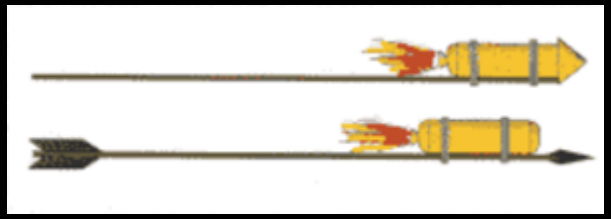
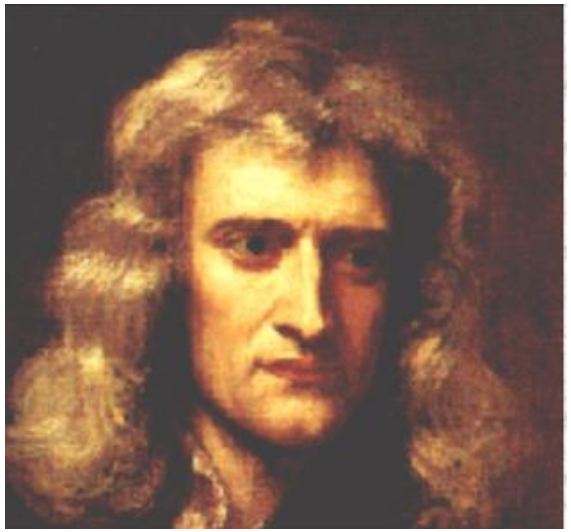

APOLLO 11



Newtons 1. Lov (Treghetsloven).

Når summen av kreftene som virker på ett objekt er null, vil objektet være i ro eller bevege seg med konstant fart langs en rett linje.



Sir Isaac Newton
1642 - 1727

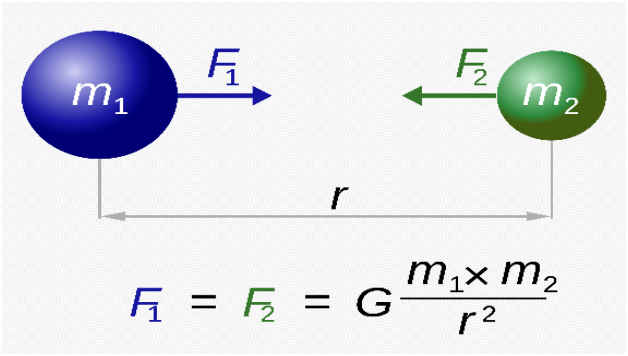
Newtons 2. Lov (Dynamikkens grunnlov).

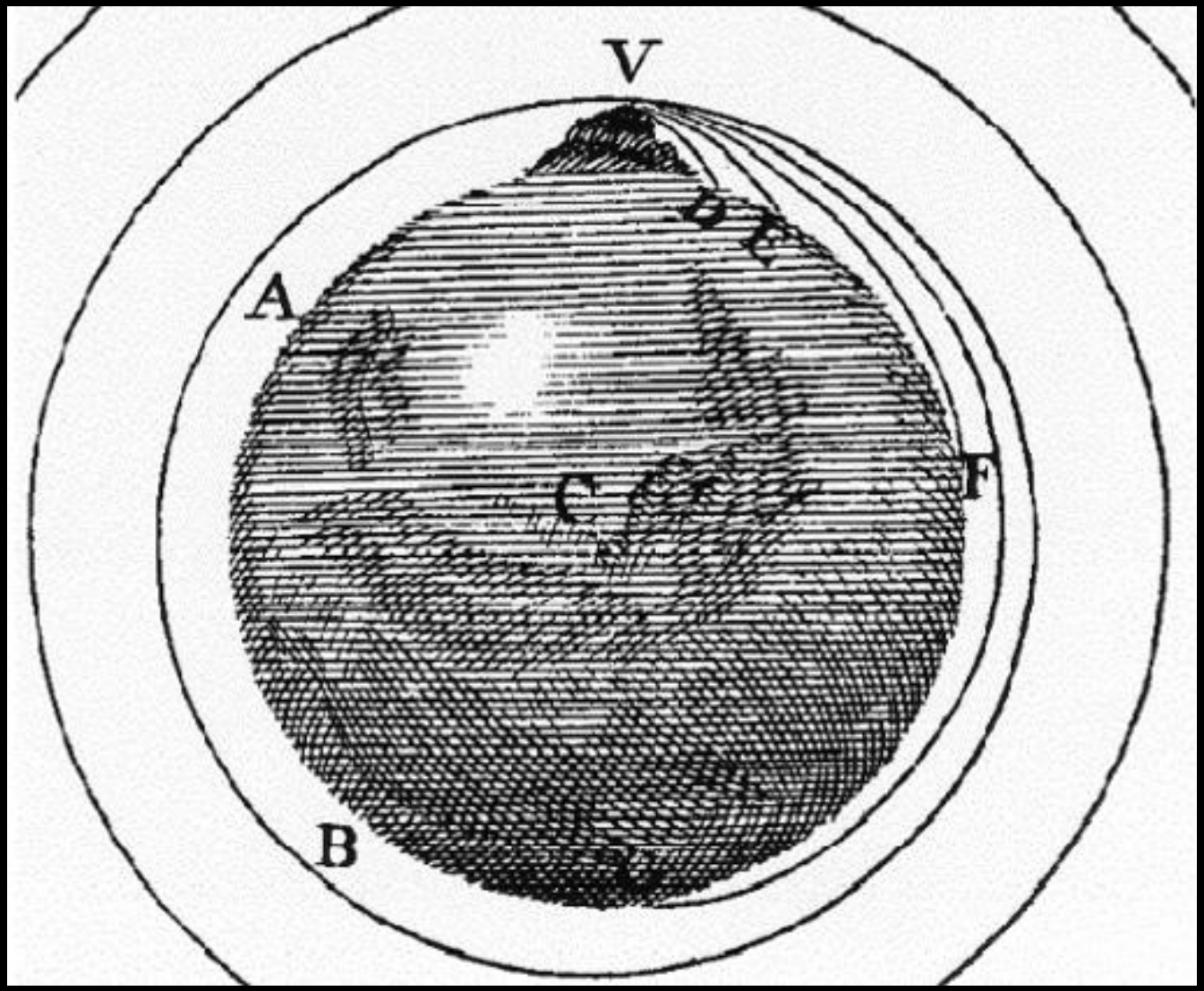
Når summen av kreftene på ett objekt er ulik null, blir objektet akselerert. Kraft = masse x akselerasjon.

Newtons 3. Lov (Kraft og motkraft).

Når et legeme A virker med en kraft F_A på et legeme B, vil B virke tilbake på A med en like stor og motsatt retter kraft F_B.

Newtons Gravitasjonslov.





Illustrasjon fra Newtons hovedverk «Philosophiae Naturalis Principia Mathematica» fra 1687

Robert H. Goddard

Okt. 1882 – Aug. 1945.

Verdens første rakett med flytende drivstoff 16. mars 1926.

Navn	«Neil»
Drivstoff	Bensin + flytende oksygen
Max flyhøyde	12.5 m opp i luften
Total flytid	2.5 sekunder
Tilbakekagt distanse	67 meter
Landingsplass	En kålåker i Auburn (Massachusets)

Beviste at raketter med flytende drivstoff var mulig.

V2 raketten.

Dr. Werner von Braun
Mars 1912 - Juni 1977

Lengde	12 meter
Drivstoff	Alkohol + flytende oksygen
Startvekt	13.5 tonn
Hastighet	5 630 km/t
Rekkevidde	320 – 380 km

Verdens første ballistiske missil 1946.


4. Oktober 1957 – SPUTNIK 1

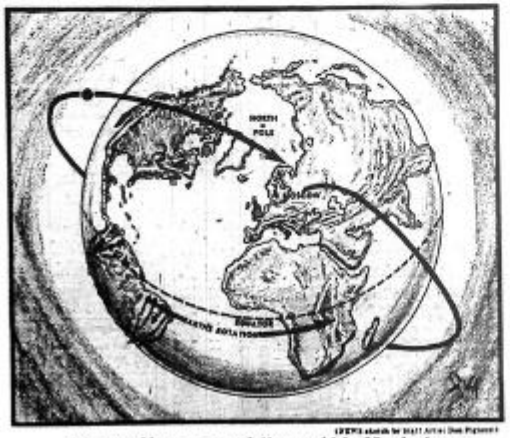
FINAL

DAILY NEWS
NEW YORK'S PICTURE NEWSPAPER ®

5¢

Vol. 39. No. 88 — New York 17, N.Y., Saturday, October 5, 1957* — WEATHER: Mostly fair, cool.

SIGHT RED BABY MOON OVER U.S.



Moscow Moon—around the world in 95 minutes

Cambridge, Mass., Oct. 4 (UP).—The Russian satellite was seen for the first time in the U. S. tonight at Columbus, Ohio, where Larry Ochs, manning a Moonwatch observation station, reported sighting a steady light that crossed his telescope. It definitely was not a meteor, he said.

Ochs, stationed at one of the 150 Moonwatch observatories set up throughout the world, told the Smithsonian Astrophysical Observatory here that he first noticed the light at 11:28 P. M. It was traveling from west to east. Ninety-five minutes later it was sighted again.

Also Seen in Indiana

At Terre Haute, Ind., farther west, another watcher, Nuna Addalso, reported sighting the satellite at approximately the same time.

Meanwhile, American scientists disagreed on whether the satellite, which circles the globe every 95 minutes will be visible to the U. S. to the casual observer, but all agreed that if it is, the best viewing time will be at dawn and dusk.

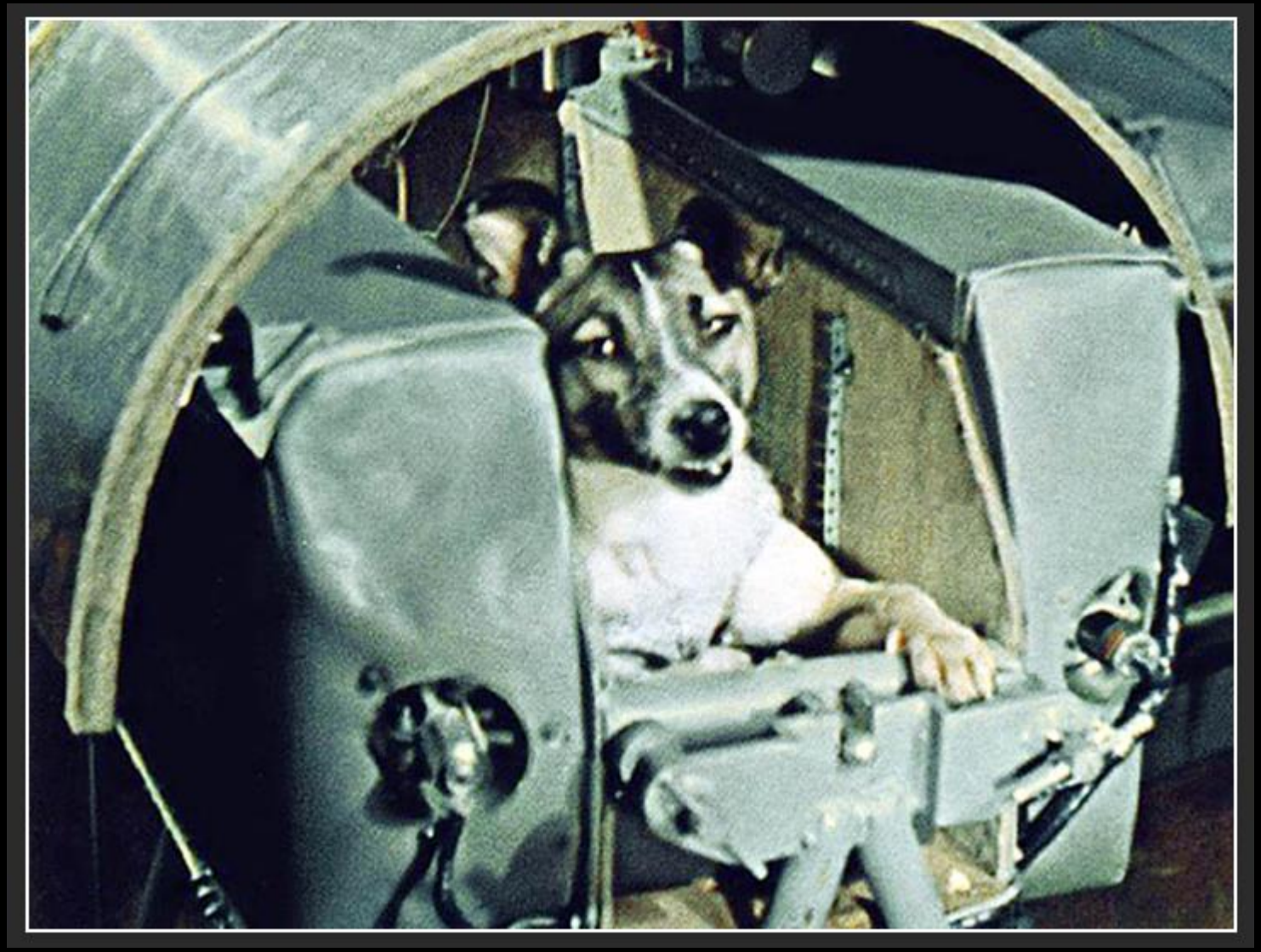
Dr. Fred L. Whipple, director of the Smithsonian observatory, said Americans might be able to see the satellite at twilight hours, but Prof. W. J. Luyten of the University of Minnesota said viewing the sphere would be "extremely difficult if not impossible."

Astronomer J. Allen Hynek and his staff prepared to receive at the Smithsonian observatory reports from the specially equipped observation points around the world.

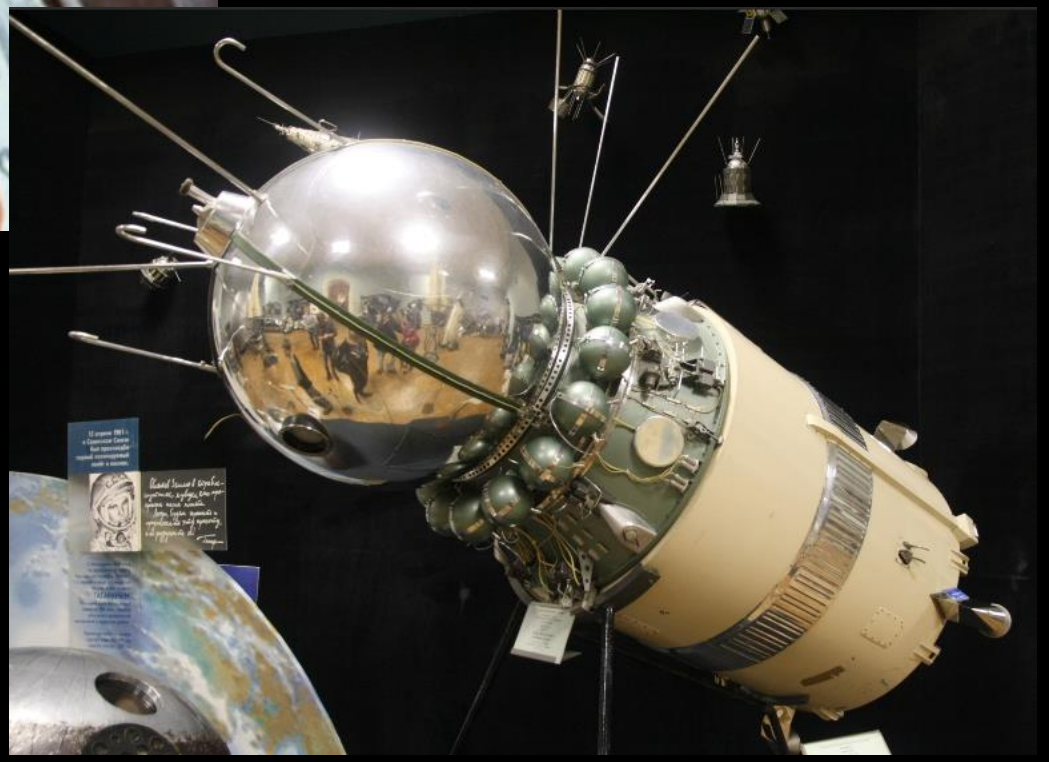
More than 40 Operation Moonwatch observatories west of the Mississippi River were activated first because they were the nearest U. S. stations in the land of twilight.

If the moon is in a north-south orbit—as the Russians once said they planned—it will pass over various points in the U. S. because the earth will be rotating under the satellite from west to east.

Other stories of the Soviet moon on pages 3 and 4; pictures of U. S. satellite progress on page 14.



3. November 1957 – SPUTNIK 2 med LAIKA ombord.



12. April 1961 – Jurij Gagarin i romskipet VOSTOK 1.

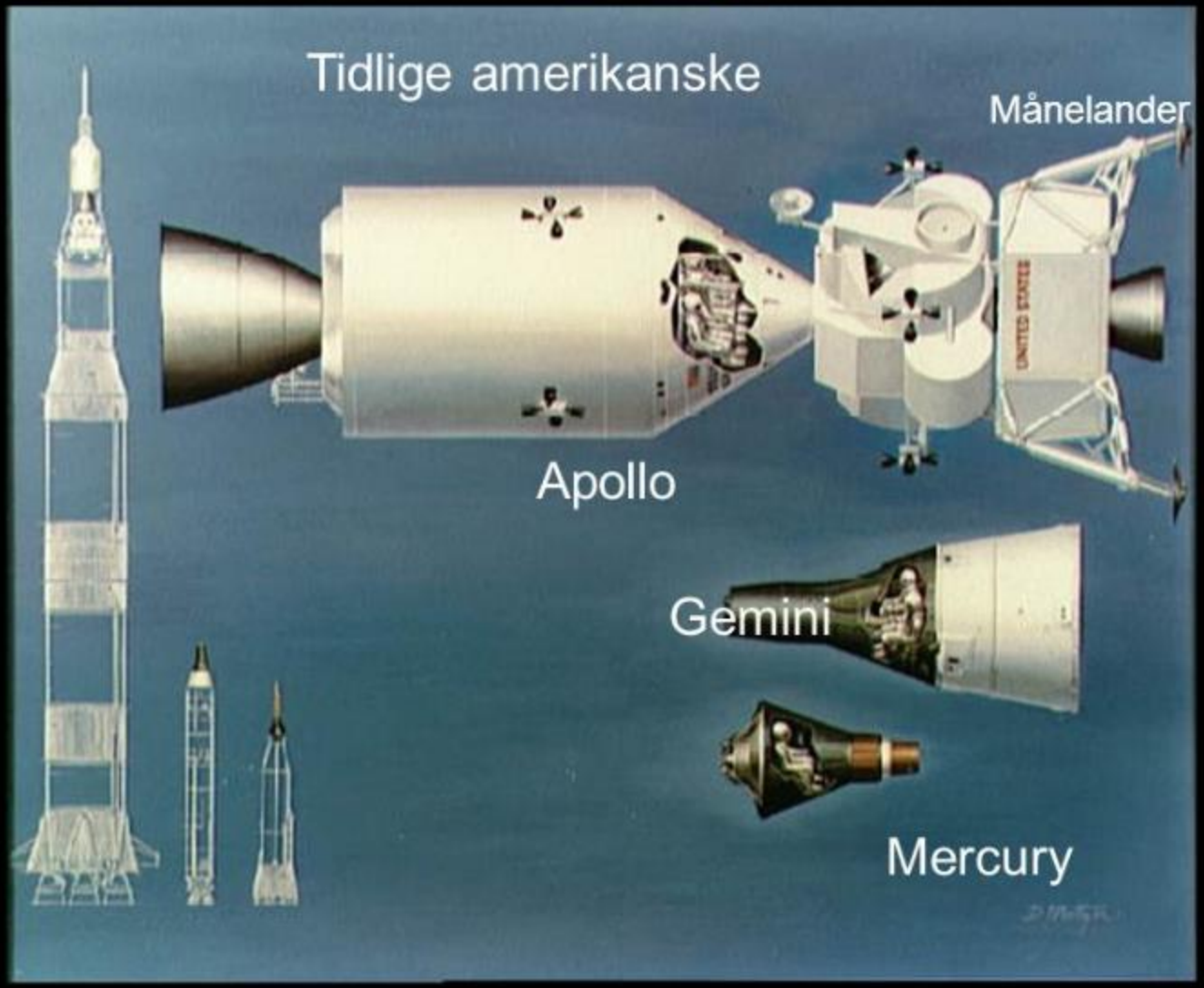
MERCURY ferdene 5. Mai 1961 – 15. Mai 1963.


UNITED STATES

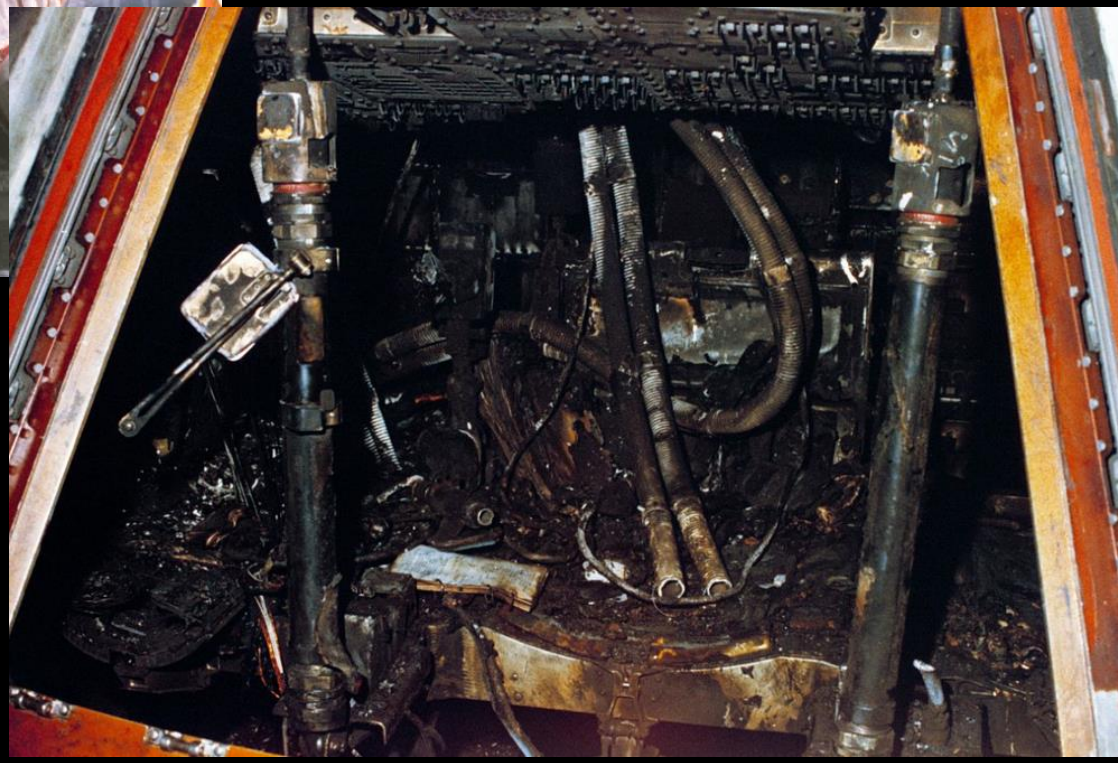
John F. Kennedy taler til Kongressen 25. mai 1961.

GEMINI 8 klar for sammenkopling med et ubemannet romfartøy 16. mars 1966.

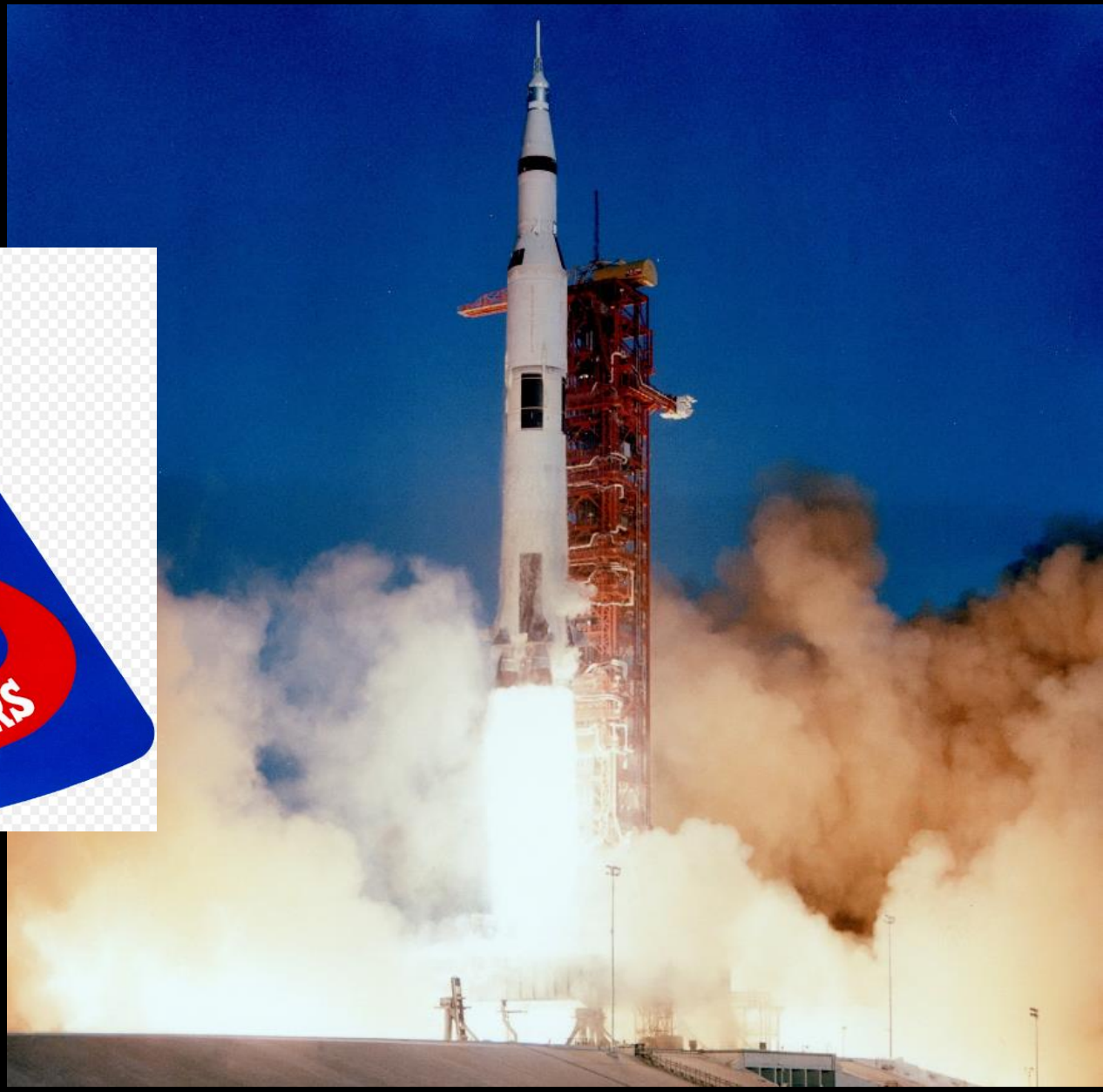
Bemannede romfartøy



R. Chaffey, Ed White og V.Grissom forbereder seg på utskyting av APOLLO 1.



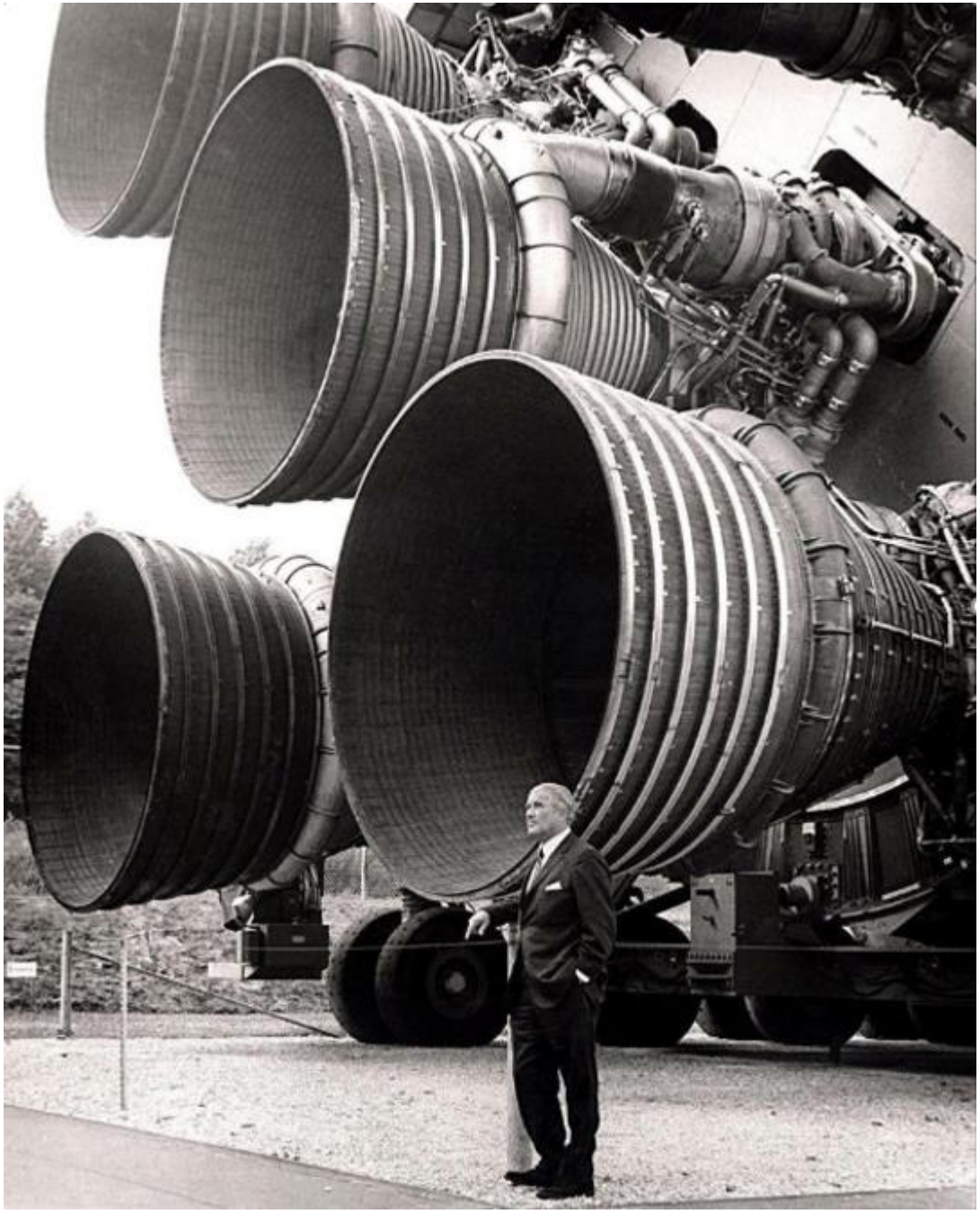
Den 27. januar 1967 bryter det ut brann i kapselen alle de 3 omkommer.



Første bemannede ferd med Saturn V
21. desember 1968.

I bane rundt månen 24. desember 1968.

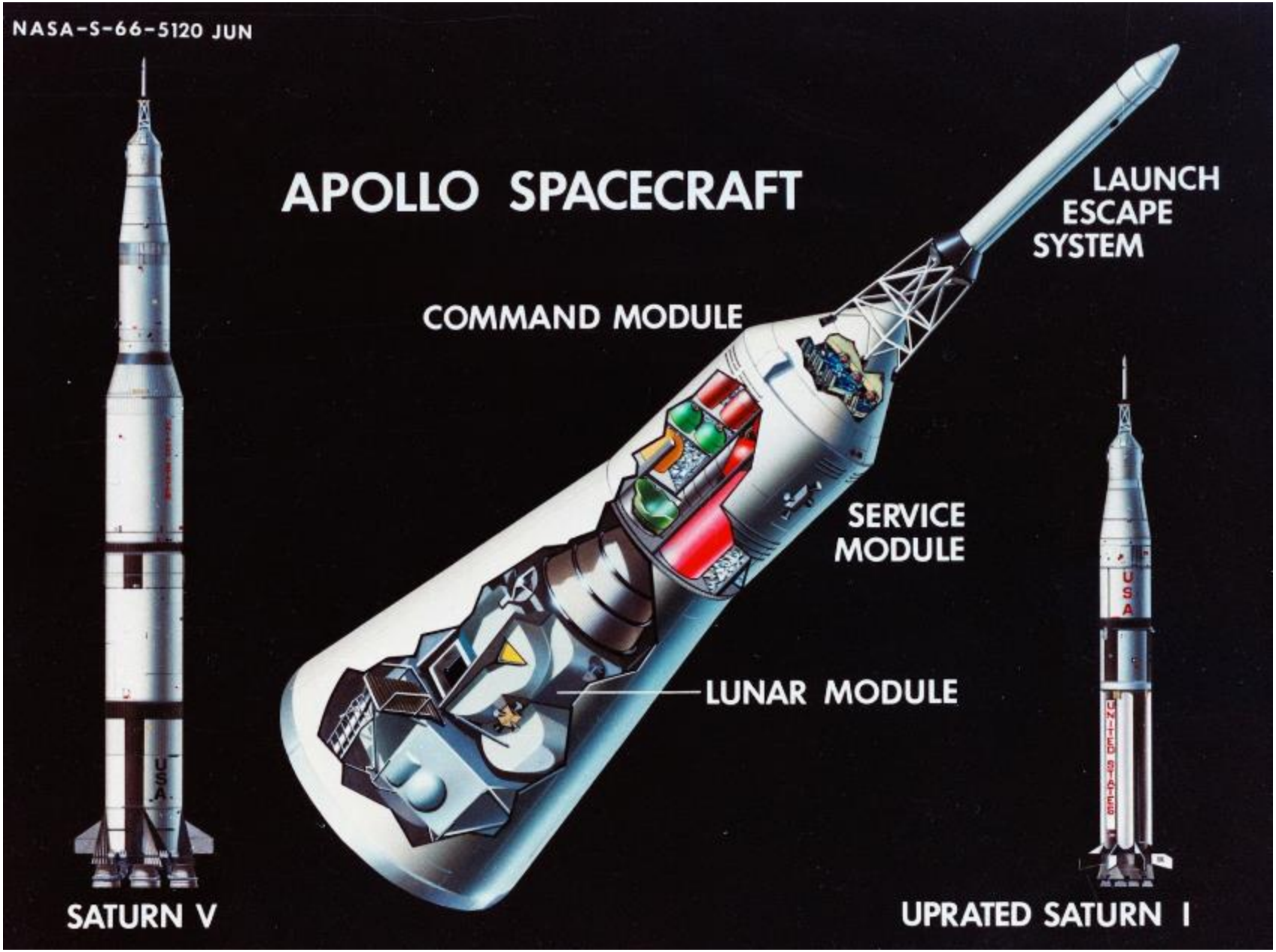
ENTRY INTO EARTH ATMOSPHERE

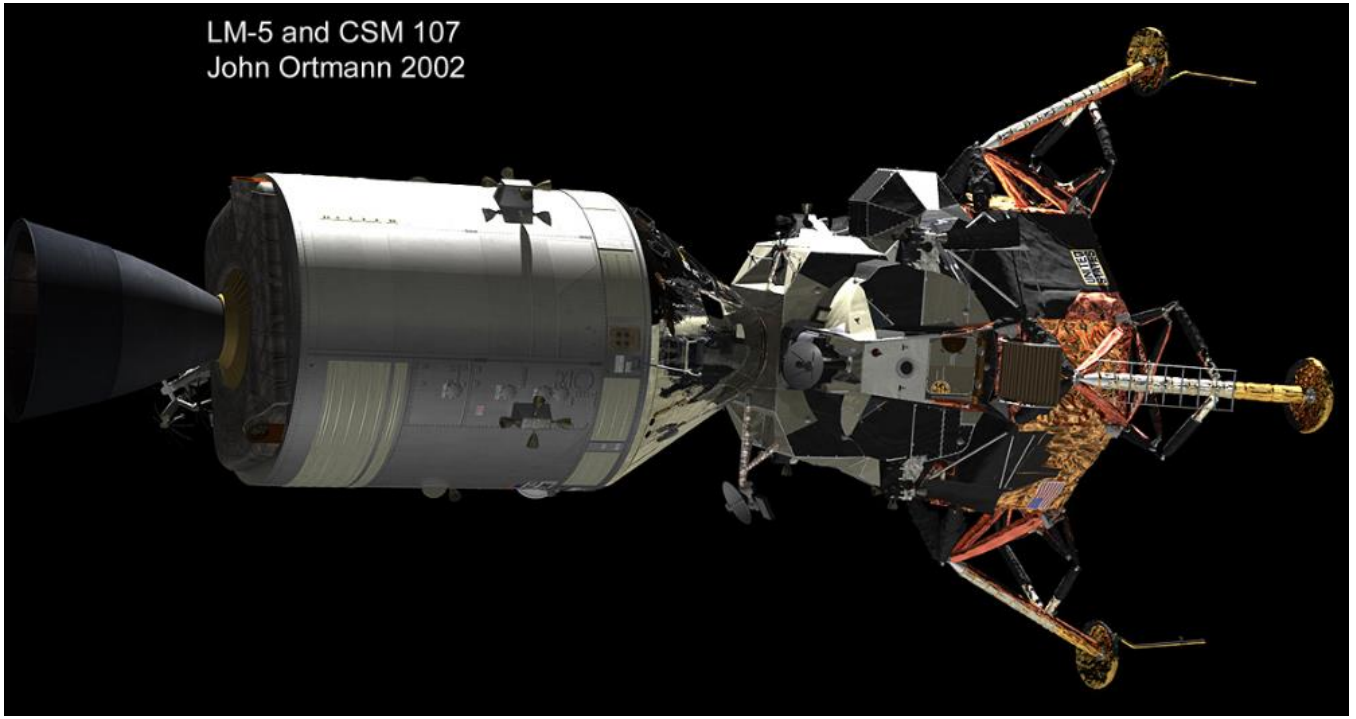


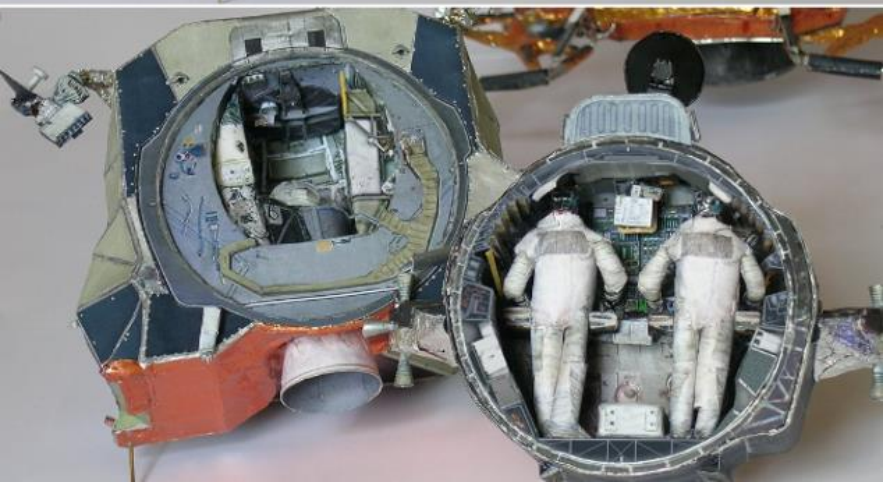
Rocketdyne F -1
Saturn V
1. Trinns hoved motor.

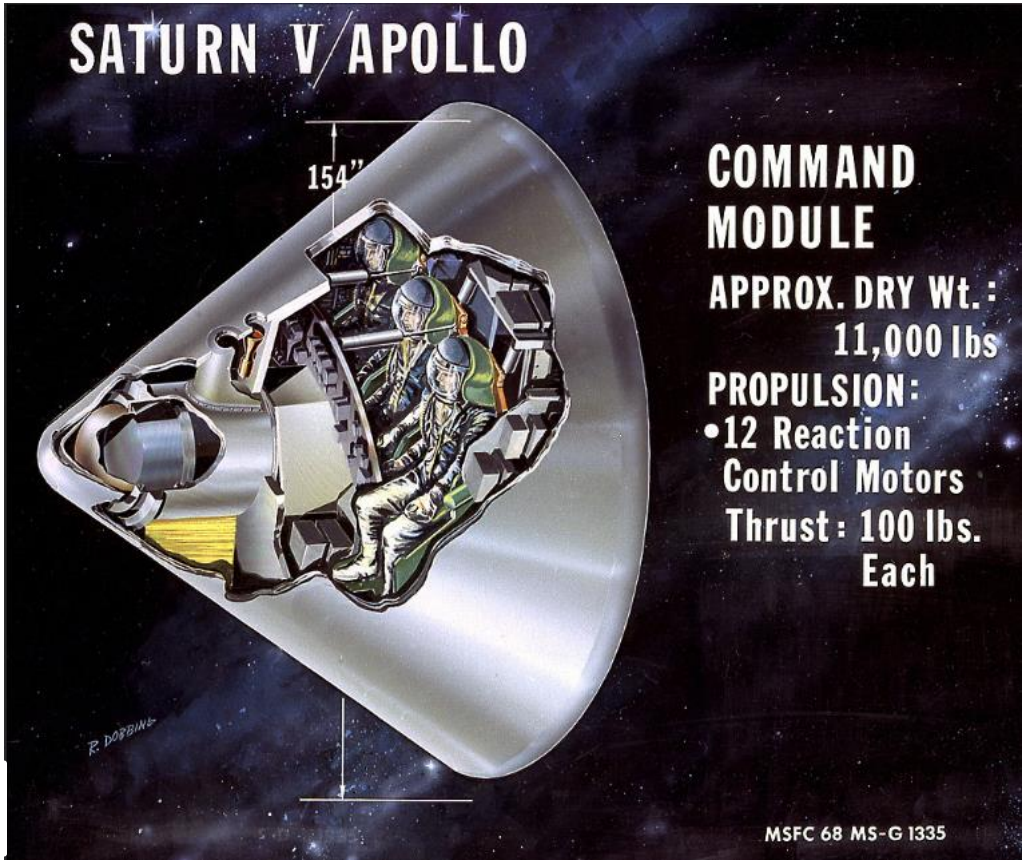
Drivstoff – forbruk
2.7 x 5 = 13.5
tonn pr. sekund.

Brenntid 2.5 miniutter.
Skyvkraft totalt
3550 Tonn.


NASA-S-66-5120 JUN
APOLLO SPACECRAFT
LAUNCH ESCAPE SYSTEM
COMMAND MODULE
SERVICE MODULE
LUNAR MODULE
SATURN V
UPRATED SATURN I


LM-5 and CSM 107
John Ortmann 2002




SATURN V/APOLLO
154"
COMMAND MODULE
APPROX. DRY Wt.: 11,000 lbs
PROPULSION:
•12 Reaction Control Motors
Thrust: 100 lbs. Each
R. DORBINE
MSFC 68 MS-G 1335

Michael Collins

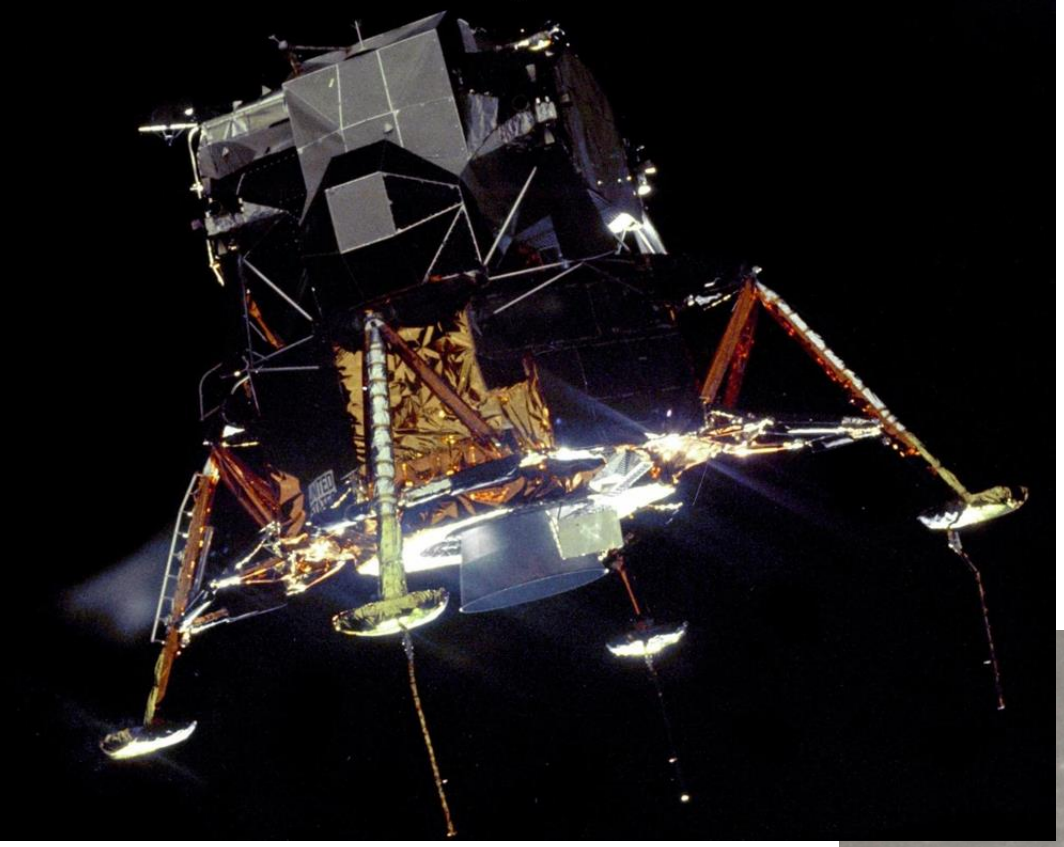
Neil Armstrong

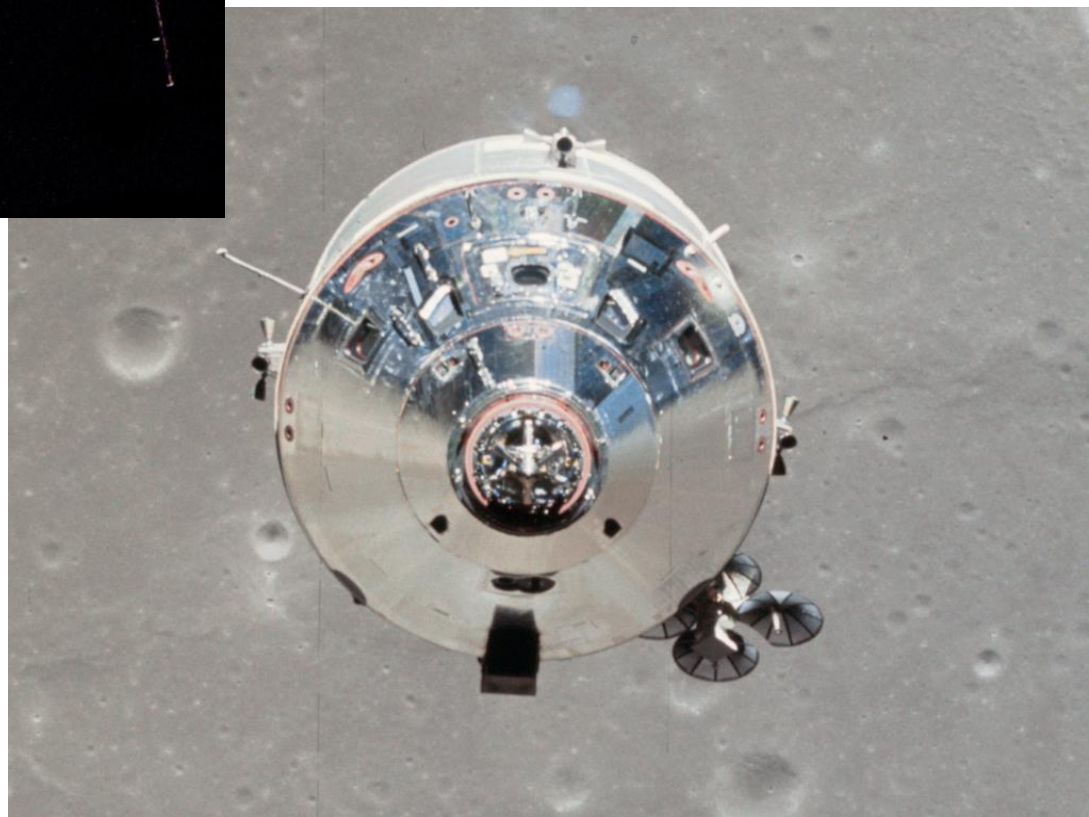
Edwin Aldrin

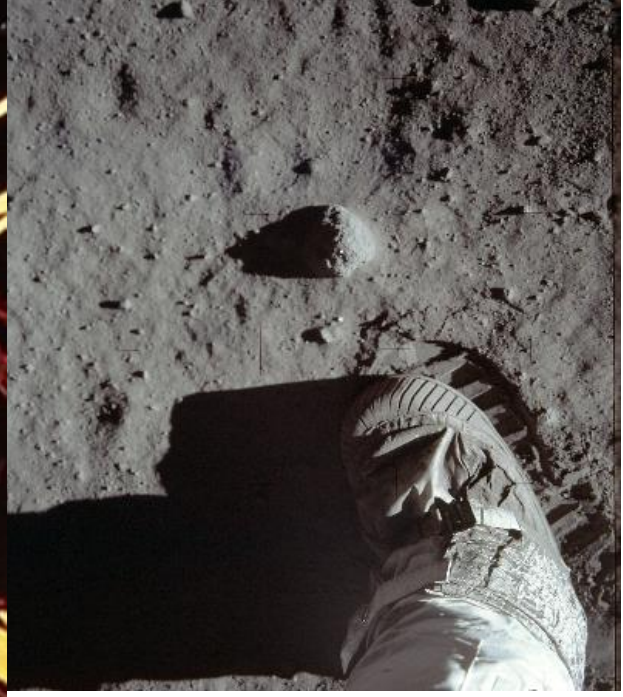
Livsfarlig månelander-simulator

Armstrong ved siden av X-15
30. november 1960

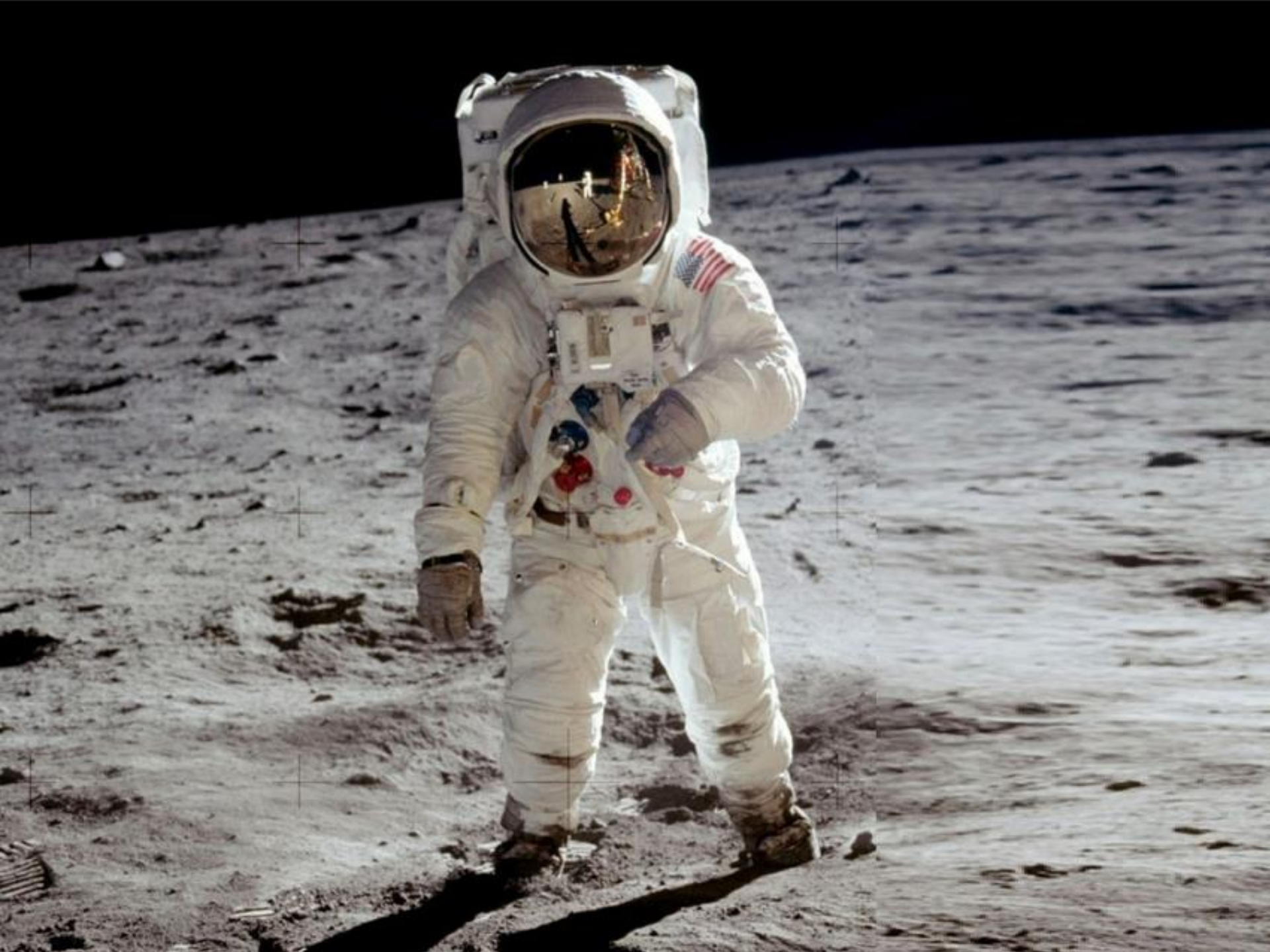

16. Juli 1969 kl. 14.32.

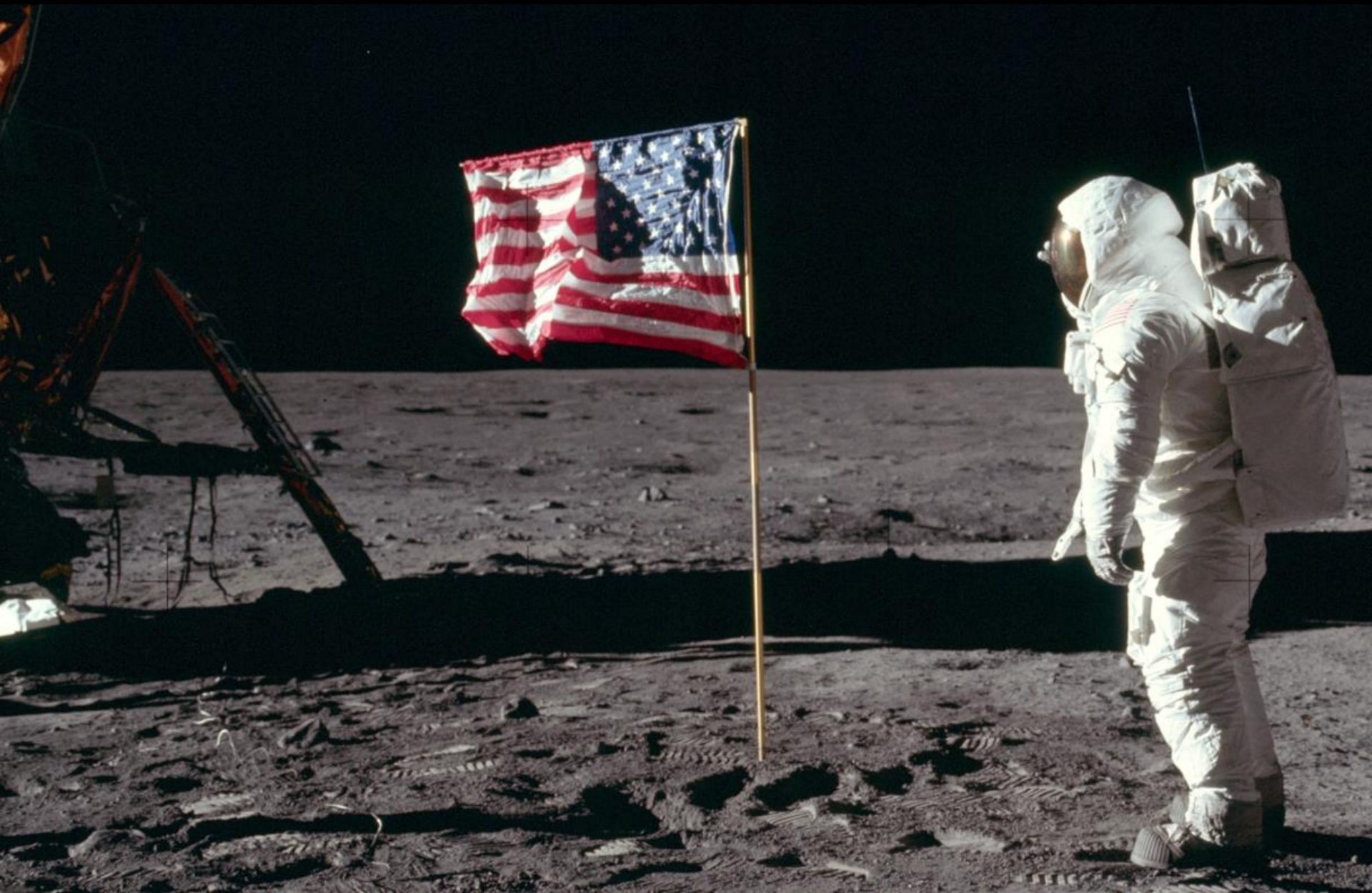


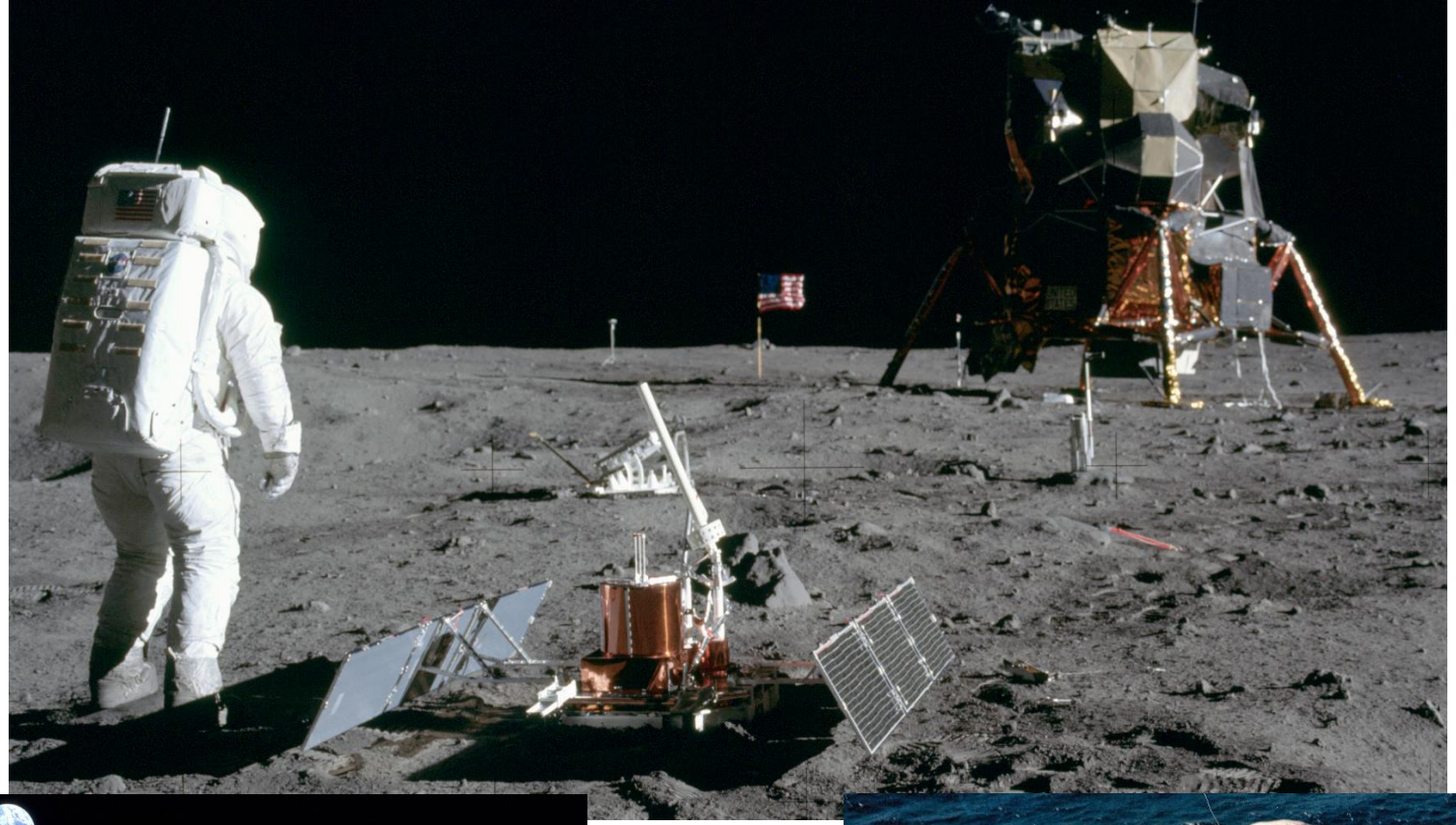


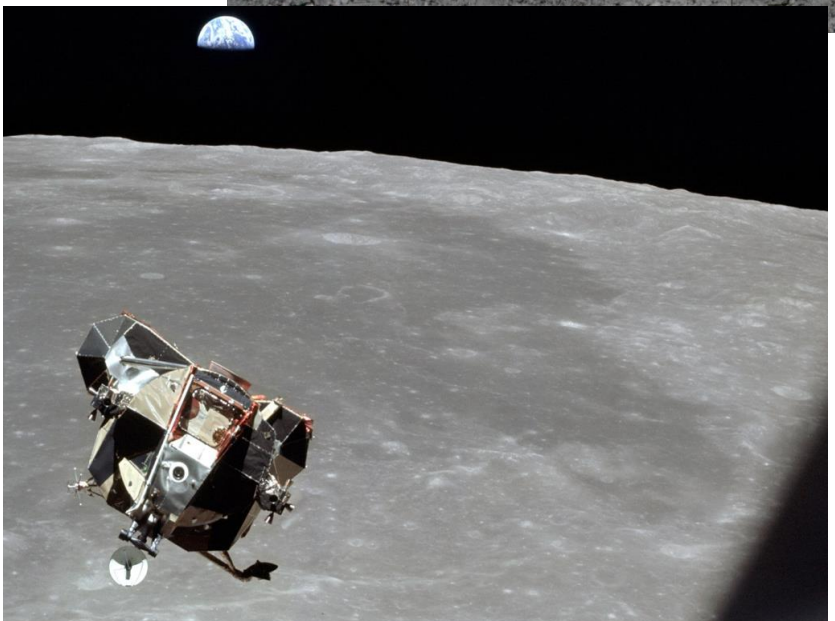



HERE MEN FROM THE PLANET EARTH
FIRST SET FOOT UPON THE MOON
JULY 1969, A. D.
WE CAME IN PEACE FOR ALL MANKIND
MICHAEL COLLINS
ASTRONAUT
RICHARD NIXON
PRESIDENT, UNITED STATES OF AMERICA

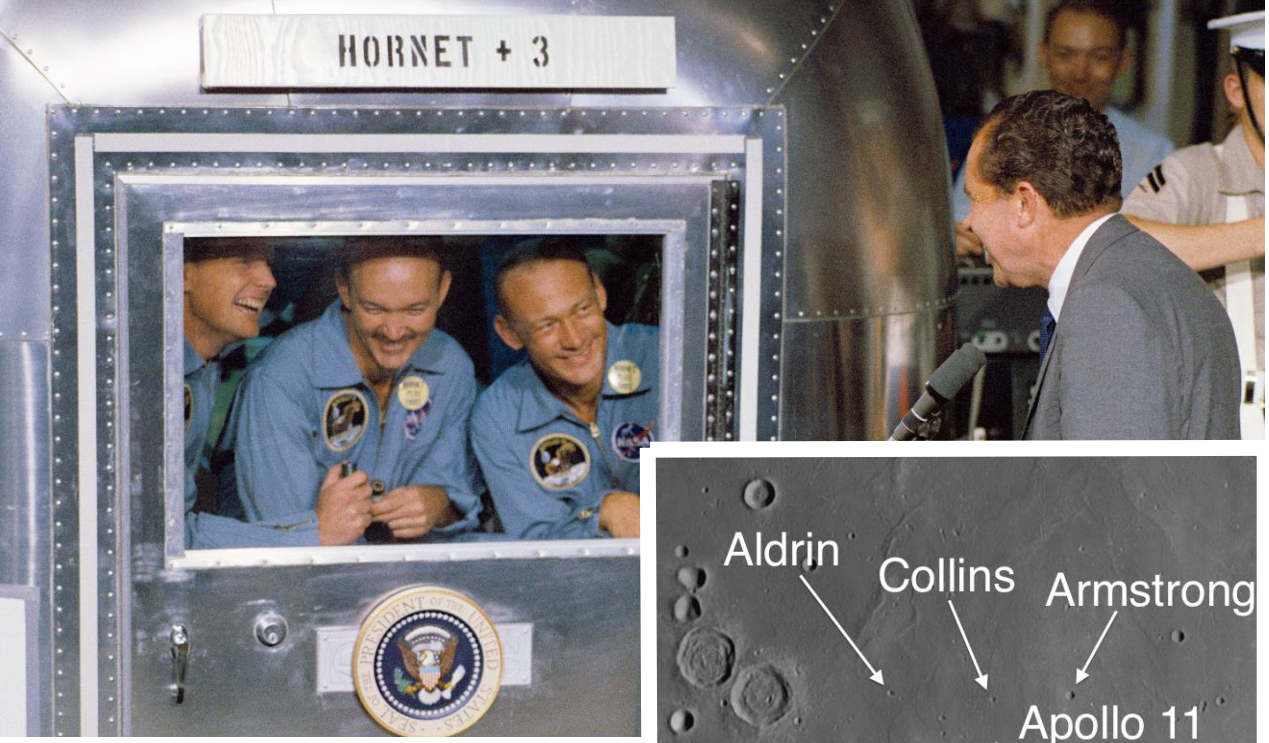




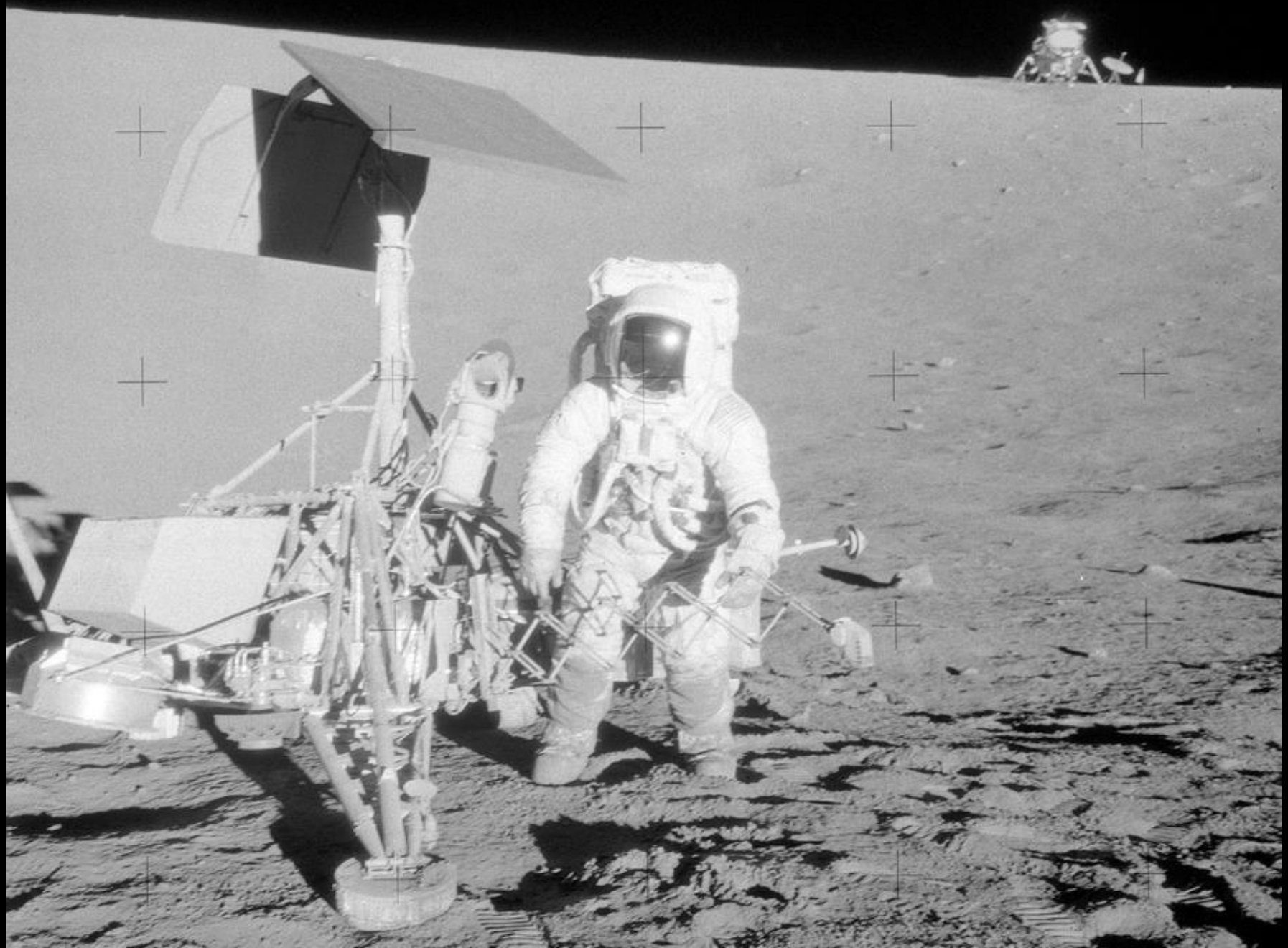




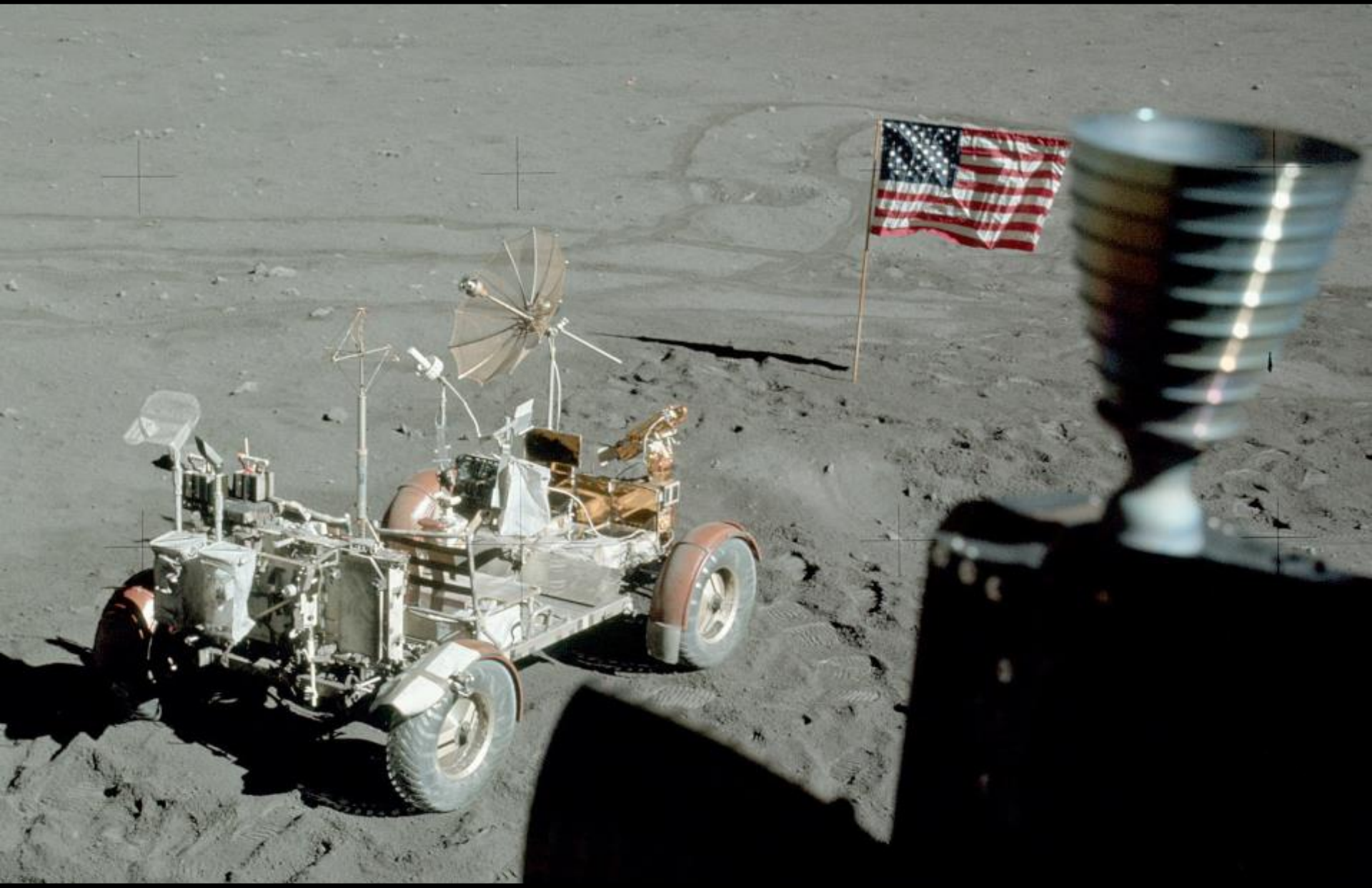
24. Juli 1969


HORNET + 3

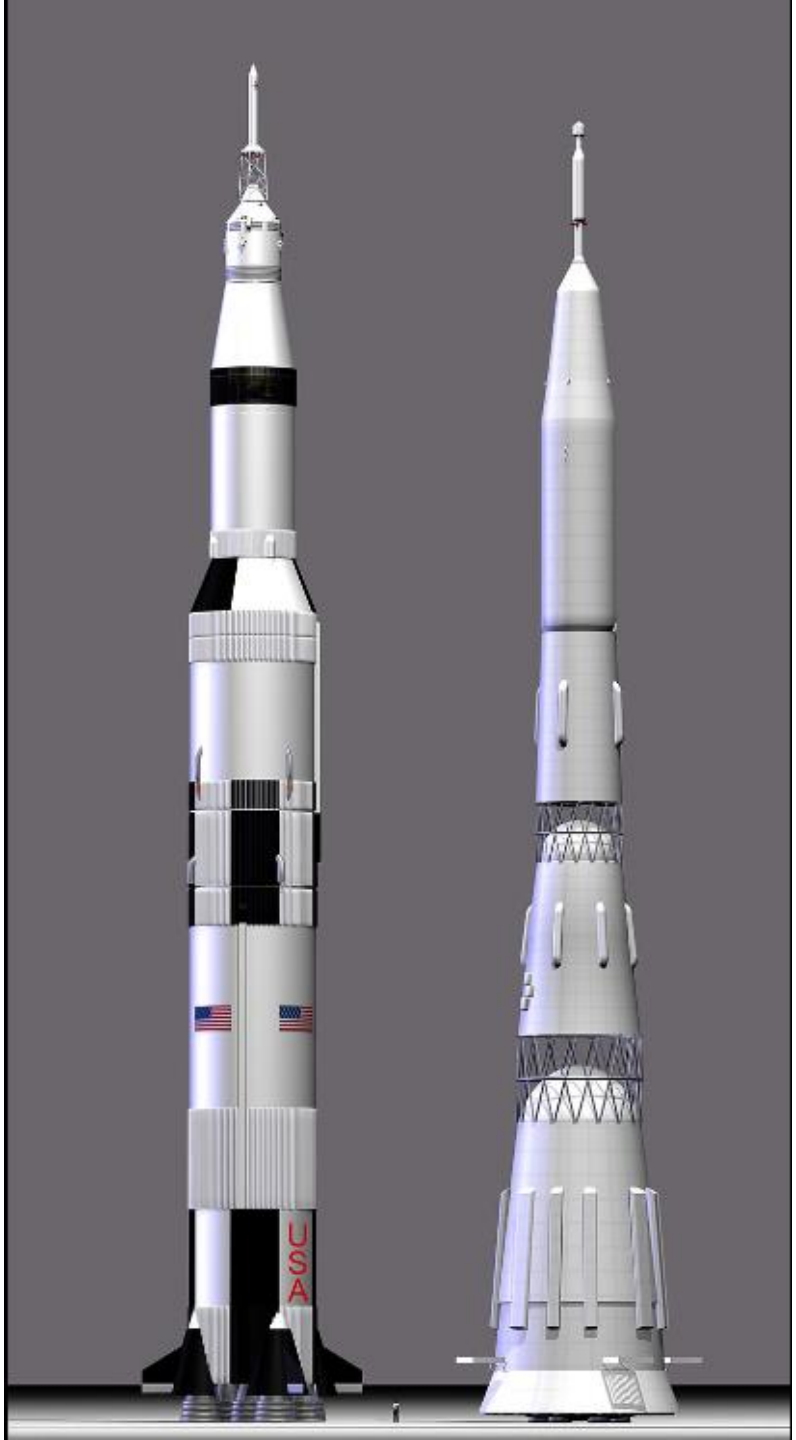
Aldrin
Collins
Armstrong
Apollo 11




APOLLO XIII
EX LUNA, SCIENTIA




Apoll 17 – Desember 1972


USA