

# Dr. Wernher Von Braun and his German- American Rocket Team

70th Anniversary of  
the German Rocket  
Team Arriving in  
Huntsville, AL

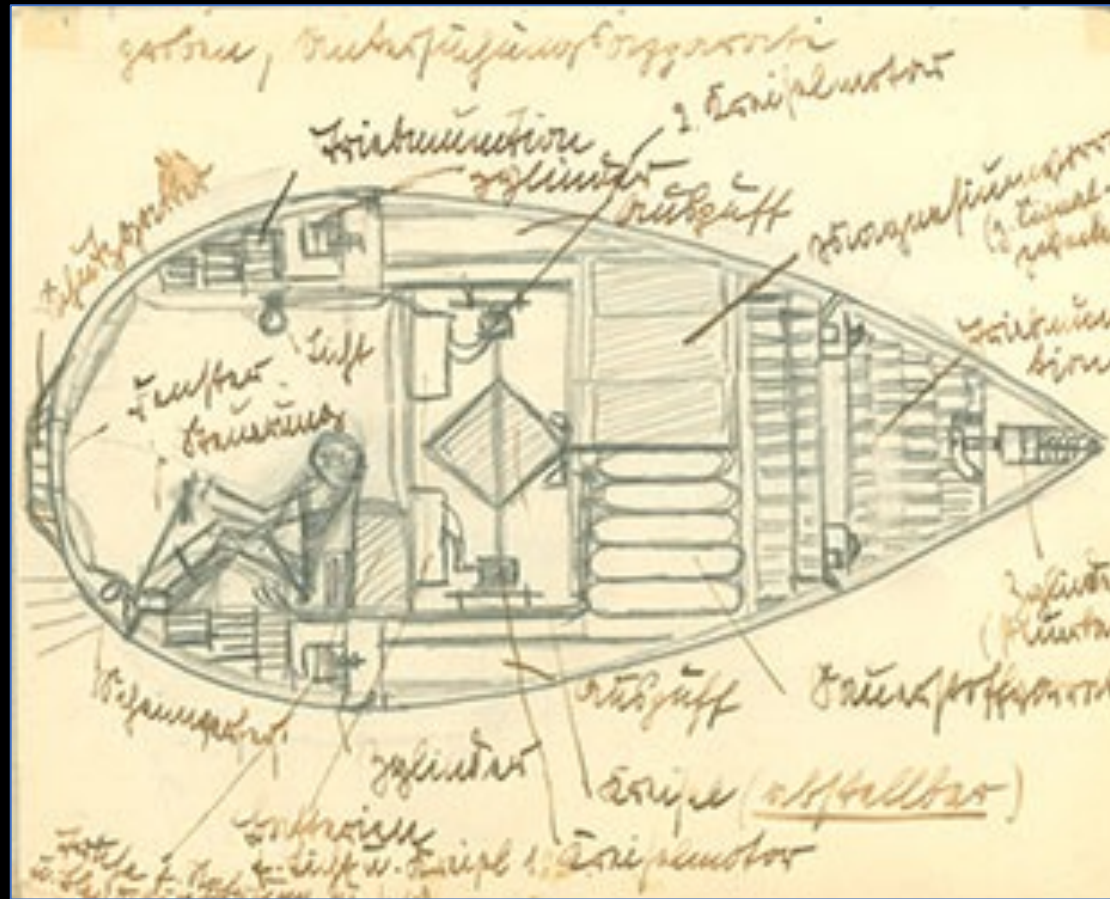


# The Early Years....

- Von Braun was born March 23<sup>rd</sup>, 1912 in Wirsitz, Germany.
- Parents: Magnus and Emmy Von Braun.
- Father's occupation was Minister of Agriculture in Weimer
- At age 3 Von Braun's family moved to Berlin
- At age 8 his mother gave him his first telescope
- At age 12 he built his first rocket that propelled his toy wagon
- At age 13 he read Professor Oberth's mathematical proof that an object could be placed into earth's orbit.
- At age 14, he sketched a drawing of his concept of "Manned Spacecraft"



# Von Braun's Early Dream of Manned Space Craft



# The Early Years (continued)...

- Highlights at age 18
  - Graduated from Highschool
  - Started Technical School at Charlottenburg Institute of Technology in Berlin
  - Joined the German Society for Space Travel
  - Worked as an assistant to Oberth on a liquid fueled rocket motor development
- At age 20, he received his Diploma in Mechanical Engineering from Charlottenburg Institute of Technology in Berlin
- At age 22, he received his Doctorate in Physics from University of Berlin



# Events in the Evolution of WWII

- Adolph Hitler took power of Germany in 1933
- In 1937, German Rocket Scientists locate to Peenemunde
- German Rocket Scientists were transferred to German Defense Department immediately
- Von Braun was selected as Technical Director
- Von Braun reported to General Dornberger





# Cities of Interest in Germany



# World War II Begins and Progresses

- Germany invaded Poland on September 1, 1939
- In 1939, Hitler directed German Rocket Scientist to build a V-2 200 Mile Range Missile
- On June 1941, Hitler declared War on Russia
- US Enters WWII in Dec 1941
- British mass bombardment of Peenemunde August 1943
- Stalingrad Winter of 1943 stalled the German advance



# The Progression of WWII

- In March 1944, Von Braun was jailed; Dornberger intervened
- On June 6<sup>th</sup> 1944, the Allies Landed on Normandy
- From September 1944 to March 1945, 1400 V-2 Rockets were launched at Great Britain and 500 hit London



V2 Rocket



# Evacuation from Peenemunde

- In early 1945, 500 Rocket Team members moved to Mittelwerk (Bliecherode)
- Before leaving Peenemunde, Von Braun hid 100+ V-2 rockets with documents in mountainous caves
- A few months later the rocket scientists moved to Oberammergau.
- The rocket scientists were under SS guard at Oberammergau
- In April 1945, Von Braun and @ 25 associates escaped to Oberjoch, Austria to a Mountain Resort, Haus Ingeburg



# Von Braun and German Rocket Team Evacuation



# The Surrender

- Von Braun received notice of Hitler's April 30<sup>th</sup> death on May 1st, 1945
- On May 2<sup>nd</sup>, Magnus Von Braun made contact with American Forces
- On May 3<sup>rd</sup> Von Braun and +25 of his associates moved behind American lines
- Von Braun met with Colonel Toftoy of US Army
- The balance of the 500+ left in Oberammergau were captured by American forces
- Background checks began immediately on the 500
- Operation Osvakim- @ 5000 German Rocket Engineers/Technicians were captured by the Russians

# HITLER DEAD

**Fuehrer Fell at CP, German Radio Says;  
Doenitz at Helm, Vows War Will Continue**

German radio announced last night that Adolf Hitler had died. Gen. Karl Doenitz, former commandant-in-chief of the German Navy, has succeeded him as ruler of the Reich, the radio announcer news said.

Doenitz made a radio speech immediately after the announcement, Doenitz said, and declared that Germany would continue to wage war. His statement upheld peace efforts which had been prevalent for more than a week in all world capitals.

## Churchill Hints Peace Is at Hand

Winston Churchill, British premier, today hinted that peace is at hand. He said that the British government was ready to accept the terms of the Potsdam conference. He also said that the British government was ready to accept the terms of the Potsdam conference.



The announcement did not give any details of how the Reich leader died. The news was broadcast after midnight Washington time, including the "Eighth of the Reich," was played.

"I believe, without," a voice said, "in a few minutes you will hear a solemn and important message to the German people. We are now going to play a recording of Hitler's speech to the Reichstag."

Hitler's death came three days after his capture by British troops in the village of Berchtesgaden. He was killed by British paratroopers near the village of Oberammergau, Lake Teutoburg.

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Doenitz, in his speech, said that Hitler "had fallen in his command post" while planning a counter-attack to the Battle of the Bulge in the Ardennes region. He also said that the German people should continue to fight for their freedom.

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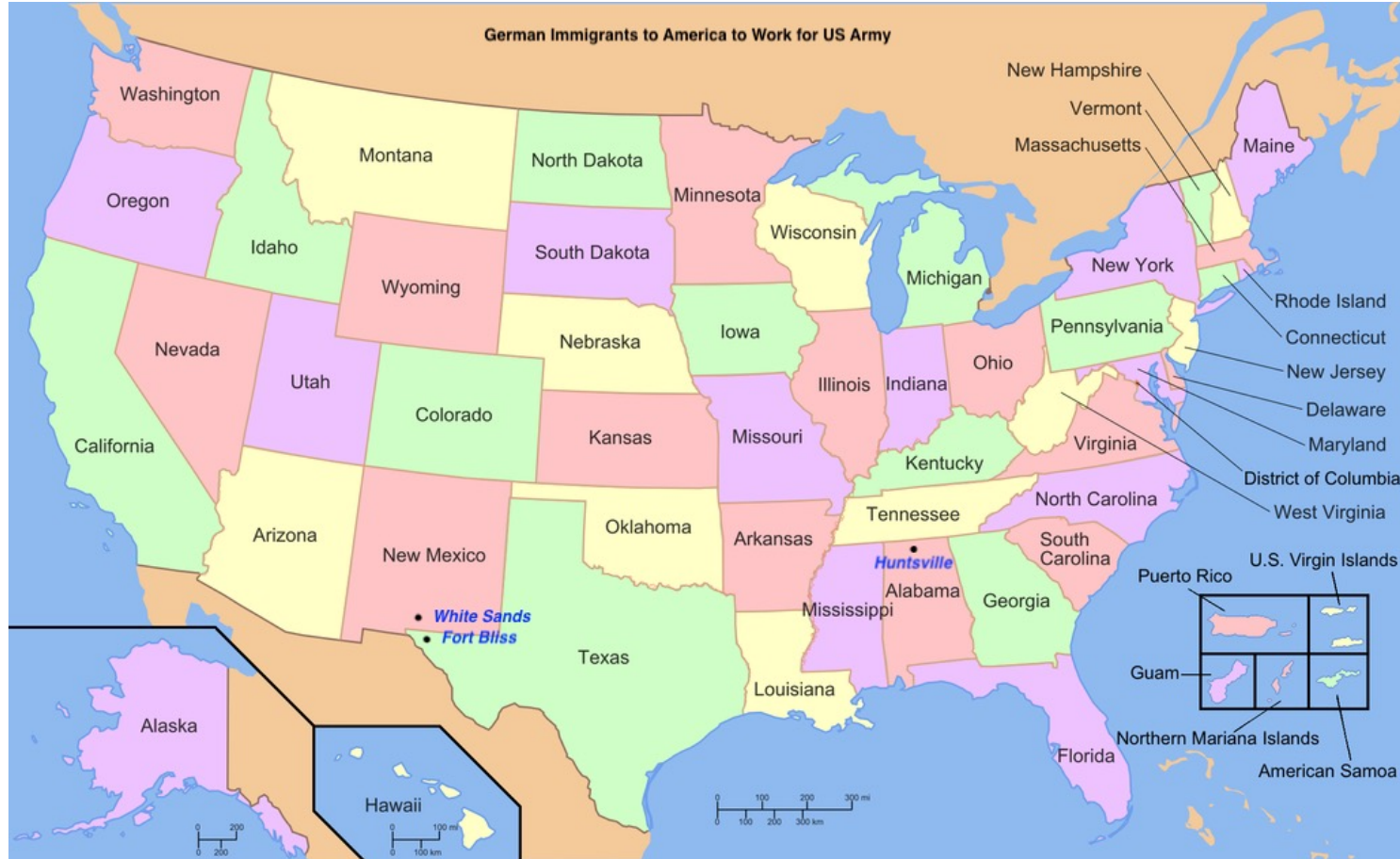
# The Negotiations

- Von Braun requested that all 500 of his team be transferred to US
- Toftoy presented the request to the Pentagon-rejected
- Same procedure for request of 300-rejected
- Colonel Toftoy and Pentagon agreed upon 118 Scientist to come to US
- President Truman and General Eisenhower approved
- Operation Paperclip-Von Braun personally selects the 120
- 6 months contracts were signed by the 120 with option of 6 months extension
- Fort Bliss, TX would be their new home





# German Scientist Immigration to US





# Moves to United States

- 100+ V-2's and documentation recovered from caves and Shipped to US
- In September 1945, Von Braun + 6 Senior team members were flown to the US to finalize plans
- The rest of the team members were transported by ships to the US and arrived
  - Nov. 1945
  - Dec. 1945
  - Feb. 1946
- From 1947-1949 additional Scientists arrived (@20)



SS Argentina



USS Florence Nightingale



Central Flat Victory



# Rocket Pioneers at Fort Bliss



# Life At Fort Bliss

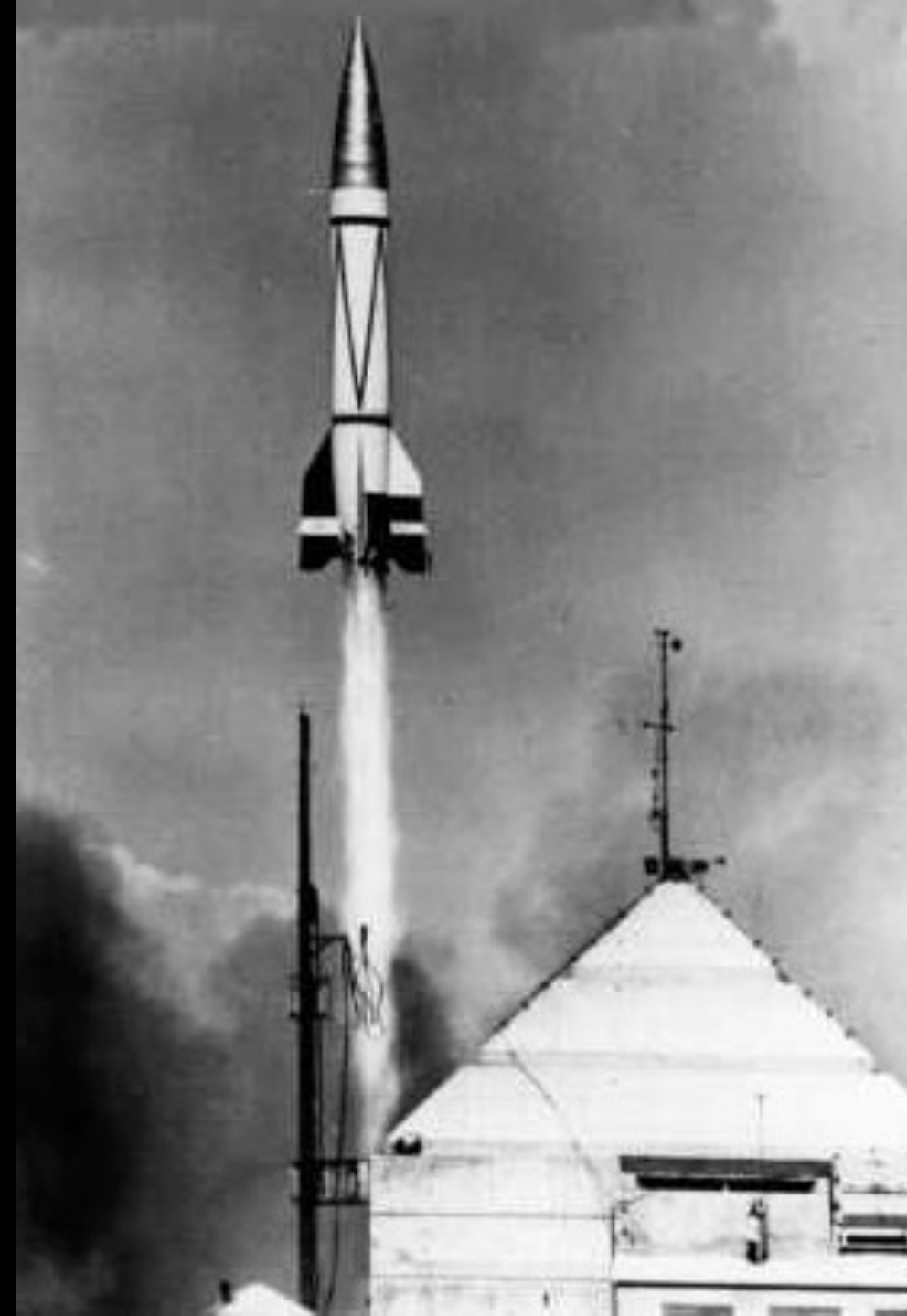
- Salaries ranged from \$4300 to \$6800 annually. Von Braun's (\$7500)
- Team member housed in Army Barracks
- Escorts required for Team Members to leave the facility.
- Members often referred to themselves as POP's (Prisoners Of Peace)
- After the 1<sup>st</sup> year,
  - Contracts were extended and constraints relaxed
  - Wives and children were allowed to move to Fort Bliss





# Accomplishments at Fort Bliss

- V-2 Proving Grounds located in nearby White Sands, NM
- Team Members were bussed daily to White Sands
- Test facilities were designed and constructed for V-2's
- American Scientific Professionals were integrated into the team
- Experimental V-2 launches to prove Safety and Reliability
- Many V-2's launched with Scientific Payloads
- Scientific Purpose: Study of upper atmosphere
- Design of future rocket improvements
- Learned to speak English



# Events Leading to Transfer to Huntsville

- 1949 Cold War Developments: 200 mile precision rocket development needed
- Substantial increase in staffing and facilities required
- Fort Bliss had other expanding military assignments
- Defense Department Decides to relocate Von Braun Team
- General Toftoy given assignment to select new Site
- Mid August 1949: Toftoy visited North Alabama
- General Toftoy selected Redstone Arsenal
- Secretary of the Army declares Redstone the future home of Army Rocket and Missile Center Oct 1949





# The Move to Huntsville

- April 1950: Fort Bliss Operations move to Redstone
- April-September 1950, German team members arrive in Huntsville
- Team Members welcomed by the local residents and City/County Officials
- Many Team Members began construction of homes on Monte Sano
- Immediate increase in staffing through hiring of US Technical and Administrative Personnel



# “The Glory Years” 1950-1970

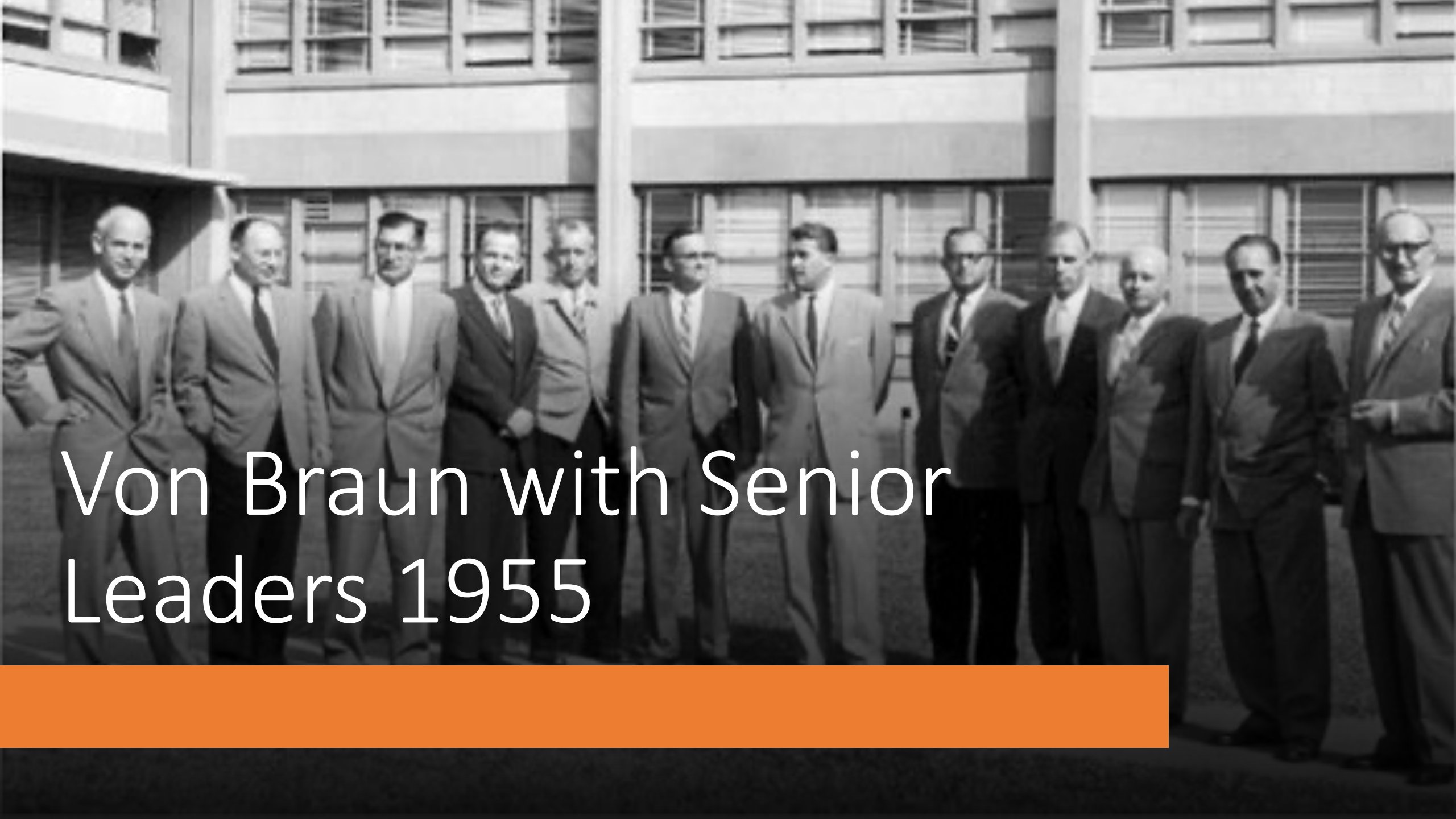
- German-American Team operated under 3 organizational arrangements
  - GMDD-Army Guided Missile Development Division 1950-1955
  - ABMA-Army Ballistic Missile Agency 1956-1959
  - NASA Marshall Space Flight Center 1960+
- Key Leaders at Redstone and MSFC
  - General Holger Toftoy (GMDD)
  - General Bruce Medaris (ABMA)
  - Werner Von Braun (Tech. Dir.)



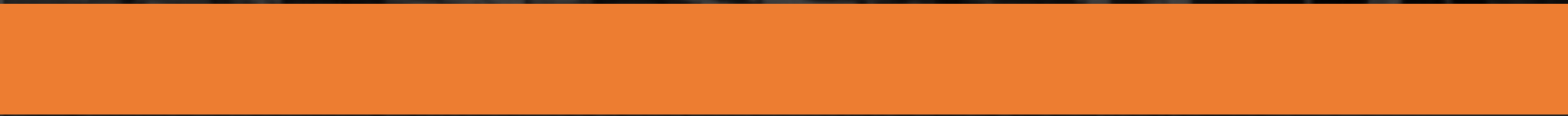
# Basic Organizational Structure and Staffing

- S&E Lab Director positions: German
- Initially, S&E Mid-Level Supervisors: German
- As staffing increased, Mid-Level Supervisors: German and American
- Administrative Directorate Supervisors and Staffing: American
- An exception, Program Managers: German and American
- From 1951 to 1959 @ 75 more Germans joined the team





# Von Braun with Senior Leaders 1955





Professor Oberth  
Joins German-  
American Team  
1955-1958





April 1955: 100 Germans  
Became US Citizens



# Accomplishments of the "Glory Years" 1950-1970

## Redstone

Precision guided  
Missile

Range: 200 miles

First Test Launch  
August 20th, 1953



Launch of  
Explorer I,  
America's first  
earth orbiting  
satellite

January 31 1958



## Jupiter Rocket in Test

Range: 1800 mi

First Launch:  
March 1st, 1957



## Jupiter



**Jupiter Rocket  
First Primates  
In Space  
May 1959**





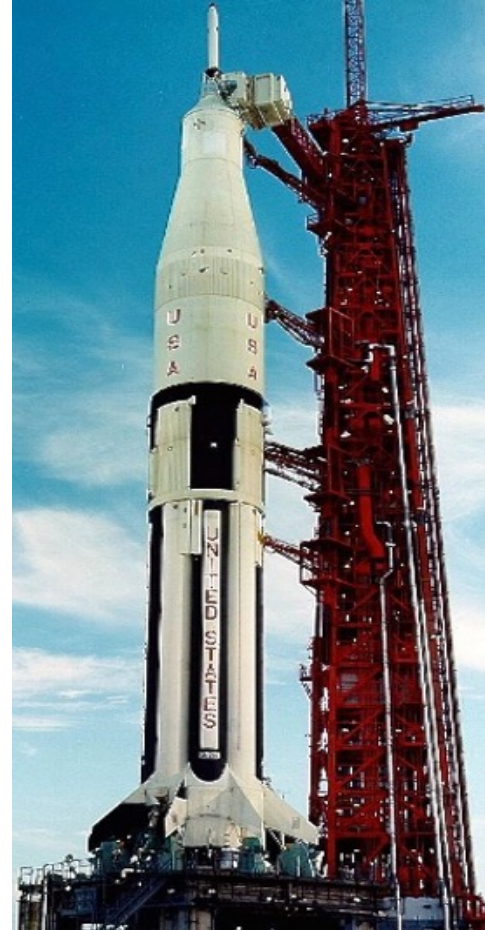
# Accomplishments of the “Glory Years” 1950-1970 (cont.)



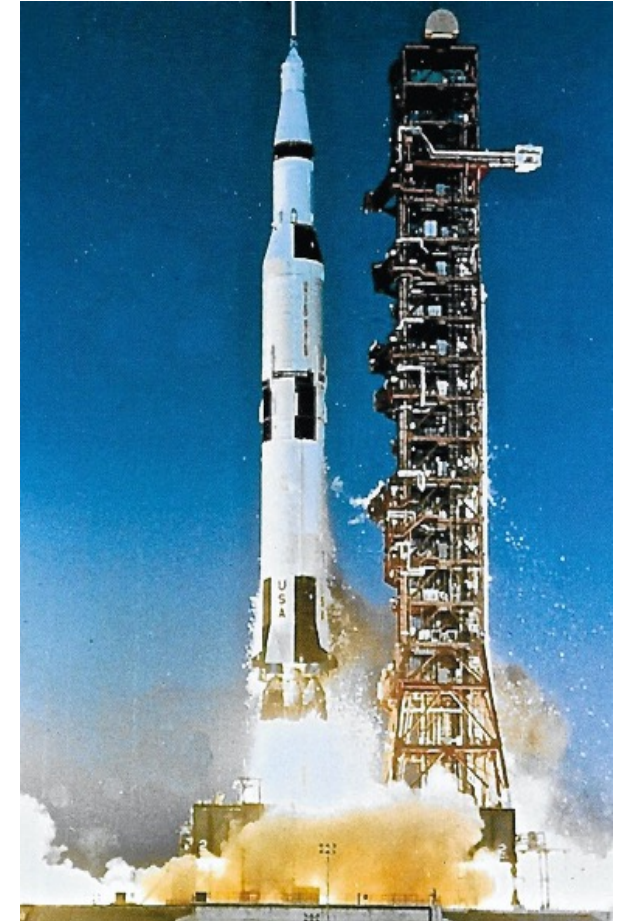
**Mercury: Redstone**  
First American in Space  
May 5<sup>th</sup> 1961



**Super Jupiter**  
(Saturn I)  
Sep 1961

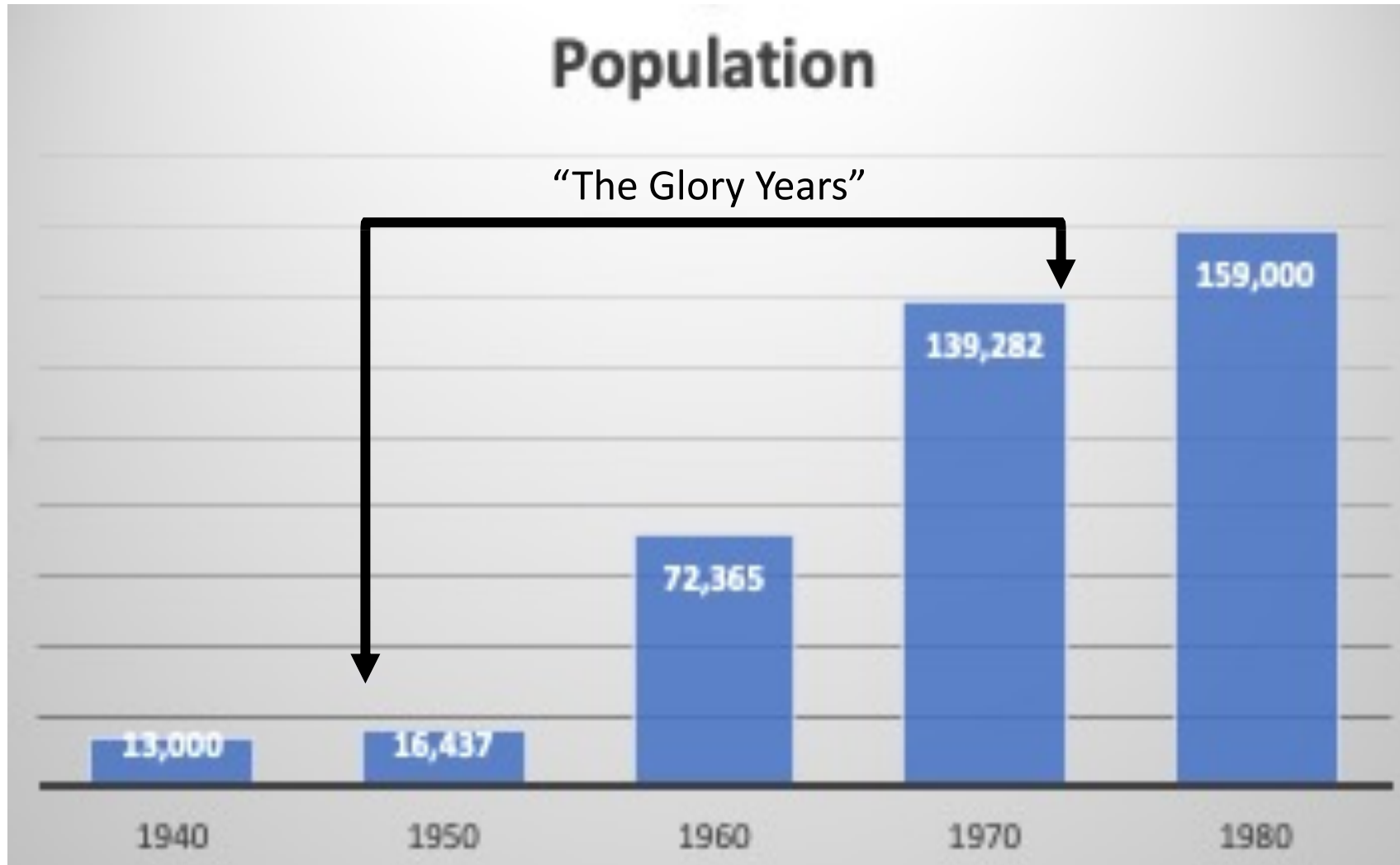


**Saturn IB**  
February 1967



**Saturn V Apollo 11**  
1st Manned Lunar Landing  
July 16, 1969

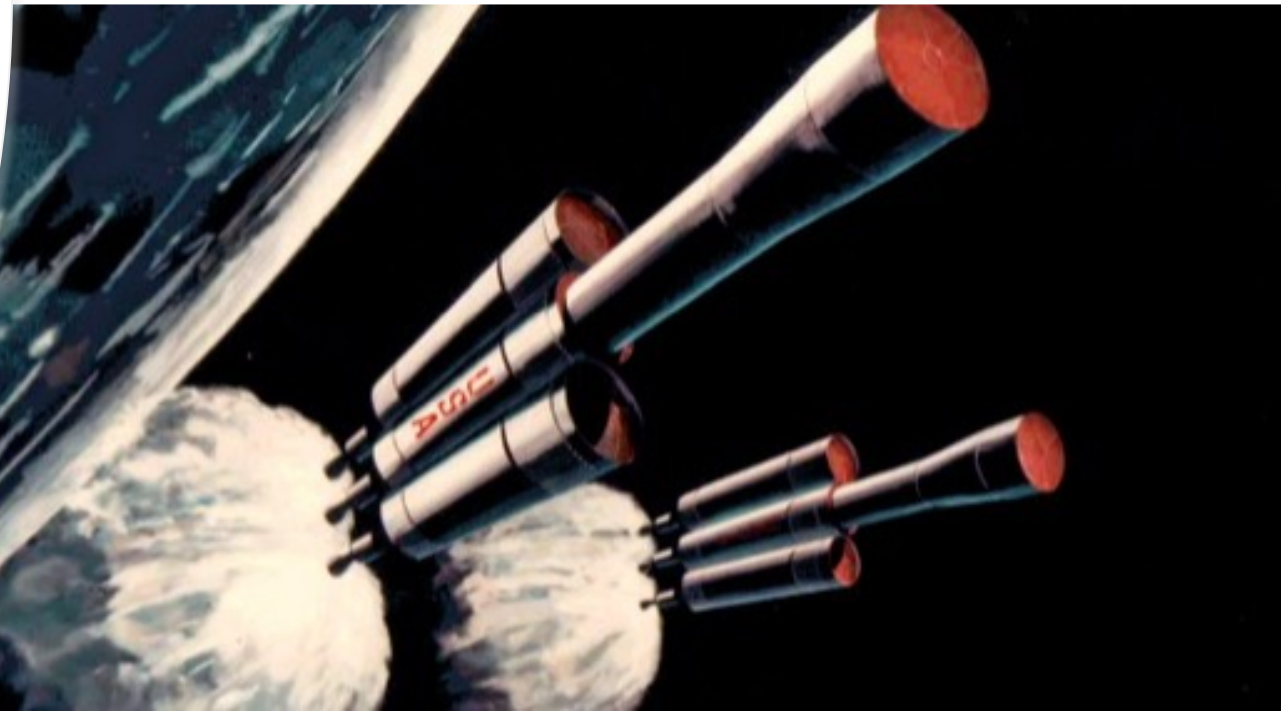
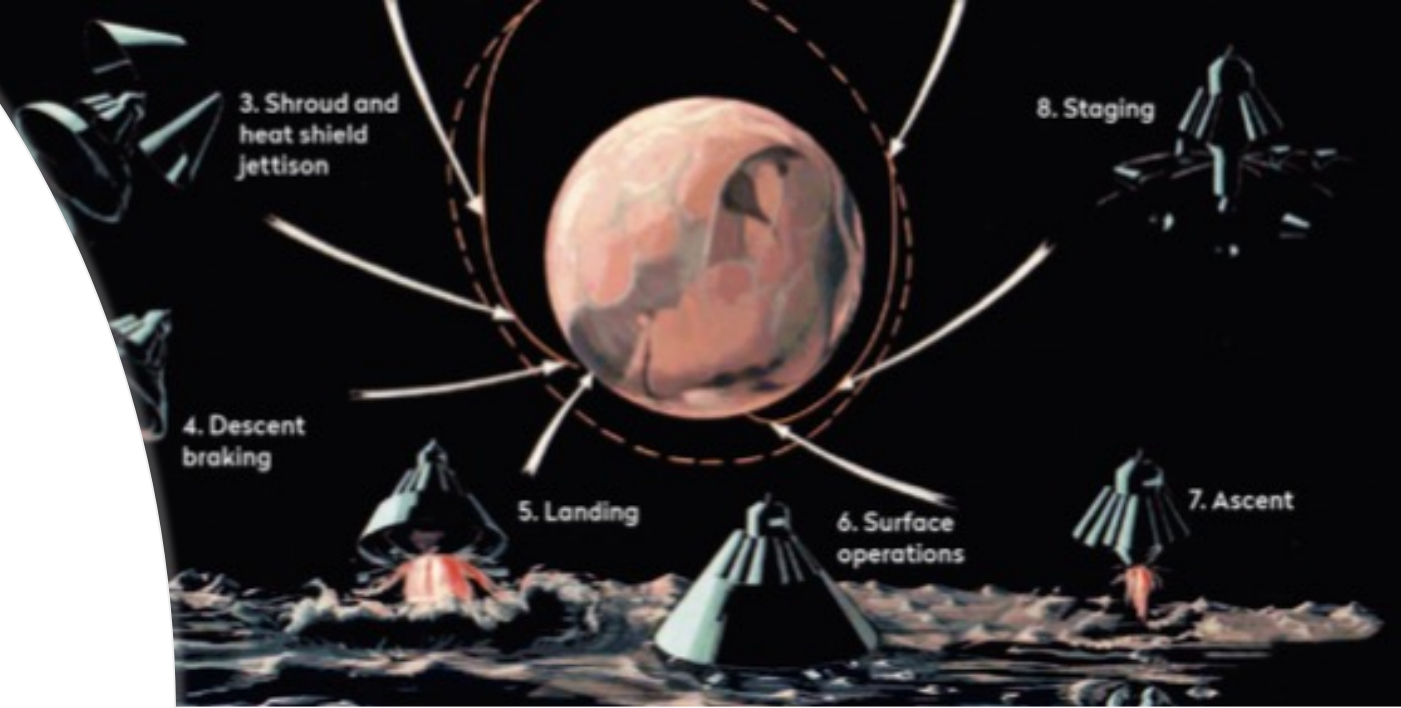
# Huntsville Population Growth





# A New Frontier

- In late 1969, in response to NASA Administrator Dr. Tom Paine's recommendation, President Nixon Announced a 1982 Manned Mission to Mars.
- In January 1970, Dr. Paine asked Dr. Von Braun to move to NASA Headquarter plan the Mars Mission
- Von Braun was reluctant to leave MSFC in Huntsville, but agreed to make the move.
- Factors persuading Von Braun to move:
  - His respect for Dr. Paine
  - His wife, Maria's desires
- New role at HQ: Deputy Associate Administrator for Planning
- Von Braun moved to Washington, DC in March 1970
- Authorized to have @ 15 support staff



# The Mars Plan Development

- Von Braun and his small staff developed a comprehensive plan in 5 months
- The plan included the use of Saturn V/Apollo hardware + development of an advance propulsion system
- In August 1970, Dr. Paine presented the Mars plan to Nixon
- It was rejected and Dr. Paine was informed that there would be no budget increase to support a Mars Mission
- Dr. Paine resigned in September 1970



# The “Declining Years”

- The Deputy/Acting Administrator informed Von Braun that any planning for Manned Mission beyond Earth’s orbit would be terminated
- Essentially all available funds would be allocated to:
  - The Shuttle
  - The International Space Station
- Von Braun was isolated at NASA Headquarters with no involvement with on-going programs
- “He was a strong leader with hardly anyone to lead and no goal to lead them to. To some he seemed to be a great conductor without an orchestra to conduct” Bob Jones in Dr. Space
- After an unpleasant 2 years, Von Braun retired on May 26<sup>th</sup>, 1972





# Move to Private Sector

- Von Braun was offered and accepted a Senior Management position with Fairchild Industries in Alexandria, VA
- Salary: \$200,000 (\$36,000 at NASA)
- He had great success at Fairchild
- He retired from Fairchild due to failing health in 1976
- He passed away on June 16, 1977 due to cancer





# MSFC 1970-1973

- Upon Von Braun's departure, Dr. Reese became MSFC Director
- Dr. William Lucas was named Deputy Director
- Major accomplishments:
  - Four successful Moon Landings (last mission December 1972)
  - In 1973, Skylab was launched (3 crews / 177 days)
- In January 1973, Dr. Reese retired as MSFC Director
- Headquarters sent Rocco Petrone to become Center Director to orchestrate a downsizing of MSFC due to budget cuts
- Rumor was that Headquarters' plan was to "Americanize" MSFC
- After the cuts, only 8 of the original 120 German Team members were left



# Resumption of Manned Space Exploration

- In 2011, initiation of the Space Launch System (SLS) for Manned Space Exploration beyond Earth Orbit
- Booster System is being developed at MSFC
- Plans for SLS to support Manned Mission to The Moon and Mars
- Projected Experimental First Launch: 2021++?

