Foundations of Urban Form

Urban Structures

- This module asks you to consider the form or layout of our cities.
- City layout is one of the most fundamental areas of inquiry for an urban geographer.
- Going beyond the specifics of any one city, are there general principles of design and function that apply to all cities?

Foundations of Urban Form

- Q: What does “city form” or “city layout” mean to you?
  - Geographic layout
  - Location of key elements in the city (such as...)
  - Form relates to function: how well the city works is linked to how well it is laid out

Foundations of Urban Form

- Some of the first breakthroughs in the study of urban form came through generalizations – formulation of observations that appear to apply to multiple cities.
  - Q: Based on the cities you have been in, can you observe any similarities between cities? Any features you have observed in multiple cities, or any two city pairs that have a number of similarities?

Knoxville, Tennessee

Knoxville, Tennessee
Knoxville, Tennessee

The University of Tennessee

Historic Downtown

Knoxville, Tennessee

The UT Geography Building

Historic Downtown
An important skill for urban geographers is an ability to recognize and understand the structures and features that characterize modern North American cities.

Foundations of Urban Form

- There are three foundational “city structure models” in urban geography
  - 1. Concentric Zone Model
  - 2. Sector Model
  - 3. Multiple Nuclei Model
- We won’t repeat all the details, but we will try to build on what you may already know of these models from other classes.

Concentric Zone Model
(Sociologist Ernest Burgess, 1925)
Foundations of Urban Form

**Sector Model**
(Economist Homer Hoyt, 1939)

**Multiple Nuclei Model**
(Geographers Chauncy Harris & Edward Ullman, 1945)

Q: Can you think of specific features of any cities you have visited that correspond with the characteristics of any of the three models?

- Concentric circles based on different social groups and eras of urban development
- “Spokes” of development focused on different transport routes

These models are based in part on observations of Chicago’s urban form in particular.
Multiple nuclei based on the main downtown and developing suburban centers

Foundations of Urban Form
- To truly appreciate the three models, it is important to recognize two factors:
  1. the way in which the three models work together through their complementary views of the city
  2. the historical context for the emergence of the distinctive patterns embodied in the three models

Complementarity of the Models
- The best way to view the three city models is by recognizing their complementarity
- Each model focuses on a different aspect of reality, with the result being the best view of the city accounts for all three

Complementarity of the Models
- Sector Structure
- Concentric Structure
- Multiple Nuclei Structure
- Physical Structure

Dallas: Elements of All City-Structure Models

Let’s compare a few cities using income as an indicator...
Historical Context

- One of the strengths of your reading is in how it provides historical context for the city structure models we accept today.
- The models appear timeless in the simplicity of their structures, but these structures arise through processes rooted in the society and technology of our modern period.

Historical Context

- Basic question we need to answer: how have urban forms evolved to give us the modern patterns we observe today?
Historical Context

- **The Mercantile City (before 1840)**
  - High density, small by modern North American standards
  - Constraining factor: how far can you walk?

Map of Boston, showing the “pedestrian city” (innermost area) vs. the suburban/external expansion of the city in the years following.
Historical Context

- The Mercantile City (before 1840)
  - Q: what impact would “walking only transportation” have on a city’s form? How would our cities need to change if this was ever a necessity for North America once again?

- Mixed land uses (much variation, close together)
- Concentric zone pattern, with the elite in the center and the lower classes further out (note, this is the reverse of the modern American pattern)
- Much variation on the above, and of course any generalization is not 100% applicable everywhere

- The Early Industrial City (1840-1870)
  - New transportation technologies provided the possibility for city-dwellers to escape from a “walking-distance life”
  - Previously, only a small percentage of elite families could afford to live or travel regularly outside of the city
  - First horse transit and then rail transit meant an expanded transportation field became a possibility for ordinary people

- The Early Industrial City (1840-1870)
  - Industrialization, and the introduction of new technologies brought to society by industry, brought dramatic change to the city
  - Of particular relevance to city form is the reorganization of land use in the city center – the convergence of rail lines downtown meant that land needed to be allocated for train stations and rail yards
  - Spin-off land use change – once the rail network was in operation, land next to stations increased in value and businesses shuffled locations to take advantage of new opportunities
Historical Context

- The Early Industrial City (1840-1870)
  - As your reading outlines, rail transit had several specific impacts on city form
    - Growth of other new construction technologies – expertise associated with rail development led to other new construction techniques and materials, making the first skyscrapers possible (huge change again for downtown)

Chicago is a classic example of the impact of rail line development on urban form

Concentration of railroad terminals downtown

Rail lines radiating out from the center like spokes on a wheel
New residential and industrial developments occurring along the various spokes of the rail network all around the city.

Historical Context

- **The Industrial City (1875-1920)**
  - This period of city development was defined by enormous population growth, economic specialization, and differentiation of land uses.
  - Continued development of mass transportation was central to city development of this period.

Historical Context

- **The Industrial City (1875-1920)**
  - These factors combined to reshape the American city into a form unlike any of its predecessors: the exodus to the suburbs of the wealthy and the middle class, and the concentration in the center of the poor and immigrants.
  - **Q:** Why would this be an important change? In which dimensions (social, economic, political, other) would we see this change reflected in the city?

Historical Context

- **The Industrial City (1875-1920)**
  - Another key component of this change, related and emerging along with the other changes of the period, was the appearance of zoning in the city.
  - **Change:** from neighborhoods that integrated work, home, and recreation, to cities with dedicated areas for each of these functions.
  - **Q:** what would be the advantages and disadvantages of such a change?

Historical Context

- **Urban Form of the Industrial City**
  - The logical outcome of the combination of improving transportation and zoning is the creation of specialized land uses within the city.
  - **Improved transportation** allowed people to live in one place and work in another.
  - **Zoning** provided for the creation of specialized districts in strategic locations of the city.
Historical Context

- **Urban Form of the Industrial City**
  - The city center or central business district (CBD) remained the focus of activity as it was in the pre-industrial city, but its role evolved
  - With industrialization the CBD came to include a variety of elements that continuously competed for land: a high-density core (retail, office, entertainment, civic administration) and a low-density frame (warehousing, schools, hospitals, hotels)

---

Historical Context

- **Urban Form of the Industrial City**
  - Continuous competition between land uses made the city (particularly the CBD) a dynamic place
  - The competitive dynamics characterizing land use are captured well in the bid-rent land use model (see box 5.1 in your reading): “von Thünen applied to cities”

---

New York Case Study

- We come back now to New York as an example of urban development in the early part of the 20th century
- The video case study we will view now examines a very important part of the urban history of America
  - Making the transition to a modern, car-oriented city