

DATES TO REMEMBER

- ❑ **Until May 26: Course evaluation period.**
Check your Hunter e-mail for instructions.
Smartphone: www.hunter.cuny.edu/mobile Computer: www.hunter.cuny.edu/te
- ❑ **May 12: Last day** to hand in **REQUIRED ROADTRIP EXERCISE** without late penalty.
- ❑ **May 16:** Last class lecture **and last day for pre-approved extra credit** (paper or other project).
- ❑ **May 23: Exam III: The Final Exam**
 - From 9 to 11 AM << note different time from class
 - Same format as exams I and II.
 - **Last day** to hand in Exam III extra credit exercise and "Landscape Analysis" extra credit option.

Regional Landscape Studies

- ✓ NORTHLANDS
- ✓ NORTHEAST COAST
- ✓ MEGALOPOLIS
- ✓ CANADA'S NATIONAL CORE
- ✓ AMERICA'S HEARTLAND
- ✓ APPALACHIA and the OZARKS
- ✓ THE SOUTH
- ✓ GREAT PLAINS and PRAIRES
- ✓ MOUNTAINS, PLATEAUS and BASINS: The Empty Interior
- **DESERT SOUTHWEST**
- ❑ NORTH PACIFIC COAST
- ❑ HAWAII

<<<For each region:

1. Know its physical geography.
2. Identify its unique characteristics.
3. Be able to explain the human imprint.
4. Discuss its sequence occupancy and economic development.

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Regional Landscapes of the United States and Canada

The Desert Southwest

Prof. Anthony Grande


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Parts of Chapters 2, 3, 10, 18, 19 in American Landscape

The Desert Southwest

Extends along the Mexican border from the Gulf of Mexico to the Pacific Ocean.

Includes parts of Texas, New Mexico, Colorado, Utah, Arizona, Nevada and California.



Overlaps the Empty Interior and includes the South Pacific Coast (Monterey - San Diego), Texas High Plains and South Texas Gulf Coastal Plain.

Desert Southwest

No humidity/arid conditions
Mexican border area
Spanish place names
Southern California

When you think about this region, what images come into your mind?

Arizona, it's a dry heat.

Cactus

Cliff dwellings

Grand Canyon

Sunny skies

Navajo



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OVERVIEW

- ❑ **Varied, harsh topography:** plateaus/mountains/basins.
- ❖ **Climatic aridity** is a **physical unifier**.
- ❖ **Human adaptation** to aridity is the **cultural unifier**.
- **Distinct Tri-Cultural Region** with unique characteristics, place names and acculturation:
 - **Spanish with roots in Mexico:** settlement and colonial heritage (language/religion) are chief regional identifiers.
 - **Native American:** historic settlement and Indian culture is a secondary unifier.
 - **European-American:** late arriving but dominant population
- **International Zone:** cultural and economic landscapes integrated with that of northern Mexico, but a politically tense closely monitored border area from end to end.

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The Border Landscape

El Paso-Juarez Crossing

CAUTION

Beach at San Diego

Arizona desert area

Crossing at Matamoras-Brownsville, TX

Mexico USA

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The Four Corners

A unique political geography and photo opportunity!

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Physiography of the Desert Southwest

Review map handout from "Empty Interior"

- Mountains** (W Texas, E New Mexico)
SOUTHERN ROCKIES
- Plateaus** (S CO, S UT, NW NM, N AZ):
COLORADO PLATEAU
- Fault Block Structures** (Southern California, W Arizona, S, Nevada):
BASIN and RANGE
- Coastal Ridges** (SW California):
PACIFIC COAST RANGES

> **San Andreas Fault:** Cuts through Southern California from the Gulf of California to San Francisco Bay.

❖ **EXOTIC RIVER:** (a permanent river flowing through a desert)
 > **Colorado River** (with the Green and Gila) and **Rio Grande** (with the Pecos) are the major exotic rivers flowing through the southwest desert region.

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The San Andreas Fault

California's San Andreas Fault
Southern California Zone

Sections of the fault east of LA are "locked" (have not moved in hundreds of years) and are closely monitored by geologists.

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Salton Basin Geology

❖ **Salton Basin** occupies a depressed fault block that is >200 ft. below sea level.

- It once was the northern end of the Gulf of California and contained sea water (blue area).
- It was blocked from the gulf as sediment from the Colorado Plateau (brown area) carried by the Colorado River collected and enlarged its delta at the head of the gulf.

Dashed line = ancient shoreline

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Salton Landscape: Combo of Natural and Human Factors

During the 1905 spring floods the Colorado R. broke its banks and flowed downhill by way of an irrigation canal into Salton Basin, creating a freshwater lake. Each year the lake's water has become saltier.

Filling the breach in 1906 by dumping rock from railroad cars into the gap.

All-American Canal provides the area with fresh water for irrigation from the Colorado R.

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Climate

- **Area of semi-arid (BS) and desert (BW) climates.** Hot and dry most of the year.
- **Mediterranean climate (Cs = summer dry, winter wet)** is found in **coastal So. California.**
- **Arizona-California-Nevada border area is the hottest, driest part of N. America.**
 - ✓ **Death Valley is here.**
 - ✓ **“The Monsoon”** occurs in July/August. It is just a series of thunderstorms created as Pacific Ocean moisture is sucked in by low pressure over the Colorado Plateau.

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Southwest Deserts

1. The **Mojave Desert** is located at the south end of the Great Basin.
2. The **Sonoran Desert** occupies an area south of the Colorado Plateau extending into Mexico.
3. The U.S. portion (northern end) of the **Chihuahua Desert** covers the Rio Grande Valley from Albuquerque, NM to the Edwards Plateau of Texas.
 - Elevation interrupts the desert in AZ, NM and northern Mexico.

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Southwest Deserts

Each area has unique flora and fauna.

- **Saguaro and Organ Pipe cacti** are native to the Sonoran.
- **Joshua Trees** are found in the Mojave.

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Southwest Deserts

- Many dry river (**arroyo**) and lake (**playa**) beds exist and are prone to flash flooding.
- ❖ **Oasis:** Area where water is close to the surface. Becomes the focus of life in the area: wildlife/human.
- ✓ **Sand dunes** make up a small percentage of the desert landscape.

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Santa Ana Winds and Fire

Low humidity, hot temperature plus wind creates a severe fire hazard.

Adiabatic warming of already hot, dry winds.

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Santa Ana Winds

1. High pressure in the Great Basin area of Idaho and Utah pushes winds toward low pressure off the Southern California coast.
2. The high-elevation Sierra Nevada Mountains block the winds and force them to the north and south.
3. The desert helps heat and dry the wind as it moves south.
4. As the winds move from higher to lower elevations and squeeze through narrow canyons they are heated further and pushed to higher speeds.
5. The heated, dry air is forced through passes and canyons, including Santa Ana Canyon, from which the wind's name derives, toward the coast.


Sources: UCLA and UC San Diego research studies. Steve Greenberg / Star stan

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Los Angeles Smog

Smog (smoke + fog) is a type of air pollution created when by-products of combustion mix with atmospheric moisture. (Originally caused by the mixing of soot with fog in coal burning areas.)

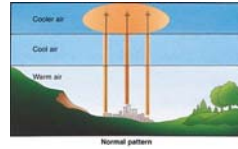
Los Angeles smog is caused when vehicle emissions react with sunlight to form photochemical pollution. This mix includes particulates and ozone.



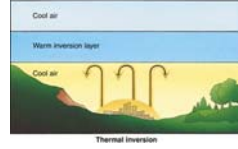
In the Los Angeles Basin the problem is heightened by a combination of natural local weather and topographic conditions that prevent the dispersion of contaminants.

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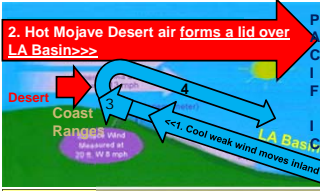
LA Basin Inversions



Normal pattern



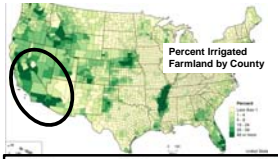
Thermal inversion



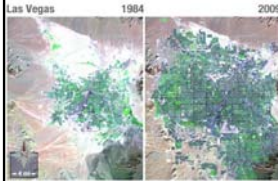
2. Hot Mojave Desert air forms a lid over LA Basin>>>

1. Weak ocean winds push polluted LA air against the mountains.
3. The winds cannot break through the layer of hot Mojave desert air.
4. Winds (and pollution) are forced to double back over the LA Basin, warming as they descend, and trapping pollution within the inversion.

Area of Water Deficiency and Competition



Percent Irrigated Farmland by County



Las Vegas 1984 2009

Because of the climate and the increase in urban populations plus irrigated agriculture, there is a great competition for water.

- ✓The metro areas of El Paso, Albuquerque, Phoenix, Tucson and Las Vegas are growing at a fast rate.
- ✓Southern California Conurbation (Santa Barbara-San Diego) needs water from outside its area.

<https://earthshots.usgs.gov/earthshots/Las-Vegas#ad-image-1>

Desert Area Urban Sprawl







Colorado River Water Use

Population and economic booms in Nevada, Arizona and southern California **need water**.

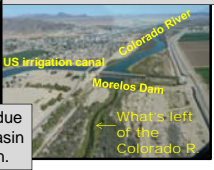
➤ In 1915 nearly the entire flow of the Colorado R. allocated mainly to Arizona and California. **In 2015 half the flow goes to upstream states.**

❖ **International agreement** provides Mexico with a **minimum flow** to seasonally flush the delta region.

Allocation formula is now facing severe strains due to years of below-average precipitation in the basin and high rates of population growth in the region.




Morelos Dam is the last US dam on the Colorado before it crosses into Mexico




US irrigation canal, Morelos Dam, What's left of the Colorado R.


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The Central Arizona Project










Water is diverted from the Gila River Basin and moved to the Phoenix and Tucson areas.



Glen Canyon Dam and Lake Powell

Evidence of drought

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Human Geography: Three Population Groups

- ❖ **Native population** (1% of total population) has a long history in the region.
 - Ruins are scattered throughout the area.
 - The **Navajo** are the largest of the area's tribes.
- ❖ **Hispanic population** dates back more than 400 years with arrival of Spanish explorers and missionaries.
 - Today's population (25% of total population) is mainly of **Mexican** heritage and experiencing rapid growth.
- ❖ **European-Americans** are the largest group (74% of total).
 - Arrived in mid-1800s with American expansion westward
 - Population is mainly **northern European heritage**.

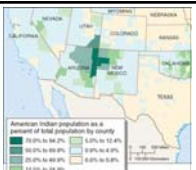
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American Indians of the Southwest

- Earliest inhabitants of region but least integrated into U.S. society. (In part to preserve their culture.)
- They are located in areas that Anglo settlers rejected because of dryness.
- Many different tribes live on reservations in the region.

Largest groups:

- Navajo
- Apache
- Pueblo
- Papago
- Hopi
- Utes







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Chaco Culture

Four Corners area is the center of **Chaco Culture**, an advanced Native American society that thrived from **AD 900 to 1200**. Numerous national and state parks preserve the ruins, culture and memory of these ancient people. **The area has been declared a World Heritage Site.**





Evidence of urbanization:

- ✓ monumental public/ceremonial buildings
- ✓ distinctive multi-level multi-family houses
- ✓ kivas for religious ceremonies
- ✓ storage buildings = trade/commerce
- ✓ network of carefully built roads
- ✓ Indications of advanced engineering know-how


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Chaco Culture National Historic Park

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Mesa Verde Nat'l Park



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Canyon de Chelly Nat'l Mon.

The Acoma Pueblo, New Mexico

First settled c.1,100 AD, it is called "Sky City" because it sits atop a mesa.

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Hispanic Population in the Southwest

- **Immigration trend to U.S.**
 - 1900-2010: 4.6 million people
 - Late 1980s: 75-90,000/yr
 - 2000 to 2010: c.171,000/yr
- **Much of it illegal** - crossing the border without documentation
 - Estimated 6 million illegal Mexican residents in 2011; rate has slowed.
- **Push factors** (to leave Mexico)
 - Mexican population growth
 - Widespread unemployment
- **Historic Pull factors**
 - Ease of crossing
 - Available jobs
- **Have transplanted their culture** to the Southwest.

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Hispanic Population 2010 US Census

People of Hispanic and Roman Catholic heritage and Mexican-origin predominate in the Desert Southwest and especially in the border region.

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Spanish Toponymy in the Southwest

- **Adobe:** structure made from sun-dried bricks (*adobe*)
- **Mission:** religious outpost
- **Presidio:** military outpost or fort
- **Hacienda:** estate or plantation or ranch (*rancho*)
- **Porciones:** land grant
- **Pueblo:** town or village
- **Playa:** dry desert basin (covered with silt and salt that can be covered with water after a storm)
- **Arroyo:** stream bed (usually dry, but can flash floods)
- **Laguna:** lake
- **San** and **Santa:** honorific meaning saint or holy one.
- **Los, Las, La, El:** article of speech meaning "the."

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Spanish Exploration

In western North America, Spanish explorers came in contact with Plains Indians plateau Pueblo dwellers and Pacific coastal tribes.

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Spain in Western North America

Spanish Exploration (mid-1500s)

- California was thought to be an island.
- Territory was made part of Mexico.
- San Diego Bay was entered in 1542. (Only other large bay is San Francisco Bay).
- Area was never a focus for settlement: far from Mexico City and had no riches.

Occupance Sequence

- Became a **buffer zone** against English, French and Russian expansion
- Upper Rio Grande Valley** (El Paso to Santa Fe; present day New Mexico) in early 1600s.
- Arizona** around 1700.
- Lower Rio Grande Valley** (Laredo-Matamoros) and **East Texas** after 1700.
- California** starting in 1769 with a string of missions from San Diego north of San Francisco.




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Spanish Colonial Claims in North America



1650 1763 1820

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Spanish Colonial Landscape

- Mission: Came first.** Consisted of a **church** and **houses** for the priests and their support staff, usually within a walled compound.
- Haciendas (estates)** were established for ranching and vineyards in surrounding areas. Livestock and plantings were bought from Spain. **The main house had an inward design focused on courtyards.**
- Presidios (forts)** were built to house troops to **protect** the missions, haciendas, settlements, mines and trade routes.

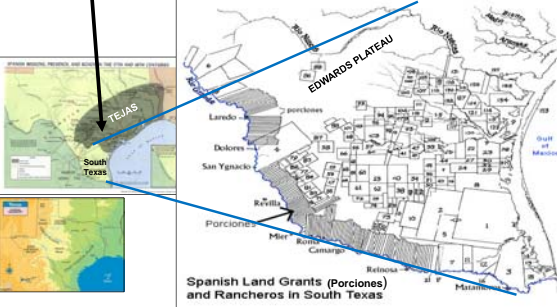




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Colonial Land Grants for Ranching South Texas

Mission and Presidio at Goliad, TX



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La Hacienda de los Martinez

Taos, N.Mex (c.1800)

This was the main house on the Rancho Martinez.



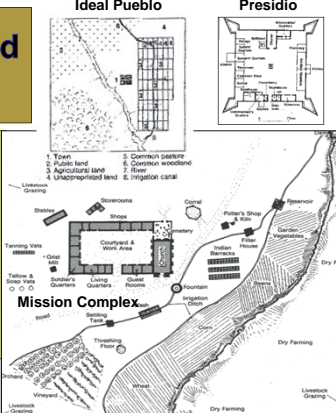


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Mission-based Settlement

The colonial Spanish settlement (pueblo) was built around the mission (with its church) and public plaza.

If warranted, a presidio (fort) was erected nearby to protect the residents and their property.



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Mission-based Urban Landscapes

Mission church, fronting a large public plaza, became the core of settlement and now is the "Old Town" of the region's cities.

- San Antonio
- El Paso
- Santa Fe
- Albuquerque
- Tucson
- San Diego
- Los Angeles
- Santa Barbara

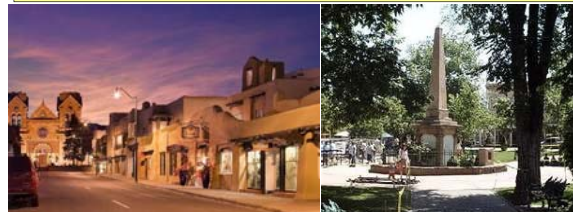


Santa Fe Plaza
Santa Fe, New Mexico

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Santa Fe, New Mexico

Santa Fe is the 3rd oldest European-founded city in the US (after St. Augustine, FL and Jamestown, VA), and is the oldest continuous capital city in North America. Was the administrative center of Spanish holdings north of Mexico.



All Spanish towns in the Southwest were built around a church and plaza.

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Mission Churches



Mission San Xavier, Tucson, AZ

Mission Basílica San Diego de Alcalá
California's First Mission
Founded by Fr. Junipero Serra
July 16, 1776

Ruins of Salinas Mission, near Albuquerque, NM

The Alamo, San Antonio, TX

Mission San Miguel, c. 1610, Santa Fe, NM

Mission San Francisco de los Tejas, 1731
San Antonio, TX

MISSION CONCEPCION

California Missions Trail

The California Missions were linked by road (*El Camino Real*) and located a day's journey apart.

Most were established by Franciscan missionaries. Fr. Junipero Serra is the most famous of them.



A similar trail exists in Texas.

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Result of Missionary Activity

- Missionaries were more successful gaining converts from the sedentary Indians than from the nomadic tribes.
- Missionary system destroyed much of the native culture and tended to exploit Indians as a cheap labor force.
- Close living and daily interaction exposed the Indians to European diseases for which they had little immunity.
- Epidemics greatly reduced the native population.
- Established a **unique settlement and cultural pattern** throughout the Southwest and California.

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Political Geography Terms

What is the difference between a "cession" and an "annexation"?

- ❖ **Cession:** Land that is given or sold through treaty; "ceded" to another party.
- ❖ **Annexation:** Land within one political unit that is seized by another unit and incorporated into (made part of) that unit.
 - It is made legitimate by the recognition of an appropriate agency within that entity and/or by an international body.

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Spanish Texas (Tejas)




- **1835: Texas declares its independence from Mexico.** East Texas was settled by **25,000 Americans** who were given land grants by Mexico. There were only c.3,000 Spanish/Mexican settlers in the area.
- The Texas Rebellion ensues (includes the famous Siege of the Alamo in San Antonio and Mexican defeat at the Battle of San Jacinto).
- **1836: Texas wins the war and gets most of NE Mexico** (present-day TX, NM, OK, KS, CO, WY) **and declares itself the Texas Republic.**
- **1845: U.S. annexes the Texas Republic,** claims disputed lands, and admits Texas as a state over the protests of Mexico. **This leads to the Mexican War (1845-1848).**

See pp. 28, 31-37, 40, 42, and 46 in Historical Atlas

Spanish California


See atlas pp. 32-36 + 46

California's status as a backwater of Spanish Empire continued until it became part of Mexico in 1821. Called **Alta California** by the Mexicans, it extended north to Oregon and east to the U.S. Louisiana Purchase.



The Mexican officials awarded land grants to U.S. citizens ("Anglos") to encourage settlement in its empty northern area (1820s-1830s).


California



- From the early 1820s to the mid-1840s "Anglos" settled northern Mexico (most coming by way of wagon trains on the overland trails but some arriving at San Francisco by ship).
- They continued to have loyalty to the United States and resented Mexican control.
- Hearing about the Texas Rebellion Americans in Alta California revolted in June 1846 and declared the **California Republic.**
- "California Republic" was occupied by U.S. Marines in July 1846 to protect U.S. citizens and ceased to exist as an entity.
- After the Mexican War (1846-48), California was given to the U.S. as part of the **Mexican Cession.**
- California grew rapidly after word spread east of the discovery of gold in the Sierra Nevada Mts.
- It became a state in 1850.

See atlas pp. 32-36 + 46.


Mexican Cession




Mexican War ends in 1848 with the **Mexican Cession.** Mexico loses its northwestern land holdings.

Northwest Mexico (Alta California) is transferred to the U.S. by the **Treaty of Guadalupe Hidalgo.**

Technically it was purchased for \$15 million (\$300+ million today) but written off to settle pre-existing Mexican debts so no money was exchanged.



Gadsden Purchase 1853



- ❖ Area of the new northwestern Mexico purchased in 1853 for \$10 million.
- ❖ Purchase proposed by railroad tycoon and diplomat **James Gadsden** who wants to build a **southern transcontinental RR** to make the West dependent on the South but needs a railroad-friendly route to the coast. **WHY?**
- Plans delayed by the Civil War.
- **Southern Pacific RR (1876)** opens the area to more Anglos and leads to the growth of So. Calif., esp. the Los Angeles basin.

U.S. Territorial Growth

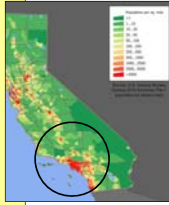


Legend:

- Original Thirteen Colonies
- United States, 1783
- Louisiana Purchase, 1803
- From Great Britain, 1818
- Spanish Cession, 1819-1821
- Texas Annexation, 1845-1848
- Oregon Country, 1846
- Mexican Cession, 1848
- Gadsden Purchase, 1853

Southern Metropolis

- A **megalopolis** from Santa Barbara to San Diego has been created: c. 185 miles long with over 19 million people
- **Rapid 20th century growth:** Post WWI (1920s-30s) conversion from agriculture to urban: location of the motion picture and aircraft industries; perception of open space and freedom that was in short supply on the East Coast.
- **Continued municipal independence,** despite spreading and merging; many small cities.
- **Automobile dependent.**



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Landscape of Automobiles

- ❖ **50% of land is devoted to automobiles** (streets, high-ways, parking lots, driveways, repair shops)
- **Driving mentality** from early days with a decentralization (anti-East Coast) point of view leading to
 - Single-family houses.
 - No central business districts.
 - Limited mass transit.
 - Low population density
 - **Leads to sprawl, congestion and pollution.**



Chapter 18 in textbook

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City of Los Angeles

- Settled by the Spanish as an **agricultural pueblo** to provide food for the settlers.
- The site of Los Angeles (LA Basin) includes the **largest area of flat land** on the California coast.
- Chosen as the **terminus** of the **Southern Pacific Railroad** (1870s).
- The **San Gabriel Mts.** provided a **reliable water source** (for irrigation) from its snowpack and rain runoff until the early 1900s.

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Los Angeles Metro Area

Metropolitan Los Angeles fills the LA Basin.

- Los Angeles is its largest city.
- Many cities exist within the area making it the 2nd largest metro area of the U.S. after New York.
- The Port of Los Angeles is an artificial harbor.

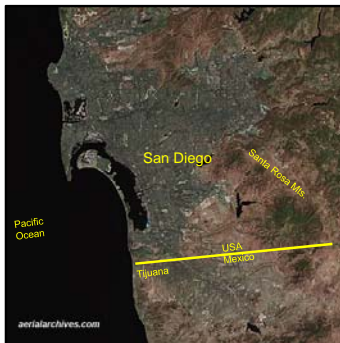


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San Diego

The San Diego Metro Area fills a coastal lowland basin focusing on San Diego Bay, one of the few natural harbors on the Pacific.

Pacific Coast Ranges (Santa Rosa Mts.) separate it from the arid Imperial Valley.



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NEXT

North Pacific Coast

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