek separate locations. For example; heavy industry does not prefer to be nearer to the high-class residential areas.

(d) While some are unable to pay the rents of most desirable locations; like low-income residential areas or bulk storage facilities have to seek nuclei in remote regions (Figure 5).

**Figure 5**

![Multiple Nuclei Theory](image-url)


The factors which are discussed above along with social, cultural and economic criteria provide a unique urban landscape with separate nodes. Moreover, this theory reveals two significant observations based on historical and site elements of morphology. In one hand the theory produces a model involving complexities of urban structure which may not be easily and immediately discernible because of historical stratification of land uses during the process of urban growth. Although there is only one CBD present in most cities and they have a series of sub-centres around CBD. The peripheral areas are less specialized than CBD but enough to cope up the needs of smaller sections of the city.

Another one is an observation which is more significant is about the probability of elements of the concentric and sector models present in its depth. There is nothing new is involved conceptually in the multiple nuclei model, and, it should not be given the status of a
theory. Therefore, multiple nuclei theory should be looked upon as an approach which only road to think about the structure of the city, rather than as a rigid generalization in nature about urban form.