

**Best of the  
Canyonlands  
Slide Show**

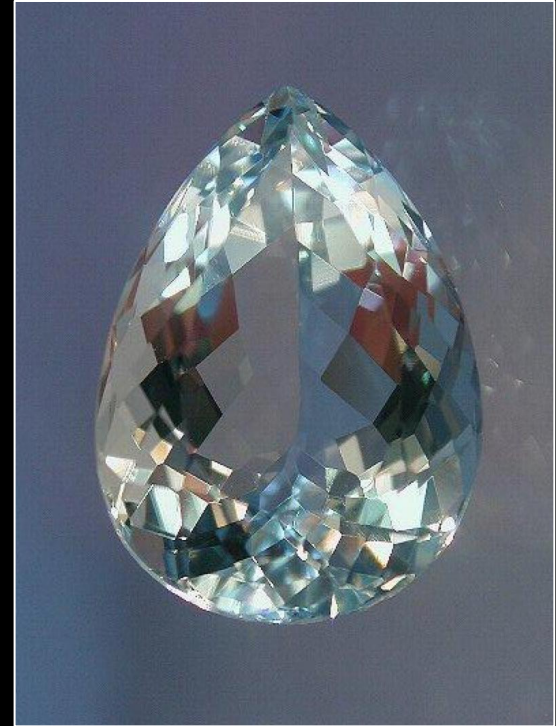
# Colorado



## Colorado

- Statehood: 1876
- Capitol: Denver
- Name: Spanish for Rio Colorado which carried ruddy (reddish) silt down river
- Nickname: The Centennial State
- Motto: Nothing without providence
- Geography: east = flat, west = Rocky Mountains
- Today's economy: cattle, mining, tourism (skiing), government (US Air Force Academy and NORAD (North American Aerospace Defense Command))

# Gemstone: Aquamarine



# Flower: Rocky Mountain Columbine



# Sport: Pack Burro Racing



# Rocky Mountains



# Rocky Mountains





## Rocky Mountains

- 3000 mile (4800 km) - mountain chain
- “Backbone of the United States”
- British Columbia in Canada to New Mexico in USA
- 80-55 million years ago
  - Tectonic plates sliding at shallow angle, made wide range
  - Glaciers carved dramatic peaks & valleys
- Today: mining and tourism (skiing)

# Interstate Highway System



## Interstate Highway System

- Dwight D. Eisenhower National System of Interstate and Defense Highways
- Controlled-access highways across USA
- Championed by President Dwight D. Eisenhower
- Construction authorized by the Federal Aid Highway Act of 1956
- Total length: 48,000 miles (77,000 km)
- Construction cost in today's money: \$500 billion

# Eisenhower Tunnel



## Eisenhower Tunnel

- Interstate 70 tunnels under Continental Divide
- Completed 1979
- Length: 1.6 miles (2.7 km)
- Elevation: 11,158 feet (3,401 m)
- Highest vehicular tunnel in USA

# Continental Divide



## Continental Divide

- Follows line of high peaks in Rocky Mountains
- Separates watersheds which drain into Pacific & Atlantic

# Vail, Colorado





# Vail, Colorado



# Vail, Colorado



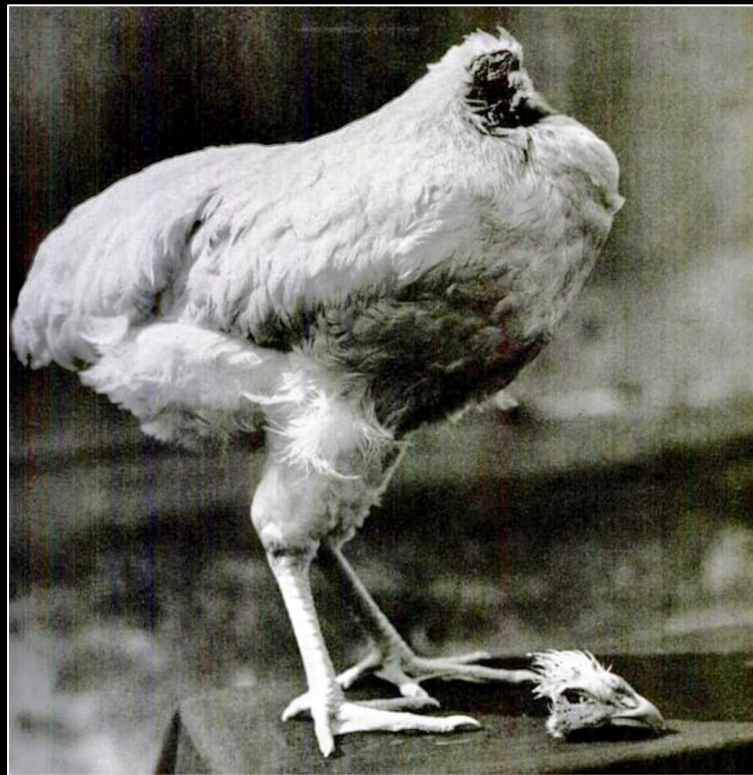
## Vail Ski Resort

- World famous ski resort
- 5,000 acres of skiable land
- Ski Lifts: 33
- Marked Trails: 193
- 3 faces of mountain: front side, back bowls, Blue Sky Basin
- Open mid-November to mid-April
- 200+ inches of snow each year
- Vail Mountain elevation: 11,570 feet

## Vail, Colorado

- Town Population: 5,000
- Elevation: 8,000 feet (2400 m)
- Founded by: Pete Sibert - WWII Army 10th Mountain Division  
Returned home with plan to build a ski resort
- Named for: Charles Vail - Colorado Interstate highway engineer
- Summer economy: hiking, mountain biking, fishing, golf

# Miracle Mike



## Mike the Headless Chicken

- “Miracle Mike”
- 1945 - Farmer Lloyd Olsen’s dinner
- Missed jugular and brainstem
- Brainstem responsibilities: breathing, heart rate, reflexes
- Headless Mike lived for 18 months
- Fed mashed corn with an eye dropper
- Career as a touring side show act
- Fruita, Colorado annual town festival

# Miracle Mike



# Colorado River





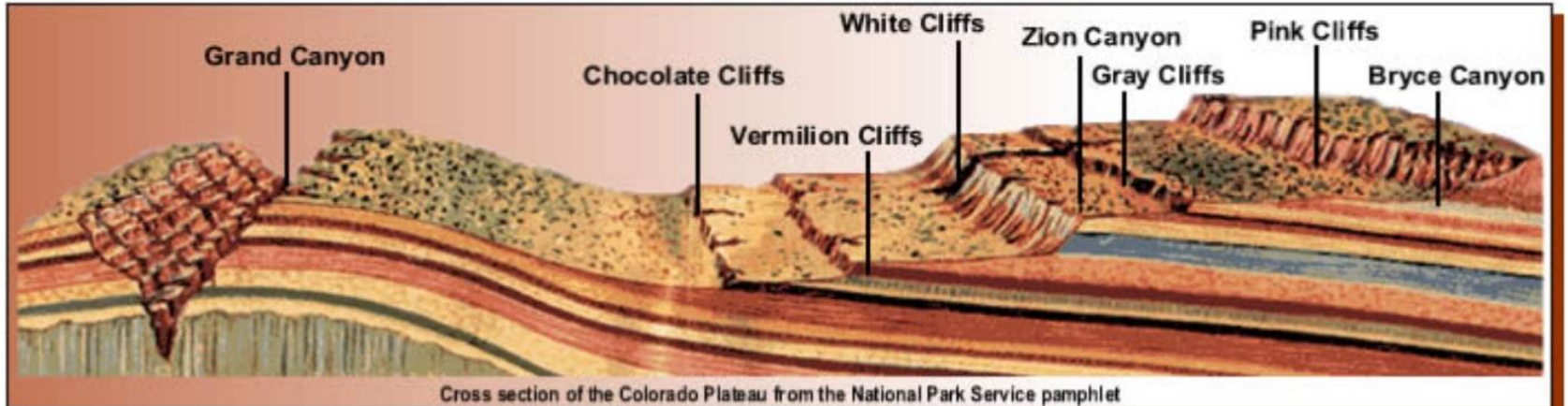
# Red Rock Canyon Country



# Colorado Plateau



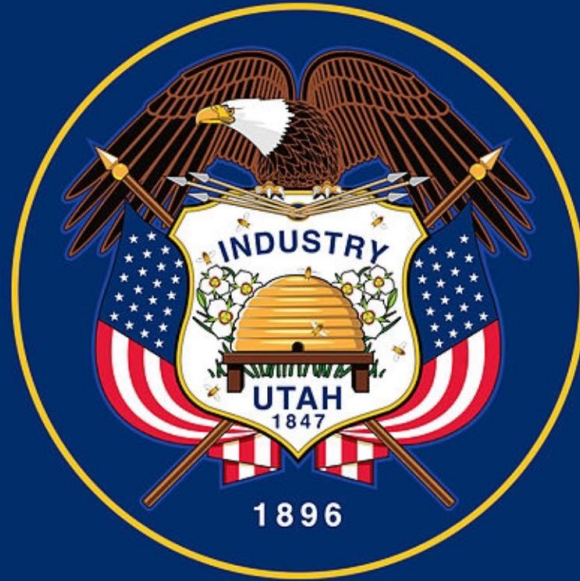
# Colorado Plateau Grand Staircase



## Colorado Plateau:

- CO Plateau large tracts of land mostly flat sedimentary rock sections rising up towards Rocky Mountains
- Elevation: 4900-11,000 feet (1500-3350 m)
- 5 Sections are edged with massive cliffs as they go lower
- Most of the rock is sandstone or limestone
- Red color comes from a high iron content

# Utah



## Utah

- Statehood: 1896
- Capitol: Salt Lake City
- Name: Ute Indians - “people of the mountains”
- Nickname: Beehive State
- Motto: Industry
- Settled by Mormons
- Today’s Economy: tourism, computer software, steel, copper, cattle, corn, wheat

# State Insect: Honey Bee



# State Rock: Coal





# State Dance: Square Dance



# Native American Petroglyphs



## Native American Petroglyphs

- Symbols carved into rock
- Lasts for hundreds/thousands of years
- Found all over the world
- No written language, so meaning are guesses
- Nomadic animal routes?
- Warnings?
- Religious instruction?
- Recording significant events?

# Desert Varnish



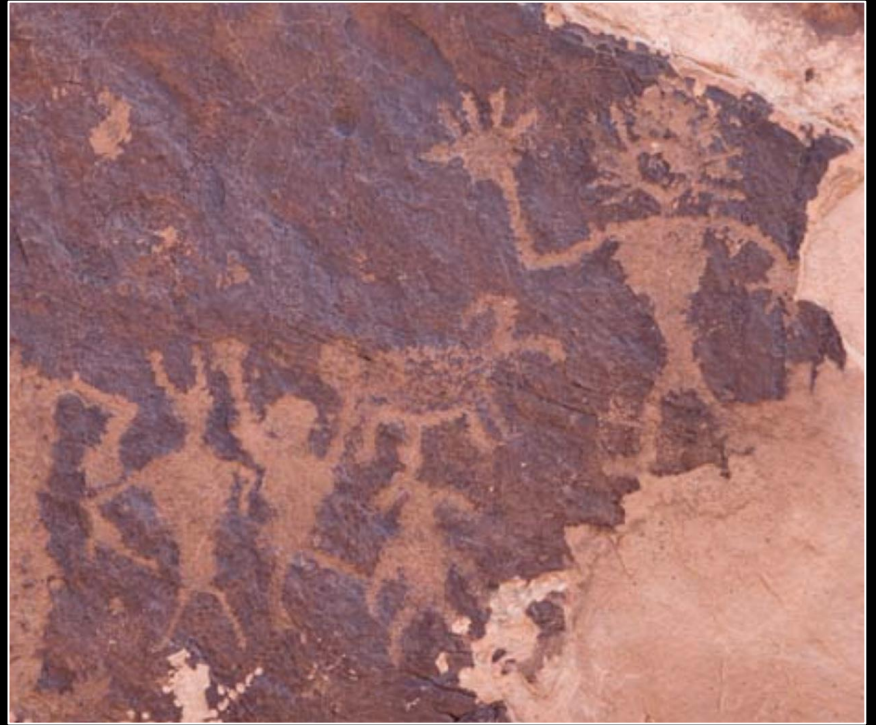
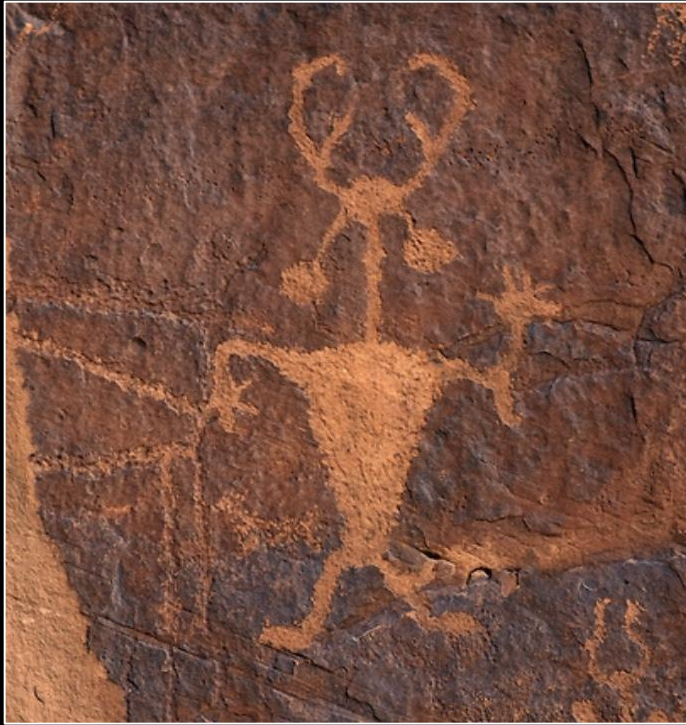
## Desert Varnish

- Orange or black coating on rock surfaces in arid climates
- Only form on physically stable rocks not subject to erosion
- Particles of clay & iron & manganese oxide & organic material
- Clay acts as a fly trap to catch trace elements in wind
- Native Americans chipped away dark varnish to reveal light rock beneath

# Golf Course Rock Art



# Golf Course Rock Art



# Golf Course Rock Art





## Golf Course Rock Art

- Artists: Anasazi & Fremont Native Americans
- Dates: 1-1275 AD
- Depicts: elk, canines, bighorn sheep, men, aliens?
- Lower half naturally broke off
- On semi-public lands (owned by local golf course) - not protected

# Moab Man



# Moab, Utah



## Moab, Utah

- Small village on the Colorado River
- Population 5000
- Started as an agriculture center (fresh water)
- 1950s - “Uranium Capital of the World” - end of Cold War decline
- Today’s Economy: Tourism
- Gateway to Arches & Canyonlands National Parks
- Base for extreme mountain biking and off-road vehicle sports
- Moab Jeep Safari - annual 4 wheel drive festival (Easter)

# Arches National Park



## Arches National Park

- National Park: 1960
- Size: 120 sq miles (76,000 acres)
- Claim to fame: 2000 natural arches
- Highest density of arches in the world
- Heights: 3 feet to 306 feet
- Since 1977, 43 arches have collapsed

# Arches Geology



## Arches Geology

- Expanding & retreating oceans deposited sandstone & mudstone
- Entrada Sandstone (top - salmon color)
- Navajo Sandstone (bottom - buff color)
- Geologic forces underground caused land to crack in long fissures
- Long rock “fins” developed
- Ice erosion expands cracks, wind erosion carries away material
- Under the right conditions (rock hardness/balance) arches form



# Arches Plants & Animals



## Arches Plants & Animals

- Active at dawn or dusk: mule deer, coyotes, porcupines, jackrabbits & many songbirds
- Active during day: squirrels, chipmunks, lizards, snakes, hawks & eagles
- Drought resistant plants: cacti, yucca, mosses
- Spring or rainy times: grasses and wildflowers

# Biological Soil Crust



## Biological Soil Crust

- Tiny living organisms
- Helps ground retain moisture
- Creates nutrients
- Provides grasses and shrubs a foothold in the sand
- Can take years to grow back when stepped on :(

# Ephemeral Pools



## Ephemeral Pools

- Small “potholes”
- Gather rain and collect plant & animal debris
- Develop tiny ecosystems which harbor microscopic invertebrates
- They exist for a short time and then evaporate

# Balanced Rock



## Balanced Rock

- Height: 128 feet (39 m)
- Weight: 3600 tons
- Estrada Sandstone rock on top
- Mudstone pedestal



# Delicate Arch



## Delicate Arch

- Height: 60 feet (18 meters)
- Most well known Arch in the park
- On the Utah license plate
- 2002 Winter Olympic torch passed through it
- Nicknames: “The Chaps” & “The School Marm’s Bloomers”
- Hour difficult hike to get there
- We are going to viewpoint (200 feet walk)

# Utah License Plate



# Double Arch



## Double Arch

- Two arches next to each other
- Fabulous photo opportunity
- Tallest: 104 feet (32 m) height, 148 feet (45 m) across
- ½ mile walk over sandy soil - can turn around at any time

# The Windows



## The Windows

- Long fin of connected arches
- North and South Windows
- ½ mile walk over sandy soil - can turn around at any time
- “Rustic” restrooms

# 127 Hours Movie

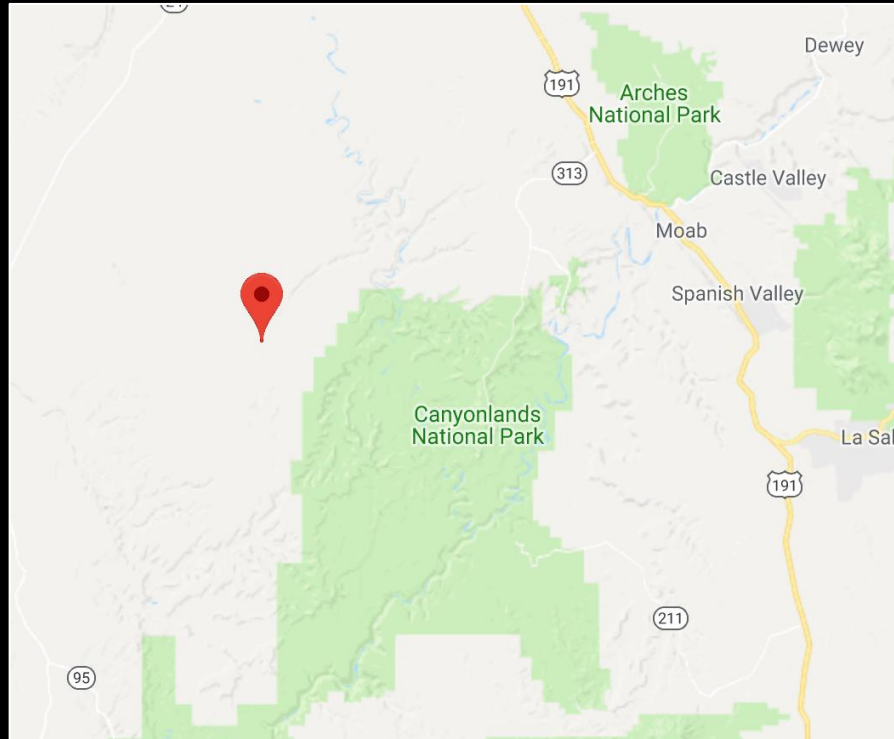




## 127 Hours Movie

- True story of Aron Ralston
- Hiking in Blue John Canyon (west of Canyonlands)
- Fell through a crack & a boulder pinned his right hand
- Stuck for 127 hours
- Cut off arm below elbow
- Taken by helicopter to Moab Hospital

# Blue John Canyon



# BETWEEN A ROCK AND A HARD PLACE

THE NEW YORK TIMES BESTSELLER



ARON  
RALSTON

# Canyonlands National Park



## Canyonlands National Park

- 1964
- 527 sq miles (330,000 acres)
- Claim to fame: colorful eroded landscape of canyons, mesas & buttes
- Carved by the convergence of Green River & Colorado River
- 3 districts: Island in the Sky, Needles, the Maze

# Needles



## Needles

- Southeast side of park
- Named for colorful spires of Cedar Mesa Sandstone
- Very rugged backcountry
- One short road
- Used for long day hikes & week-long camping trips
- Extreme 4-wheel drive off-roading

# The Maze

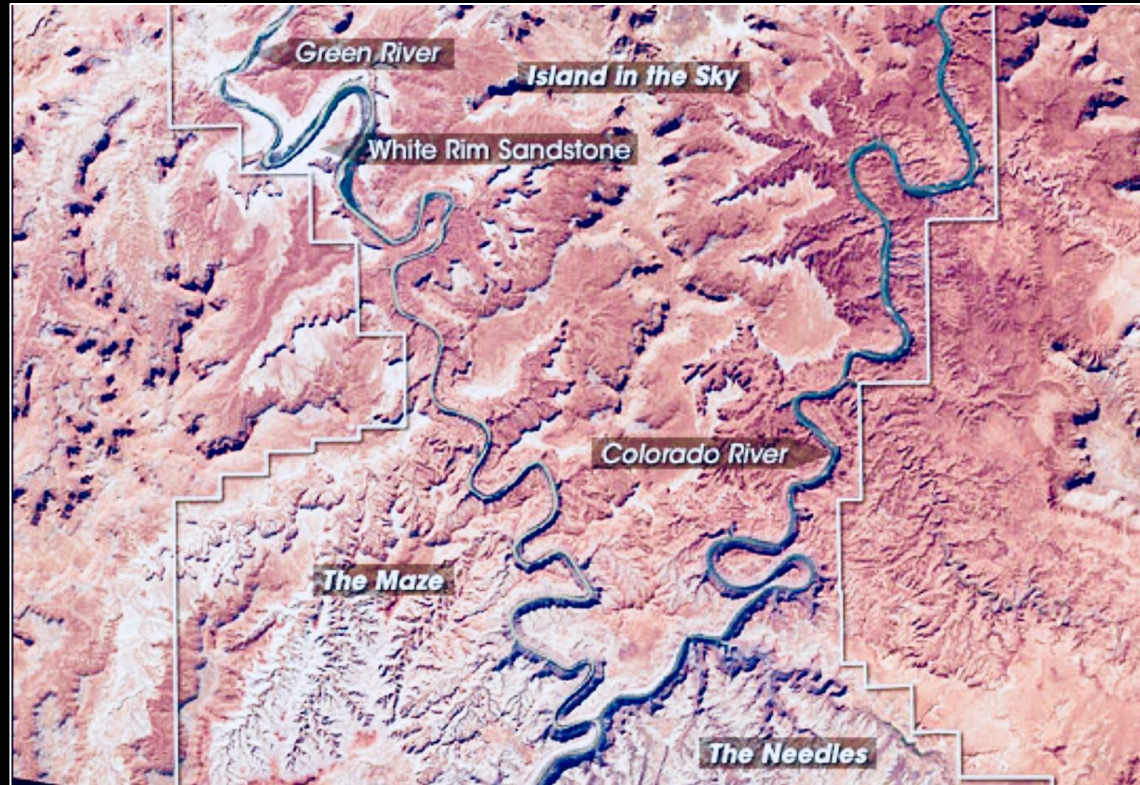




## The Maze

- Southwest side of park
- Big, wild & untamed
- Least accessible part of Canyonlands
- One of the most difficult places to get to in US
- Zero amenities: no food, water or gasoline

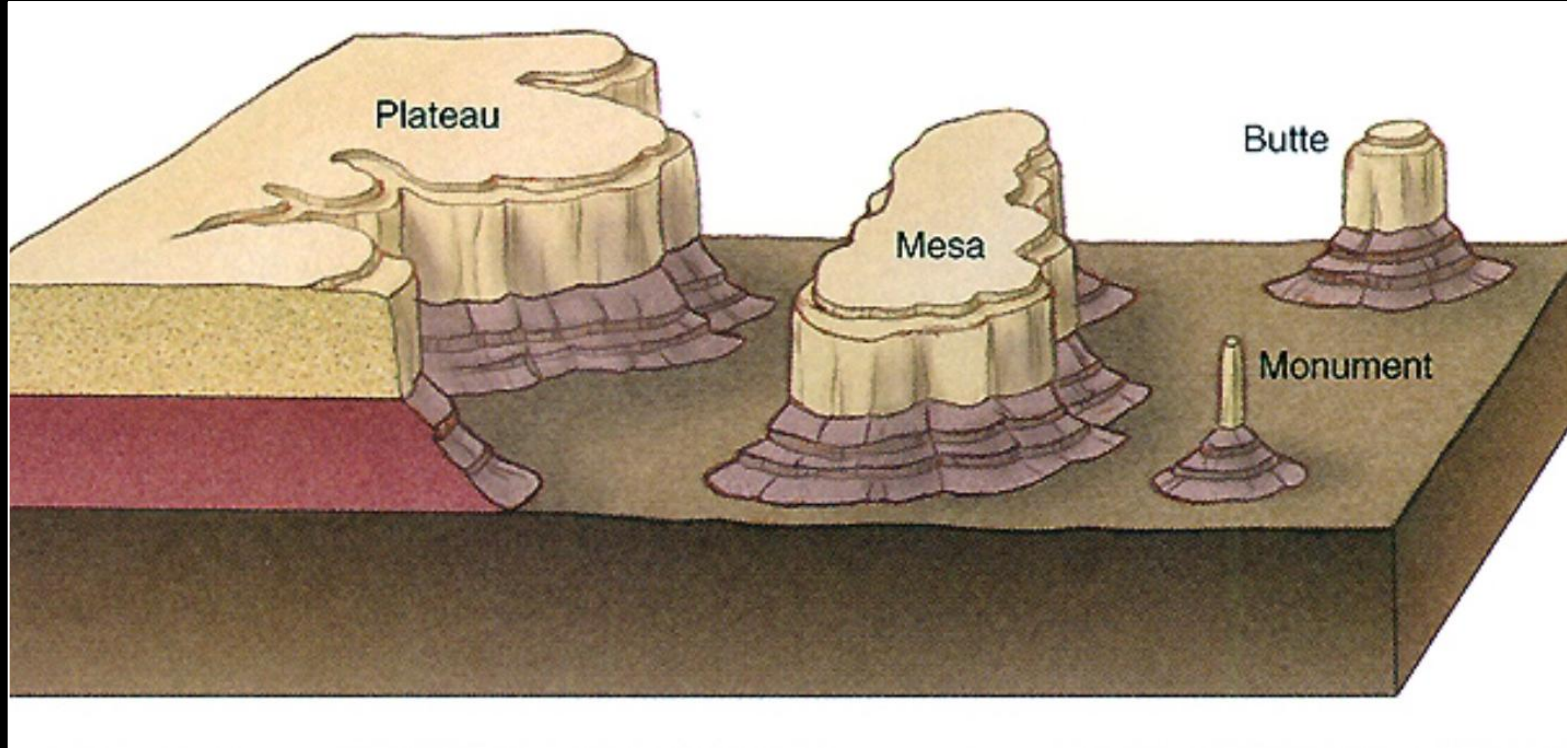
# Island in the Sky



## Island in the Sky

- North side of park
- Most accessible part
- Arrowhead shaped mesa, formed by the meeting of the Green & Colorado Rivers
- Stunning views overlooking much of Canyonlands

# Plateau, Mesa, Butte, Monument



# Green River Overlook



## Green River Overlook

- Major tributary of the Colorado River
- Starts in central Wyoming
- Meets Colorado River in Canyonlands National Park

# Grand View Overlook



## Grand View Overlook

- Elevation: 6000 feet
- Canyon below: 3800 feet
- End of the paved roads in the park
- Green River to right
- Colorado River to left
- Meet in the middle



# Native Americans



## Native Americans

- 30,000 BC - land bridge between Asia & Alaska
- Hunters followed animal herds
- Settled further south through North & South America
- Regional development of housing, tools, beliefs
- Common indigenous practices: sacredness of land, revere ancestors, connection between natural & supernatural

## Native Americans, continued

- 1492 - Christopher Columbus
- 1500-1600s - Disease kills 90% - chicken pox, measles
- European settlement - pushed westward
- 1830 - Indian Removal Act
- 1845 - Manifest Destiny - US territorial expansion justification
- 1851 - Indian Appropriations Act - Reservation System
- 1860s-1890s - Post Civil War

## Native Americans Today

- 573 federally recognized tribes
- 5.2 million people
- 326 reservations
- 22% live on reservations
- Total lands: 87,000 sq miles (227,000 sq km) - size of Idaho
- 12 larger than the state of Rhode Island
- Poorest demographic
- Tribal sovereignty - casinos

# Kachina Dolls



## Kachina Dolls

- Spirit being in the religious beliefs of the Pueblo people
- Personification (spirit) of things in the real world
- Three different aspects:
  - The supernatural being
  - The kachina dancers (masked members of the community who represent kachinas at religious ceremonies)
  - Kachina dolls (carved in the likeness of kachinas)

## Kachina Dolls, continued

- Can represent anything in the natural world (revered ancestor, an element, location, quality, natural phenomenon, or concept)
- Not worshipped per se
- Viewed as a powerful being to give veneration & respect
- In return, the being uses its particular power for human good, bringing rainfall, healing, fertility, or protection

# Dream Catchers





# Kokopelli



## Kokopelli

- Many theories & stories
- Fertility deity depicted as a humpbacked flute player (presides over both childbirth & agriculture)
- A trickster god who vengefully lures away children (Pied Piper)
- Hunchback who tricks the village beauty into sleeping with him
- Possible Aztec origins: traders who brought their goods in sacks slung across their backs & played a flute to announce themselves as friendly

# Mesa Verde National Park



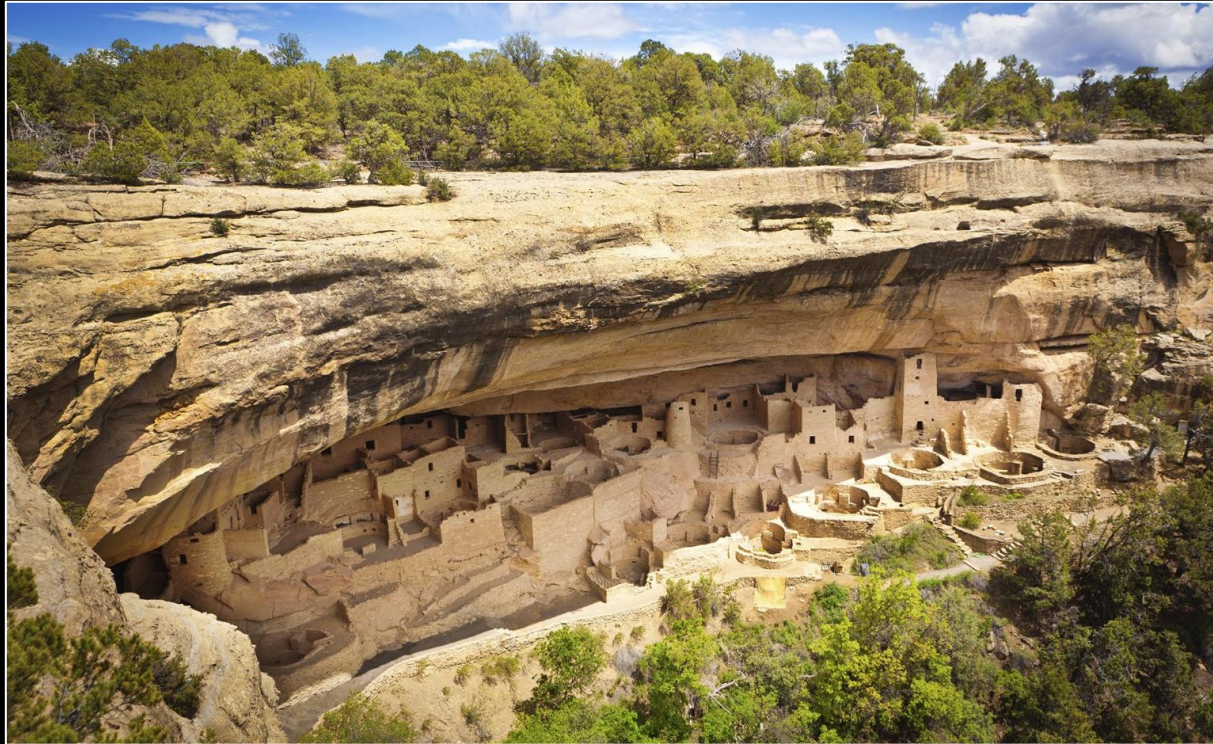
## Mesa Verde National Park

- Best preserved Ancestral Puebloan archaeological sites in US
- 4,300 sites - 600 cliff dwellings
- Dating from 650 AD - 1300 AD
- National Park: 1906
- Area: 52,000 acres

# Mesa Verde = Green Table



# Cliff Dwellings



# Ancestral Pueblo People



## Ancestral Pueblo People

- 550-750 - Basketmaker period
- 750-1150 AD - Pueblo period
- 1150-1300 AD - Classic Pueblo period (Cliff Dwellings)
- Hunting: rabbits, deer, turkey
- Agriculture: corn, squash, beans
- Crafts: basket making, pottery, jewelry
- Traded with other tribes in the area
- Disappeared from Mesa Verde after 1300 (drought? danger?)



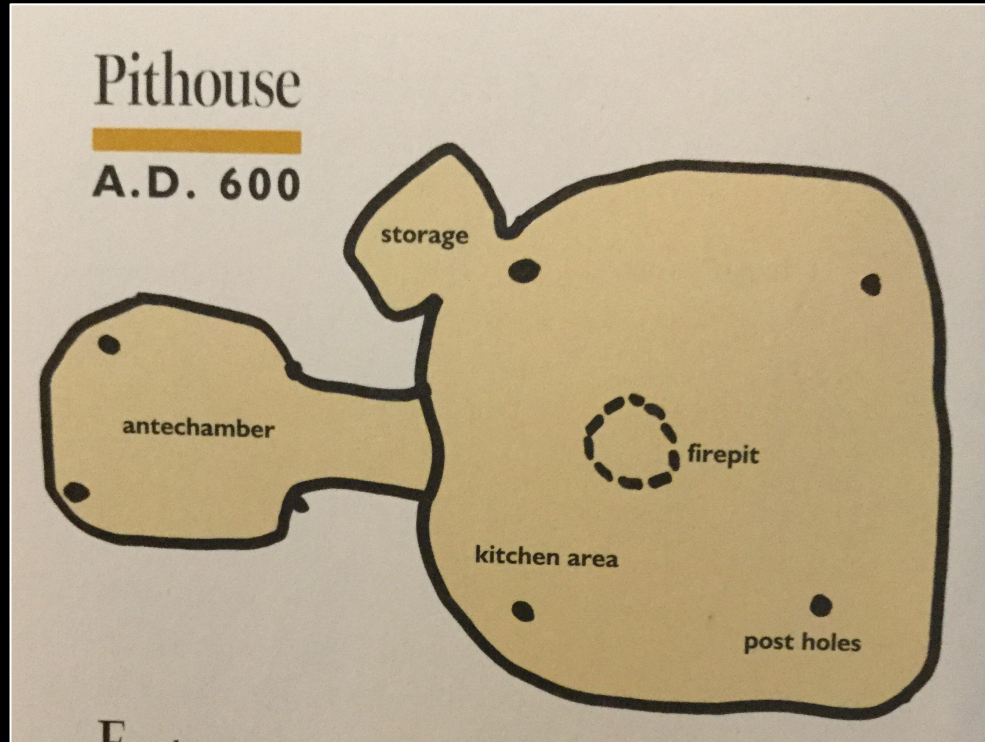
# Pit Houses



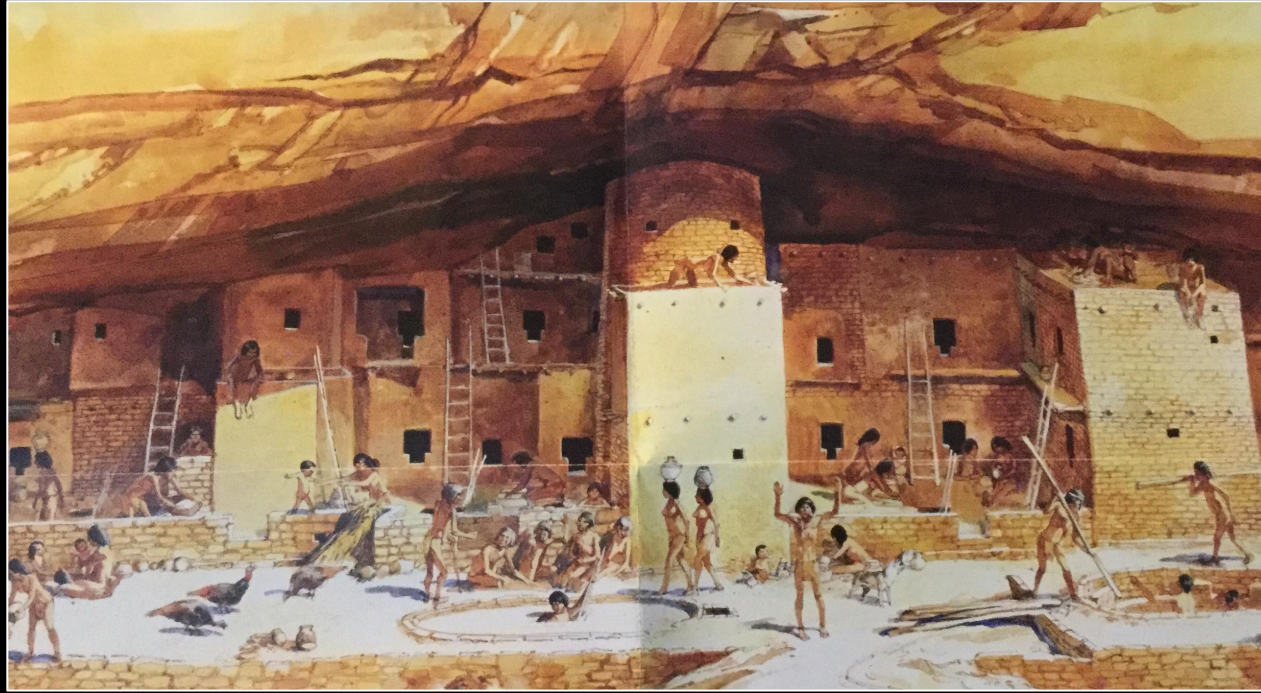
## Pit Houses

- 550-750 AD - “Basketmakers”
- Dug into ground
- Four corner poles that supported roof
- Mud roof and walls
- Hole in roof for fire
- Small antechamber for storage

# Pit Houses



# Cliff Dwellings



## Cliff Dwellings

- Cut stone bricks and mortar, multistory buildings
- Set in sandstone rock alcoves
- Access very difficult
- 600 on Mesa Verde
- Usually a few rooms only, some over 100 rooms
- Interior walls were plastered and painted with designs
- All contained kivas

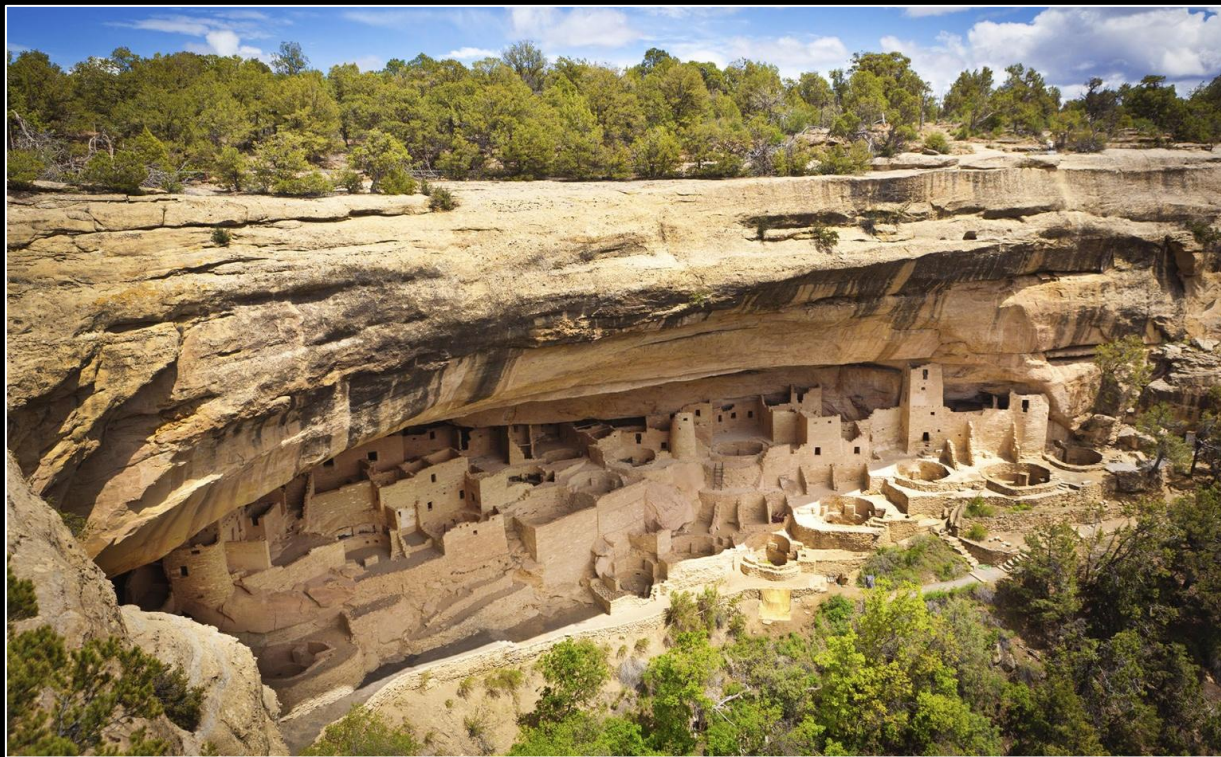
# Kivas



## Kivas

- Round room built into the ground of the cliff
- Used for religious ritual, political meetings, social gatherings
- 6 upright stone pillars supporting roof
- Stone bench seating between the pillars
- Fire pit in center
- Ventilation shaft
- Entry was a ladder through the roof

# Cliff Palace Overlook





## Cliff Palace

- 1260-1280 AD
- Largest cliff dwelling in Mesa Verde
- 215 feet wide, 90 feet deep, 60 feet high
- 150 rooms, 23 kivas
- 125 residents
- Probably the central hub among the 60 nearby cliff dwellings

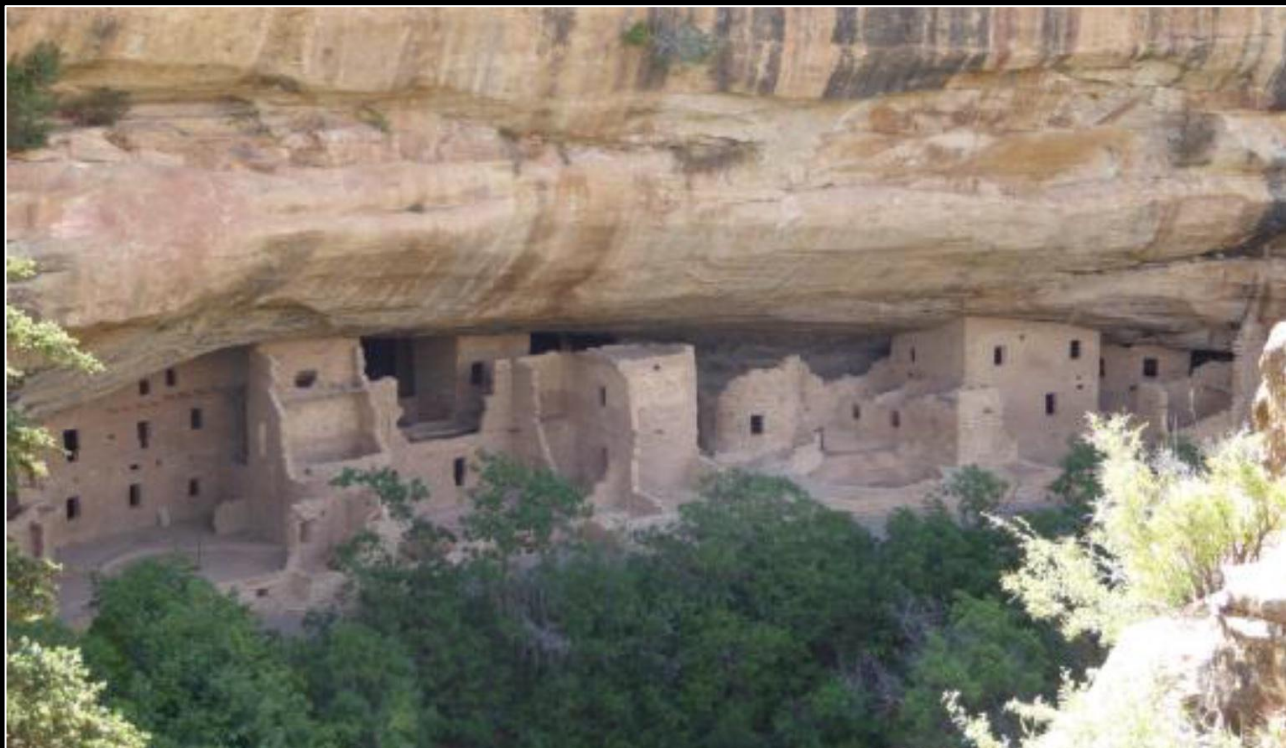
# Sun Temple



## Sun Temple

- 1250 AD
- 30 rooms
- Built as a center of worship / astronomical observatory
- Conspiracy theories (advanced geometry)
- Believed to have been abandoned before finished  
(no roof beams or household goods)

# Spruce Tree House Overlook



## Spruce Tree House

- 1200-1280 AD
- 3rd largest cliff dwelling on Mesa Verde
- 130 rooms, 8 kivas
- 60-90 residents
- Built near a spring

# Navajo People



## Navajo People

- Call themselves: The *Dine*
- 300,000 tribal members - 2nd largest after Cherokee
- 1400 BC
- Herd sheep & goats
- Spinning & weaving wool blankets

# Navajo Reservation





# Navajo Reservation



## Navajo Reservation

- Largest reservation
- 27,000 sq miles (71,000 sq km)
- Similar in size to West Virginia
- Arizona, Utah, New Mexico
- Population: 200,000

# Code Talkers



## Code Talkers

- WWII - 1940s
- Mission: transmit secret tactical messages using a code based on their Navajo language
- 400-500 Code Talkers
- Code was never cracked

# Monument Valley



## Monument Valley

- Located on the Navajo Tribal Lands - Tribal Park
- Known for extensive sandstone buttes (1000 feet high)
- Valley floor elevation: 5000-6000 feet (1,500-1800 m)
- Elevation used to be at top of the buttes
- 65 million years ago: layers of sand covered by layer of shale
- Cracks and wind/water erosion created valley
- Top shale layer of buttes is a cap of harder stone, protecting the buttes below from erosion

# John Ford Movies



## John Ford Movies

- American Film Director
- Used Monument Valley for “western” films
- Defined what most people think of when they envision “The West”
  - Stagecoach (1939)
  - My Darling Clementine (1946)
  - She Wore a Yellow Ribbon (1949)
  - The Searchers (1956)
  - How the West Was Won (1962)



## Other Monument Valley Movies

- Easy Rider
- National Lampoon's Vacation
- Thelma and Louise
- Back to the Future III
- Mission Impossible II
- The Lone Ranger (2013)
- Forrest Gump

# Goulding Lodge



# Open-air Truck Tour



# Navajo Taco

## How it's made:

White flour  
Baking powder  
Salt  
Warm water  
Deep fried

## Served with:

Stew  
Navajo Taco  
As a side dish



# Arizona



## Arizona

- Statehood: 1912
- Capitol: Phoenix
- Name: Spanish word for “little spring”
- Nickname: Grand Canyon State
- Motto: God enriches
- Today’s Economy: copper  $\frac{2}{3}$  US production, tourism, healthcare, transportation

# Gemstone: Turquoise



# Reptile: Ridge-nosed Rattlesnake





# Neckwear: Bolo Tie



# Cameron Trading Post



## Cameron Trading Post

- 1911: Bridge built across Little Colorado River
- 1916: Richardson brothers established a Trading Post
- Navajo & Hopi Traded wool/blankets/livestock for dry goods
- Important connection point between east and west
- Grand Canyon east entrance tourism convenient stop
- Today: Large selection of Native American goods

# Desert View Watchtower



## Desert View Watchtower

- East entrance of Grand Canyon
- 70 foot observation tower
- Built: 1932
- Architect: Mary Coulter
- Designed to resemble ancient Puebloan Peoples watchtowers

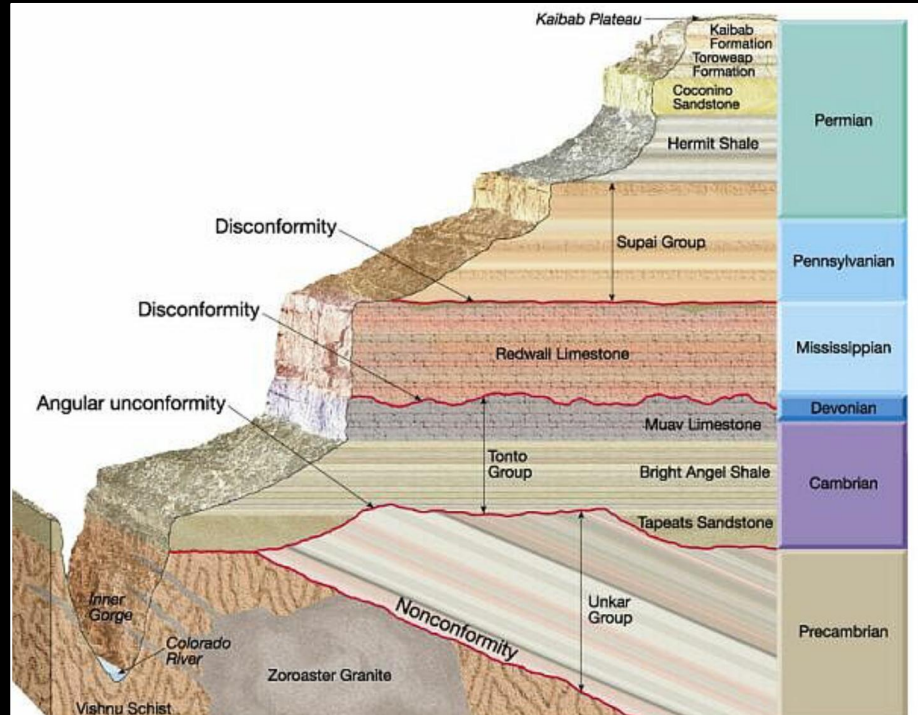
# Grand Canyon National Park



## Grand Canyon

- Length: 277 miles (446 km)
- Average width: 10 miles (16 km)
- Widest point: 18 miles (29 km)
- Depth: over a mile, 6000 feet (1850 m)
- Carved by Colorado River + wind/ice erosion
- Age: 6 million years

# Grand Canyon Geology





## Grand Canyon Geology

- Rock layers deposited by oceans expanding and contracting
- 70 million years ago: Colorado Plateau starts to lift
- 6 million years ago: Rocky Mountains form
- Colorado River becomes steeper
- Fast river carves through soft sandstone and limestone
- Side canyons formed by small streams
- Canyon widens due to ice and wind erosion

# Grand Canyon National Park



## Grand Canyon National Park

- 1908 National Monument
- 1919 National Park
- 1.9 million sq miles (4.9 mil sq km)
- South Rim - most Park services
- North Rim - difficult access

# Grand Canyon Plants



## Grand Canyon Plants

- Piñon Pine
- Ponderosa Pine
- Juniper
- Mixed conifer
- Desert shrubs
- Cacti

# Ponderosa Pine



## Ponderosa Pine

- Most widely distributed pine tree in North America
- Tall with thick, flaky bark (fire protection)
- Young: blackish brown (blackjack)
- Old: reddish (yellow bellies)
- Smell: stick your nose in the bark and sniff
- That was not a joke
- Theory: chemical in sap warmed by the sun

# Grand Canyon Piñon Pine





## Piñon Pine

- Edible pine nuts
- Staple of Native American diet
- Extraction: knock cones off tree with stick, stack in pile, light on fire to burn away sticky resin and loosen nuts
- Can't be harvested on public lands, except by Native Americans

# Grand Canyon Juniper



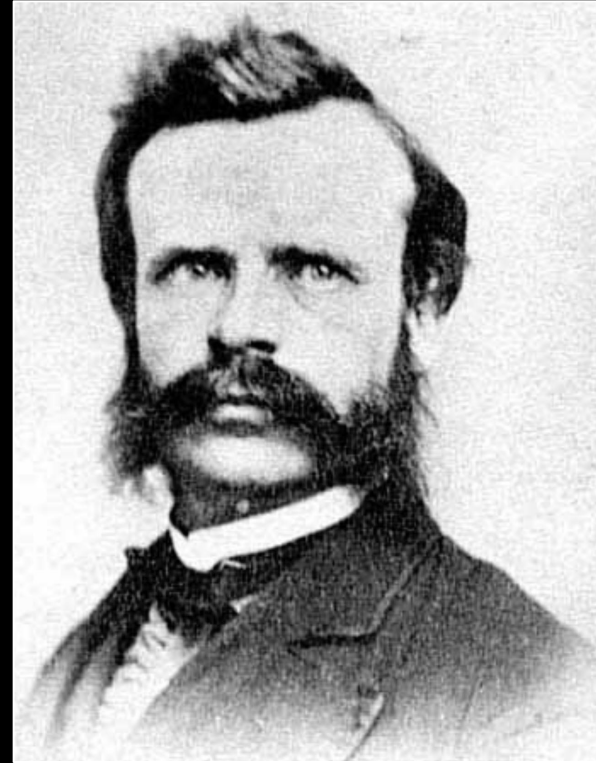
## Juniper

- Berries: cooking spice, gives flavor to gin
- Native American remedies: epilepsy, asthma, female contraceptive
- Calcium in ash: 1 teaspoon = 1 glass of milk
- Bark: sandals and baskets

# Grand Canyon Juniper



# Grand Canyon Human History



## Grand Canyon Human History

- 12000-9000 - Paleo-Indian
- 800-1300 - Ancestral Puebloan
- 1540 - Francisco Coronado, Spanish explorers looking for gold
- 1869 - John Wesley Powell expedition to map Colorado River
- 1901 - Railroad from Williams, AZ brings tourists

# Route 66



# Route 66





# Interstate Highway System



## Route 66

- 1926 - Chicago to Los Angeles (2500 miles)
- 1920s-30s: Great Depression (25% unemployment)
- 1930s: Dust Bowl (extended drought)
- California needed workers for their fruit and vegetables farms
- Families packed up everything to head west for new opportunity
- Route 66 was the main road that all small roads fed into
- Small towns along way had hotels, restaurants, gas stations
- 1956 Interstate Highway Act
- Bypassed towns and they began to wither
- 1986: "Historic Route 66 Association" created
- Nostalgia celebrates: small town America, the great American Road Trip, a simpler time & way of life, hard work/determination

# Hoover Dam



# Hoover Dam



## Hoover Dam

- Type: concrete arch-gravity dam
- Dates: 1931-1936
- Height: 726 feet (221 m)
- Length: 1244 feet (379 m)
- Width at top: 45 feet (14 m)
- Width at bottom: 660 feet (200 m)
- Cost: \$639 million (in today's money)

## Hoover Dam

- Dams the Colorado River
- Spans across Black Canyon
- Created Lake Mead
- Purpose 1: control river's seasonal flooding
- Purpose 2: water for irrigation & desert cities
- Purpose 3: hydroelectric power
- Border between Nevada & Arizona

# Nevada



## Nevada

- Statehood: 1864
- Capital: Carson City
- Name: Spanish for “snow covered”
- Nickname: Silver State, Sagebrush State, Battle Born State
- Moto: All for Our Country
- Today’s economy: Tourism (legalized gambling), Mining (gold)
- Fun (?) Fact: Only state with legalized prostitution



# State Metal: Silver



# State Flower: Sagebrush



# State Gemstone: Opal



# Mojave Desert



## Mojave Desert

- Driest Desert in North America
- Rain: 5 inches
- Very hot in summer 120+F (49+C)
- Death Valley: -280 feet (-85m), 134F (56C)
- High desert 2000-5000 feet (600-1500m)
- Animals: snakes, lizards, chipmunks, rabbits, mule deer, etc
- Plants: 1700+ species

# Las Vegas



## Las Vegas:

- Name: Spanish for “the meadows”
- Natural oasis in the Mojave Desert
- 1905 - Railroad depot (Los Angeles to Salt Lake City)
- 1930 - Hoover Dam construction begins (20 miles away)
- 1946 - Bugsy Siegel: The Flamingo
- 1950s-1960s - Rat Pack era

## Las Vegas:

- Food (buffets & celebrity chefs)
- Shows (Cirque du Soleil)
- Concerts (super star residencies)
- Conventions
- Weddings
- “What happens in Vegas, stays in Vegas”



# Fremont Street Experience



# Bellagio Water Fountains



# New York, New York



# Venetian



# High Roller



# Mob Museum



# Neon Museum



**Best of the  
Canyonlands  
Slide Show**