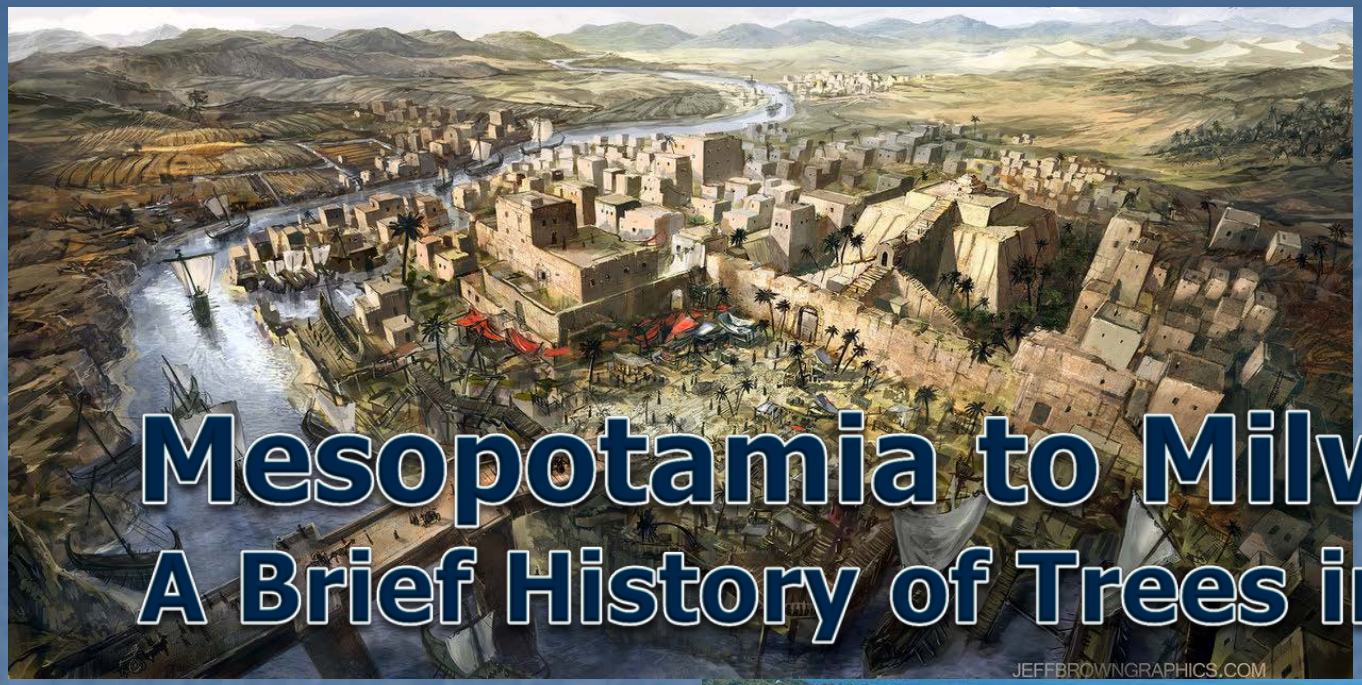
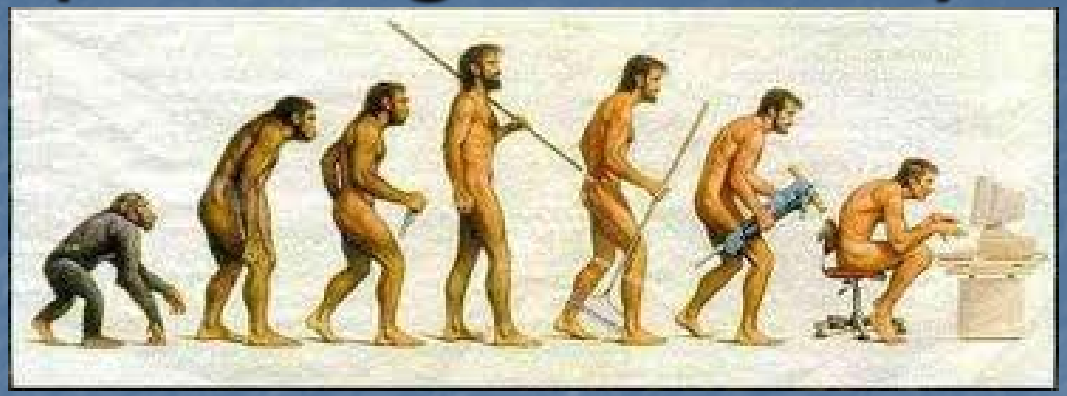


Mesopotamia to Milwaukee:
A Brief History of Trees in the City

Bob Miller

- Emeritus Professor of Urban Forestry, UW– Stevens Point
- Chair – Oriental, NC Tree Board
- Pretty good sailor
- Mediocre Fisherman
- Not so good hunter

Tree planting and early humans



Hunters and gatherers likely planted trees

Evidence in the composition of forests in the Amazon basin – useful trees

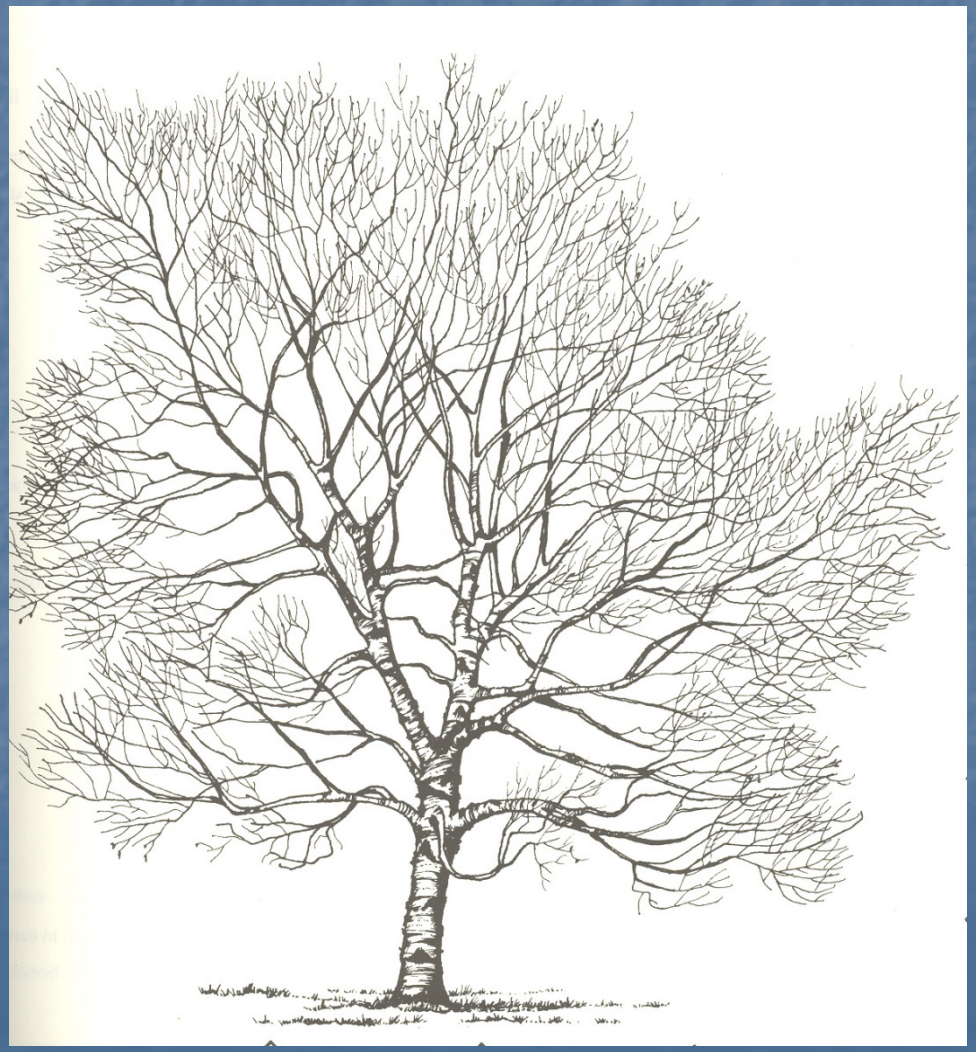
Trees and Mythology

- Tree cults of Europe
- Sacred groves and holy trees
- Celtic alphabet had letters named for trees
- Haven for the oppressed and outlaws
- Early Christian church ordered the destruction of holy groves and trees

An example of Druid tree lore:

Beith - The Birch Tree

The Bardic school or grade is symbolized by the Birch Tree. It is the first tree in the Ogham or forest. So it is a tree of birth - an appropriate tree to Cipher, and as such represents the number one.



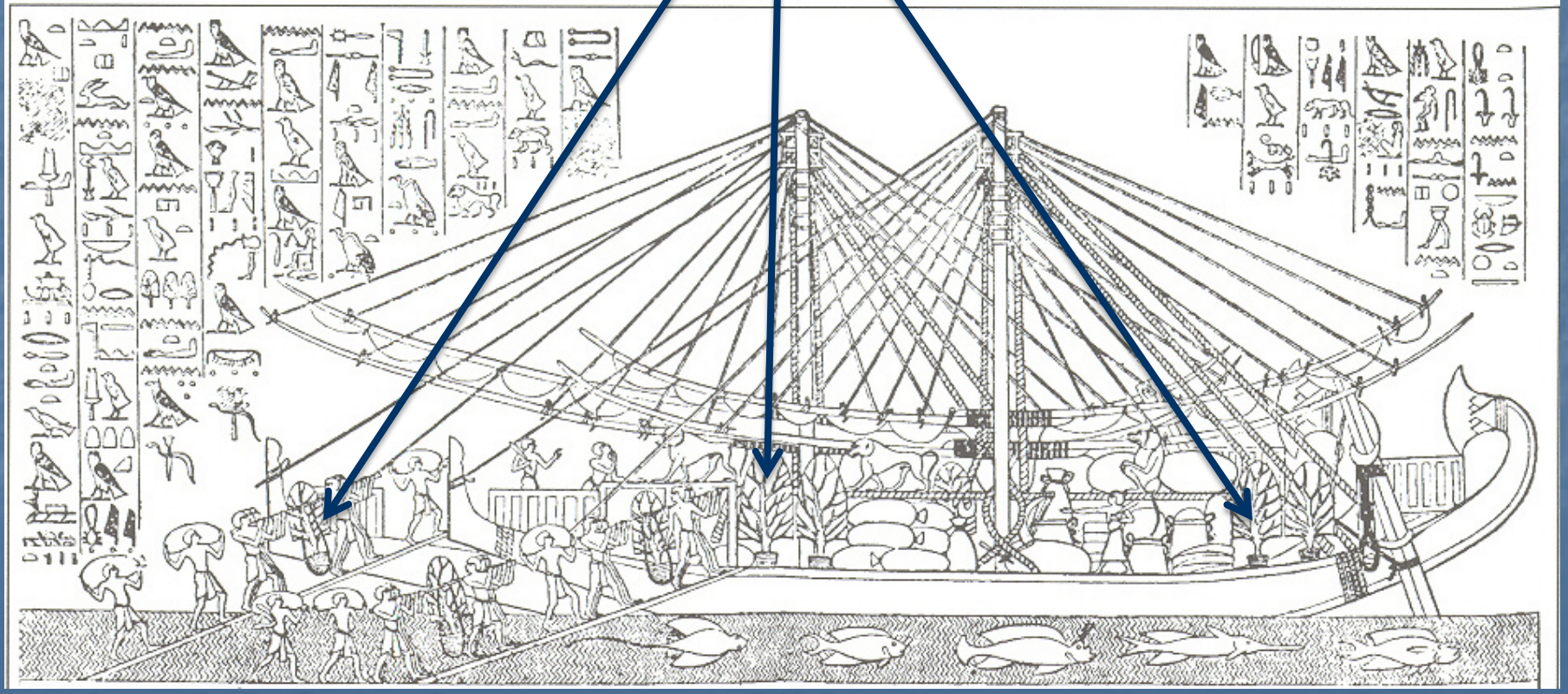
Agricultural Revolution

- Growing our own food brought an end to hunting and gathering
- Selected plants that were useful
- Selected animals that could be domesticated
- Settled into permanent villages
- Villages became cities over time

The Agricultural Revolution

- Trees valued for their fruit were cultivated
- Egyptian hieroglyphs depict the planting of trees with balls of soil over 4,000 BP
- Temple gardens were planted for the priests and the elites

1480 BC - Royal gardens of Egypt had rows of sycamores, palms and pomegranates



Saplings shipped from southeast Africa to Egypt about 1480 BC.

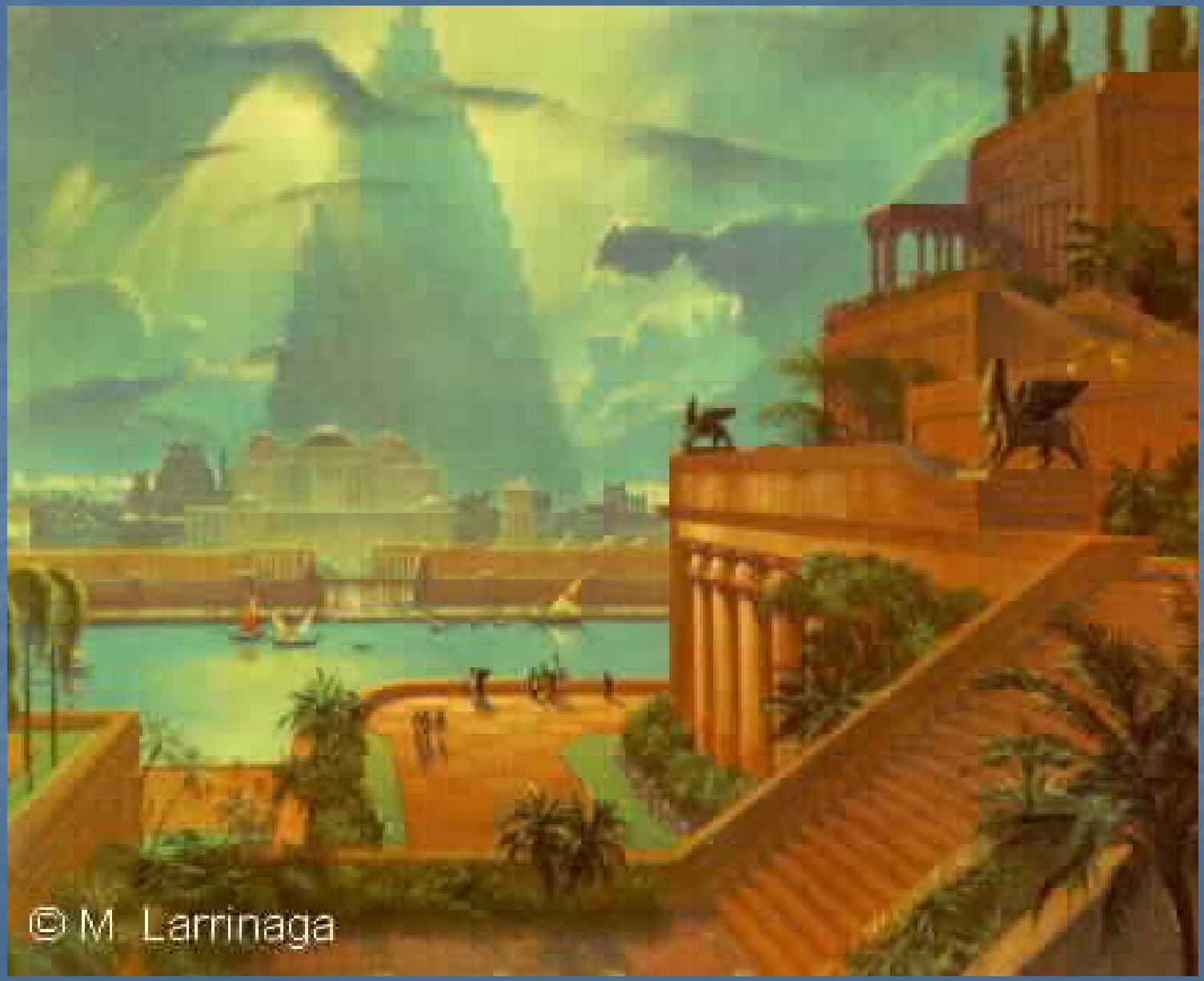
From Hennebo 1979, courtesy of Patzer Verlag, Berlin-Hannover, Germany.

Egyptian Tapestry

Mesopotamia

- By 2600 BP Babylon was a large, walled city with monumental architecture, a temple, rectangular street system and dwellings for a variety of classes.
- Hanging gardens are described in a number of ancient texts

Hanging Gardens of Babylon

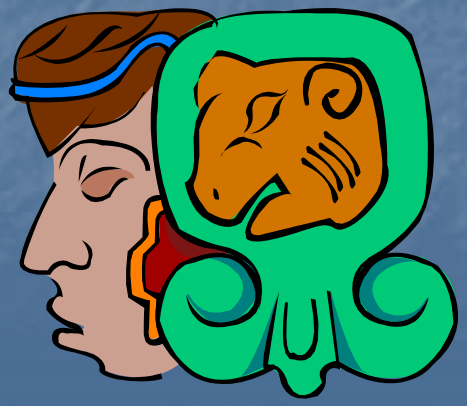


- Ancient Greece – Trees were planted in plazas, and for shade along roadways leading to marketplaces

- Roman law prescribed severe penalties for anyone who injured a tree

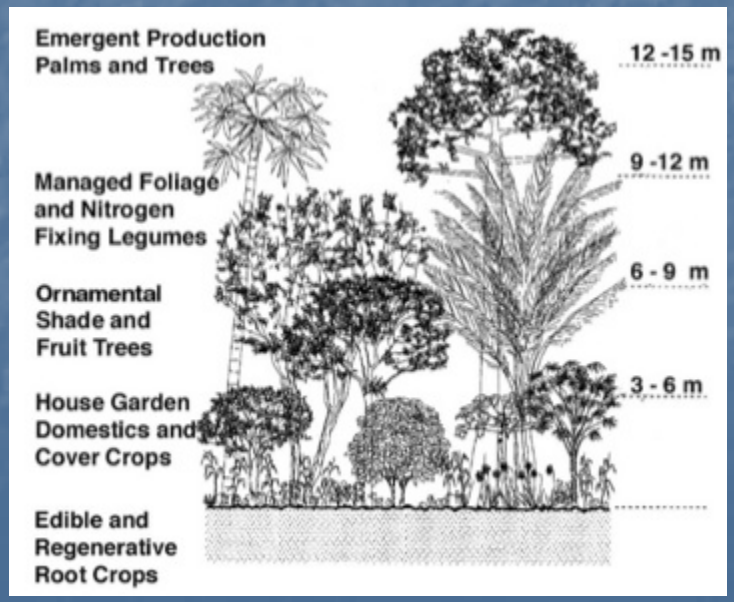
Pre-Columbian America

- Large population of Native Americans
- Extensive agricultural communities
- Civilizations of the Maya, Inca and Aztecs produced large cities and monumental architecture
- Agro-forestry systems
- Gardens and tree planting



Agroforestry

Mesoamerica



THE PYRAMIDS OF TEOTIHUACAN

Kublai Kahn

- 13th century China
- Kahn required tree planting along all public roads in and around Beijing
- Shade and to mark the road in winter

Kublai Khan Hunting,
by Liu Kuan-tao, 13-14th Century.

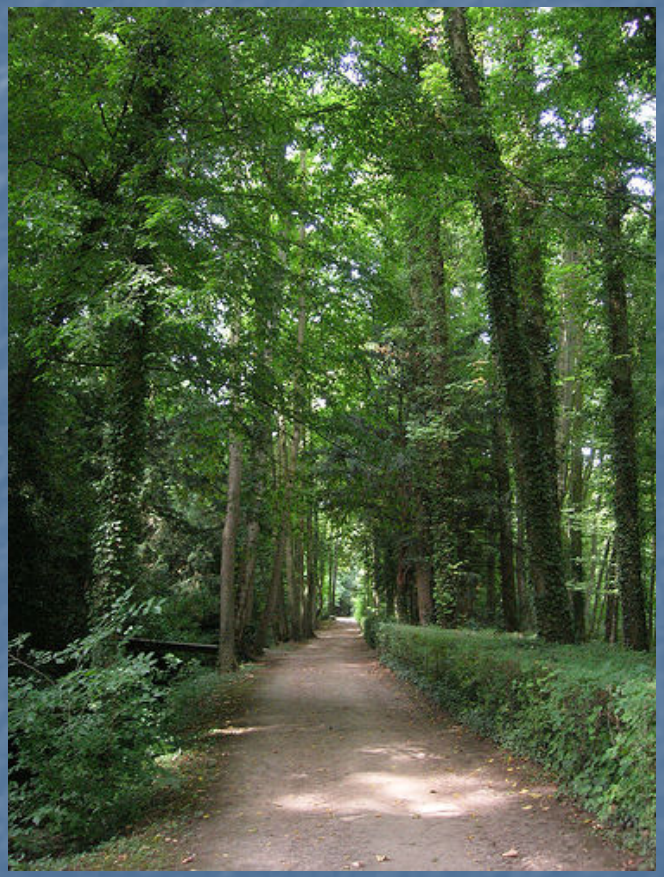
Trees and Parks in European Cities - 16th Century

- Prior to the Renaissance trees were in private gardens, for fruit production & aesthetics
- Renaissance Villas with walled gardens
- Allées – tree lined pathways in the gardens

Trees and Parks in European Cities - 16th Century

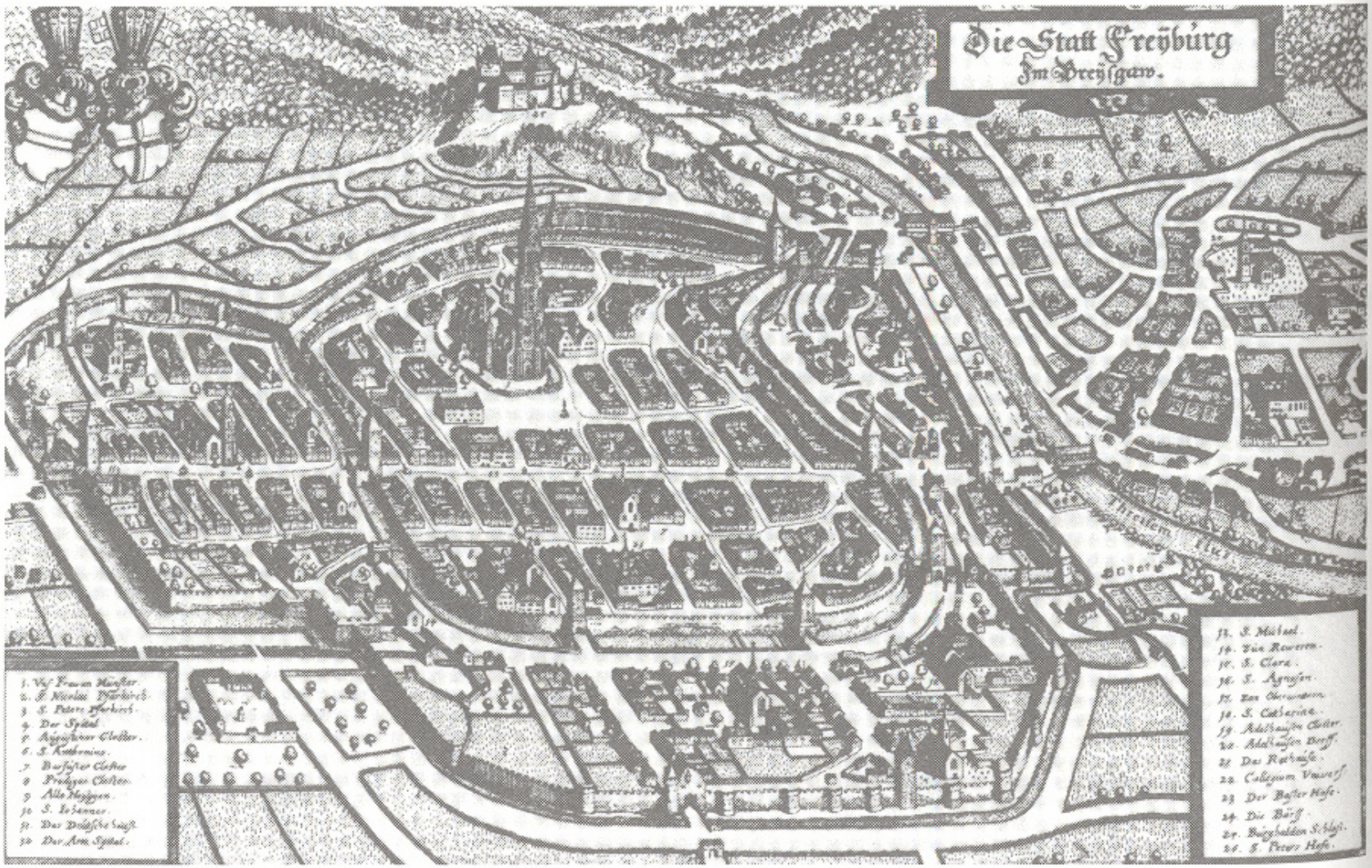
- The Allée moves into the city
- Allées were planted along city walls and moats
- Baroque gardens
- Tree lined canals in the Netherlands

Alleés of Trees



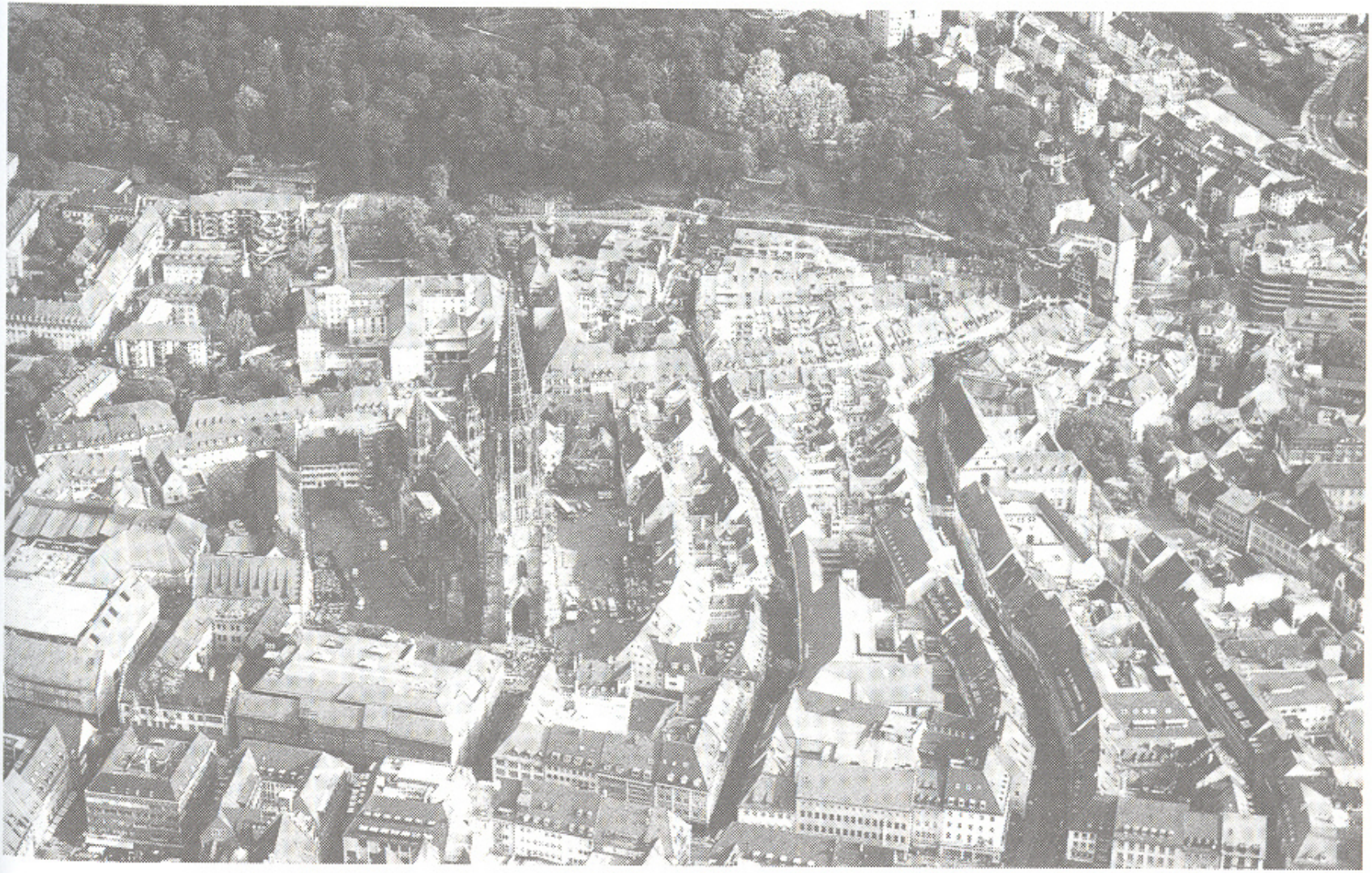
Freiburg, Germany, about 1663, fortified with walls and a moat surrounded by fields and forests, contained few trees in the Old City.

By permission of Edm. von Koenig-Verlag, Dielheim, Germany.



Freiburg about 1994, similar aerial view with cathedral near the center, still with few trees in the city.

By permission of Edm. von Koenig-Verlag, Dielheim, Germany.



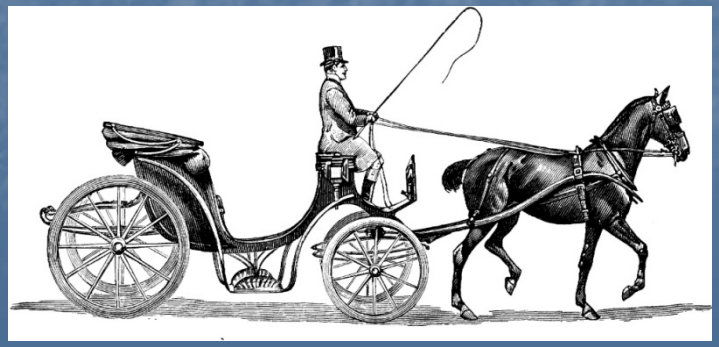
Trees and Parks in European Cities - 17th Century

- Pleasure rides through allées
- English lawn game ***Pall Mall*** played under the allées
- Tree lined avenues leading to Rome
- First tree filled squares in London
- Some allées became part of urban streets with urban expansion
- Amenities of the aristocracy

London Square

Trees and Parks in European Cities - 18th century

- Merchants and professionals demand the amenities of the aristocracy
- Upper class housing and recreation
  - Carriage ways and avenues
  - More squares in London
  - Public plazas on the continent



Amsterdam, Holland street scene about 1725.

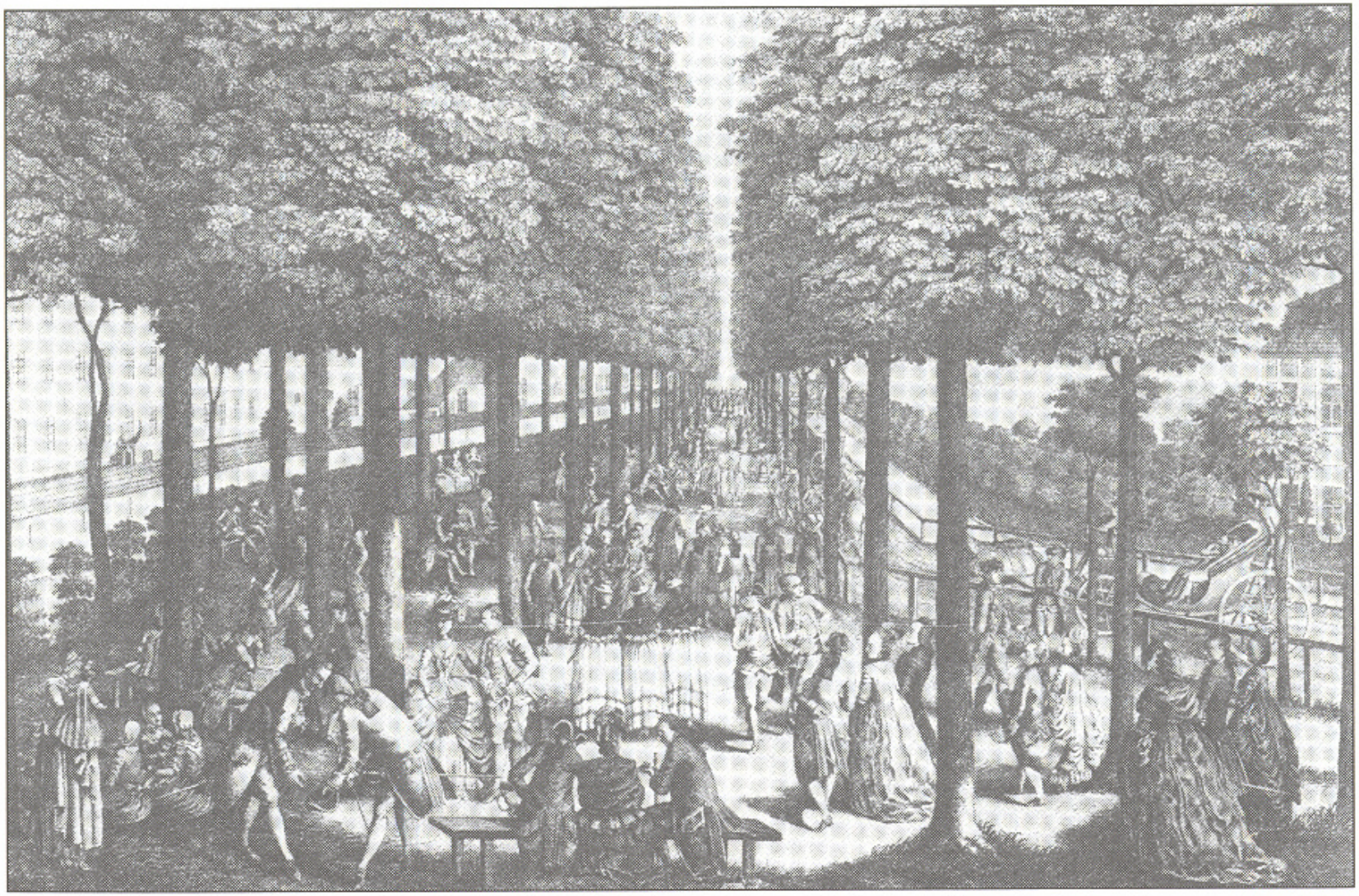
From Hennebo 1979, courtesy of Patzer Verlag, Berlin-Hannover, Germany.

Trees and Parks in European Cities - 18th century

- Gardens as fashion statements
- Large public gardens on the continent
- Commercial “pleasure gardens”
- Imported plants from the colonies

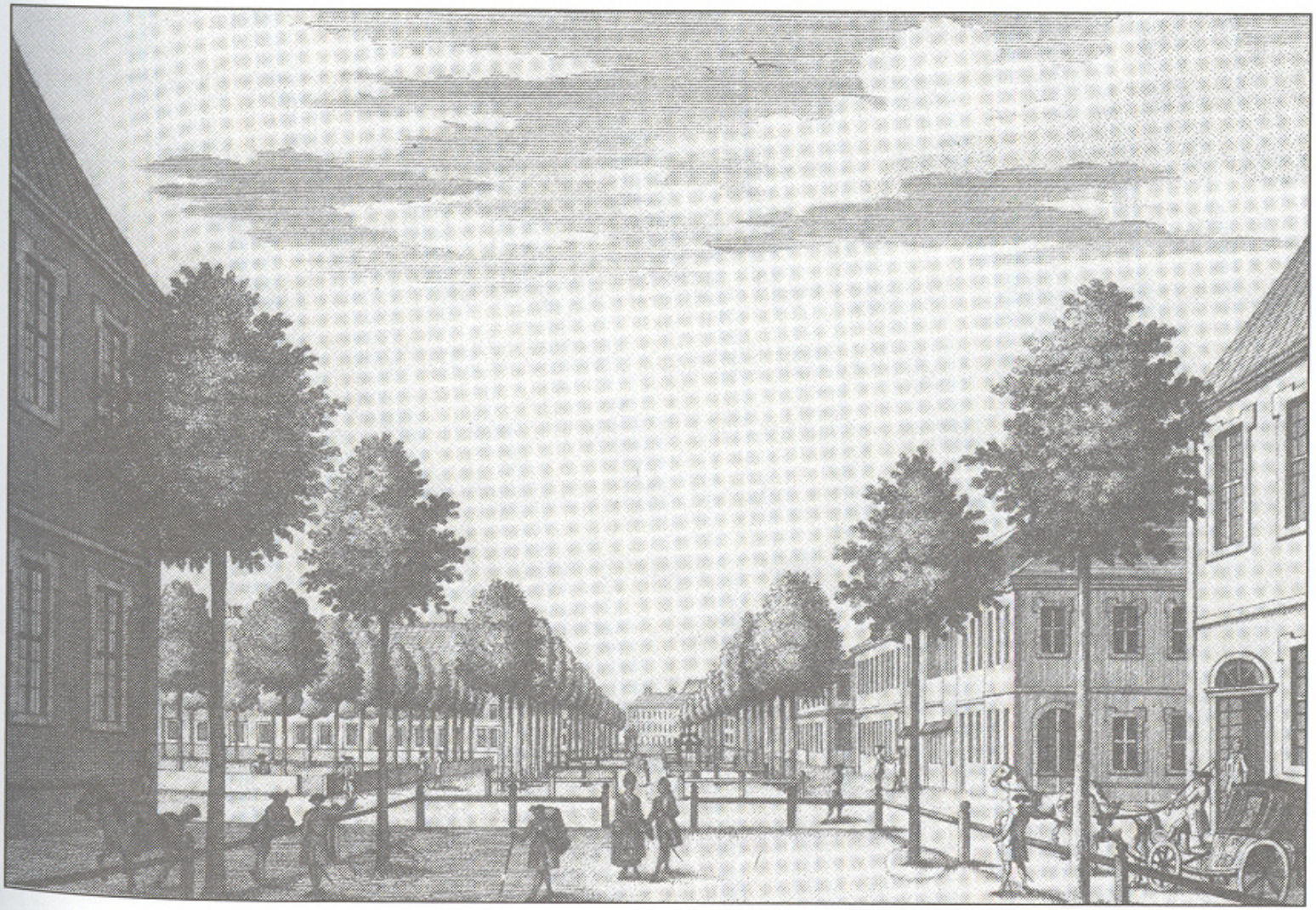
Wallpromenade in Leipzig, Germany in 1777.

From Hennebo 1979, courtesy of Patzer Verlag, Berlin-Hannover, Germany.



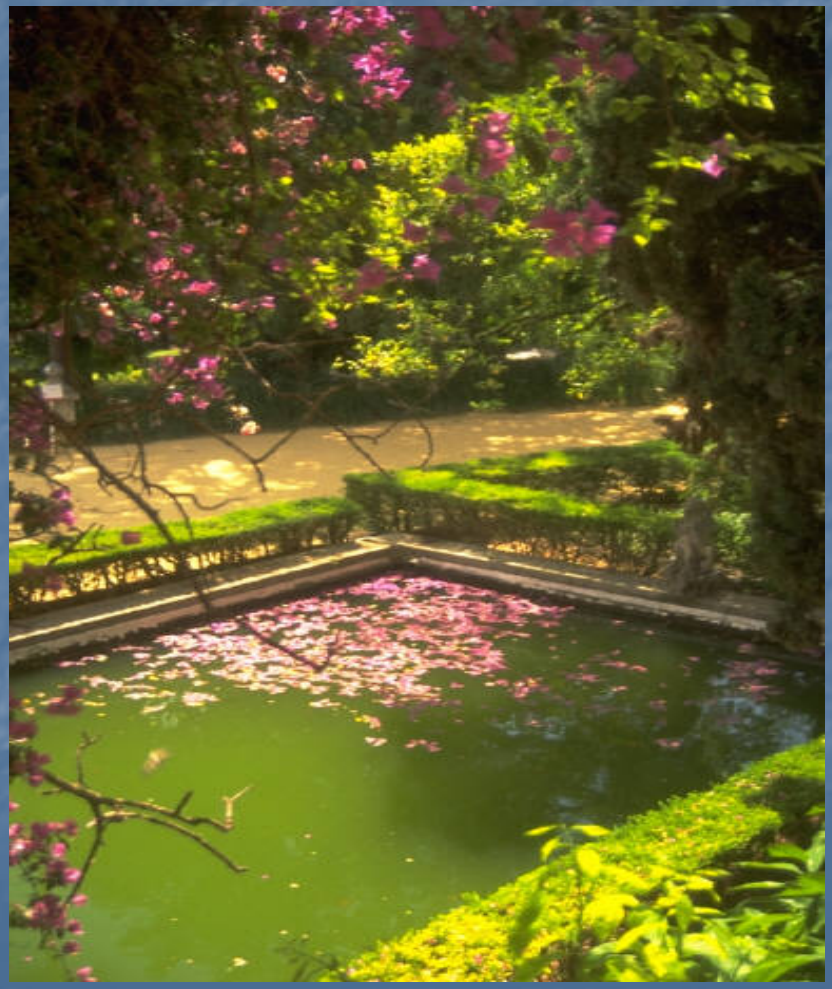
Mannheim, Germany in 1782, showing trees along a street and in a platz.

From Hennebo 1979, courtesy of Patzer Verlag, Berlin-Hannover, Germany.



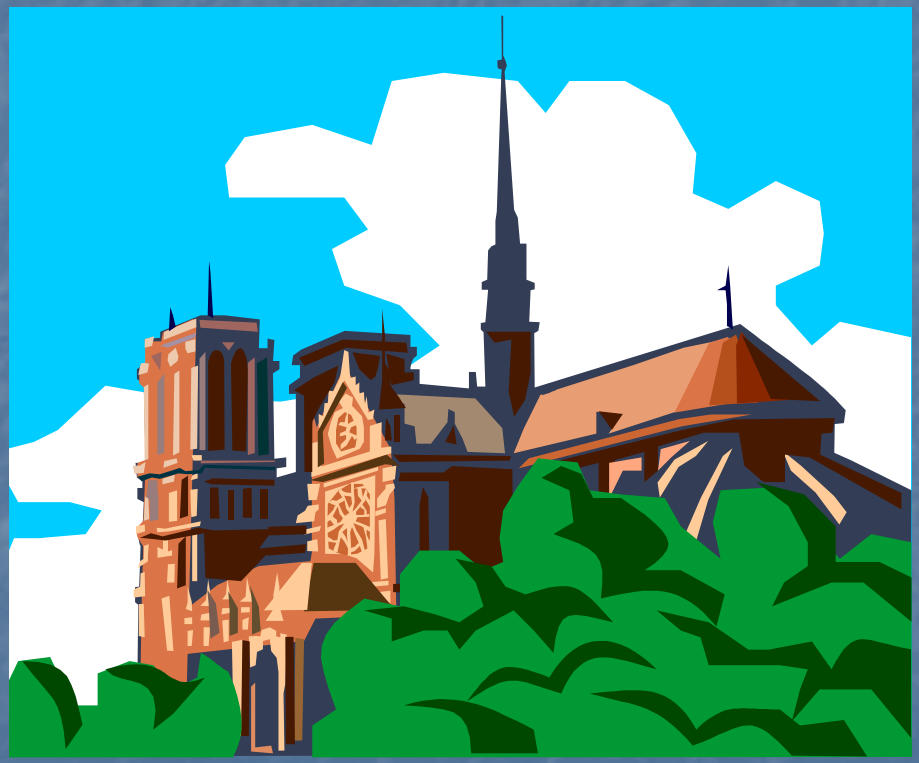
Trees and Parks in European Cities - 18th century

- Parks and promenades replace city walls
- Gated parks to exclude the lower classes
- Landscaped resort towns



Trees and Parks in European Cities - 18th century

- Napoleon's promenades and boulevards
- Naturalistic parks – English tradition
- British engineering of streets
- French inclusion of trees on Paris streets



Boulevards (Turner 1835)

Trees and Parks in European Cities - 19th century

- Trees to sanitize the urban environment
- Miasmas and disease
- Parks to pacify and civilize the lower classes

“...convinced that some Open Places reserved for the amusement... of the humbler classes, would assist to wean them from low and debasing pleasures”

British House of Commons 1833

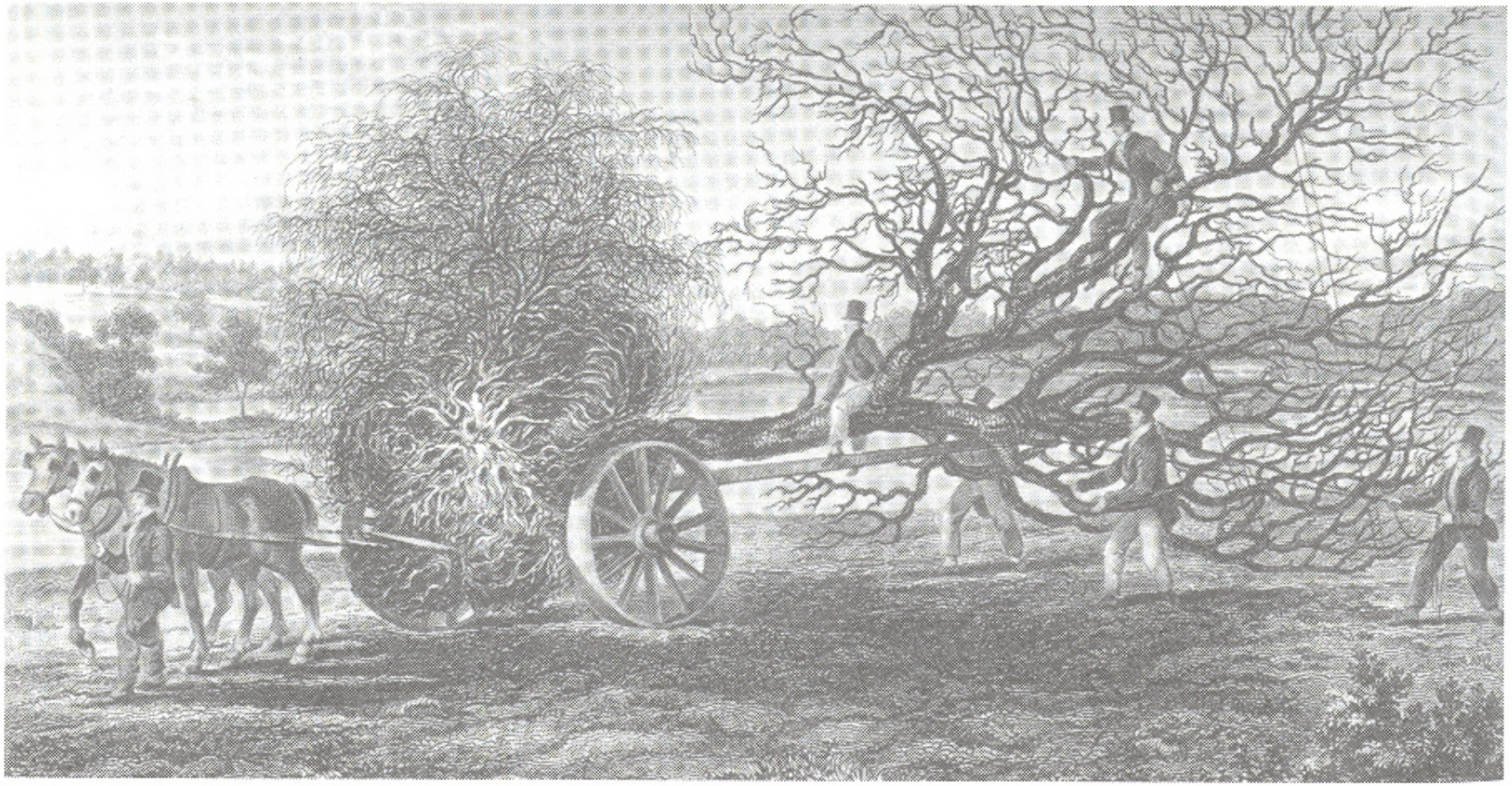
Transformation of Paris by Napoleon III and Haussman 1852

Trees and Parks in European Cities - 19th century

- The "Romantic Landscape" of the detached suburban landscape – reaction to Industrialization
- Real estate value of trees
- Large parks
- Tree lined streets
- Garden squares

Machine used to transport large trees for transplanting in England.

Illustration from Planter's Guide, by Sir Henry Steuart, 1848.



Ancient arboricultural practices still persist, such as the pruning of these pollarded plane trees in Geneva, Switzerland.

Photo by Henry D. Gerhold.


RingMaster
JEWELERS

Trees and Parks in American Cities

- 1646 - Roxbury to Boston road – trees planted
- 1682 - Philadelphia design (Wm. Penn) included 5 parks
- 1784 - Insurance companies insure homes with trees near them

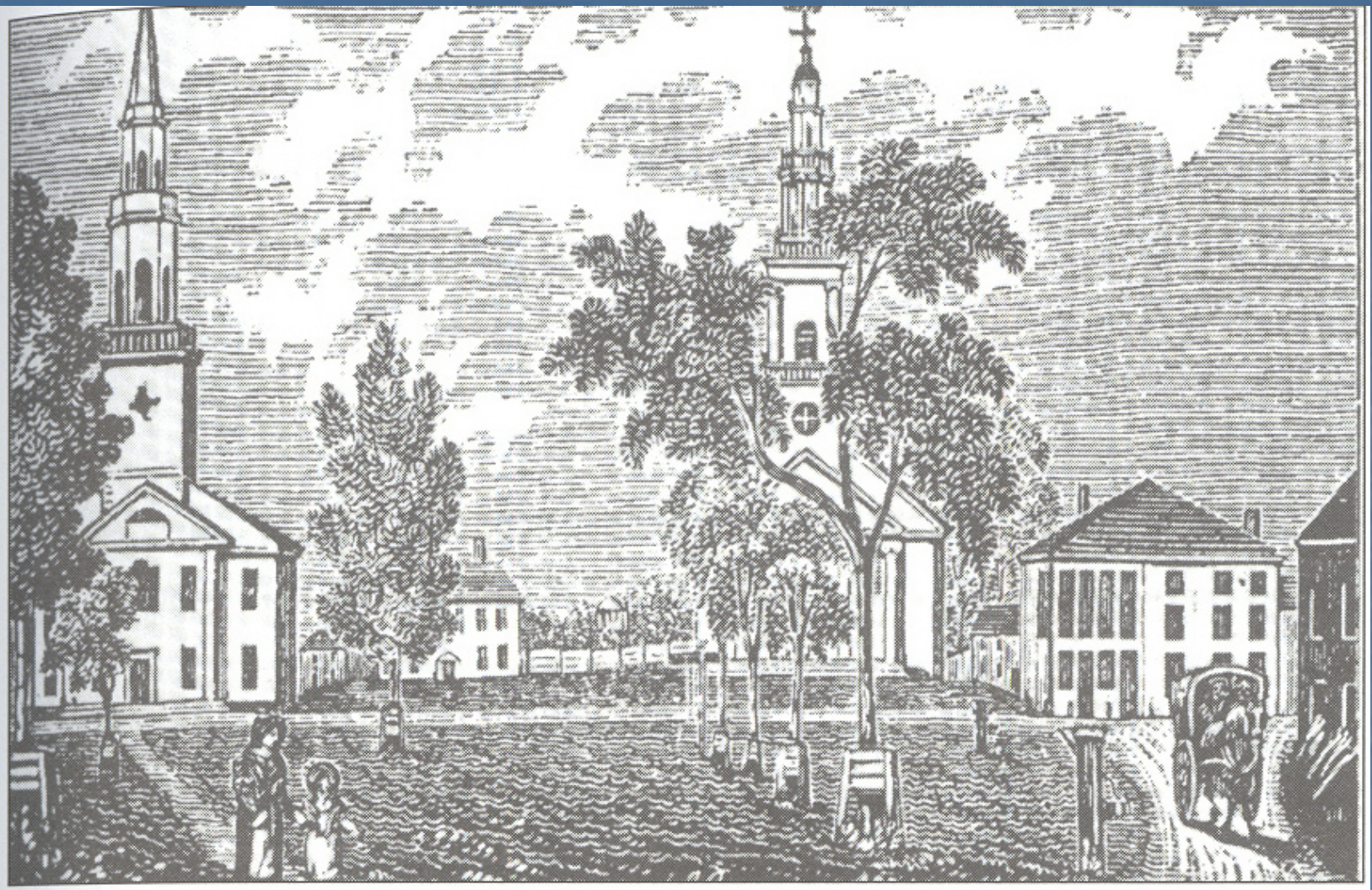
Ornamentation of New England Towns 1750 – 1850

R. J. Favretti

- Two-thirds of southern New England deforested by early 1800's
- Trees were planted in
  - Pastures
  - Woodlots
  - Town centers
  - Streets
  - Cemeteries

How did trees come to be planted in colonial villages? Woodcut of Longmeadow, Massachusetts, about 1840.

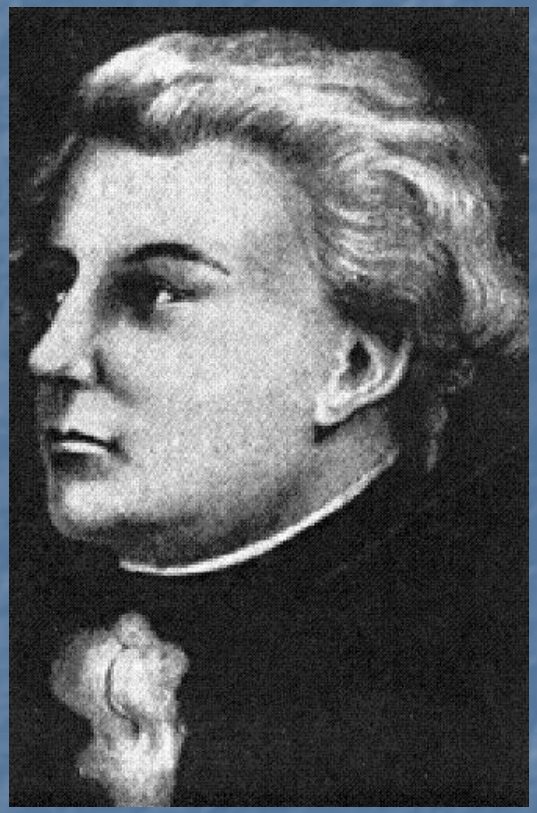
Courtesy of Richard D. Schein.



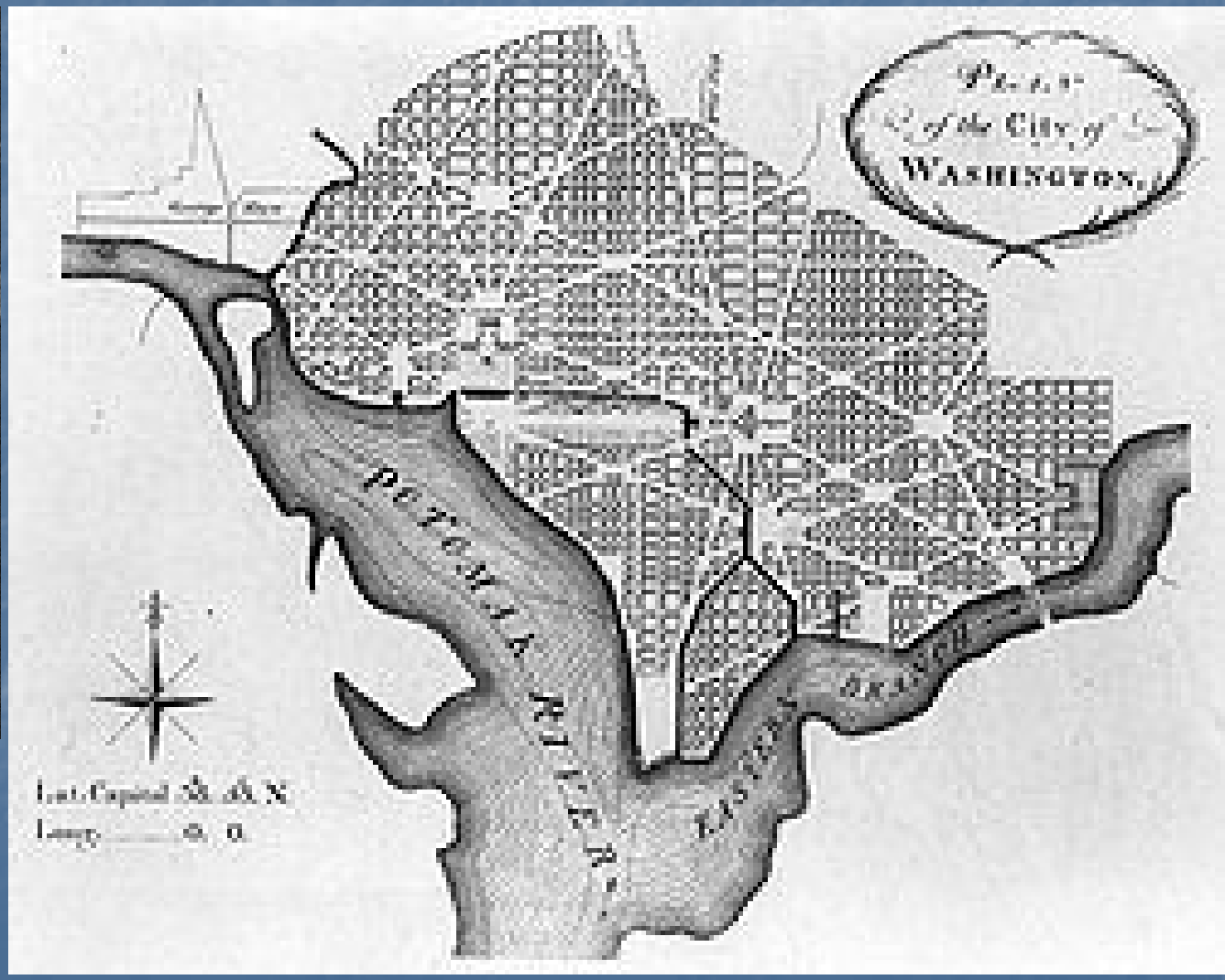
Trees were planted and protected as colonial villages grew. Woodcut of Woburn, Massachusetts, about 1840.

Courtesy of Richard D. Schein.

L'Enfant's Plan for Washington 1791



French citizen, but fought for the Revolution and settled in NY

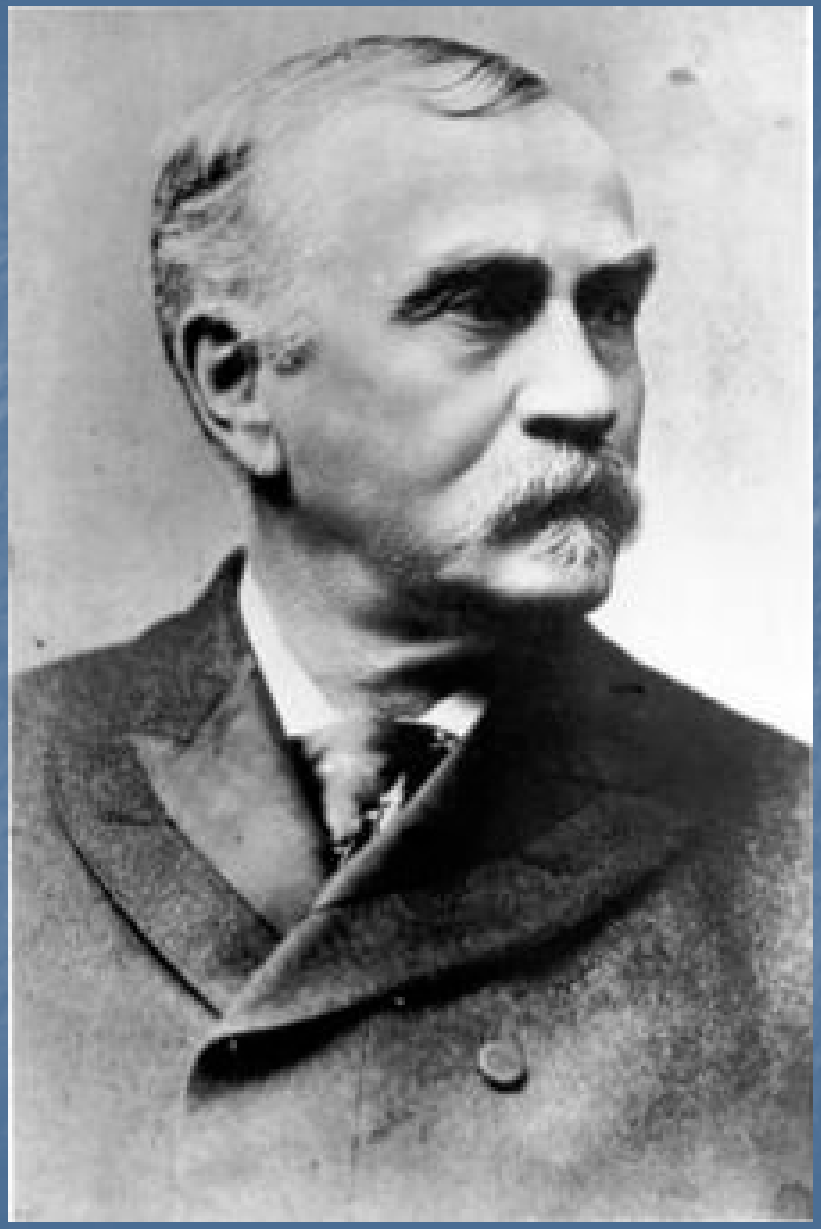


Trees and Parks in American Cities

(Nature, a source of moral virtue in America)

- 1807 – Detroit Avenues
- 1821 – Jackson, Mississippi, squares
- 1872 – Arbor Day in Nebraska
- 1895 – First course in arboriculture taught at Massachusetts State College

Detroit Michigan - 1807



1872

First Arbor Day held in Nebraska

J. Sterling Morton, Nebraska Secretary of Agriculture

Arbor Day in Oriental is

March 20

Landscape Movements in America – 19th Century

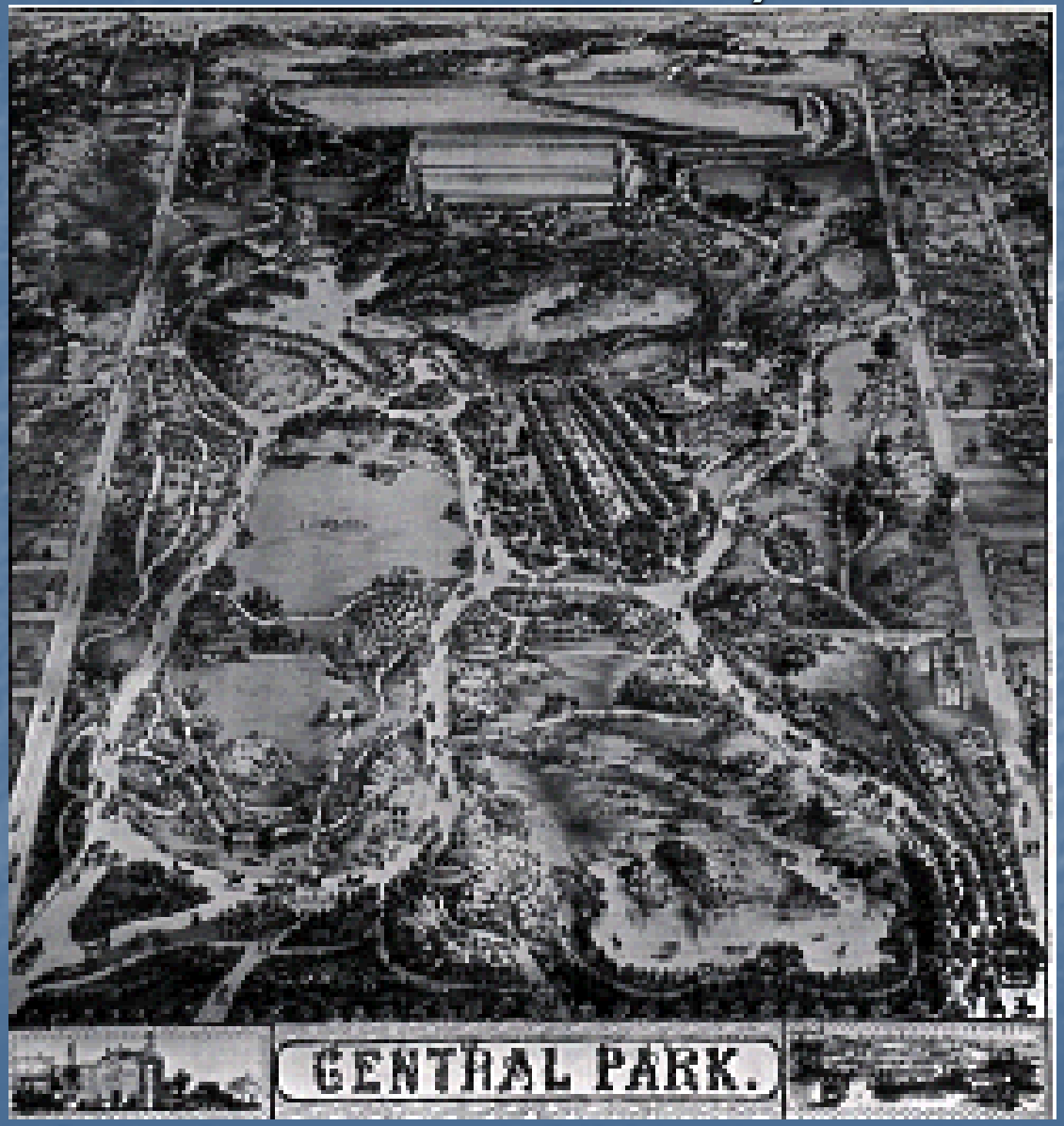
City Parks Movement – Olmstead

- Central Park in New York "a simple, broad, open space with sufficient play of surface and a sufficient number of trees..."
- The Natural Landscape
- Park systems throughout US cities

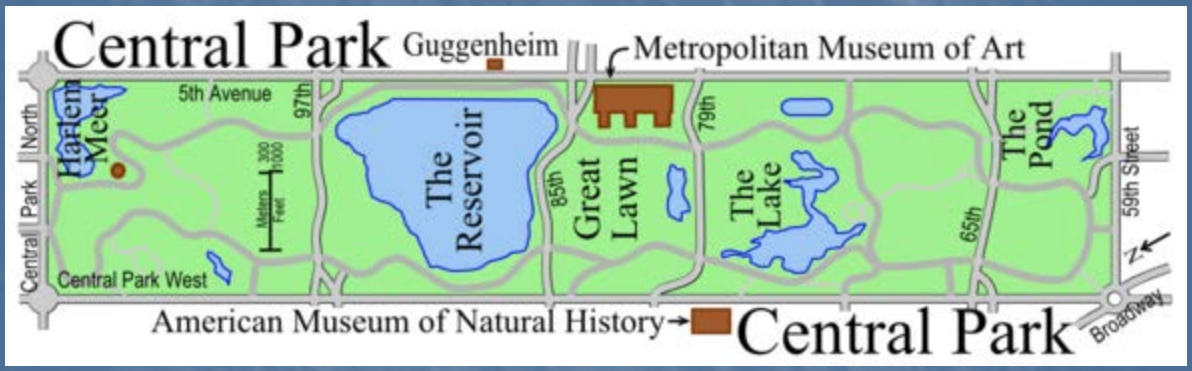
Frederick Law Olmsted

Naturalistic Landscapes

Central Park, N.Y.



843 Acres

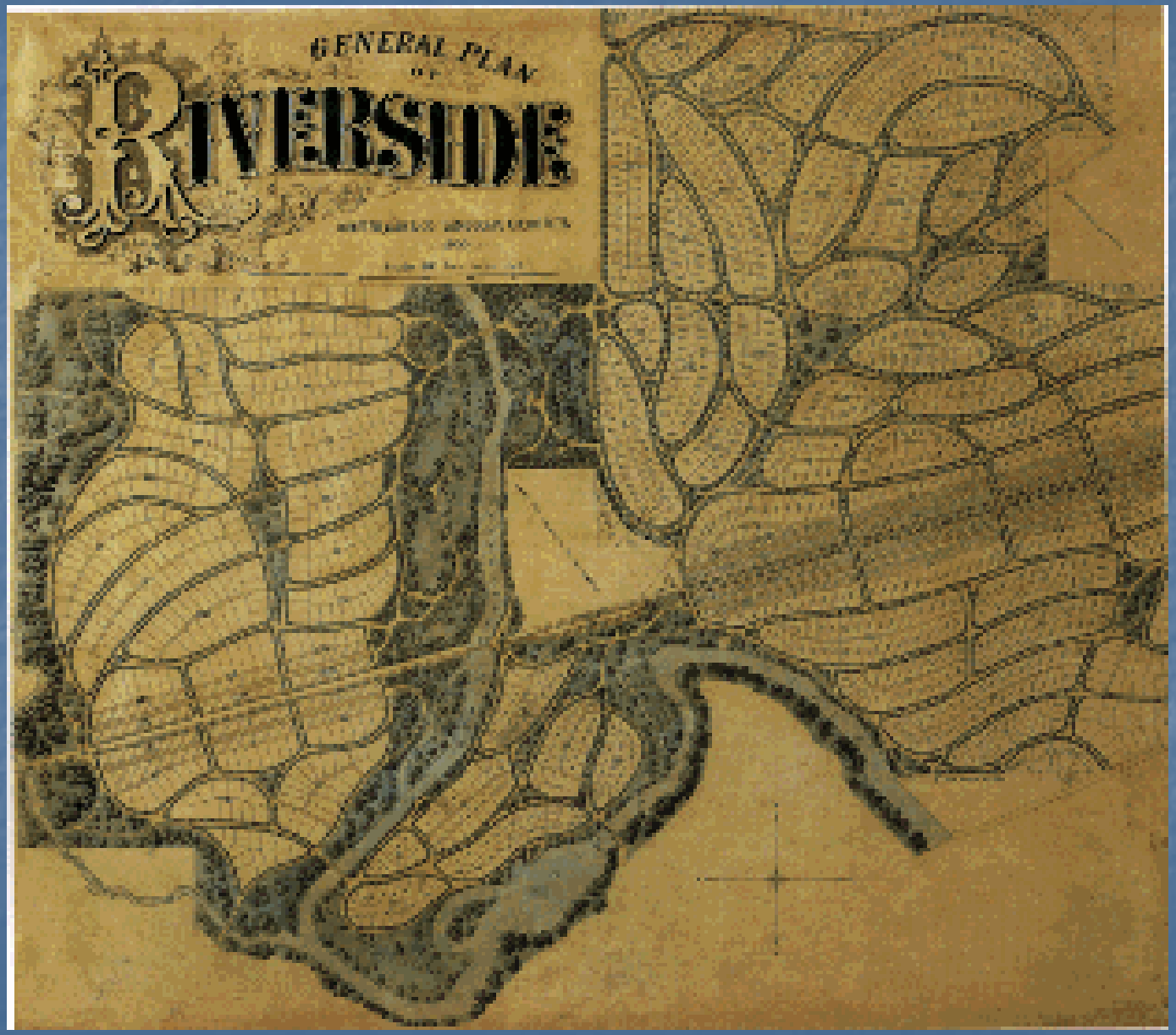

Central Park
Guggenheim
Metropolitan Museum of Art
Central Park North
Harlem Meer
5th Avenue
97th
Meters 300
Feet 1000
The Reservoir
85th
Great Lawn
79th
The Lake
65th
The Pond
59th Street
Central Park West
American Museum of Natural History
Central Park
Broadway
N

Landscape Movements in America – 19th Century

The Romantic Landscape

- Imported from Europe
- Blend of the best of nature and the city
- New suburbs of America
- Mass transit lines

Olmstead Plan



Landscape Movements in America – 19th Century

The City Beautiful

- Columbian Exposition of 1892 – Chicago
- Boulevards
- Parks and Parkways
- Civic centers
- Street trees

Columbian Exposition

Public Comfort Building

Administration Building

Fisheries Building

Waterfront

Trees and Parks in American Cities

1900 to WW II

- Street tree planting and management
- Parks, WPA and CCC
- Home shading and the front porch

Arboriculture in the US

USDA Bulletins
1927

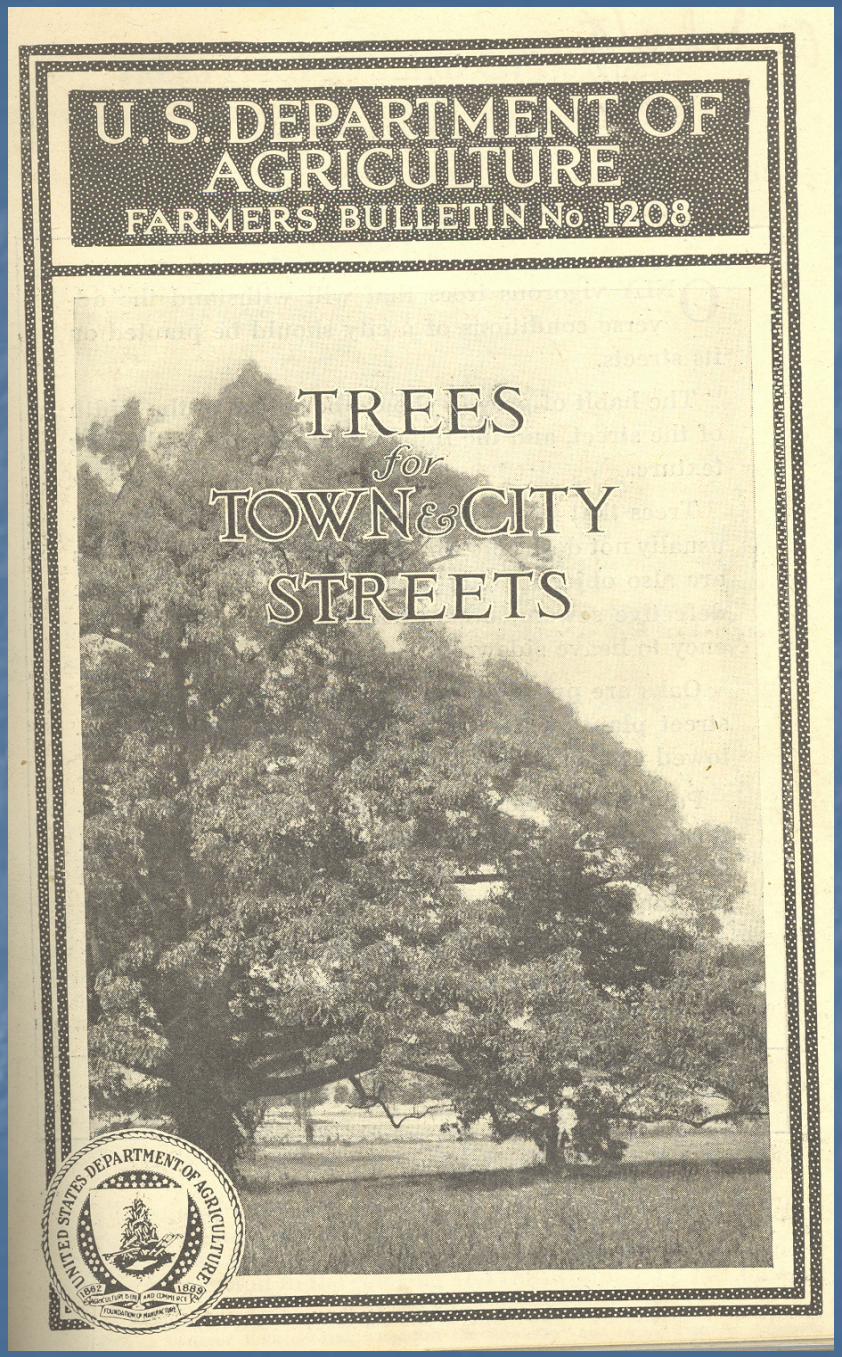
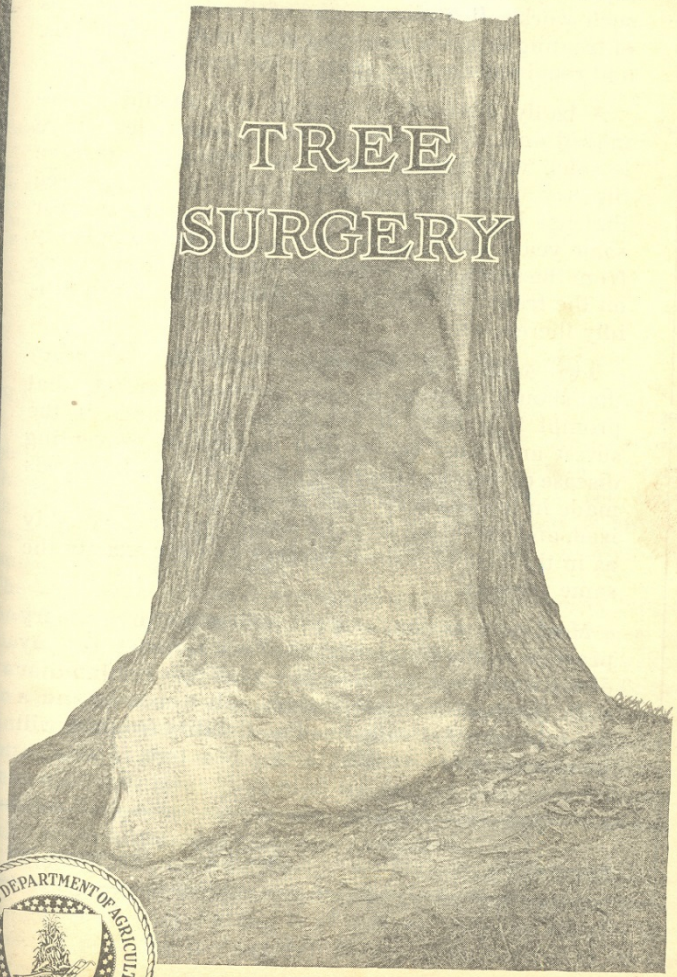


FIG. 12.—A street planted with honey locusts; late summer, Washington, D. C.

Fig. 9. American elms in winter, Washington, D. C.

U. S. DEPARTMENT OF AGRICULTURE

FARMERS' BULLETIN No. 1178



U. S. DEPARTMENT OF AGRICULTURE

FARMERS' BULLETIN No. 1591

TRANSPLANTING TREES AND SHRUBS

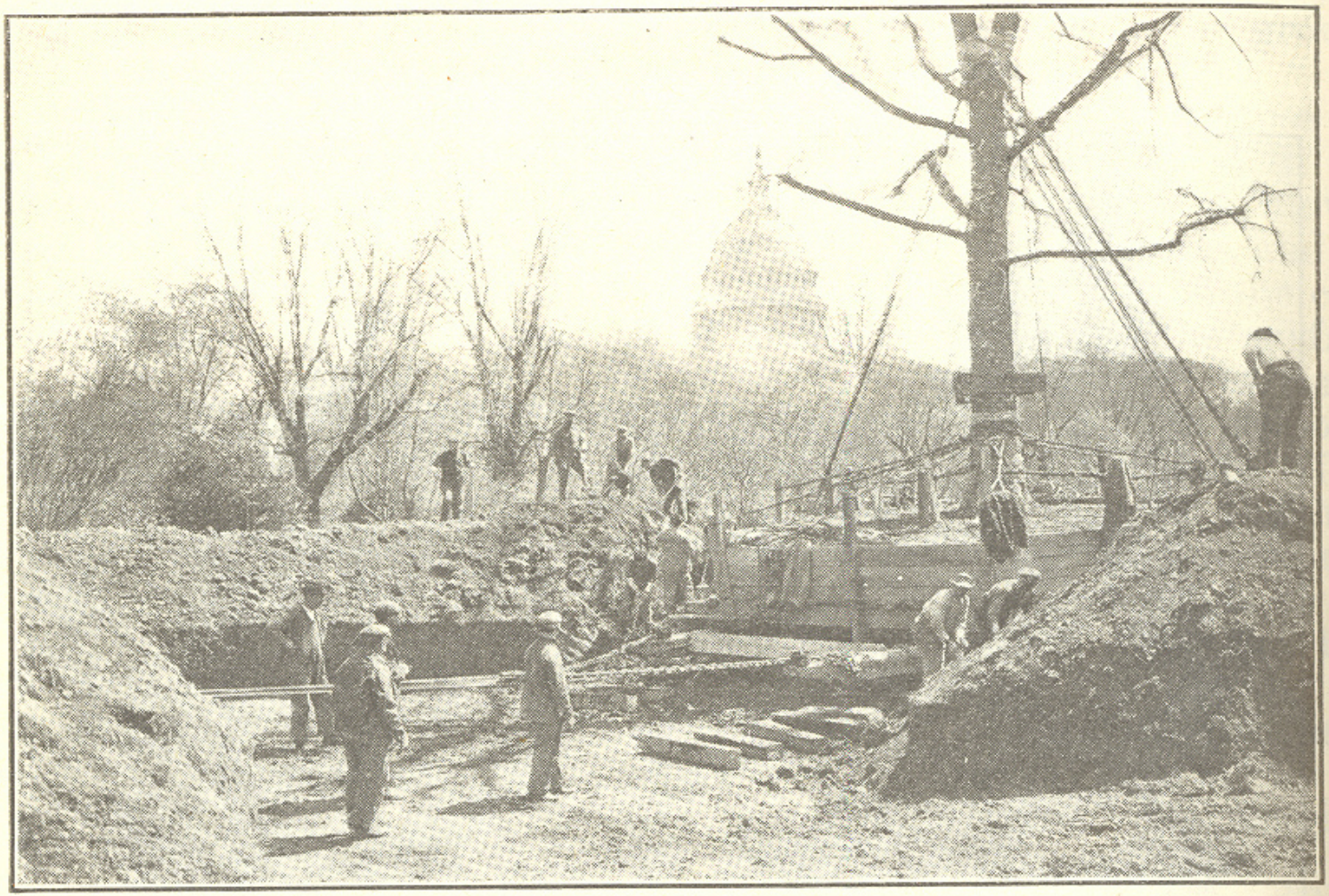


FIGURE 24.—A deep hole needed to accommodate the roots of a large tree and allow room for tamping earth under it as the runway and staging are removed

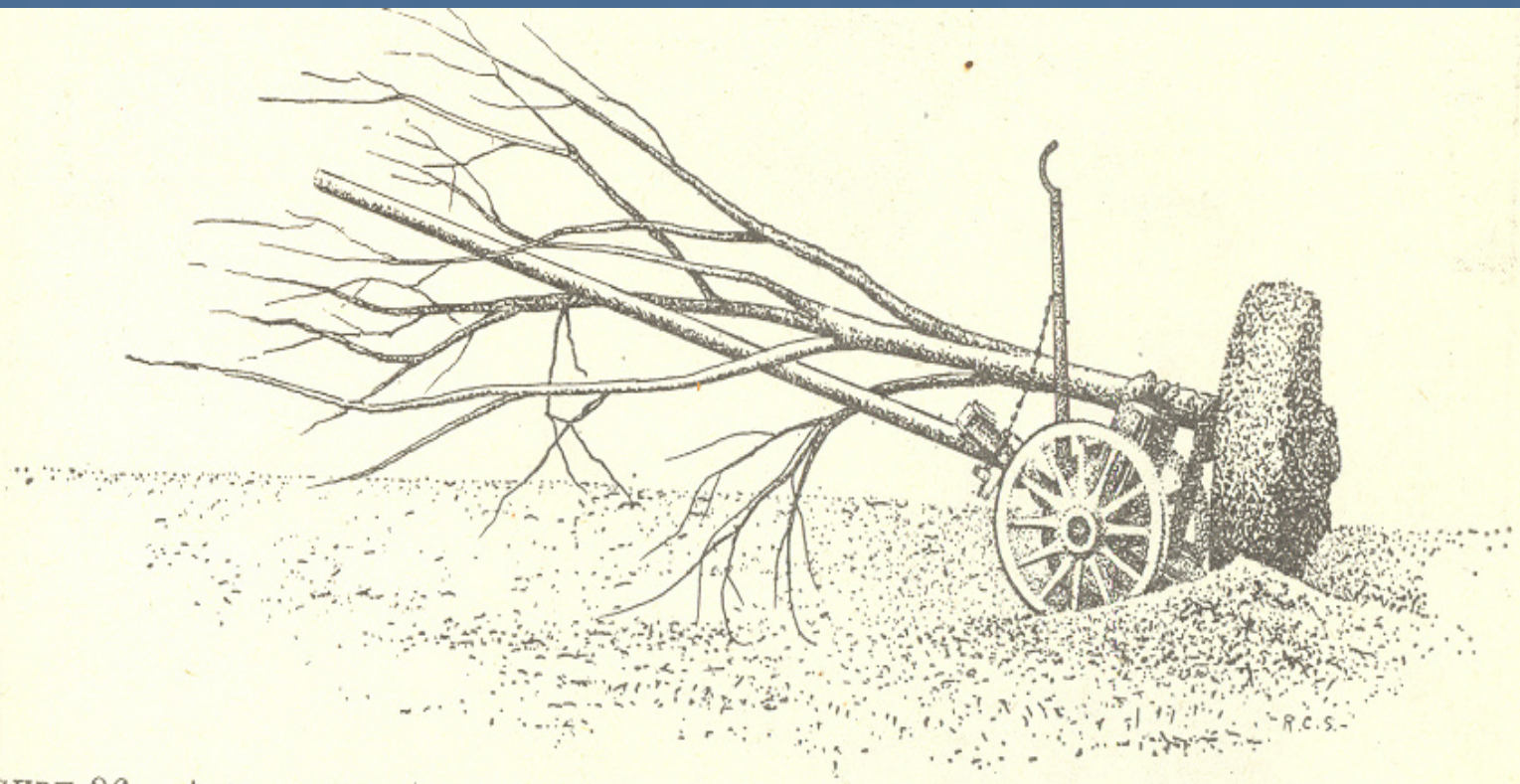


FIGURE 26.—A tree with a frozen ball on a specially prepared wagon frame having a high bolster and a long reach. The trunk must be well protected where it rests on the bolster, so that the bark will not be injured

FARMERS' BULLETIN 1169

INSECTS INJURIOUS TO DECIDUOUS SHADE TREES AND THEIR CONTROL

JACOB KOTINSKY
Assistant in Forest Entomology

UNITED STATES
DEPARTMENT OF AGRICULTURE

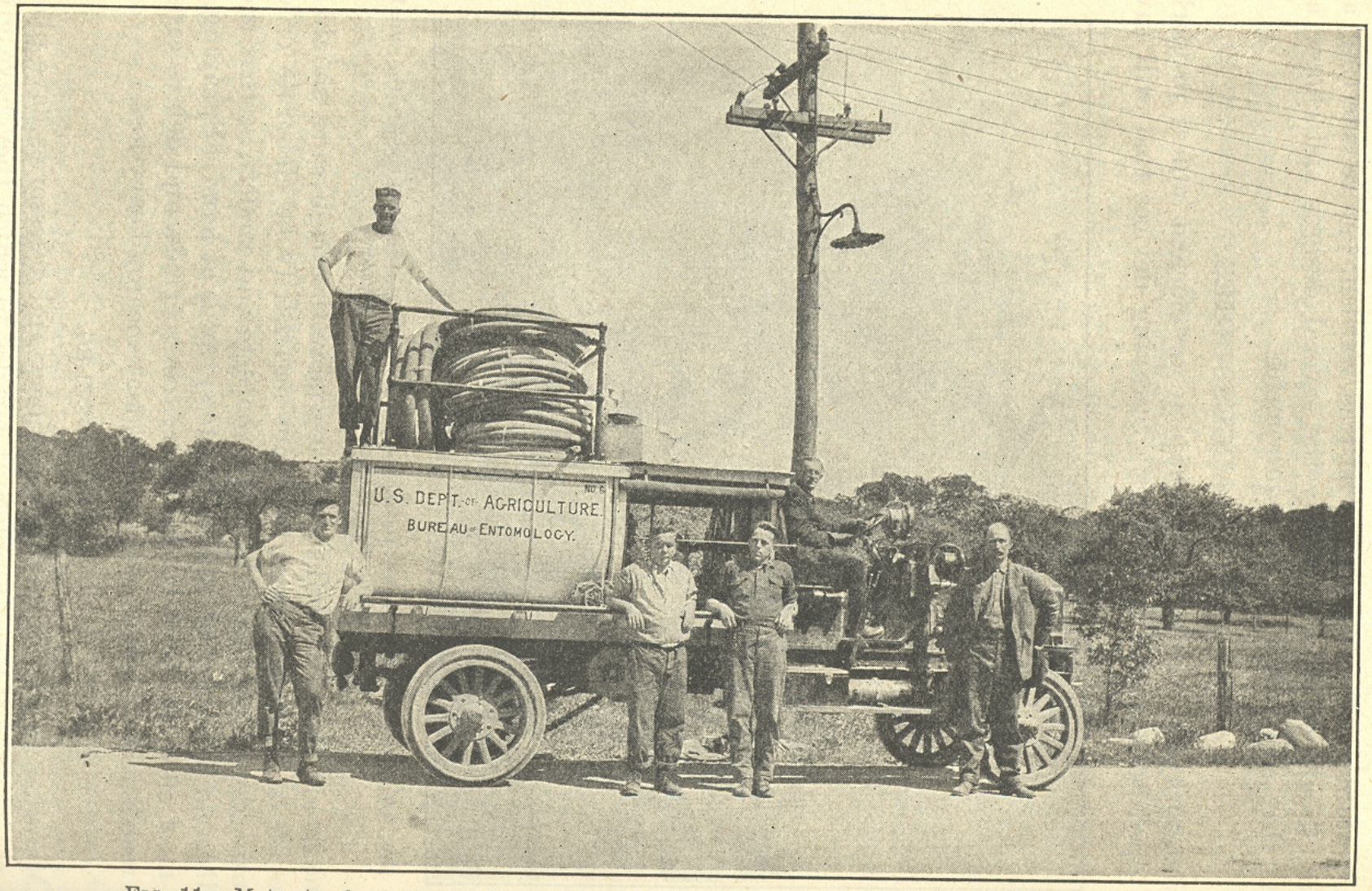
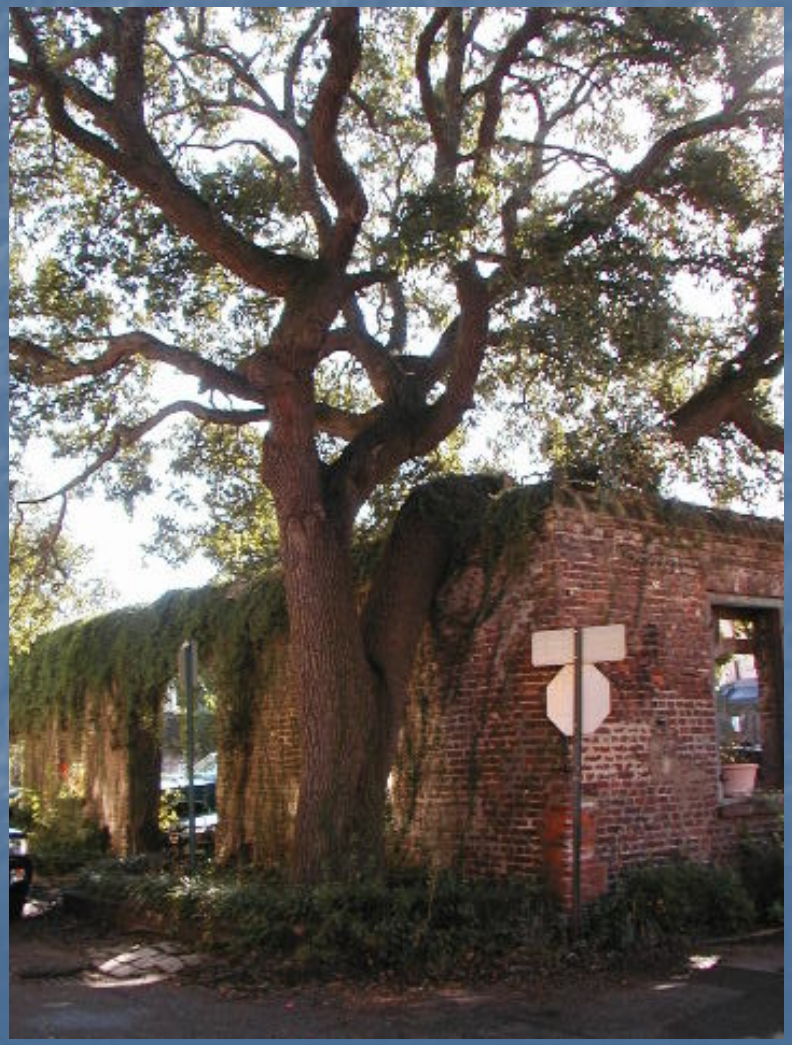
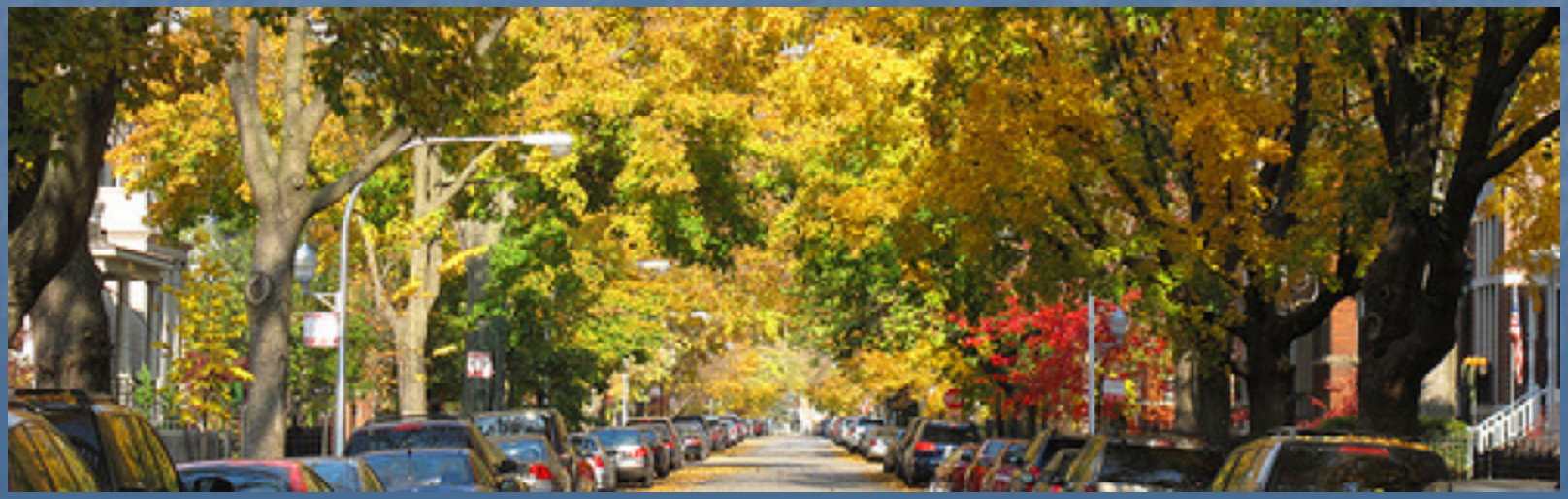


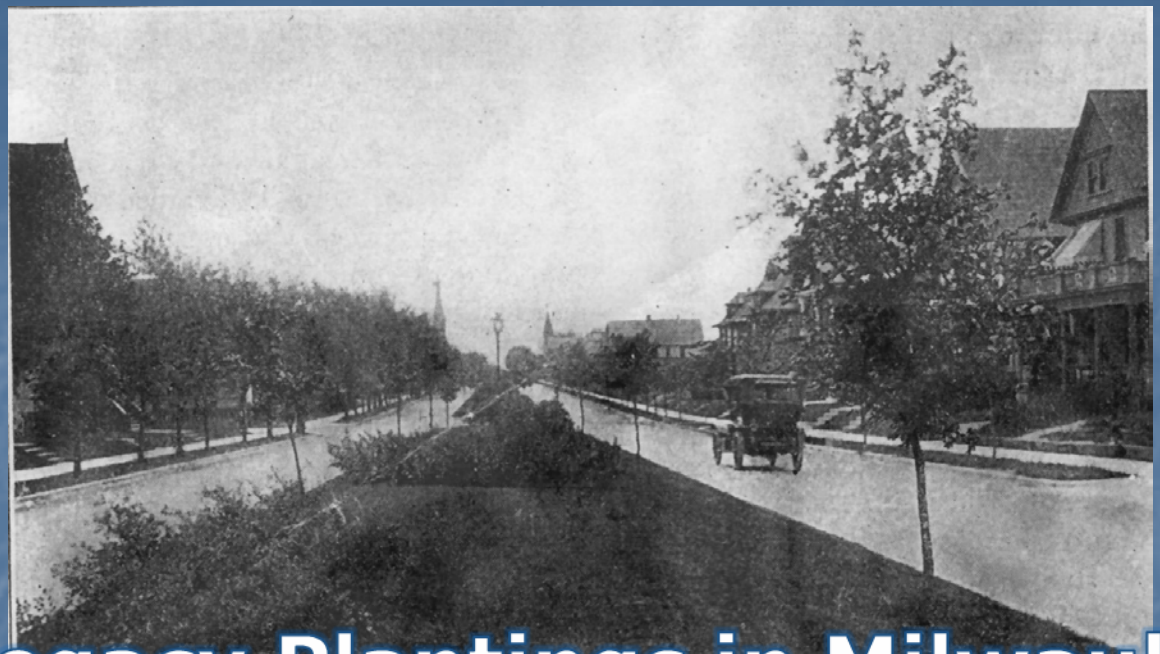
FIG. 11.—Motor-truck sprayer of the Bureau of Entomology with crew and equipment. (Worthley.)

Great effort at street plantings

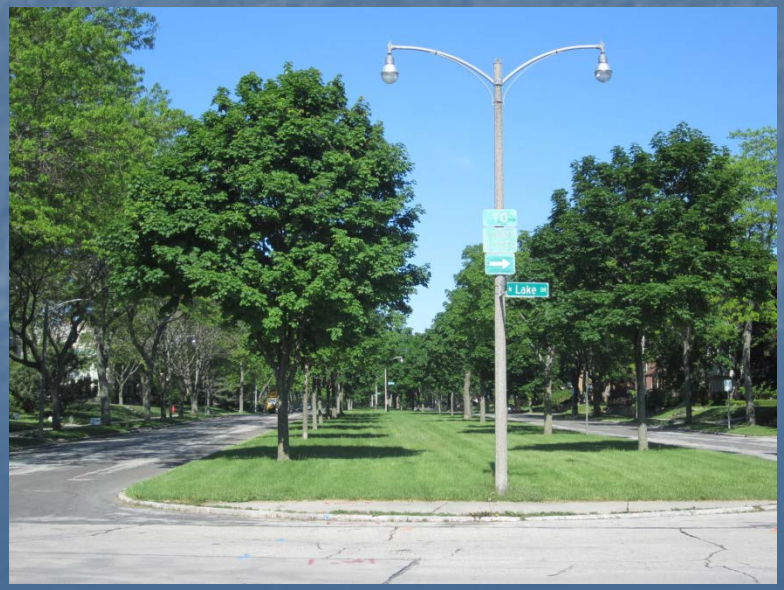


Legacy Plantings in Milwaukee



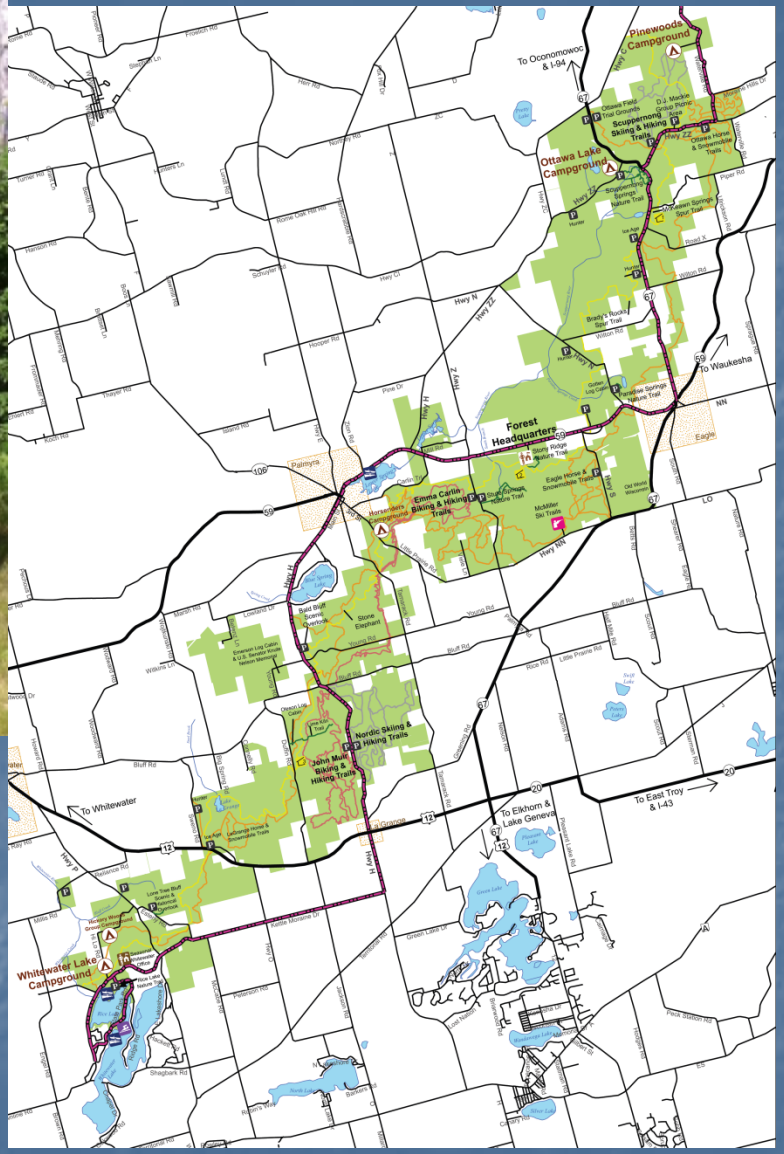


Legacy Plantings in Milwaukee



MILWAUKEE COUNTY
PARKS
countyparks.com


ENTERING
KETTLE
MORAINE
STATE FOREST
RECREATION
AND
FORESTRY
WISCONSIN
DEPARTMENT OF
NATURAL
RESOURCES


Pinewoods Campground
To Oconomowoc & I-94
Ottawa Lake Campground
Scuppernong Skiing & Hiking Trails
Forest Headquarters
To Waukesha
Palmyra
Emma Carlin Biking & Hiking Trails
Nordic Skiing & Hiking Trails
John Muir Biking & Hiking Trails
To Whitewater
To Elkhorn & Lake Geneva
To East Troy & I-43
Whitewater Lake Campground

Trees and Parks in American Cities

Post WW II and the decline of city trees and parks

- Air conditioning
- Suburban sprawl and private vegetation
- Decline of the urban core
- Dutch Elm Disease

DED in the US

Emergence of Urban Forestry in the late 1960's

- Environmental Movement
- Increasing environmental degradation
- Most Americans live in cities

Function of Urban Trees and Parks

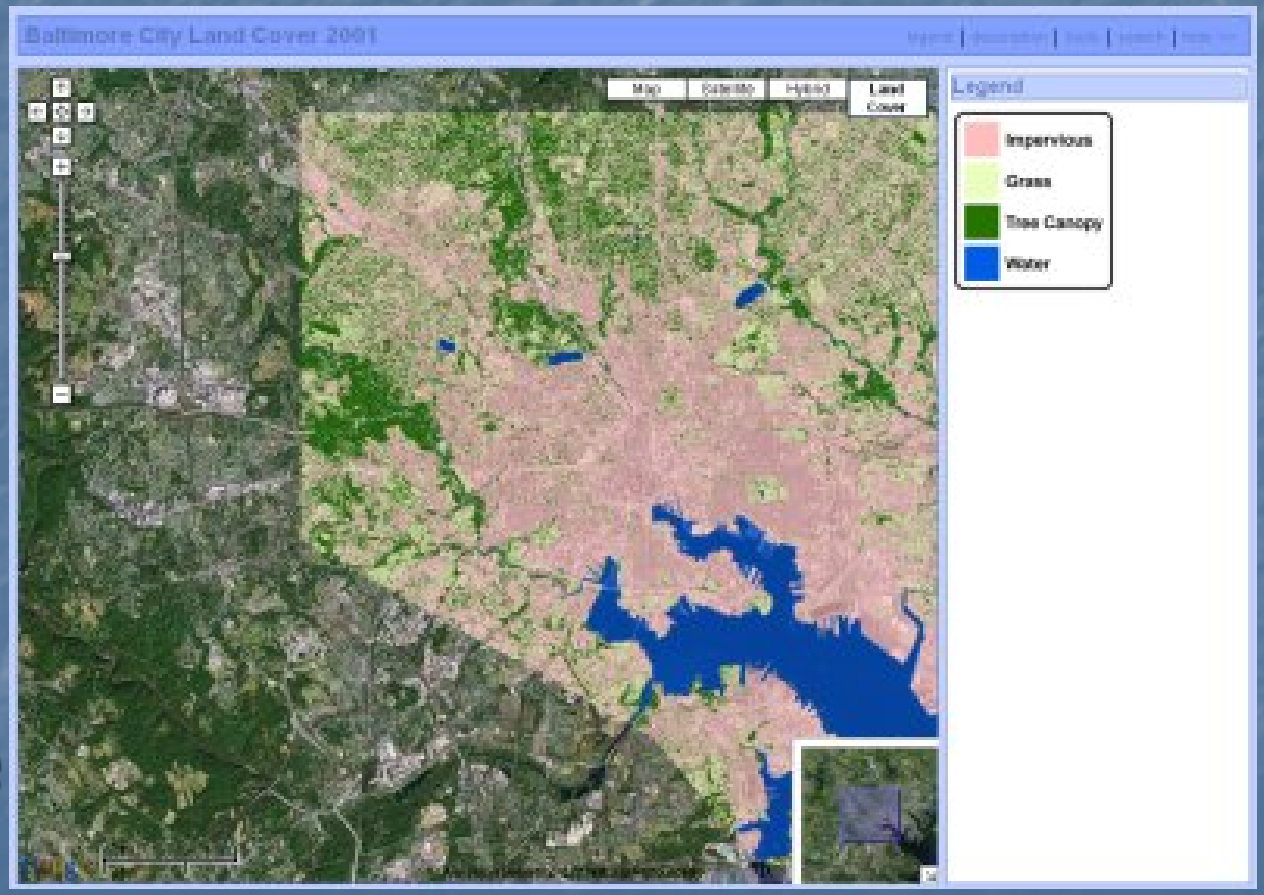
- Lower building energy costs
- Raise property values
- Make cities more livable
- Improve retail sales
- Affect business location decisions

Urban Forestry in the future

- Climate change
- Pollutant mitigation
- Biomass fuels from waste
- Connect urban population with nature
- Interface Forestry
- The New Urbanism
- Urban Ecology

Climate Change (yes, climate change is real)

- Increase Canopy
  - Lower building energy footprint
  - Lower ambient temperature

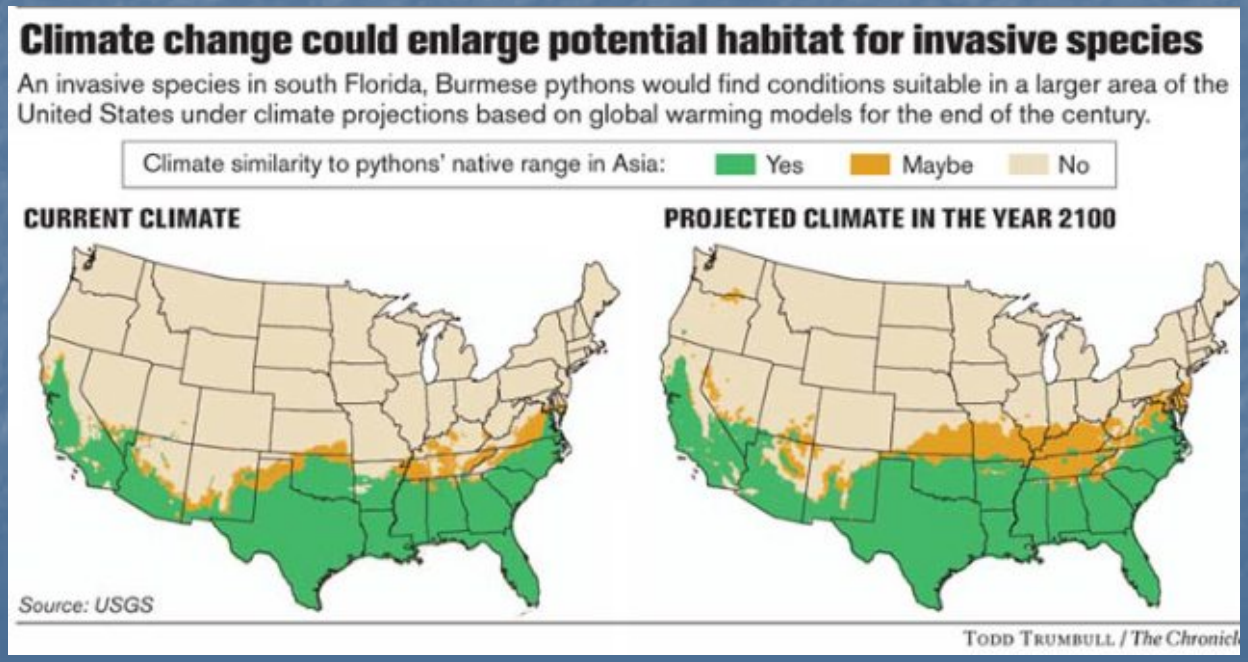


Climate Change and Arborists

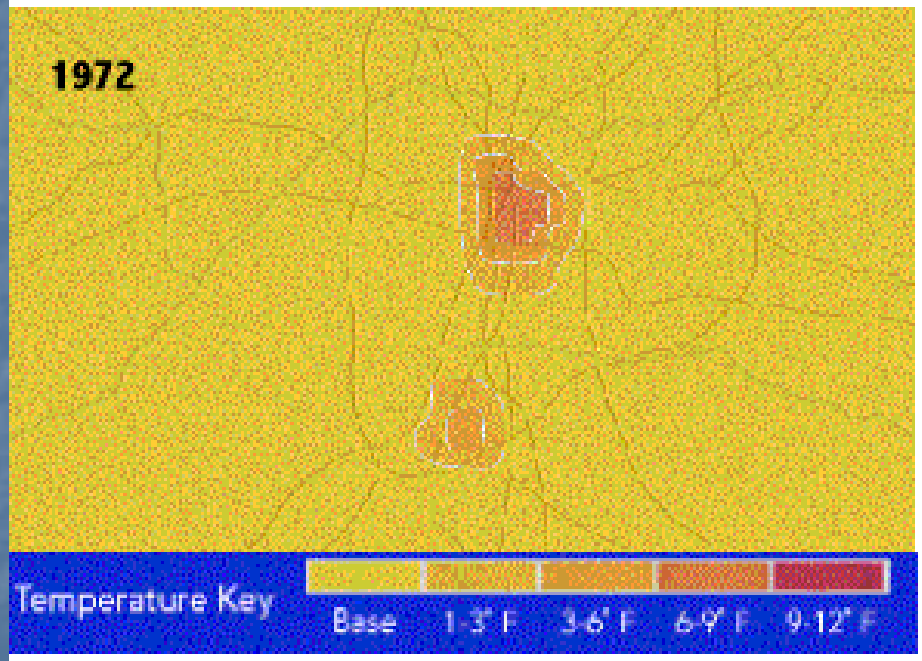
- Hotter and drier
- Drought the new normal?
- Hotter urban heat islands – need for more shade
- More pest damage on hotter streets
  - Gloomy scale on red maple
  - Oak lecanium scale on willow oak

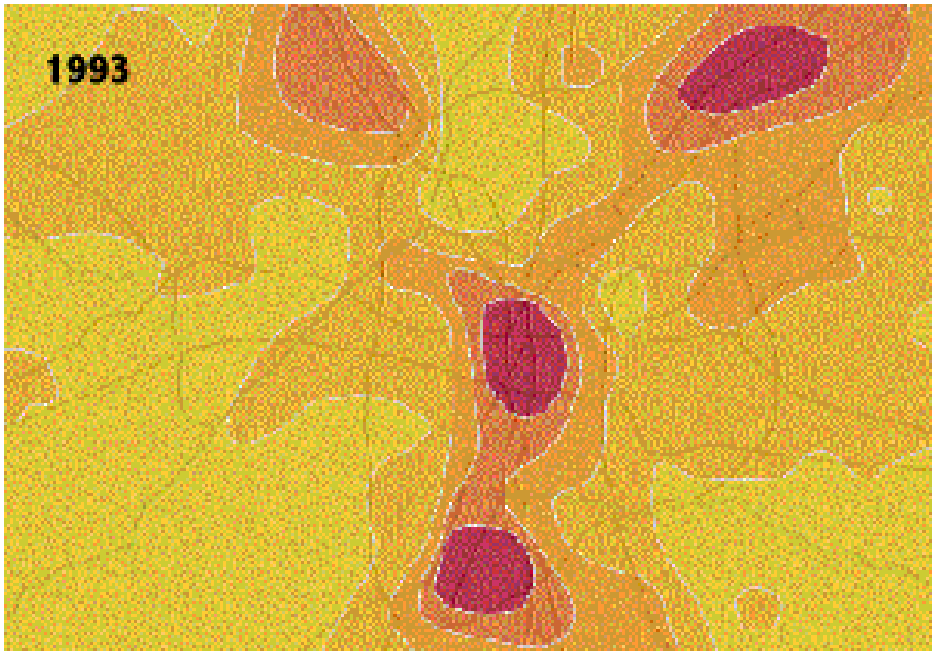
Climate Change/pests/species shifts

- Urban sprawl and interface forestry



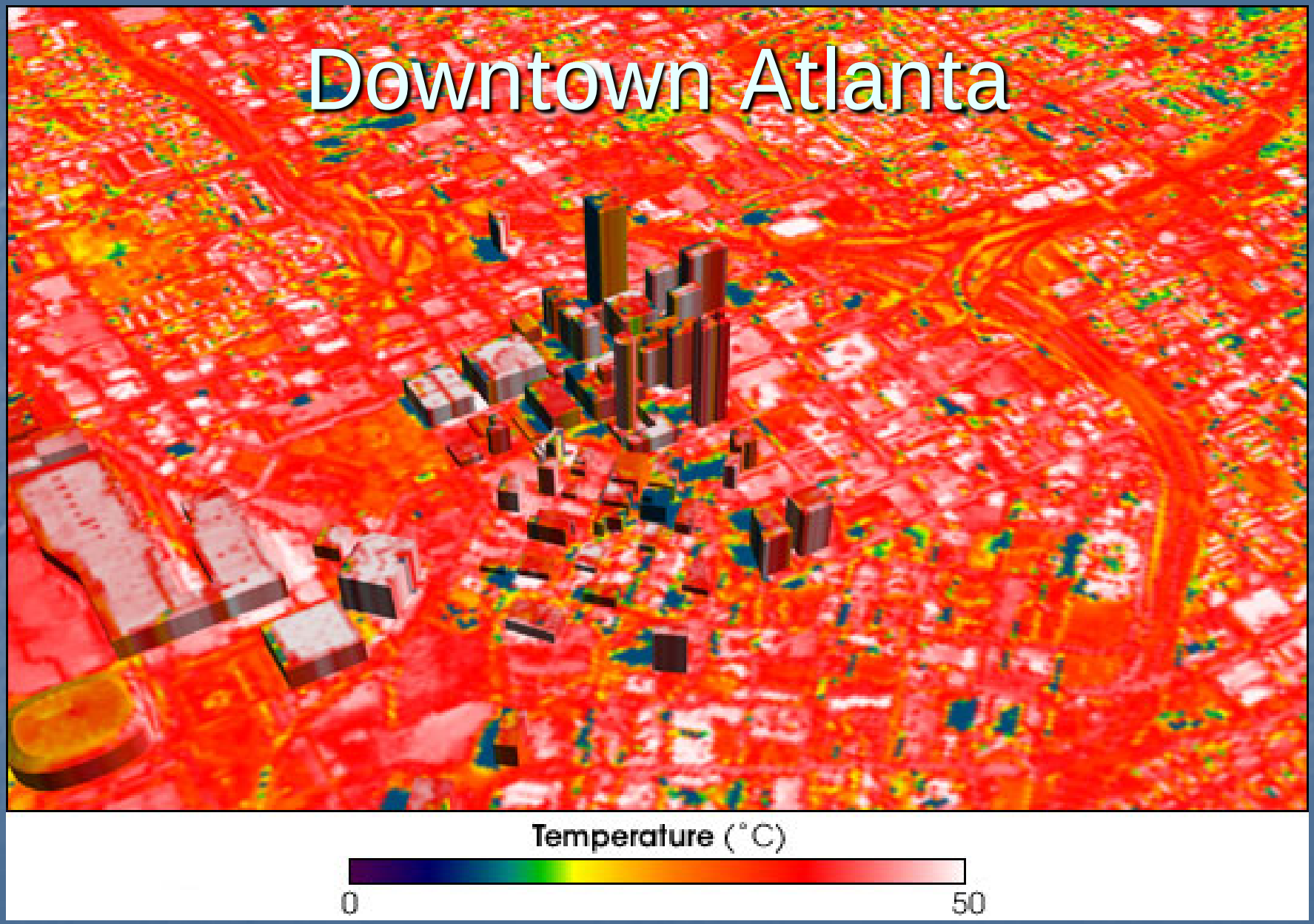
Atlanta Urban Heat Island



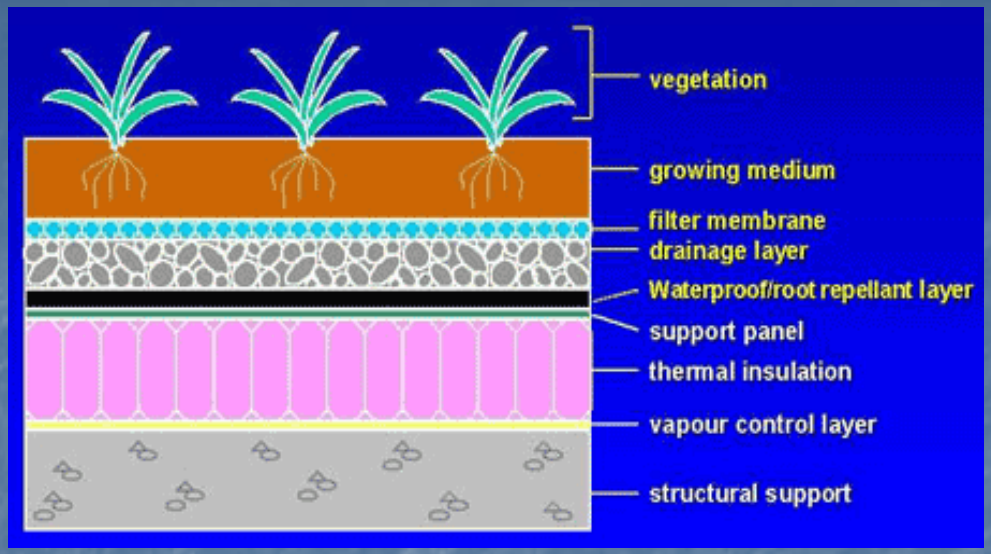



Satellite Image of Atlanta
Green = Forests and farms
Gray = Urban

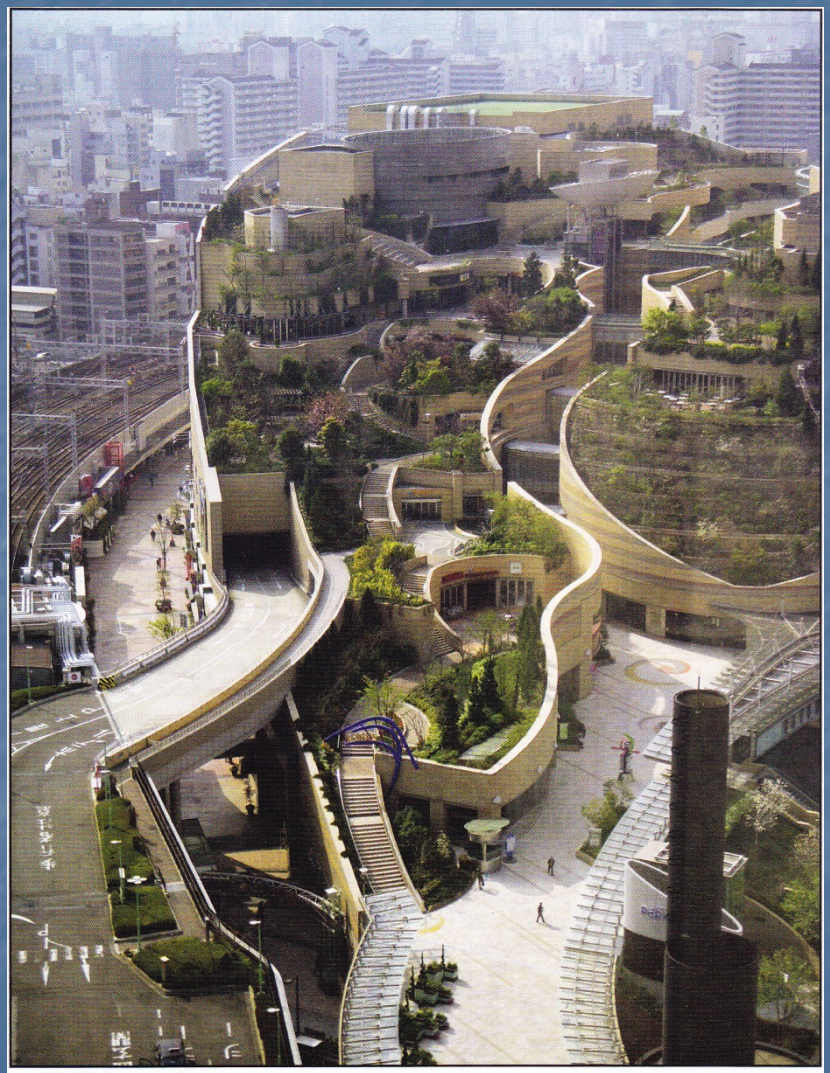
Downtown Atlanta



Green roofs



Fairmont Waterfront Hotel in Vancouver, BC



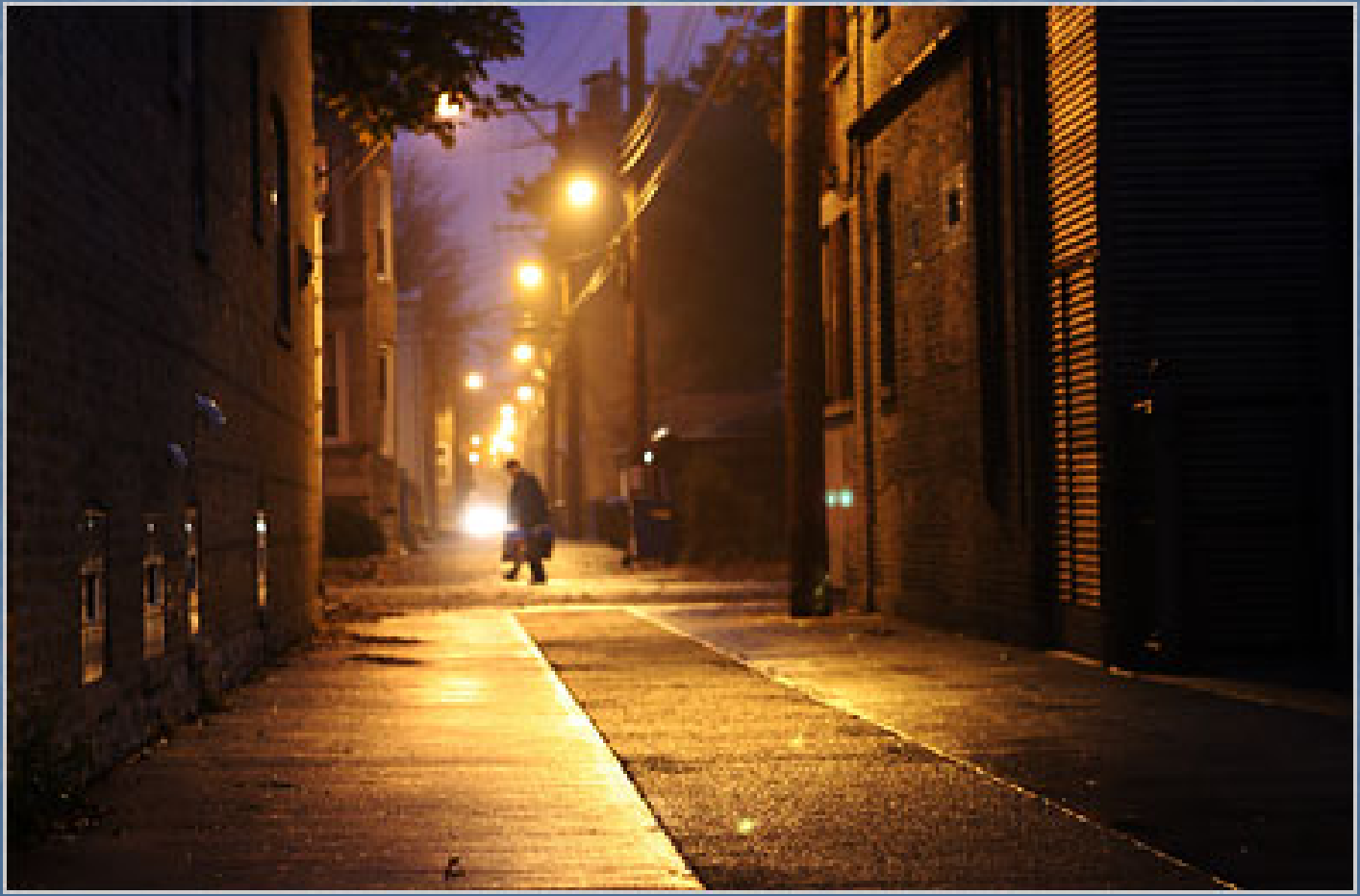
Namba Parks (Osaka, Japan) is an extraordinary example of nature in a retail environment. It is a 120 tenant shopping mall containing offices, shops, and restaurants. The eight-level complex is draped with terraced rooftop forests and gardens.

Pollution Mitigation

- Lowering urban heat island temperatures will lower photochemical pollution
- Rain gardens as sinks for pollutants in run-off
- Porous paving will water trees and other vegetation
- Recharge aquifers

Demonstration Rain Garden

Chicago’s Alleys

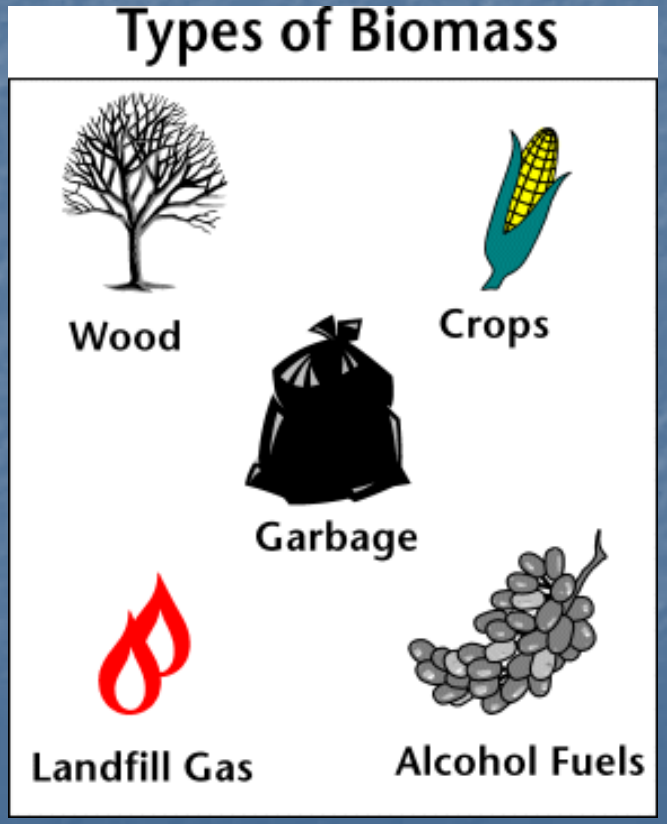


Chicago's Alleys

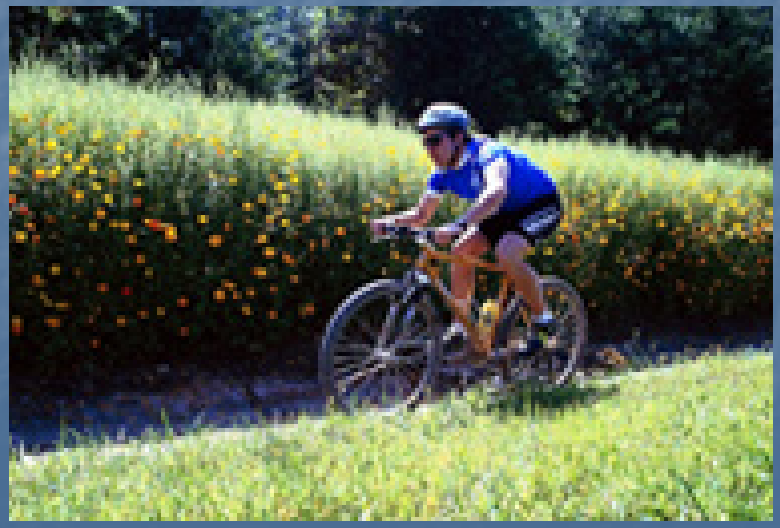
- Chicago has installed 46 to date
- Cost less than conventional concrete
- Runoff soaks in and recharges aquifers
- Has added 90 miles of landscaped medians

Biomass fuels from waste

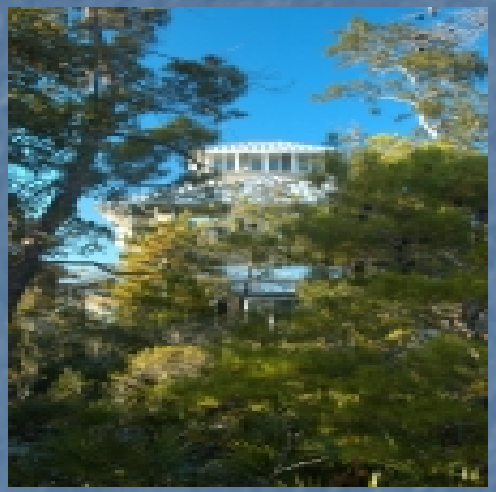
- Urban waste vegetation as biomass fuels

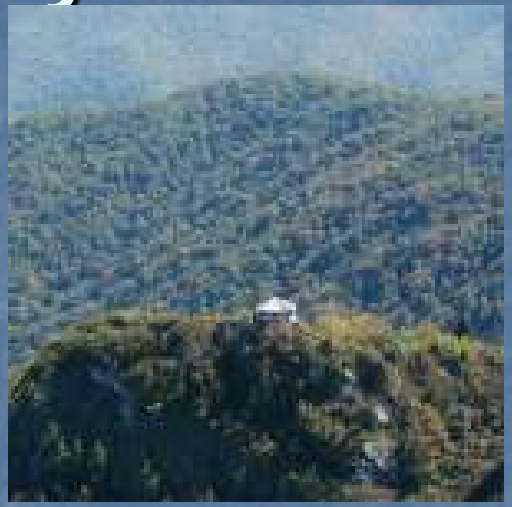


Connect people with nature



Interface Forestry






URBAN WILDLIFE

Congress for the New Urbanism

FREEWAYS WITHOUT FUTURES

HIGHWAYS TO BOULEVARDS

HIGHWAYS TO BOULEVARDS

RECLAIMING URBANISM REVITALIZING CITIES

URBAN THOROUGHFARES MANUAL

Milwaukee Today

Fire at the Interface

Fire prone ecosystems and urbanization

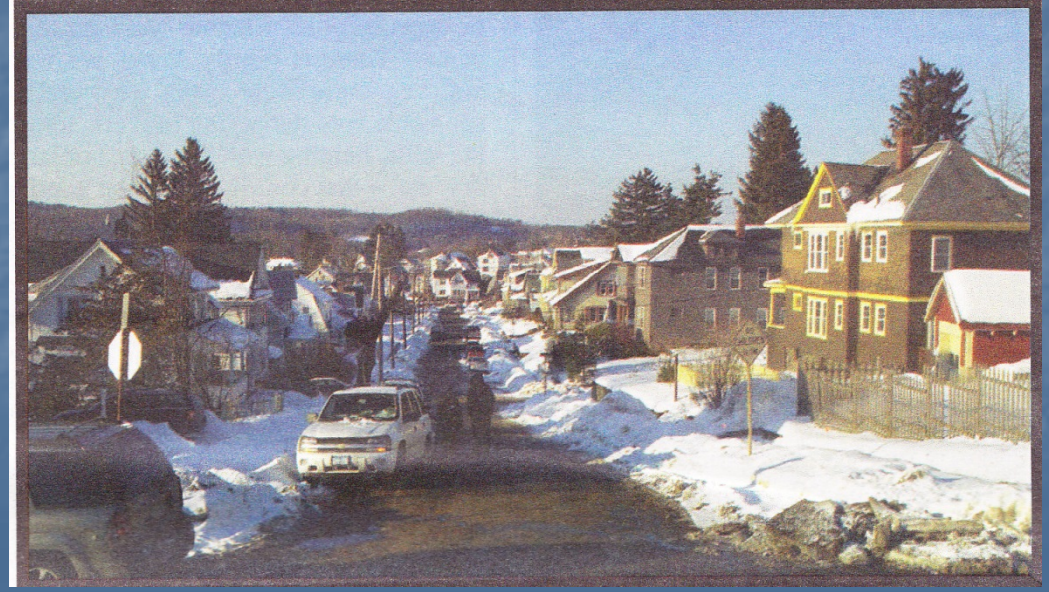
Challenge of a Global Economy

- Introduction of insects and diseases will accelerate
  - Hemlock wooly adelgid
  - Red Bay disease
  - Long horned beetle
  - Emerald Ash Borer
  - Are our urban forests diverse enough?

WHAT'S INSIDE?

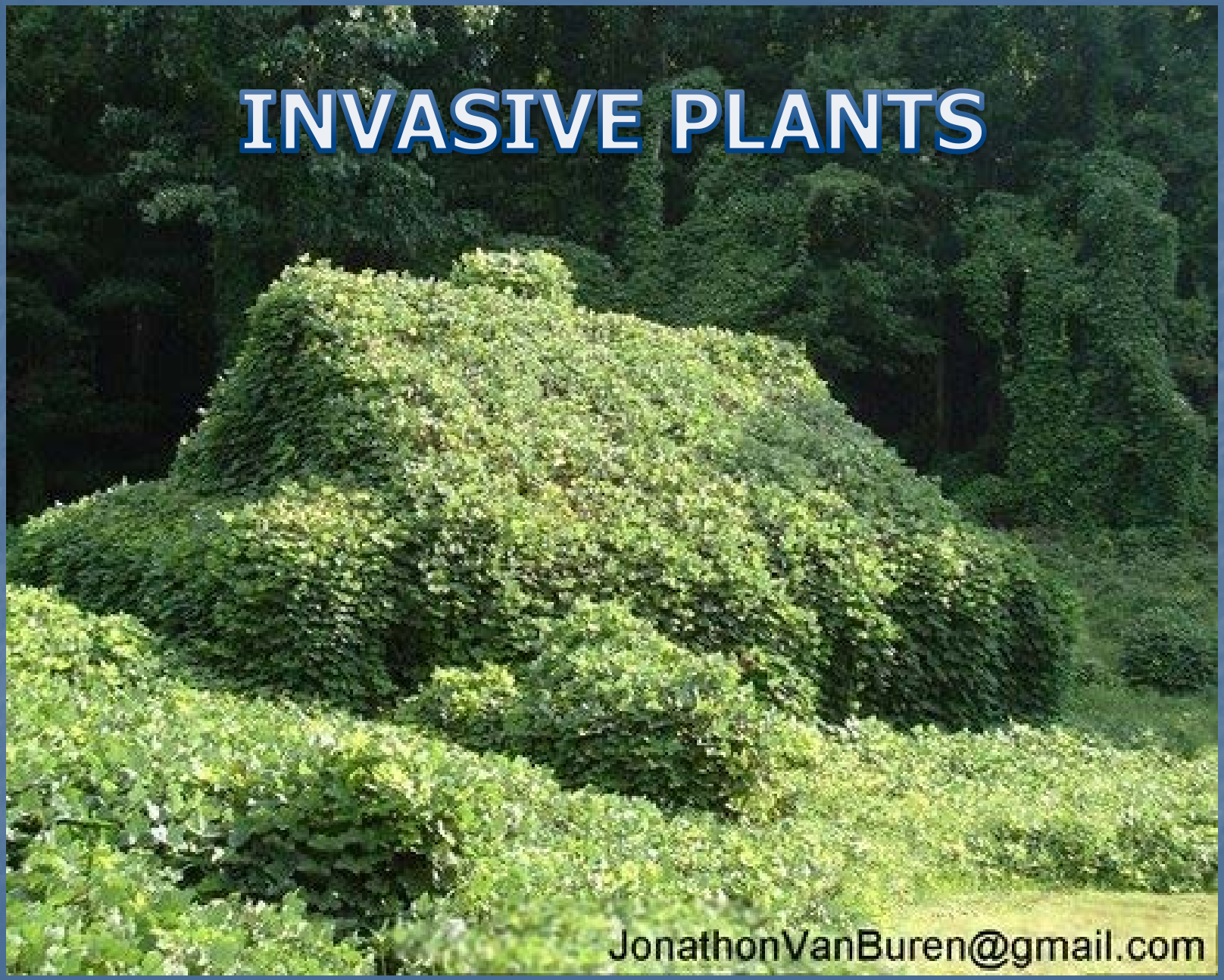
Before

Long-horned Beetle in Worcester, MA



After

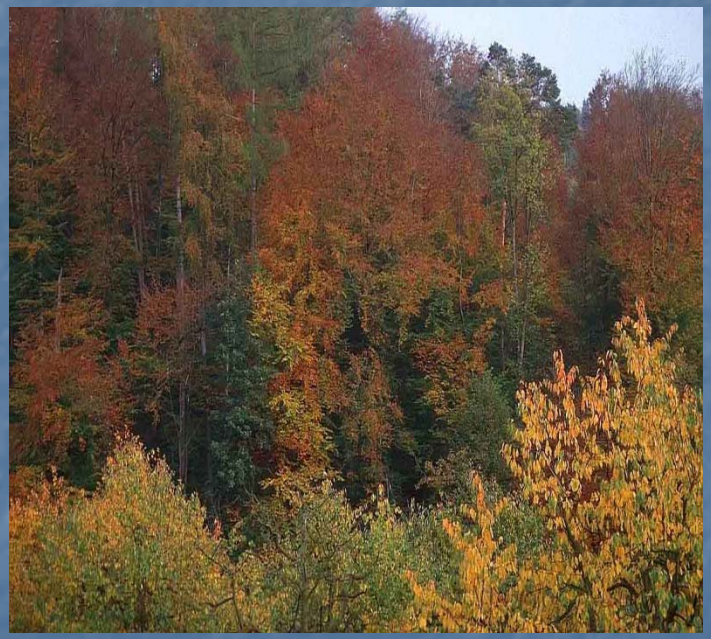
INVASIVE PLANTS



JonathonVanBuren@gmail.com

Invasive species will become an even greater problem

Tallow tree



Norway Maple

Chinaberry

Adaptive management

- Foresters and other resource managers now follow this
- Long term plans do not last long
- Planning and management must be flexible to meet challenges
- Urban Foresters must do the same
- Our challenges will come at us faster than in the woods
- Our challenges will accelerate

Keep on planting and adapting