America in World War II
1941 - 1945
The US Enters the War

- Democratic world teetered on edge of defeat during early years of war
  - US rose to avenge Pearl Harbor; saw Europe as less important than taking vengeance on Japan
- ABC-1 agreement
  - Britain and US agreed to defeat Germany first
    - If Germany defeated Britain and the USSR, they would be unconquerable
  - US put enough forces in Pacific to prevent Japanese expansion
  - Criticized by many who wanted revenge on Japan for Pearl Harbor
The Allies Trade Space for Time

- In spite of advantages, US came close to losing the war
- Biggest problem for US: changing economy from civilian to war production
- Time most precious resource
  - Britain or Soviet Union might be defeated
  - German scientists might come up with secret weapon (rocket, atomic bomb)
The Shock of War

• America united against Axis
  – Almost everyone after Pearl Harbor
  – Communists after Hitler’s attack on USSR
  – Immigration had been restricted for 20 years
    • Most immigrants had been in US many years
    • Even German and Italian Americans were supportive
The Shock of War

- Internment of Japanese-Americans
  - 110,000 Japanese concentrated on Pacific coast interned in camps
  - 2/3 were US citizens
  - Combination of anti-Japanese hysteria after Pearl Harbor and longstanding prejudice on West Coast
  - Lost hundreds of millions of dollars in property and earnings
Japanese Relocation Camps, 1942

- Japanese relocation camps
- States and territories with more than 1,000 Japanese residents
- Military exclusion zone
An Example of Anti-Japanese Sentiment on the West Coast

"WE DON'T WANT ANY JAPS BACK HERE--EVER!"
A Japanese Internment Camp
The Shock of War

• Supreme Court and internment
  – Korematsu v. US (1944)
    • Upheld constitutionality of Japanese internment

• 1988 – US government officially apologized for its actions
  – Payment of $20,000 made to each survivor
The Shock of War

• End of the New Deal
  – 1942 – conservative congress elected
    • Wiped out many New Deal programs (CCC, WPA, NYA)
  – 1943 – FDR announced priority was now to win the war
The Shock of War

• WWII was not an “idealist” crusade like WWI (supposedly) was
  – Majority did not know what the US was fighting for
  – Most could not say what was in the Atlantic Charter (comparable to Wilson’s 14 Points)
  – Little effort to propagandize US public
  – US was simply fighting to win
Building the War Machine

• US economy changed because of the war
  – Run by War Production Board
  – Massive military orders ended the Depression
    • Factories manufactured huge amounts of weaponry
  – Manufacture of nonessential items stopped
  – Rubber rationing after Japan invaded Malaya (source of natural rubber)
    • National speed limit; gasoline rationing
    • Synthetic rubber factories
  – Farm laborers left to work in factories
    • Huge increase in farm production happened because of large investments in machinery
Ration Cards from the War
Building the War Machine

• Problems in the economy during the war
  – 1942 – inflation because of full employment and scarce consumer goods
    • Office of Price Administration used price fixing to bring inflation under control
  – Rationing of critical goods (meat, butter, sugar, gas) led to some black markets
  – War Labor Board put ceilings on wage increases
    • Labor unions were against this; had pledged not to strike, but some industries had walk outs to protest
  – June 1943 – Smith-Connally Anti-Strike Act
    • Allowed US to seize industries tied up by strikes; strikes against government-run industry criminalized
  – Work stoppages only 1% of total work hours
US Wartime Production

Gross National Product

<table>
<thead>
<tr>
<th>Year</th>
<th>Dollars (in billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940</td>
<td>100</td>
</tr>
<tr>
<td>1940</td>
<td>120</td>
</tr>
<tr>
<td>1940</td>
<td>140</td>
</tr>
<tr>
<td>1940</td>
<td>160</td>
</tr>
<tr>
<td>1945</td>
<td>180</td>
</tr>
</tbody>
</table>

Wages and Salaries

<table>
<thead>
<tr>
<th>Year</th>
<th>Dollars (in billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940</td>
<td>40</td>
</tr>
<tr>
<td>1945</td>
<td>80</td>
</tr>
<tr>
<td>1940</td>
<td>100</td>
</tr>
<tr>
<td>1940</td>
<td>120</td>
</tr>
</tbody>
</table>
US Wartime Production

**Female Employment**

Year | Female employees (in millions)
--- | ---
1940 | 14
1941 | 16
1942 | 18
1943 | 20
1944 | 20
1945 | 20

**Military Employment**

Year | Military personnel (in millions)
--- | ---
1940 | 1
1941 | 4
1942 | 6
1943 | 9
1944 | 12
1945 | 14
US Wartime Production

Federal Civilian Employment

<table>
<thead>
<tr>
<th>Year</th>
<th>Federal civilian employees (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940</td>
<td>1.0</td>
</tr>
<tr>
<td>1940</td>
<td>1.5</td>
</tr>
<tr>
<td>1940</td>
<td>2.5</td>
</tr>
<tr>
<td>1940</td>
<td>3.0</td>
</tr>
<tr>
<td>1940</td>
<td>3.5</td>
</tr>
<tr>
<td>1945</td>
<td>3.5</td>
</tr>
</tbody>
</table>

National Debt

<table>
<thead>
<tr>
<th>Year</th>
<th>Dollars (in billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940</td>
<td>40</td>
</tr>
<tr>
<td>1940</td>
<td>40</td>
</tr>
<tr>
<td>1940</td>
<td>80</td>
</tr>
<tr>
<td>1940</td>
<td>120</td>
</tr>
<tr>
<td>1940</td>
<td>240</td>
</tr>
<tr>
<td>1945</td>
<td>280</td>
</tr>
</tbody>
</table>
Manpower and Womanpower

• 15 million men and 216,000 women drafted
  – Some industrial and food-producing jobs exempted
  – Braceros – Mexican agricultural workers brought across border to help with harvest
A Bracero Program Laborer, Imported During World War II, Harvesting Carrots
Manpower and Womanpower

• Women and the war
  – 6 million women worked outside home (1/2 for first time)
    • Government-run day-care centers
    • Experienced new lives that some were reluctant to give up after war
  – Impact on women much less than other countries because most women in the US still stayed at home
  – After war, 2/3 of working women left labor force
    • Some forced out to make room for men
    • Also due to rush to suburban family life and baby boom after war
We Can Do It!
Women Working in an Airplane Plant
“Rosie the Riveter” by Norman Rockwell
Wartime Migrations

• Reasons for people moving around country
  – Millions of men and women in uniform not returning home
  – People moved to boomtowns that produced war-related goods
  – Disproportionate investment by FDR in South to revitalize the area
  – Blacks escaping stifling racism of South
Internal Migration in the United States During World War II

Average population increase of fast-growing cities, 1940-1950:
- Over 400,000
- 200,000–400,000
- 100,000–200,000
- 50,000–100,000

Cities and population increases:
- New York: 980,000
- Washington, D.C.: 640,000
- Detroit: 640,000
- Boston: 580,000
- Philadelphia: 260,000
- Chicago: 910,000
- Los Angeles: 140,000
- San Diego: 650,000
- Dallas: 910,000
- Houston: 650,000
Wartime Migrations

• Race became national, not just Southern issue
  – Blacks emboldened during war to demand equality
    (employment, housing, segregation)
  – A. Philip Randolph threatened march on Washington to
    demand equal opportunities
    • FDR issued executive order banning discrimination in defense-
      related industries
    • Fair Employment Practices Commission (FEPC) monitored
      compliance
  – Blacks drafted, but generally for non-combat roles
    • Subject to petty segregation
  – Double “V” – victory over dictators abroad and racism in US
  – NAACP membership shot up; more militant Congress of
    Racial Equality (CORE) founded in 1942
Twice a Patriot

TWICE A PATRIOT!

EX-PRIVATE OBIE BARTLETT LOST LEFT ARM—PEARL HARBOR—
RELEASED: DEC., 1941—NOW AT WORK WELDING
IN A WEST COAST SHIPYARD...

“Sometimes I feel my job here is
as important as the one I had to leave.”
Wartime Migrations

- Postwar migration of African Americans
  - 1944 – mechanical cotton picker invented
    - Did the work of 50 people for 1/8 the cost
    - Need for cheap labor in South disappeared
  - 1940s – 1970s – 1/2 of all blacks gave up South for urban centers in North
    - This huge migration dramatically changed both the migrants and the cities that received them
Wartime Migrations

• Many Native Americans leave reservations for war work
  – 1940 – 90% lived on reservations; by 2000, only 50% did
  – 25,000 served in armed forces
  • Comanche Indians in Europe and Navajos in Pacific served as “code talkers”
A Navajo Code Talker
Wartime Migrations

• Race riots because of sudden contact between different races
  – 1943 – “zoot-suit” Mexicans in Los Angeles attacked by US sailors
    • Ended when Mexican ambassador pled for order, pointing out that these riots were great for Nazi propaganda
  – 1943 – brutal race riot in Detroit
    • 25 blacks and 9 whites killed
Violence During the “Zoot-Suit” Riots
Holding the Home Front

• Positive effects on US the economy
  – War lifted US out of Depression
  – GNP, corporate profits, disposable income doubled
  – Introduction of “warfare-welfare state”
    • Postwar economy continued to depend dangerously on war spending for its health
  – In contrast, the war destroyed much of the other countries involved
Holding the Home Front

• Introduced era of big government
  – Rationing
  – Service in armed forces
  – Work in defense industries
  – Government monitoring of work conditions (through Fair Employment Practices Committee and War Labor Board)
  – Government-sponsored housing, daycare, health plans
  – Office of Scientific Research and Development directed research in universities
Holding the Home Front

• Paying for the war
  – The war was very expensive ($330 billion)
    • 10 times cost of WWI
    • Twice cost of all federal spending to that point
  – Income tax
    • Expanded to tax 4 times number of people
    • Raised to high of 90% (on the very rich)
  – Only 2/5 of war costs paid from current revenues
    • The rest of the money was borrowed
    • National debt increased from $49 to $259 billion during the war
The National Debt, 1930–1950

Billions of dollars

1930: $16b
1932: $19b
1934: $27b
1936: $33b
1938: $37b
1940: $42b
1942: $72b
1944: $201b
1946: $269b
1948: $252b
1950: $257b
The Rising Sun in the Pacific

• The following areas were conquered during Japan’s early successes in the Pacific:
  – American-held Guam, Wake, and Philippines
  – British-Chinese port of Hong Kong
  – British Malaya (rubber and tin)
  – Burma (cut US supply line to Chinese resistance)
  – Dutch East-Indies (oil)
Extent of Japanese control through 1941
The Rising Sun in the Pacific

• Resistance in the Philippines
  – 20,000 US soldiers and some Filipinos led by General Douglas MacArthur held off Japanese until April 9, 1942
    • Defenders ate mules and monkeys to survive
    • MacArthur ordered to escape to Australia to direct resistance against Japanese
      – Pledged – “I shall return”
    • Bataan Death March – US survivors take brutal 80-mile march to prisoner of war camps
  – May 6, 1942 – island of Corregidor (in Manila Harbor) surrendered, giving Japan total control of Philippines
Corregidor and Bataan
US Soldiers During the Bataan Death March
US Prisoners Carrying Soldiers Who Had Dropped Along the Way on the Bataan Death March
Japan’s High Tide at Midway

- Japan expanded to New Guinea and Solomon Islands (threatening Australia)
- May 1942 – naval battle at Coral Sea
  - Aircraft from US and Japanese aircraft carriers fought
  - Neither side’s ships fired directly on the other
  - No clear winner – both sides suffered heavy losses, but a draw for the US was seen as a victory, after months of unchecked Japanese expansion
Navy Torpedo Planes Attack a Japanese Aircraft Carrier During the Battle of the Coral Sea
Japan’s High Tide at Midway

• Japan tries to take Midway Island
  – Strategic base against Hawaii and US Pacific fleet
  – Remove US as power in Pacific to allow unchecked Japanese expansion

• June 3-6, 1942 – Battle of Midway
  – Admiral Chester Nimitz directed US forces under command of Admiral Spruance
  – Fighting all done by aircraft
  – Japanese pulled off after losing 4 important carriers
USS Yorktown Bombed by Japanese Bombers During Midway
A Burning Japanese Ship During the Battle of Midway
Japan’s High Tide at Midway

- Japan reached islands of Kiska and Attu in Aleutian islands (off Alaska)
  - Fears because of possible invasion from northwest led to forces being diverted there
World War II in the Pacific, 1941-1942

- **Soviet Union**
- **Manchuria**
- **China**
- **Korea**
- **Japan**
- **Philippine Islands**
- **Midway**
  - June 3–6, 1942
- **Pearl Harbor**
  - Dec. 7, 1941
- **Pacifica Ocean**
- **Burma**
- **French Indochina**
- **Thailand**
- **Malaya**
- **Singapore falls**
  - Feb. 15, 1942
- **Hong Kong**
- **Beijing**
- **Tokyo**
- **Taiwan**
- **Bataan**
  - Jan.–Apr. 1942
- **Manila**
- **Guam**
- **Mariana Islands**
- **Wake Island**
- **Marshall Islands**
- **Caroline Islands**
- **Gilbert Islands**
- **Solomon Islands**
- **Guadalcanal**
  - Aug. 7, 1942–Feb. 7, 1943
- **Coral Sea**
  - May 7–8, 1942

- **Area under Japanese control, 1942**
- **Allied powers**
- **Neutral nations**
- **Allied response**
- **Major battle**
American Leapfrogging Toward Tokyo

- Midway gave US initiative in Pacific
- August 1942 – Guadalcanal Island
  - US forces land, then are cut off by a Japanese naval victory
  - Japanese forces finally evacuate in February 1943
  - Losses were 10 (Japanese) to 1 (American) – ratio persisted throughout Pacific campaign
    - 20,000 to 1,700 on Guadalcanal
US Troops Landing on Guadalcanal
American Leapfrogging Toward Tokyo

• MacArthur in New Guinea
  – Last barrier to Australia
  – MacArthur fought from southeastern tip
  – US navy inflicted large losses on Japanese transport and supply ships
  – US took all of New Guinea by August 1944
American Leapfrogging Toward Tokyo

• Leapfrogging (also called island hopping) strategy of US navy
  – Bypass more heavily fortified Japanese islands
  – Set up air bases on nearby islands
  – Attack Japanese bases with heavy bombing
  – Cut off supplying of Japanese fortifications with navy

• Taking every island would have taken much longer and cost many more lives
Island Hopping in the Pacific, 1942 - 1945
American Leapfrogging Toward Tokyo

- Admiral Nimitz directs US forces in Pacific
  - May – August 1943 – Attu and Kiska in Aleutians defeated easily
  - November 1943 – Tarawa and Makin in Gilbert Islands retaken after suicidal resistance
  - January – February 1944 – key outposts in Marshall Islands defeated after savage fighting
  - June 1944 – attack on Marianas began
  - June 1944 – US sank several Japanese carriers in Battle of Philippine Sea
  - July – August 1944 – Marianas fall to US after heavy resistance
  - November 1944 – round-the-clock bombing of Japan mainland begins from Marianas
Admiral Nimitz
World War II in the Pacific, 1943-1945

MAP OF PACIFIC OCEAN

Key:
- Red: Japanese control, 1942
- Blue: Allied response
- Yellow: Neutral nations
- Atomic bomb

Major battles:
- Midway I.
- Okinawa Apr. 1–June 22, 1945
- Iwo Jima Feb. 19–Mar. 16, 1945
- Hiroshima Aug. 6, 1945
- Nagasaki Aug. 9, 1945

Countries:
- Soviet Union
- Mongolia
- China
- India
- Burma
- Thailand
- French Indochina
- Malaya
- Singapore
- Sumatra
- Java
- New Guinea
- Solomon Islands
- Marshall Islands
- Caroline Islands
- Philippines
- Okinawa
- Taiwan
- Korea
- Japan
- China
- India

Cities:
- Beijing
- Tokyo
- Hong Kong
- Bangkok

Areas:
- Coral Sea
- Indian Ocean
- Pacific Ocean

1943 - 1945
The Allied Halting of Hitler

• 1942 - German submarines in “wolf packs” dominate North Atlantic, Caribbean, Gulf of Mexico

• Spring of 1943 – Allies gained upper hand over U-boats

• Victory over submarines was narrow
  – Germany was about to produce (in 1945) a fast and powerful new sub
The Allied Halting of Hitler

- Techniques used to defeat submarines
  - Old techniques from WWI
    - Convoys of merchant vessels
    - Dropping depth bombs from destroyers
  - New techniques
    - Air patrol
    - Radar
    - Bombing of submarine bases
  - British cracked “Enigma” codes to pinpoint locations of submarines
The Enigma Machine
The Allied Halting of Hitler

- Late 1942 – turning point in land – air war against Germany
  - Fall 1942 – US and British planes were regularly bombing German cities
  - Marshal Erwin Rommel (the “Desert Fox”) moved east in North Africa toward Suez Canal (a very important supply line for Allies)
    - Oct 1942 – British attack at El Alamein in Egypt and drive Rommel back to Tunisia (over 1,000 miles away)
  - September 1942 – German invasion stopped at Stalingrad
    - November 1942 – Russians launch counterattack and drive Germans back until end of war
Turning Point in the War in Europe, 1943
Erwin Rommel
Germans Stopped at Stalingrad
At Least I Took Moscow First
A Second Front from North Africa to Rome

• The Second Front controversy
  – USSR had lost many more men and endured a harsh invasion than Britain and France
  – Wanted a second front to divert some of the fighting
  – Roosevelt wanted to launch a second front because he feared Russia would withdraw early, as it had from WWI
  – Early 1942 – Roosevelt promised Russians to open second front in Europe by end of 1942, but could not keep promise
  – British did not want repeat losses of WWI
    • US forced to agree to postpone invasion
A Second Front from North Africa to Rome

• Compromise (between Britain and USSR over second front disagreement) was to attack Africa and then north to Europe (Axis’ “soft underbelly”)

• November 1942 – Operation Torch
  – Eisenhower led Allied forces to victory in North Africa
  – German-Italian forces surrendered in May 1943
A Second Front from North Africa to Rome

• January 1943 – Casablanca (Morocco) Conference
  – Meeting between Churchill and Roosevelt in North Africa
  – Agreed to invade Sicily and eventually Italy
  – Agreed on unconditional surrender of enemy
Roosevelt and Churchill at Casablanca
A Second Front from North Africa to Rome

• Controversy over unconditional surrender; critics charged that it would:
  – Would encourage enemy to fight to the last, since they had nothing to lose
  – Would discourage antiwar groups from revolting
• No proof that unconditional surrender policy changed length of war either way
A Second Front from North Africa to Rome

- Allies move across Mediterranean to Southern Europe
  - August 1943 – Sicily fell
  - July 1943 – Mussolini deposed; August 1943 – Italy surrendered
  - September 1943 – German troops rescue Mussolini from exile and put him back in power in northern Italy
  - Fall 1943 – May 1945 – Allied troops slowly move north in Italy
    - May 2, 1945 – Italy surrendered to Allies

- Mediterranean invasion delayed invasion into France and allowed USSR to advance farther into Eastern Europe
D-Day: June 6, 1944

- November 28 – December 1, 1943 – Teheran (Iran) Conference
  - Big Three (Roosevelt, Stalin, Churchill) meet
  - British and American would invade France in spring 1944
  - USSR would invade Germany and eventually join in war against Japan
The “Big Three” at Teheran
The Teheran Conference
D-Day: June 6, 1944

• Preparations
  – 3 million soldiers, along with munitions and supplies
  – US provided most of the soldiers
  – Eisenhower put in command
D-Day: June 6, 1944

• Meaning of the term “D-Day”
  – D-Day is the term used to denote the day on which a combat attack or operation is to be initiated
  – The initial D in D-day is not an abbreviation of anything, it is taken from the word day and represents a variable, designating the day upon which some significant event will or has occurred
D-Day: June 6, 1944

- Early June 6 – 4,600 ships transported troops and supplies across English Channel
  - Germans believed attack would come farther north (at Calais)
  - Germans still were dug in and fought hard
  - Allies had air mastery over France and blocked reinforcements by railroad
- Allied troops slowly move in to France and eventually drive to Germany
  - August 1944 – Paris liberated
D-Day: June 6, 1944
D-Day: June 6, 1944
D-Day: June 6, 1944
D-Day: June 6, 1944
D-Day
FDR: The Fourth-Termite of 1944

- Election of 1944 – Republicans
  - Nominate popular Thomas E. Dewey, governor of New York
    - Known as a liberal and for prosecuting corrupt in New York City
  - Isolationist Senator John W. Bricker (Ohio) as vice president
  - Platform of winning the war and formation of international organization to keep the peace
Thomas E. Dewey
FDR: The Fourth-Termite of 1944

- Election of 1944 – Democrats
  - FDR won nomination on first ballot
  - There was much focus put on his VP because of FDR’s age (62) and health
    - Henry Wallace had been VP but was dropped because he was seen as too liberal
    - Senator Harry S. Truman nominated as VP instead
Roosevelt Defeats Dewey

• Dewey’s campaign
  – After “twelve long years” of the New Deal, the “old men” in Washington were tired and “it was time for a change”
  – Would fight the war better than FDR
  – Terms not an issue since FDR had already broken the tradition of 2
Roosevelt Defeats Dewey

- Roosevelt’s campaign
  - Difficult for FDR to campaign because he was running the war
  - Last weeks campaigned to reply to Republican criticisms and show he was in good health
  - Assisted by CIO political action committee
  - Opposed by majority of newspapers (as in previous elections), because they were chiefly owned by Republicans
I Want You
F.D.R.
— Stay and Finish the Job
Roosevelt Defeats Dewey

• Results of the 1944 election
  – FDR won a sweeping victory
    • 432 to 99 in electoral college
    • 25.6 to 22 million in popular vote
  – Why Roosevelt won
    • Primarily because war was going well and because voters trusted him to build world peace after war
    • Dewey’s isolationist running mate Bricker hurt Republicans on foreign policy
The Last Days of Hitler

- December 1944 – Germany on its last legs
  - USSR pushing into eastern Germany
  - Allied bombs pound Germany around the clock
The Last Days of Hitler

• December 16, 1944 – Battle of the Bulge
  – Hitler concentrates powerful force and attacks at Ardennes Forest, hoping to reach Antwerp Port (Belgium)
  – Allies are driven back for 10 days (creating a “bulge” in Allied lines)
  – 101st Airborne Division finally stops retreat and reinforcements are rushed up
  – January 1945 – Germans driven back
Battle of the Bulge, December 1944–January 1945
American Troops Fighting During the Battle of the Bulge
The Last Days of Hitler

- US troops drive into Germany
  - March 1945 – reach Rhine River
  - April 1945 – reach Elbe River and meet advance Soviet troops just south of Berlin
  - April 1945 – USSR reached Berlin and control it after desperate house-to-house fighting
    - Russian troops pillage and rape
The Defeat of Nazi Germany, 1942–1945

Map showing military movements and significant events in World War II in Europe.
Bombed-Out Berlin, May 1945
Soviet Soldiers Raise the Flag of the USSR over the Reichstag in Berlin
The Allies Reach Germany
The Allies in Germany
The Last Days of Hitler

• The end of Hitler
  – Hitler hiding in an underground bunker
  – April 30, 1945 – Hitler married his mistress, Eva Braun, and then both committed suicide
Adolf Hitler and Eva Braun
The Last Days of Hitler

• The death of Roosevelt
  – April 12, 1945 – died while relaxing at Warm Springs, Georgia of massive cerebral hemorrhage
  – Inexperienced Truman took over presidency
Harry Truman
The Last Days of Hitler

• The Holocaust
  – Troops advancing into Germany find horrible evidence of the murder of 11 million people (including 6 million Jews)
  – US had known about Hitler’s genocide, but no one know the extent of the murder
  – Allies had done little to help the Jews
    • Barred Jewish immigrants
    • Did not bomb rail lines that carried Jews to concentration camps, or the camps themselves
German Concentration Camps

![Map of German Concentration Camps](image)

- **Bergen-Belsen**
- **Treblinka**
- **Chelmno**
- **Sobibor**
- **Majdanek**
- **Belsen**
- **Auschwitz-Birkenau**
- **Dachau**
Liberated Concentration Camp Prisoners
Victims of the Holocaust Awaiting Burial
The Last Days of Hitler

- May 7, 1945 – Germany surrendered unconditionally
- May 8, 1945 – V-E (Victory in Europe) Day
Celebrating V-E Day in Times Square
The Allies Brought Retribution to Germany
Japan Dies Hard

• US attacks on Japan
  – US submarines destroy 50% of Japan’s merchant fleet
  – US planes bomb Japanese cities
    • March 9-10, 1945 – fire-bombing of Tokyo
      – 1/4 of city gutted, 85,000 people killed – losses comparable to atomic bombs
Bomb Damage in Downtown Tokyo
Japan Dies Hard

• Fighting in the Philippines
  – October 16, 1944 – MacArthur returns to the Philippines (at Leyte Island) with 600 ships and 250,000 men
    • “People of the Philippines, I have returned…Rally to me.”
  – October 23 – 26, 1944 – 3 battles at Leyte Gulf
    • Japanese try to destroy MacArthur by destroying his transport and supply ships
    • US wins all 3 battles – largest sea battles in history
    • Japanese sea power is nearly destroyed – lost 60 ships
  – January – July 1945 – MacArthur fights on main island of Luzon toward Manila
    • Finally defeated after bitter fighting – killing over 60,000 Americans
MacArthur Returns to the Philippines, January 23, 1945
Japan Dies Hard

• US forces surround Japan
  – Islands used as bases from which to attack Japan
  – March 1945 – island of Iwo Jima
    • Fierce fighting left 4,000 US casualties
  – April – June 1945 – island of Okinawa
    • Dug in Japanese fight fiercely; 50,000 US casualties
– US Navy surrounded islands
  • Kamikaze pilots used to destroy 30 ships and damaged many more
American Dead Litter the Beaches of Iwo Jima
Raising the American Flag on Iwo Jima
The Japanese Fought Advancing US Soldiers from Caves Like This on Iwo Jima
The US Invasion of Okinawa
US Soldiers Fight on Okinawa
The Atomic Bombs

• Planned invasion of Japan
  – Would cost hundreds of thousands of US lives, and even more Japanese lives

• Japanese secretly send out peace feelers to USSR
  – US knew (because they had broken Japan’s code), but Japan was not willing to surrender unconditionally yet
Allied Plans for Invasion of Japan, 1945
The Atomic Bombs

- July 1945 – Potsdam Conference
  - Near Berlin
  - Truman, Stalin, and Clement Atlee (new British prime minister)
  - Issued warning to Japan to surrender unconditionally
  - Agreed to war crimes trials after the war
Atlee, Truman, and Stalin at Potsdam
The Atomic Bombs

- The Manhattan Project to build atomic bomb
  - FDR approved project in early 1940, after support from important scientists, including Albert Einstein
  - $2 billion spent
  - Knowledge and skills of exiled scientists from Europe (who were escaping Hitler) used
  - July 16, 1945 – first atomic bomb exploded in desert near Alamogordo, New Mexico
  - Germany tried but abandoned similar project
  - War against Germany ended before bomb was ready, so it was used on Japan
First Atomic Bomb Explosion in History, July 16, 1945
How Einstein Discovered \( E = mc^2 \)
A Fission Chain Reaction

1. An incoming neutron interacts with a fissile nucleus of uranium-235, causing it to split into two smaller nuclei, releasing energy and neutrons.

2. The released neutrons then collide with other fissile nuclei, causing them to split in a similar manner, creating a chain reaction.

3. This process continues, with each fission event leading to the release of more energy and neutrons, accelerating the reaction.

4. Gamma radiation is also emitted during the fission process, contributing to the overall energy output and the propagation of the reaction.

5. The reaction continues until the neutron supply is depleted or until the chain reaction is intentionally interrupted.
The Manhattan Project

- Production of plutonium (Du Pont)
- Production of pumps (Allis-Chalmers)
- Production of diffusers (Chrysler)
- Plutonium program (University of Chicago)
- Production of barrier (Houdaille-Hershey)
- Development of gaseous diffusion process for U-235 separation (Columbia University, Kellex)
- Bomb design and assembly (U.S. Army)
- Berkeley
- Hanford
- Los Alamos
- Alamogordo
- Milwaukee
- Chicago
- Detroit
- Decatur
- Oak Ridge
- New York
- New York
- California
- New Mexico
- Arizona
Arguments For and Against the Bomb

• Arguments for use
  – Japanese refused to surrender. It was estimated an invasion similar to D-Day was needed to bring the war to an end. US officials estimated conquest of Japan’s empire would last an additional 18 months to 2 years.
  – US officials estimated Allied casualties at $\frac{1}{2}$ to 1 1/2 million, in addition to huge Japanese losses if there was an invasion of Japan.
  – Japanese leadership was informed of the destructive power and nature of the bomb and offered a period to surrender but declined.
Arguments For and Against the Bomb

- Arguments opposed to use
  - "Little Boy" and "Fat Man" bombs dropped on Hiroshima and Nagasaki were untested and their destruction unknown
  - Both cities were not major military target and those that would be killed in the attacks were Japanese civilians.
  - Radiation poisoning, birth defects and contamination would have negative effects on the population.
  - Nuclear weapons would set a precedent about using weapons of mass destruction as allowable in war
Fat Man and Little Boy
The Atomic Bombs

- August 6, 1945 – Hiroshima
  - One bomber (Enola Gay) dropped the bomb (Little Boy)
    - Fission using uranium 235
  - Huge mushroom cloud
  - 70,000 people died instantly; 60,000 died soon from burns and radiation disease
Destruction in Hiroshima
The Atomic Bombs

- August 8, 1945 – USSR enters the war
  - Exact date previously agreed upon by Allies (90 days after fall of Germany)
  - Soviet armies run over Japanese in Manchuria and Korea
  - Stalin wanted to get armies in Asia to have voice in peace settlement after war
The Atomic Bombs

- August 9, 1945 – Nagasaki
  - Bomber (Bock’s Car) dropped the 2nd bomb (Fat Man)
    - Fission using plutonium
  - 40,000 people died instantly; 40,000 more died soon after
Number of Atomic Bomb Deaths

Number of atomic bomb deaths:

- Hiroshima: 118,661
- Nagasaki: 79,130
- Deaths: 73,884
- Injuries: 74,909

(10^5 person)
The Atomic Bombs

• August 10, 1945 – Japan asked for peace with one condition: that Emperor Hirohito could remain on throne as nominal (powerless) emperor

• August 14, 1945 – Allies accept this one term, despite policy of unconditional surrender

• September 2, 1945 – official surrender ceremonies conducted by General MacArthur on USS Missouri in Tokyo Bay
  – Americans at home celebrate V-J (Victory in Japan) Day
The Surrender of Japan
Japanese Surrender in Tokyo Bay, September 2, 1945
Celebration on V-J Day in Times Square, August 14, 1945
Kissing the War Goodbye, August 14, 1945
## Human Cost of World War II

<table>
<thead>
<tr>
<th>Selected Countries</th>
<th>Peak size of armed forces</th>
<th>Military killed/missing</th>
<th>Civilians killed/missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>680,000</td>
<td>34,000</td>
<td>Under 100</td>
</tr>
<tr>
<td>Belgium</td>
<td>800,000</td>
<td>10,000</td>
<td>90,000</td>
</tr>
<tr>
<td>Brazil</td>
<td>200,000</td>
<td>1,000</td>
<td>None recorded</td>
</tr>
<tr>
<td>Britain</td>
<td>4,700,000</td>
<td>420,000&lt;sup&gt;2&lt;/sup&gt;</td>
<td>70,000</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>450,000</td>
<td>19,000</td>
<td>Not known, but large number</td>
</tr>
<tr>
<td>Canada</td>
<td>780,000</td>
<td>43,000</td>
<td>None recorded</td>
</tr>
<tr>
<td>China</td>
<td>5,000,000</td>
<td>1,500,000</td>
<td>Perhaps 20,000,000</td>
</tr>
<tr>
<td>Czechoslovakia</td>
<td>180,000</td>
<td>7,000</td>
<td>310,000</td>
</tr>
<tr>
<td>Finland</td>
<td>250,000</td>
<td>79,000</td>
<td>11,000</td>
</tr>
<tr>
<td>France</td>
<td>5,000,000</td>
<td>245,000</td>
<td>173,000</td>
</tr>
<tr>
<td>Germany&lt;sup&gt;1&lt;/sup&gt;</td>
<td>10,000,000</td>
<td>3,500,000</td>
<td>2,000,000</td>
</tr>
<tr>
<td>Greece</td>
<td>150,000</td>
<td>17,000</td>
<td>391,000</td>
</tr>
<tr>
<td>Hungary</td>
<td>350,000</td>
<td>147,000</td>
<td>280,000</td>
</tr>
<tr>
<td>India&lt;sup&gt;1&lt;/sup&gt;</td>
<td>2,400,000</td>
<td>48,000</td>
<td>None recorded</td>
</tr>
<tr>
<td>Italy&lt;sup&gt;1&lt;/sup&gt;</td>
<td>4,500,000</td>
<td>380,000</td>
<td>180,000</td>
</tr>
<tr>
<td>Japan</td>
<td>6,000,000</td>
<td>2,600,000</td>
<td>953,000</td>
</tr>
<tr>
<td>Netherlands</td>
<td>500,000</td>
<td>14,000</td>
<td>242,000</td>
</tr>
<tr>
<td>Norway</td>
<td>25,000</td>
<td>5,000</td>
<td>8,000</td>
</tr>
<tr>
<td>Poland</td>
<td>1,000,000</td>
<td>600,000</td>
<td>6,000,000</td>
</tr>
<tr>
<td>Romania</td>
<td>600,000</td>
<td>73,000</td>
<td>465,000</td>
</tr>
<tr>
<td>South Africa</td>
<td>140,000</td>
<td>9,000</td>
<td>None recorded</td>
</tr>
<tr>
<td>United States</td>
<td>16,400,000</td>
<td>292,000</td>
<td>Under 10</td>
</tr>
<tr>
<td>Soviet Union&lt;sup&gt;1&lt;/sup&gt;</td>
<td>20,000,000</td>
<td>13,600,000</td>
<td>7,700,000</td>
</tr>
<tr>
<td>Yugoslavia</td>
<td>3,700,000</td>
<td>305,000</td>
<td>1,400,000</td>
</tr>
</tbody>
</table>

<sup>1</sup> Figures include colonial, annexed, or mandated territories. German figures include Austria.

<sup>2</sup> Includes 22,000 colonial forces killed.

The Allies Triumphant

• America came out of war relatively unscathed
  – Only 1 million casualties (1/3 were deaths)
  – Proportion killed by wound and disease sharply reduced because of discoveries like penicillin and how to use blood plasma
  – No attacks (except for a few very small ones) on US mainland
  – Well-fought war by US troops and leaders
  – Great military leaders produced (MacArthur, Nimitz, Eisenhower, Marshall)
  – Industrial leaders far out-produced enemies