



The Moon Race [July 1969]

—

down to the wire!

JAMES OBERG

JULY 17, 2019

SPACE CENTER HOUSTON

APOLLO-11 FIFTIETH ANNIVERSARY

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SOVIET LUNA IN MOON ORBIT

Our Astros Put On TV Show



Taking It Slow at 7 Miles Per Second. Apollo 11 astronaut Mike Collins looks like the man of the house settling back for a ball game on TV. But he's zipping to moon at seven miles per second and, when this shot was sent back to TV sets on earth last night, he was 150,000 miles from home. *Stories start on page 3; other pictures centerfold and back page*

Medals on the Moon for 5 Heroes of Space



Yuri Gagarin
World's first astronaut



United States astronauts Virgil (Gus) Grissom, Edward H. White and Roger B. Chaffee (l. to r.) died in fire on launch pad during a flight simulation on Jan. 27, 1967.

By FRANK VAN RIPER

Washington, July 17 (NEWS Bureau) —President Nixon disclosed today that the men of Apollo 11 will leave on the moon mementos of three American and two Russian astronauts whose tragic deaths slowed, but never stopped, man's effort to conquer space.

The President disclosed, at a Rose Garden ceremony honoring retiring Air Force Chief of Staff Gen. John P. McConnell, that the astronauts are carrying with them two medals which were presented posthumously by the Soviet Union to cosmonaut Yuri A. Gagarin and Vladimir Komarov.

Nixon said that the wives of the two Russian spacemen gave the medals to Col. Frank Borman

during the astronaut's recent trip to the Soviet Union, and asked that they be left on the moon by the men of Apollo 11.

Nixon said the American moonmen also will leave behind the insignia patch of three fellow astronauts who perished during a training mission for the Apollo flight in 1967.

Astronauts Virgil (Gus) Grissom, Roger B. Chaffee and Edward H. White became the first fatalities of the U.S. space program on Jan. 27, 1967, when a flash fire ripped through their spacecraft during a routine simulated flight. Space agency medals were presented to the three posthumously and the President disclosed today that these medals also will travel to the moon aboard Apollo 11.

However, at the request of the wives of the late astronauts, the medals will not be left on the lunar surface but will be returned to earth in symbolic tribute to the men of Apollo 1.



Vladimir Komarov
Died in space ship crash

Luna Orbits Moon; Is Landing Near?

Moscow, July 17 (Combined Services)—The Soviet Union announced today that its Luna 15 spacecraft had gone into orbit round the moon—but its actual mission remained a mystery.

There was no indication in the official Tass news agency announcement whether the mission was now completed or whether the craft was scheduled to land on the moon ahead of Apollo 11 and return to earth carrying moon dust.

But in Britain, Sir Bernard Lovell, director of the Jodrell Bank observatory, said he guessed the Soviet craft had gone into orbit to check guidance techniques prior to a landing. He said it had

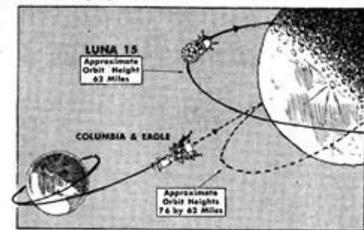
What is Luna 15 up to? See Science Editor Mark Bloom's analysis, page 4.

sent back "heaps of information" but so far no photographs.

Breaking a four-day silence on the moon mission since its launch Sunday, Tass said Luna 15 went into the orbit at 6 a.m., New York time after firing its retro-rockets while on the far side of the moon.

Tass said that the orbit was close to the one calculated and that the craft's instruments sent back information showing everything was "functioning normally." It said one course correction maneuver was carried out Monday and 28 "radio communications sessions were held with the station" during its 102-hour journey.

If the Soviets craft succeeds, it will capture two major space first from the Apollo 11 crew: the first successful landing and takeoff of a man-made object from the moon, and the first de-



NEWS Illustration by Stan Artur Joffens
Soviet Luna 15 is circling moon in orbit no higher than 62 miles, according to Sir Bernard Lovell of Jodrell Bank Observatory. Tomorrow, Apollo 11 will enter moon orbit with high point of 76 miles and low point of 82 miles.

livery of lunar samples to earth. The 180-word Tass announcement referred to the craft as "the moon's new artificial satellite" and said a "coordinating-computing center" was processing incoming information.

Soviet newspapers, radio and television meanwhile gave exten-

sive coverage to the Apollo 11 shot, the most any American space effort has ever received here. Pravda, the Communist Party newspaper, printed a front-page story and wished "the courageous crew of Apollo 11 a happy journey and full success."

Moscow citizens received progress reports on the U.S. flight on half-hourly radio newscasts. Television transmissions were premised later in the day.

Houston, July 17 (Reuters)—The U.S. space agency would, if absolutely necessary, ask the Soviet Union to take action to prevent the unmanned Luna 15 spacecraft from endangering the lives of the Apollo 11 moon-landing astronauts, an official said today.

Answering questions at a news conference, Apollo 11 flight director Clifford Charlesworth said that mission controllers were trying to find out more about the flight path of the Luna 15 before the U.S. spacecraft goes lunar orbit Saturday.

A ★ ★ ★ ★ Space Spectacular on TV

By ALTON SLAGLE
Staff Correspondent of THE NEWS

Houston, Tex., July 17—The Apollo 11 passed the halfway mark today on its voyage to the moon and its three-man crew put on, for the delight of earthbound viewers, their nighttime TV version of "As the World Turns."

Having at first been as talkative as clams in a spaceball, the astronauts opened up and performed their first big live space spectacular, which began with a view of a receding earth.

Then they turned their 8-pound camera inside the command module and beamed back to earth a

space opera which answered the question: can astronauts find happiness and comfort while heading for the moon. The answer was yes.

Command pilot Neil Armstrong performed some space hijinks for his millions of viewers. "Hey, world," he said, "hang

took up most of the window out of which the world could be seen.

Then the camera moved to the scene inside the Apollo where command module pilot Mike Collins played with a flashlight in the weightless cabin. Not to be outdone, fellow astronaut Buzz Aldrin performed some pushups.

Then the astronauts gave the earth a good view of their food cabinet. "We've got all kinds of good

(Continued on page 4, col. 3)

OVERVIEW— JULY 1969

Unexpected last-minute drama was added to Apollo-11 by the appearance of a robot Soviet moon probe that might have **returned lunar samples to Earth** just before the astronauts got back. We **now** know that even more dramatic Soviet moon race efforts were ALSO aimed at **upstaging Apollo**, hoping it would fail. But it was the Soviet program that failed -- and they did their best to keep it secret. These Soviet efforts underscored their desperation **to nullify the worldwide significance** of Apollo-11 and its **profound positive impact**, as JFK had anticipated, on international assessments of the relative US/USSR balance of power across the board -- military, commercial, cultural, technological, economic, ideological, and scientific. These were **the biggest stakes in the entire Cold War**, whose final outcome hung in the balance depending on the outcome of the July 1969 events in space.

On July 13, 1969, three days before Apollo-11, the USSR launched a robot probe to upstage it

Luna 15 mission events

Event	Date (1969)	UT	Notes
Launch	13 July	0255	-
Midcourse correction	14 July	-	-
Lunar orbit insertion	17 July	1000	55-202 km, $i=127$ deg
Orbit change	19 July	1308	95-221 km, $i=126$ deg
Orbit change	20 July	1416	16-110 km, $i=127$ deg T=114 min
Crash landing	21 July	1551	Crash at 57E,16N, Engines off at 1547 UT.



"All the News
That's Fit to Print"

The New York Times

LATE CITY EDITION

Weather Forecast: Partly cloudy today; tonight, cloudy and showers.
Temp. range today 61-71; Friday 64-71; Temp. -Hum. today generally 61. Conditions U.S. report on Page 10.

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NEW YORK, SATURDAY, JULY 19, 1969

15 CENTS

NIXON PROPOSES BROADER U.S. AID IN BIRTH CONTROL

Urges Creation of Panel to
Study the Implications
of Rising Population

PRESENTS GRIM REVIEW

Message to Congress Says
No One Should Be Denied
Family Planning Help

The text of Nixon's message
will be found on Page 4.

By WALTER BUCKNER

WASHINGTON, July 18 — President Nixon proposed today a substantial expansion of the Government's birth control programs and the establishment of a commission to study the implications of continued population growth in the United States.



EMERGENCY EXIT: Firemen helping a distraught IRT rider climb out of tunnel at Lexington Ave. and 120th St.

Power Blackout Is Averted As Users Reduce Demands

By JOSEPH LILLYVED

The threat of a major power failure forestalled yesterday as users of electricity in the Northeast and other major power producers in large sections of the Northeast in appeal to customers yesterday to make do with as little electricity as possible.

FOES OF ABM SAY THEY LACK VOTES

Belief Growing That Many

HEAT FELS 150 AS TIE-UP ON IRT TRAPS THOUSANDS

Man Is Killed After Flood
in Bronx Halts Service
on Lexington Ave. Line

By ROBERT D. McFADDEN

A man was killed and at least 150 people were injured by stifling heat last night during a massive subway tie-up that left thousands of riders trapped in the Lexington Avenue IRT tunnels between 77th and 125th Streets.

TRANSIT Authority officials said that at least 20 trains had been caught in the tie-up, which began about 5:30 P.M. after a handcar jammed the Pelham Bay line in the Bronx and backed up trains in midtown Manhattan.

Hundreds of riders, angry and frustrated over being trapped up to three hours, climbed out of stalled trains and made their way along catwalks to exits along the line.

Pinned at 3d Rail

Some who emerged described the tunnels as "ovens," with temperatures approaching 100 degrees. Others did not make it to the street on their own. The police said 150 people had been taken to Metropolitan, Lenox Hill, Harlem and Bellevue Hospital suffering from heat prostration.

The dead man, tentatively identified as Ralph Cruz Martinez, about 50 years old, was found pinned between a train and the electrified third rail at 120th Street. The police said he had apparently fallen from a network and had been electrocuted.

U.S. SAID TO KEEP NERVE GAS ABROAD AT MAJOR BASES

Report of Okinawa Accident
Sets Off Probe in Japan—
Tokyo Asks Explanations

By NEIL SHEERAN

WASHINGTON, July 18 — Artillery shells and bombs loaded with lethal nerve gas have been shipped to major United States military bases overseas on a worldwide basis for years, knowledgeable sources said today.

The exact number of countries where such deadly chemical munitions are stored was not disclosed, but the sources said artillery shells and bombs filled with nerve gas were being kept in American depots in West Germany as well as Okinawa. They may also be stored in United States depots in South Korea. Where two American artillery divisions are stationed.

Knowledge of this secret storage of nerve gas munitions abroad came to light as a result of inquiries spurred by an article in today's issue of The Wall Street Journal reporting that 25 Americans were hospitalized last week after an accidental discharge of highly toxic nerve gas at a depot in Okinawa.

Policy Since 1950's

The news that nerve gas is being stored on the island has set off a public furor in Japan and among the Japanese inhabitants of the large American Pacific island base, which is controlled by the United States military but is under gradual Japanese sovereignty.

MOSCOW SAYS THAT LUNA 15 WON'T BE IN APOLLO'S WAY; AMERICANS CHECK MODULE



SEARCHING FOR EQUIPMENT: Col. Edwin E. Aldrin Jr., as seen in the TV transmission from Apollo 11. When this photo was made he was in the landing module, looking for a bracket for the camera that will record moon landing. Part of control panel is at right.

SALVADOR AGREES TO PEACE FORMULA

Honduras Also Reported to
Accept 4-Point Proposal
by O.A.S. to End War

U.S. Space Aides Cautiously Pleased By Russian Amity

By RICHARD D. LYONS

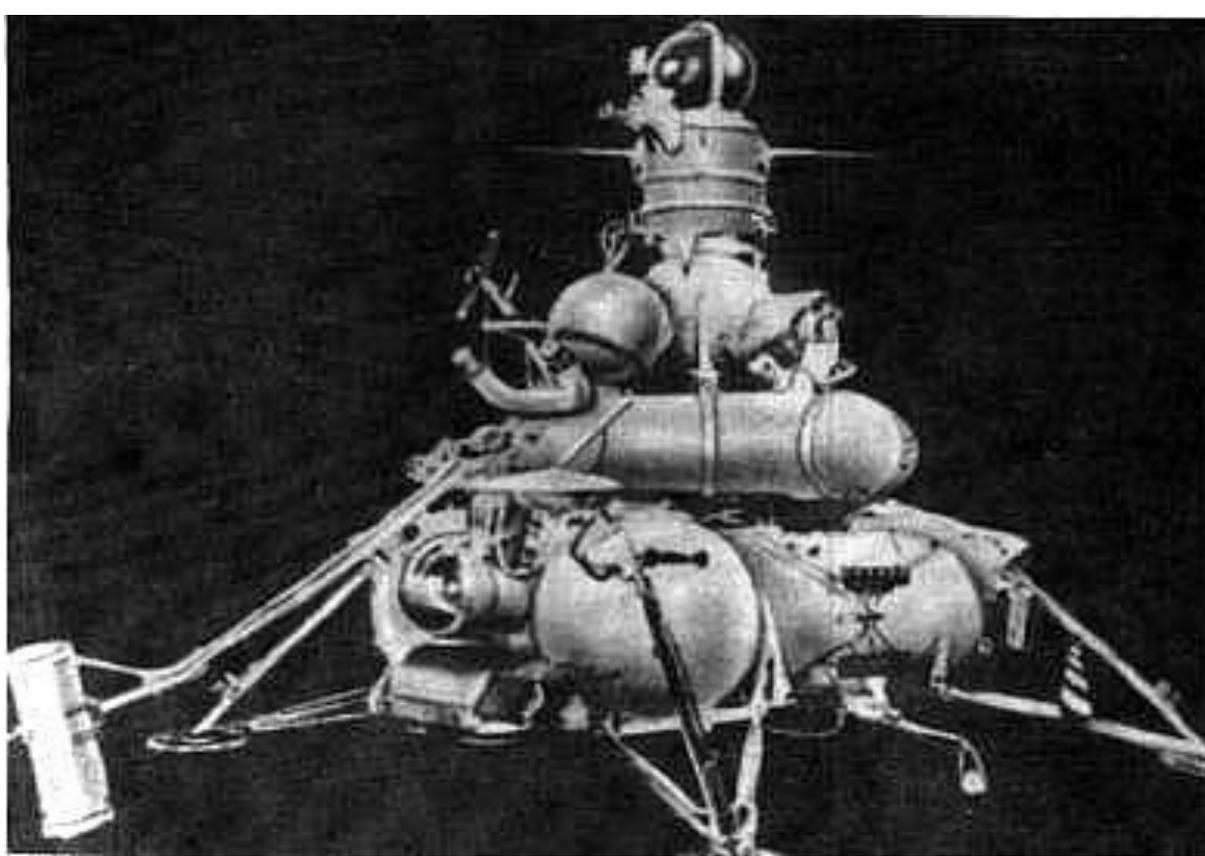
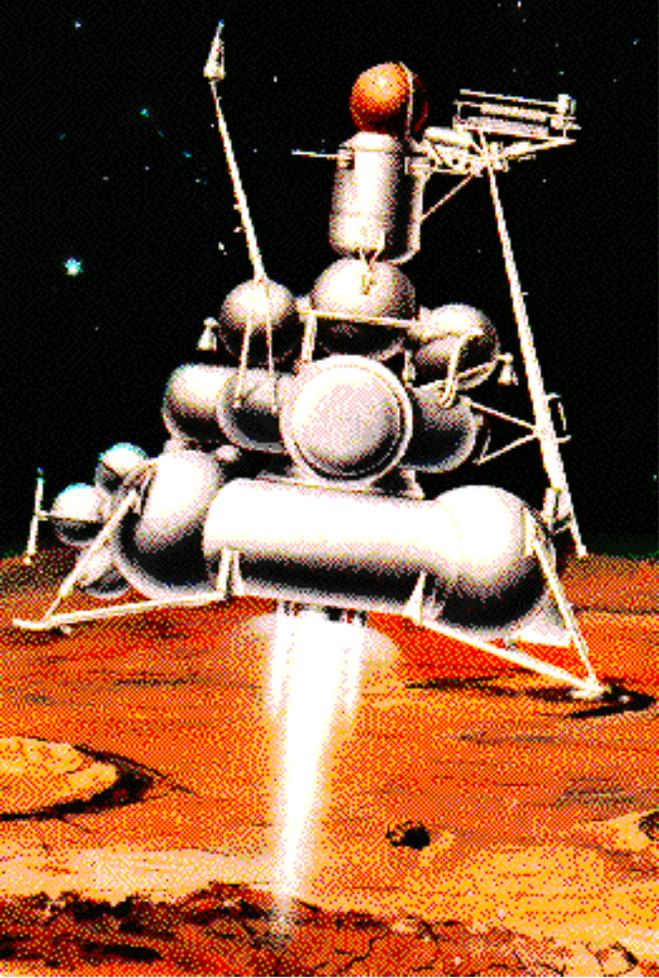
LM IN GOOD SHAPE

Spacecraft Scheduled
to Fire Its Rocket and
Begin Orbit Today

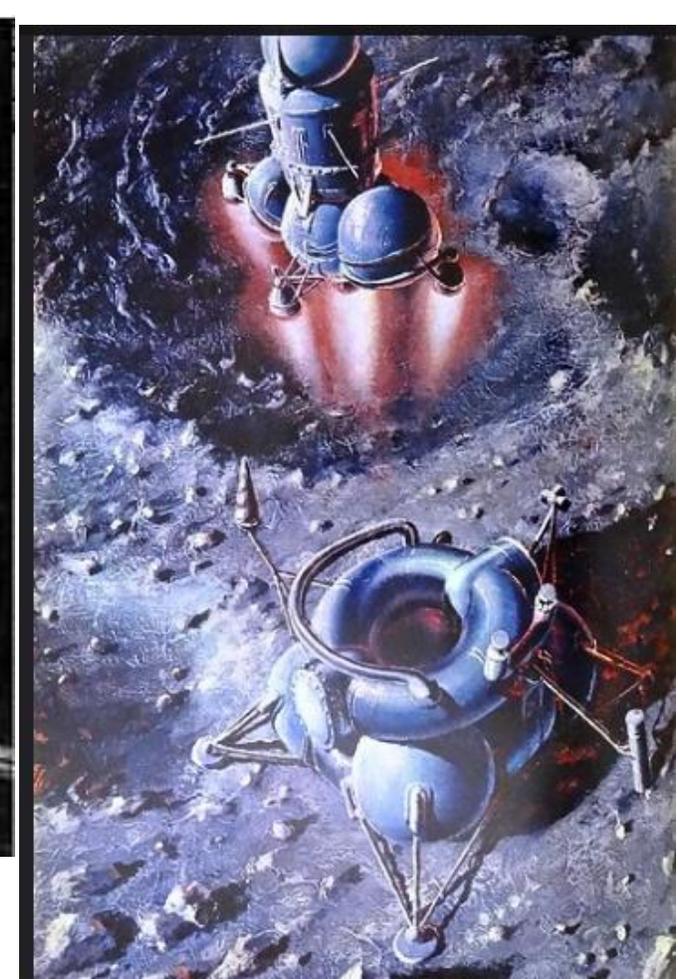
THE SOVIET
PROBE GOT TO
THE MOON
FIRST & WENT
INTO ORBIT
AROUND IT AS
APOLLO BEGAN
ITS MISSION



<https://i.ebayimg.com/images/g/T6UAAOSwDJ9crVLo/s-l1600.jpg>



<https://youtu.be/o16l8S3MMo4>



A FEW YEARS LATER, ONCE A NEW MISSION HAD SUCCEEDED, MOSCOW RELEASED DRAWINGS OF THE VEHICLE AND HOW IT OPERATED TO LAND, RETRIEVE SAMPLES, AND RETURN TO EARTH

Jodrell Bank radio telescope in Britain told the world about the final phase of the Luna 15 drama, in a news release:

"Signals ceased at 4.50 p.m. this evening [1550 UT on 21 July 1969; Soviet news releases gave the time as 1551 UT]. They have not yet returned. The retrorockets were fired at 4.46 p.m. [1546 UT; Soviet news releases gave the time as 1547 UT] on the 52nd orbit and after burning for 4 minutes the craft was on or near the lunar surface, The approach velocity was 480 km/h [presumably determined by measuring the Doppler shift] and it is unlikely of anything could have survived."

<http://www.jb.man.ac.uk/history/tracking/part2.html>



HIGH DRAMA HIGH ABOVE EARTH

There is an audio recording of scientists monitoring the Luna 15 mission (spanning July 19-21, 1969). The audio was released in 2009 to coincide with the 40th anniversary of the Moon landing. The audio is from British scientists at the Jodrell Bank Observatory, and features astronomer Sir Bernard Lovell and others who were listening in to both American and Soviet radio transmissions via the Lovell radio telescope. ...

The next dramatic moment came on July 21 when the probe began to descend; it suddenly became clear to Lovell's team that Luna 15 was designed to land, not just take orbital photos as the Soviets had indicated. This surprised everyone in the listening room, and you can hear them discuss a rumor from a source in Moscow suggesting that the probe was designed to return a sample. The team proceeds to listen as the probe lands, exclaiming "It's landing!" and "Phew!" The very last line is classic: "I say, this has really been *drama* of the highest order!"

<https://youtu.be/MJthrJ5pxk>

<http://mentalfloss.com/article/54028/during-first-us-lunar-landing-soviets-crashed-moon>

WIKIPEDIA ON LUNA-15 PROBE RESULTS

On 21 July 1969, while Apollo 11 astronauts **finished the first human moonwalk**, Luna 15, an unmanned Soviet spacecraft in lunar orbit at the time, began its descent to the lunar surface. Launched three days before the Apollo 11 mission, it was the second Soviet attempt to return lunar soil back to Earth with a goal to outstrip the US in achieving a sample return in the Moon race. The Luna 15 lander **crashed into the Moon** at 15:50 UT, hours before the scheduled American lift off from the Moon.

https://en.wikipedia.org/wiki/Luna_15

THIRTY YEARS LATER, AFTER THE COLLAPSE OF THE SOVIET REGIME, RUSSIAN SPACE ENGINEERS WERE ABLE TO PUBLICLY ADMIT THEIR FAILURE

Space Program's Past, Present, Future

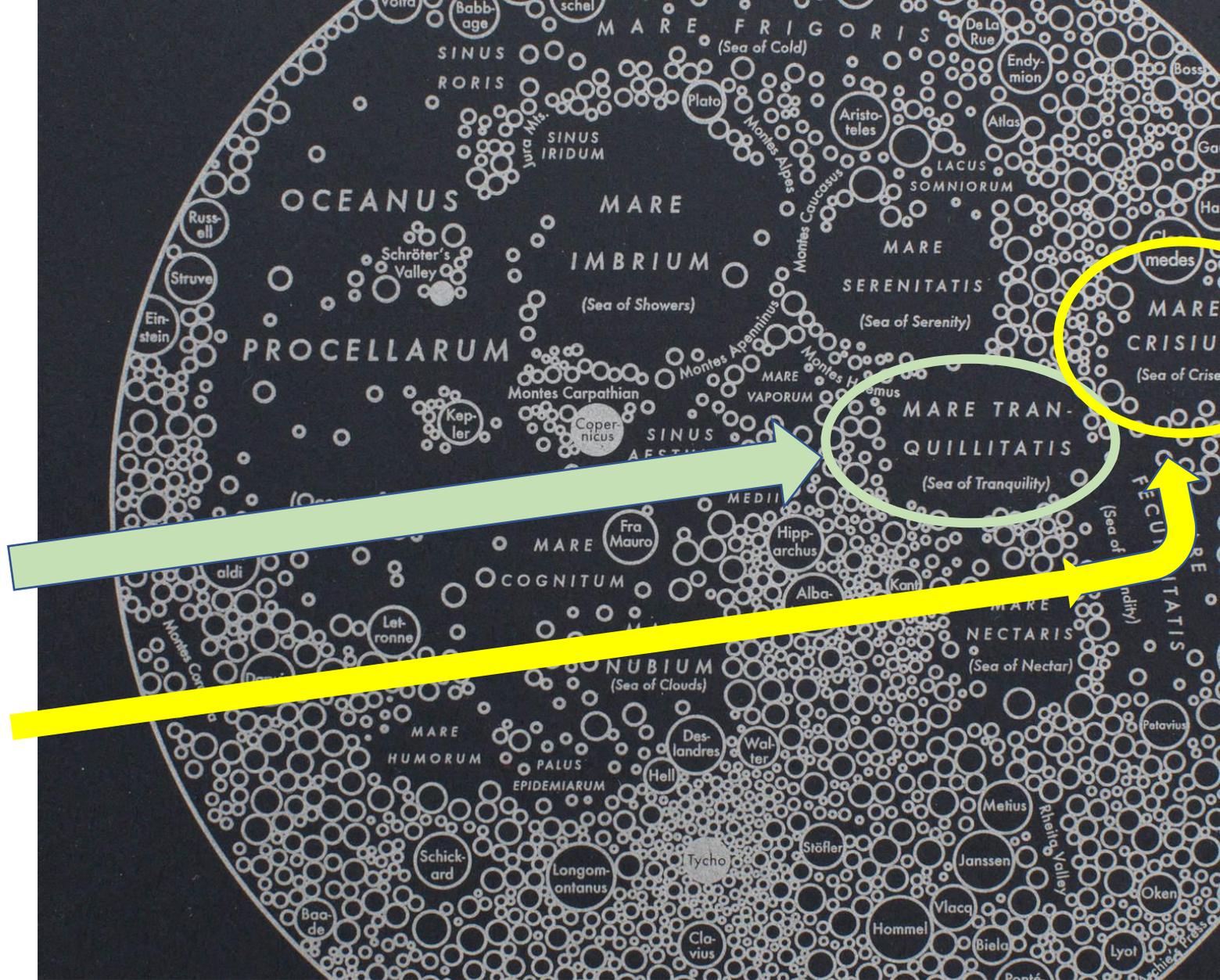
Itogi magazine, Moscow, October 7, 1997

“It should have made a soft landing, taken samples of lunar soil, and delivered them to Earth. It crashed just as the Americans left the moon. If it weren't for this catastrophe, **Luna-15 would have delivered the first lunar rocks three hours before the crew of Apollo 11 returned...**

MOSKOVSKIYE NOVOSTI, 07 Apr 7, 1996, page 17

“The idea was remarkable: to be ahead of the Apollo-11 astronauts by at least a day. And such an attempt in actuality was made. Specialists of the Lavochkin Plant honorably carried out the mission of the party and the government and launched the Luna-15 station precisely on time. But it, alas, broke up upon landing on the lunar surface. **The ambitious attempt did not succeed and the triumph of the Americans was complete.**

IN A MOON METAPHOR
TOO IMPOSSIBLE TO BE
CREDIBLE IN A SCIENCE
FICTION STORY, THE
APOLLO-11 CREW HAD
LANDED SAFELY ON THE
'SEA OF TRANQUILITY'.....
AND THE SOVIET PROBE
HAD SMASHED TO BITS
ON THE **'SEA OF CRISES'**



<https://buyolympia.com/Item/archies-press-black-moon-map>

WAS THE MOON RACE OVER? OR HAD IT NEVER BEGUN?

- CYNICS ACCUSED NASA OF INVENTING OR EXAGGERATING THREAT OF SOVIET MAN-ON-THE-MOON VICTORY AS A BUDGET PLOY
- JFK COMMITMENT TO APOLLO WAS CONTINGENT ON NEEDING SUCH A TRIUMPH TO RESTORE WORLD PRESTIGE OF AMERICAN KNOW-HOW
- JFK'S ASSASSINATION 'LOCKED IN' THE PROGRAM AS A TRIBUTE TO HIM
- CLOSED SOCIETY IN USSR [AND MILITARY SECRECY] HINDERED DETECTION AND RECOGNITION OF CLUES TO THEIR TRUE INTENTIONS
- BY THE TIME THE INTELLIGENCE REPORTS BECAME UNAMBIGUOUS IT WOULD HAVE BEEN TOO LATE TO PREPARE AN ADEQUATE RESPONSE

WIDESPREAD WESTERN CLAIMS THE 'MOON RACE' WAS ILLUSORY

- NY TIMES, 1964: "There is still time to call off what has become **a one-nation race** .."
- Journey to Tranquility (Doubleday, 1969), "...by 1963 it had become clear that the Russians had little immediate interest in the Moon and that **the race for space did not, in fact, exist.**"
- London Sunday Times, 1971: "It became obvious long before the Americans landed on the Moon that they were winning the space race hands down.... **There was never the remotest chance that the Russians would get to the Moon first.**"
- Walter Cronkite, in 1974, reviewed the history of the 1960s and intoned: "It turned out that **the Russians were never in the race at all.**"
- Howard Benedict, AP aerospace writer, June 1974: "During the 1960s, the United States conducted a crash program to beat the Russians in putting a man on the Moon. Now American space officials have evidence that **the Soviets never were in the race . . .**"
- Chicago Sun-Times, July 15, 1979: "As the decade progressed, it became obvious **the Russians had dropped out of (or never entered) the moon race**, but still we pressed on."
- NBC News Productions, Apollo 20th anniversary, July 1989, narrated by Leonard Nimoy: "The space race **hadn't been a race at all.**"

DURING THE '60'S, UNAMBIGUOUS SOVIET COMMENTS

- Soviet Encyclopedia of Space Flight, published in late 1968, unequivocally stated that the Zond flights “were launched for flight testing and further development of **an automatic version of a manned lunar spaceship.**”
- Cosmonaut #2 Gherman Titov had written: “As for myself, I dream of flying around the moon... **Cosmonauts have a good chance of getting a close view of the moon.**”
- Cosmonaut Vladimir Komarov, before his death in 1967, had told newsmen that “I can positively state that **the Soviet Union will not be beaten by the United States in the race for a human being to go to the moon...**”
- Aleksey Leonov had stated that “man will visit the moon in the nearest future. I dream of this being accomplished **by men of our detachment.** If I am very lucky, I will get the assignment.”
- Pavel Belyayev commented on the moon race in 1965: “We are not idle. **We shall see who will be first.**” Michael Collins wrote concerning a private, off-the-record meeting he and fellow-astronaut David Scott had with cosmonaut Pavel Belyayev at an air show in Paris in early 1968. The men were discussing their own future flight plans, and Collins later noted that “we found that **Belyayev himself expected to make a circumlunar flight** in the not too distant future.”
- **Nikita Khrushchev** referred to his man-to-the-moon project in his memoirs when he paid homage to Sergey Korolev, head of the Soviet space program, whose unexpected death in 1966 at age 59 crippled their program for five crucial years. “I'm only sorry,” Khrushchev recalled, “**that we didn't manage to send a man to the moon** during Korolev's lifetime.”

THE FULL STORY TOOK YEARS TO DRIBBLE OUT

- **THE CRASH OF LUNA-15 WAS ONLY THE MOST PUBLIC OF A SERIES OF DEVASTATING SOVIET MOONFLIGHT-RELATED FAILURES IN 1968-9**
- ON JULY 3, TWO WEEKS BEFORE THE LAUNCH OF APOLLO-11, THE SOVIET RESPONSE TO THE AMERICAN SATURN-5 SUPER-ROCKET HAD **EXPLODED ON LIFTOFF**, DESTROYING ITS LAUNCH PAD
- THE PREVIOUS YEAR, DESPERATE ATTEMPTS TO FLIGHT-QUALIFY **A MANNED LUNAR FLYBY SPACECRAFT** [CODE-NAMED 'ZOND'] HAD BEEN OVERTAKEN BY THE BOLD APOLLO-8 LUNAR ORBIT BY THREE ASTRONAUTS IN DECEMBER
- IN JANUARY 1969, COSMONAUTS CONDUCTED A PRACTICE MISSION FOR LUNAR ORBIT RENDEZVOUS AND CREW TRANSFER, WHICH HAD SUCCEEDED – UNTIL ONE OF THE RETURNING 'SOYUZ' SPACECRAFT CAME **WITHIN SECONDS OF DISINTEGRATING** DURING REENTRY. THE NEAR FATAL DISASTER WAS COVERED UP BY SOVIET AUTHORITIES FOR DECADES.
- UNMANNED ORBITAL FLIGHT TESTS OF A MANNED LUNAR LANDING VEHICLE HAD **SLIPPED INTO 1970** AND **THE LAST HOPE WAS THAT APOLLO WOULD ENCOUNTER A CRIPPLING DISASTER** THAT WOULD ALLOW THE SOVIETS TO CATCH UP

WHY THE RUSSIANS WERE NOT DISCOURAGED

- THE TYPICAL SOVIET ROCKET DEVELOPMENT PROCESS IN THE 1960S WAS TO FLIGHT TEST AS SOON AS POSSIBLE IN ORDER **TO SHAKE OUT ENGINEERING FLAWS** THAT GROUND TESTS AND COMPUTER MODELING COULD NOT FIND.
- **EARLY FAILURES** WERE USUALLY FOLLOWED BY **HIGHER SUCCESS RATES**.
- GIVEN THE DEMONSTRATED PRACTICAL EXPERIENCE AND KNOWLEDGE OF THEIR 'ROCKET SCIENTISTS' THAT IS JUST **WHAT THEY WOULD HAVE EXPECTED** WITH THE MOON HARDWARE, WITH JUSTIFICATION.
- MEANWHILE, KEEPING THE SETBACKS SECRET **PROTECTED THE DESIRED PUBLIC IMAGE OF SOVIET SUPERIORITY** IN SPACE TECHNOLOGY.
- FLIGHT TESTING OF MAN-TO-THE-MOON HARDWARE CONTINUED IN SECRET **FOR SEVERAL YEARS AFTER APOLLO-11**.

**JULY 3, 1969
LAUNCH OF
SOVIET
MOON
ROCKET....**



The next N1 test flight came on 3 July 1969, only weeks before Apollo 11 made its successful lunar landing. Known as launch vehicle 5L, this N1 was also destroyed shortly after liftoff due to a failure in the first stage. Just 0.25 seconds into the flight, the pump of engine number 8 ingested debris and exploded setting off a large fire in Block A. The N1 managed to climb just above the top of the launch tower when the remaining engines were shut down prematurely. The rocket plummeted back onto the pad in a spectacular explosion that destroyed the launch facility known as 110 East. Not only did it take 18 months to repair the pad, but the failure ended any last remaining hope of impressing the world prior to the American lunar landing.



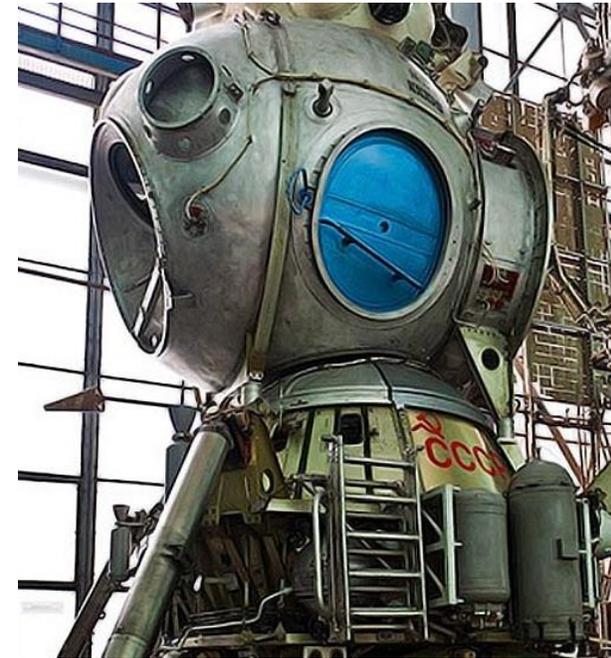
**...AND THE
EXPLOSION.**

**THIS IS A MELTED, SCARRED ALUMINUM
FRAGMENT OF THAT CATASTROPHIC BLAST**



ONE-MAN LUNAR LANDER

THE SOVIETS SECRETLY BUILT A 'LUNAR CABIN' ["L-3"] TO PERFORM THE FUNCTIONS OF NASA'S 'LUNAR MODULE'. IT ONLY CARRIED A SINGLE COSMONAUT WHO HAD TO SPACEWALK FROM AND TO THE COMMAND MODULE IN LUNAR ORBIT.



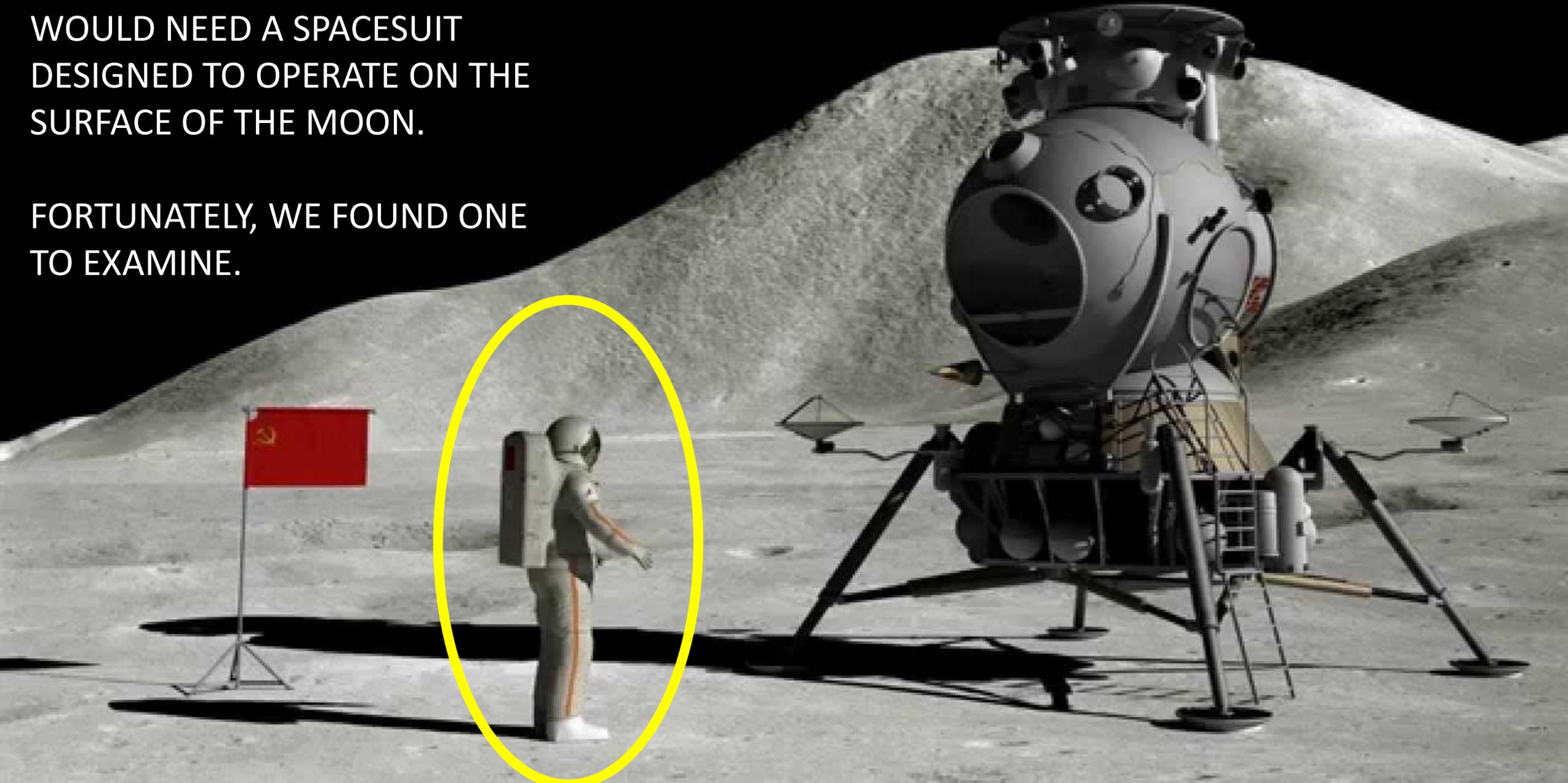
ON ALL MY RUSSIAN VISITS, MY HOSTS WERE ALWAYS VERY GRACIOUS BUT THEY NEVER LET ME GET NEAR THIS VEHICLE

- <http://www.aerospacweb.org/question/spacecraft/russia/lk-lander.jpg>

ALONG WITH A LUNAR MODULE,
A MANNED MOON EXPEDITION
WOULD NEED A SPACESUIT
DESIGNED TO OPERATE ON THE
SURFACE OF THE MOON.

FORTUNATELY, WE FOUND ONE
TO EXAMINE.

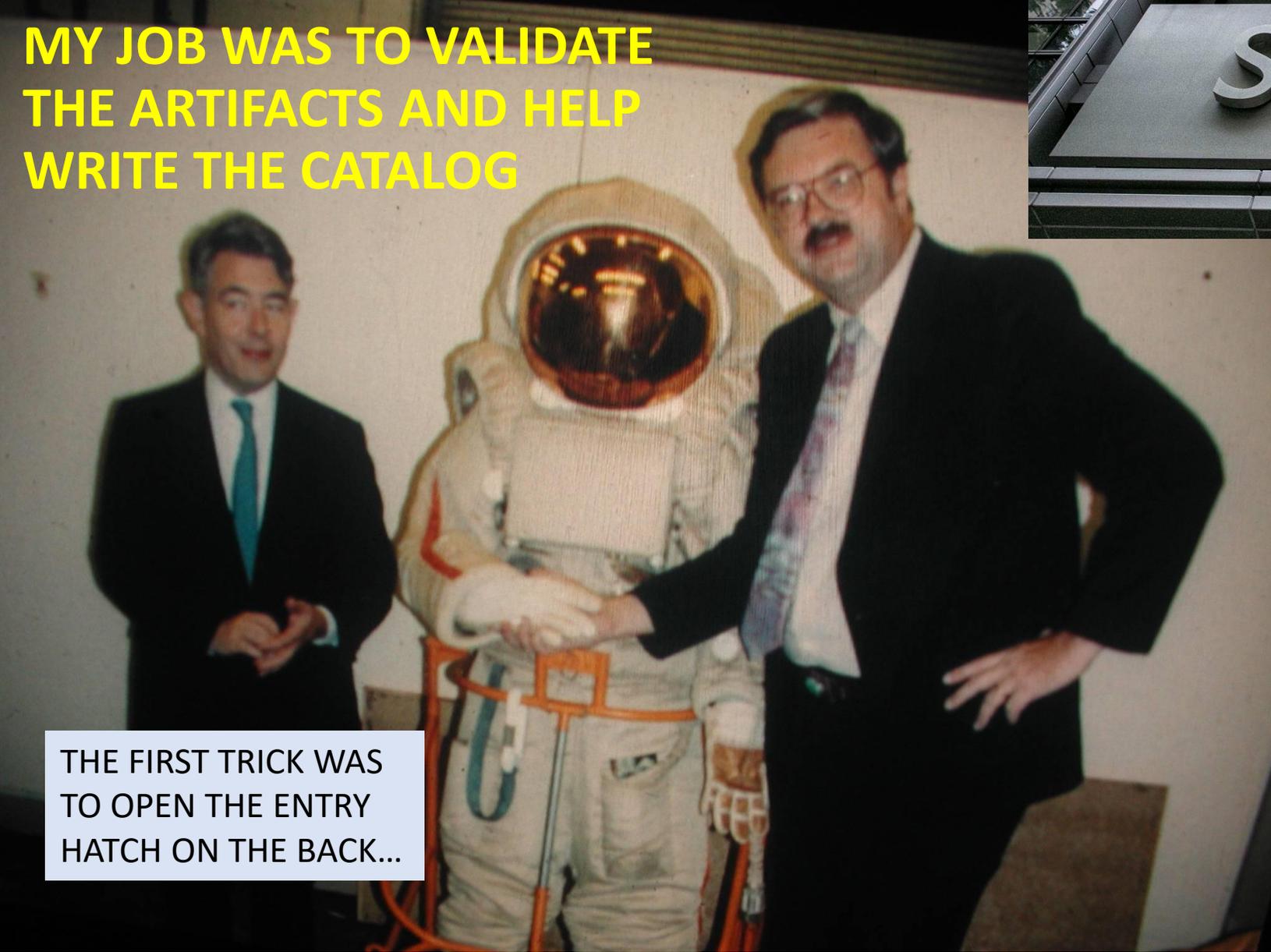
COMPUTER GRAPHIC MADE
BY AMERICAN HOBBYIST



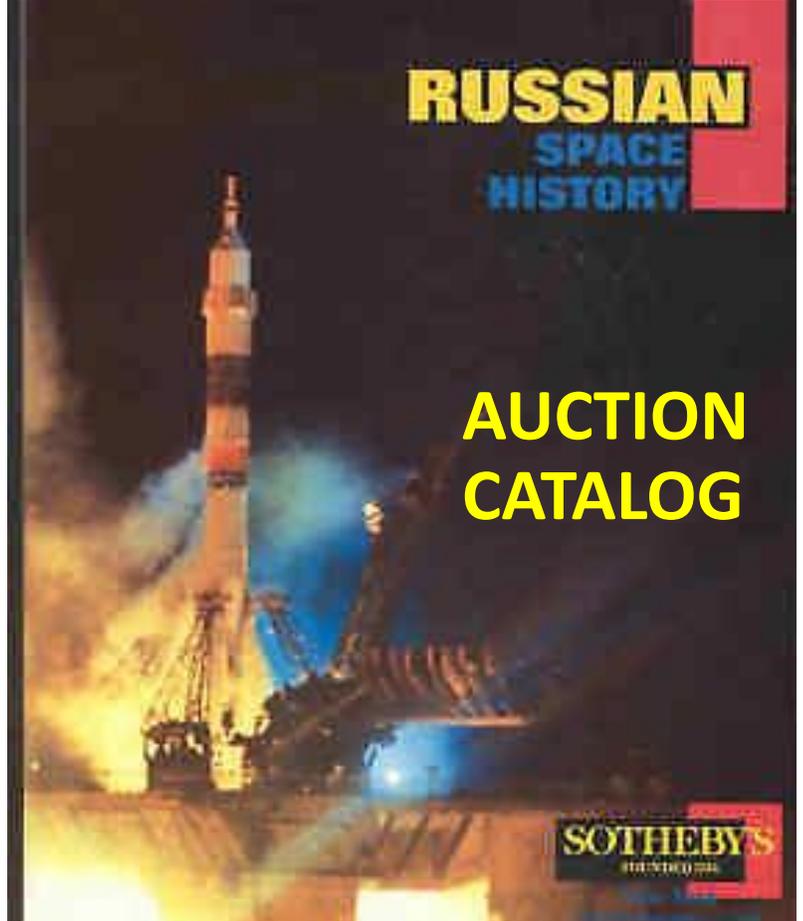
1993 AUCTION OF ARTIFACTS, NYC



MY JOB WAS TO VALIDATE THE ARTIFACTS AND HELP WRITE THE CATALOG



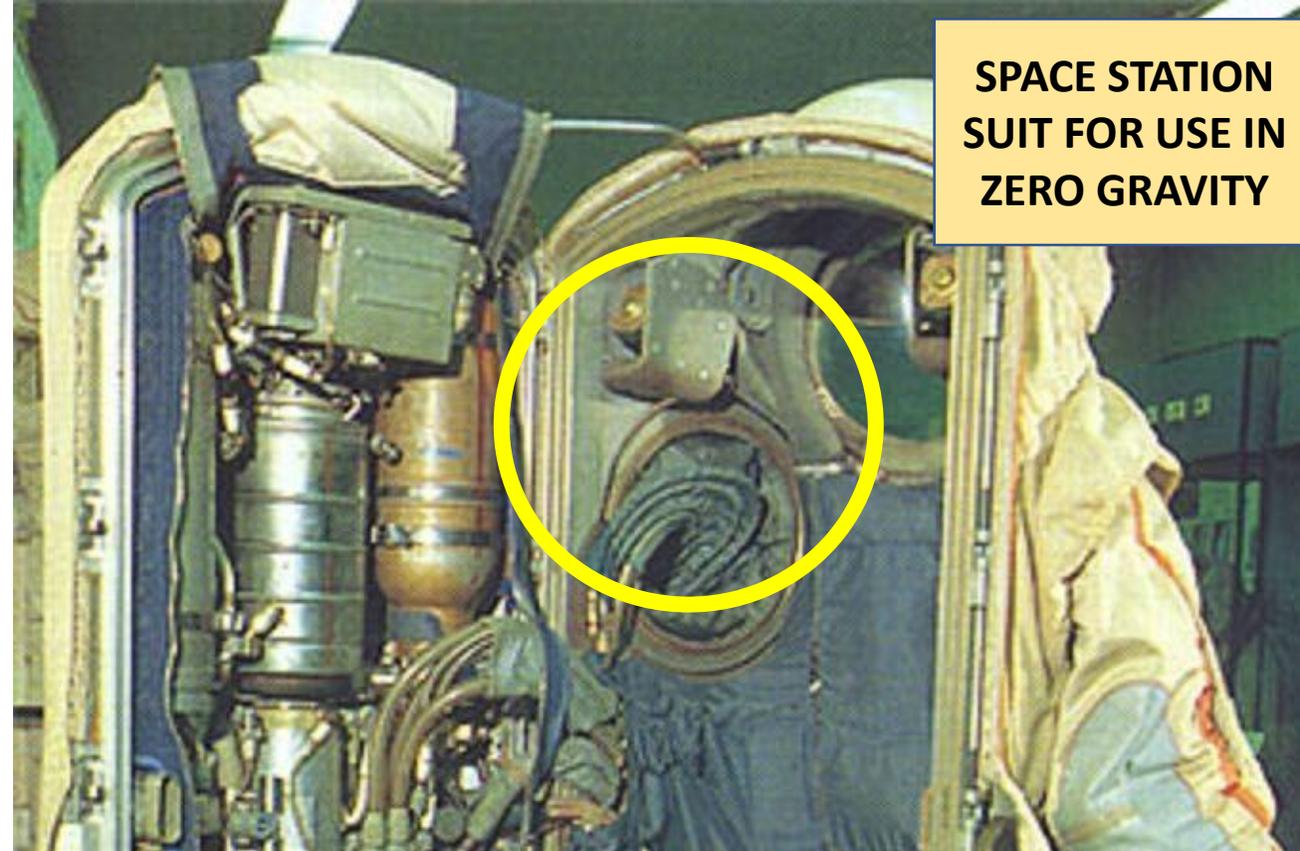
THE FIRST TRICK WAS TO OPEN THE ENTRY HATCH ON THE BACK...



MOON SUIT
FOR 1/6 'G'
ON SURFACE



SPACE STATION
SUIT FOR USE IN
ZERO GRAVITY



MAJOR AUCTION ARTIFACT WAS A SPACESUIT BILLED AS A “**MOON SUIT**” FOR A PLANNED COSMONAUT LUNAR EXPEDITION [ON LEFT – A NORMAL SPACE STATION SUIT IS ON RIGHT] . AS CONSULTANT, MY TASK WAS TO **EXAMINE** IT AND **VALIDATE** SUIT’S ALLEGED PURPOSE. THE YELLOW CIRCLES IDENTIFY THE CRUCIAL ELEMENT OF PROOF.

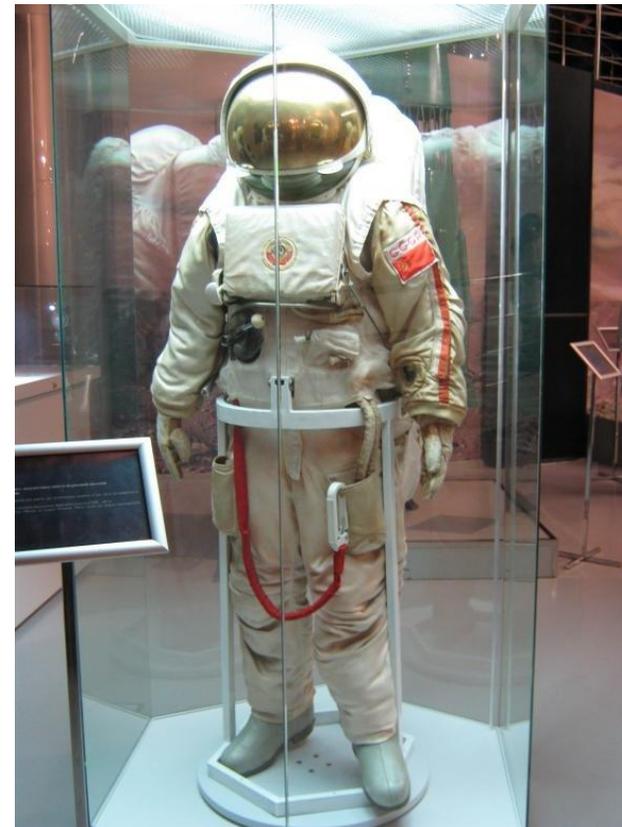
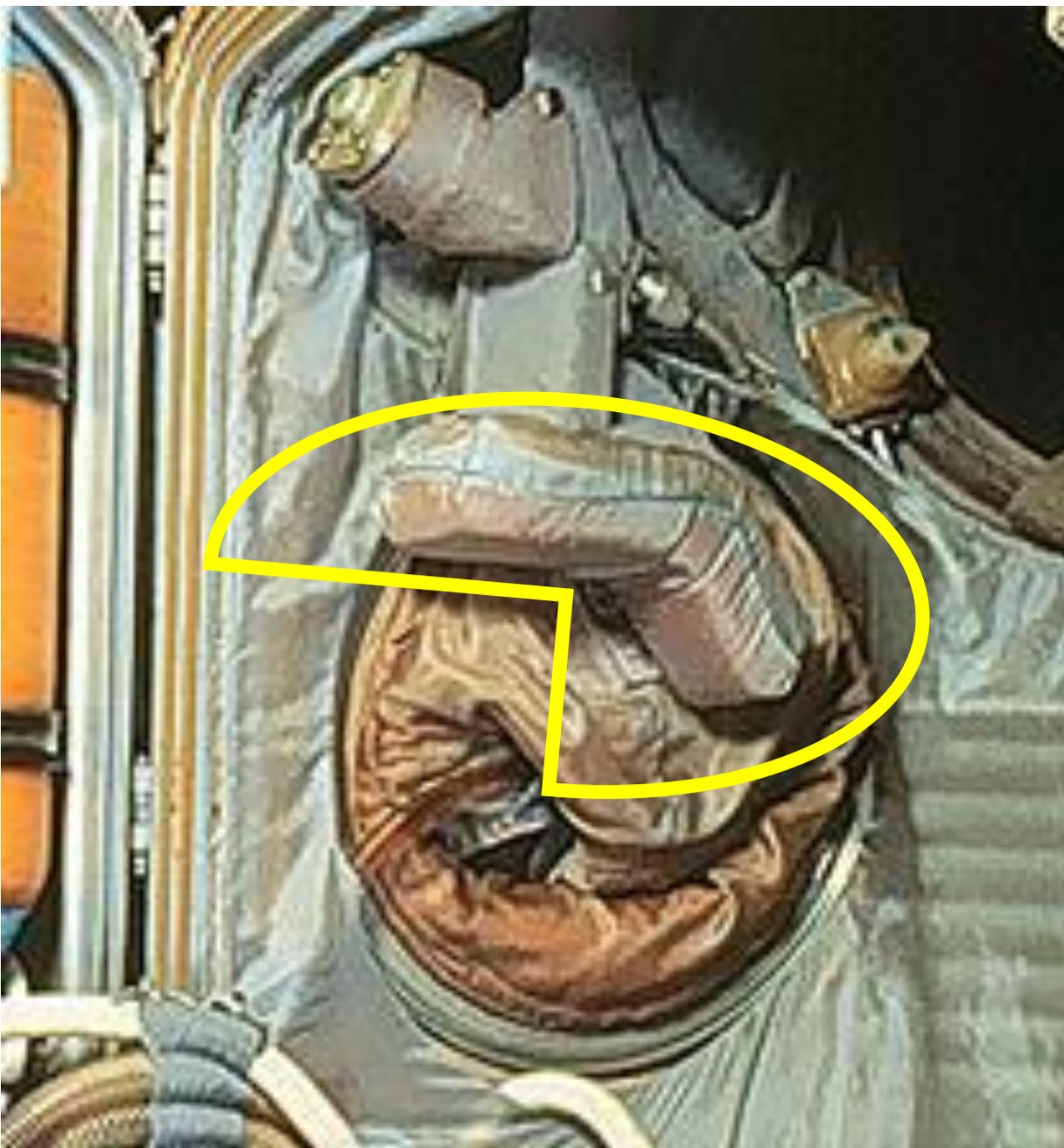


THE SUIT SENT TO SOTHEBY'S WAS A GENUINE MOON-SUIT BECAUSE IT WAS DESIGNED TO BE WORN UNDER GRAVITY CONDITIONS – WITH PADDED BRACES TO REST ON THE COSMONAUT'S SHOULDERS TO CARRY THE SUIT'S WEIGHT

WALKING ON MOON

//

FLOATING IN ORBIT



TO SUMMARIZE:

- THE SOVIETS BUILT A ROBOTIC SPACECRAFT [“LUNA-15”] TO RETRIEVE LUNAR SAMPLES FOR INITIAL STUDY
- THE SOVIETS BUILT A MEDIUM-CLASS ROCKET [‘PROTON’] AND A MODIFIED ‘SOYUZ’ CREW-CARRYING VEHICLE FOR EARLY LUNAR FLY-BY
- THE SOVIETS DESIGNED, BUILT, AND AUTOMATICALLY FLIGHT-TESTED A LUNAR LANDING MODULE FOR ONE PILOT
- THE SOVIETS BUILT A SPACESUIT SPECIFICALLY DESIGNED FOR USE ON THE MOON
- THE SOVIETS BUILT A SATURN-5 CLASS BOOSTER FOR CARRYING THIS COMBINED SPACECRAFT TO THE MOON
- **THE MULTIPLE CAPABILITIES THAT THEY TRIED TO BUILD CLEARLY SHOW THEIR INTENTIONS TO LAND A COSMONAUT ON THE MOON**

TWENTY YEARS LATER, THE NY TIMES FINALLY CATCHES ON

Russians Finally Admit They Lost Race to Moon

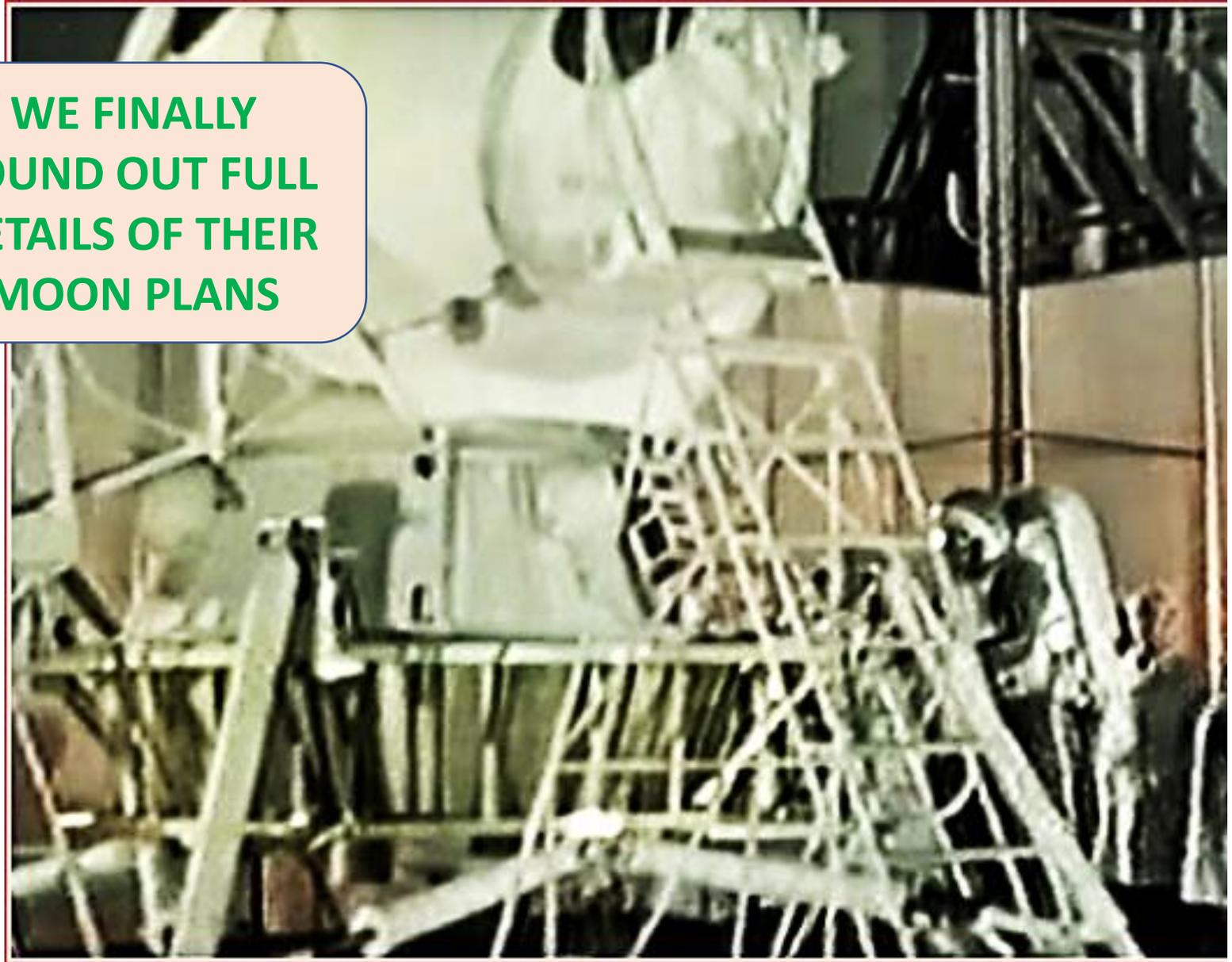
By JOHN NOBLE WILFORD DEC. 18, 1989

- After **years of denial by silence and misinformation**, the Soviet Union has now disclosed that in the 1960's **it was indeed racing** the United States to be first to send men to the Moon.
- American aerospace engineers returning from Moscow reported yesterday that **they were shown for the first time** a spacecraft that Soviet engineers told them was ready to go to the Moon in 1968, a year before the Apollo 11 mission made the first landing on July 20, 1969.
- One of the Americans, Dr. Edward F. Crawley of the Massachusetts Institute of Technology, said the lunar-landing craft and Earth-return module he and his colleagues inspected and the descriptions they heard were "confirmation that the Soviets did have a well-developed lunar-landing program." **Previously, he said, "the evidence was entirely circumstantial."**
- ...James E. Oberg, an independent expert on the Soviet space program and author of "Red Star in Orbit," said: **"The evidence had always appeared persuasive.** Now we have pictures of the spacecraft that should be the final proof."
- <https://www.nytimes.com/1989/12/18/us/russians-finally-admit-they-lost-race-to-moon.html>





**WE FINALLY
FOUND OUT FULL
DETAILS OF THEIR
MOON PLANS**



<http://www.russianspaceweb.com/lk.html>

<https://forum.nasaspaceflight.com/index.php?topic=19377.0>

<https://forum.nasaspaceflight.com/index.php?topic=19377.0>

[artwork credit
Eberhard Marx]

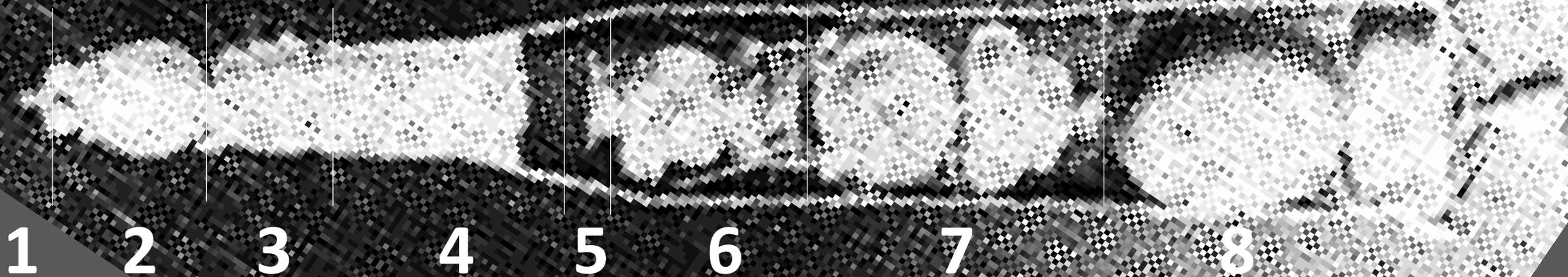
**THE SOVIET LANDER [LEFT] WAS SUBSTANTIALLY
SMALLER THAN THE US LANDER [RIGHT] BUT THIS
WAS MOSTLY BECAUSE ONLY THE ASCENT STAGE
[WITH LADDER AND LANDING LEGS FRAMEWORK]
TOUCHED DOWN ONTO THE LUNAR SURFACE**



<https://upload.wikimedia.org/wikipedia/commons/thumb/1/19/Landef%C3%A4hren-neu.jpg/800px-Landef%C3%A4hren-neu.jpg>

воспоминания о лунном корабле

RECOLLECTIONS ABOUT THE LUNAR SHIP



- 1 DOCKING PROBE FOR MOORING TO LUNAR MODULE ROOF
- 2 CREW HABITATION MODULE
- 3 CREW REENTRY VEHICLE FOR EARTH LANDING
- 4 SERVICE MODULE FOR PROPULSION OUT OF LUNAR ORBIT
- 5 ROOF ATTACH PLATE FOR MOORING BY CREW RETURN VEHICLE
- 6 CREW CABIN FOR LUNAR LANDER [TERMINAL LANDING AND THEN LIFTOFF]
- 7 PROPULSION STAGE FOR LUNAR ORBIT INSERTION, THEN DESCENT TO HOVER
- 8 UPPER STAGE FOR TRANS-LUNAR INSERTION FROM LOW EARTH ORBIT

THE SOVIET MISSION PROFILE WAS DANGEROUSLY DIFFERENT FROM THE NASA SCHEME BECAUSE THE CRITICAL ENGINE BURNS HAD NO FALL-BACK CONTINGENCY OPTIONS

WOULD THE SOVIET SCHEME HAVE WORKED?



I defer to Aleksey Leonov's opinion [he was to be the prime pilot for the landing] telling an American video crew in 1989:

"I'm just happy that I didn't have to bet my life on that plan."

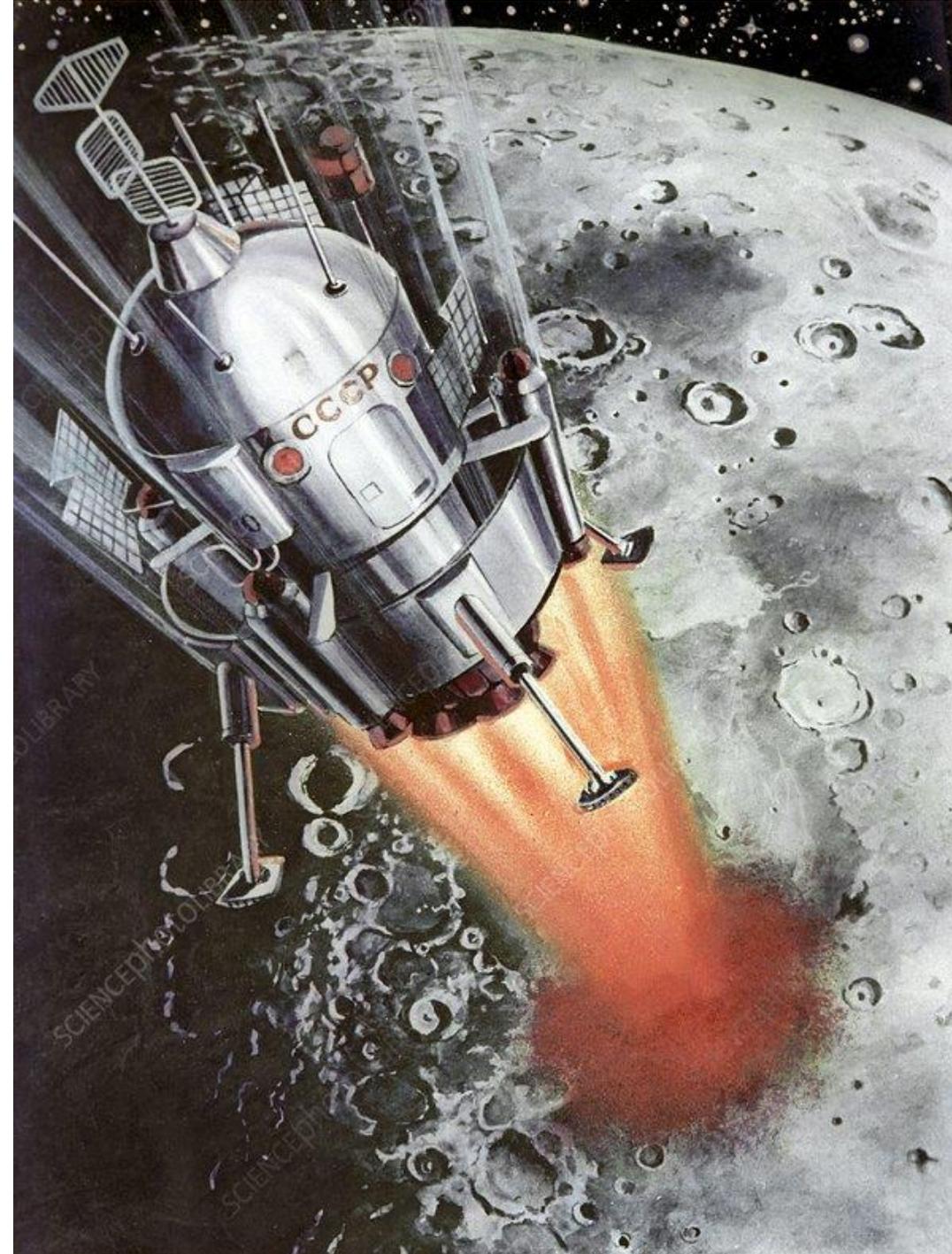
LEFT: At 'Star City' cosmonaut training center

RIGHT: At Baikonur launch site for a 'Soyuz' blastoff





LEONOV WAS ALSO A GIFTED ARTIST WHO PAINTED MANY SPACE FLIGHT SCENES WITH SPECIAL FOCUS ON HIS SPACE WALK, HIS SPACE LINKUP WITH AN APOLLO CRAFT, AND THE LUNAR LANDING HE'D TRAINED TO PERFORM, IF.....



LEONOV ARTWORK OF 'HIS' MOON LANDER



ARTISTIC LICENSE ALLOWED LEONOV TO PORTRAY HIS LANDER MUCH BIGGER THAN IT REALLY WAS. NOTE THE MULTIPLE ENGINES AND TWO-MAN CREW.



BELOW:
LIFTOFF
LEAVING
ONLY THE
LANDING
LEGS AND
LADDER
BEHIND



THE SIGNIFICANCE OF JULY 1969

- THE UNITED STATES WAS ON THE VERGE OF FULFILLING JFK'S VISION OF AN UNAMBIGUOUS DEMONSTRATION OF US TECHNOLOGICAL SUPERIORITY
- THE SOVIET UNION WAS PURSUING A BROAD-BASED SPACEFLIGHT TECHNOLOGICAL CAPABILITIES DEVELOPMENT PROGRAM TO COUNTER THIS
- THEY HAD OVERCOME INITIAL FAILURES IN MANY EARLIER PROJECTS
- WITH THE HEART OF THE RACE CENTERED ON WORLD ATTITUDES TOWARDS RELATIVE US/USSR TECHNOLOGY STANDING, ANYTHING THAT DIMINISHED THE APPARENT SIGNIFICANCE OF APOLLO-11'S SUCCESS BENEFITED MOSCOW
- EVEN AFTER APOLLO-11 THE SOVIETS [AND THEIR WORLDWIDE WELL-WISHERS] PUSHED ON, WITH HOPES TO NEUTRALIZE ITS IMPACT ON WORLD ATTITUDES
- THE US PROGRAM REMAINED 'FRAGILE' WITH SOVIET HOPES RELYING ON A FLIGHT DISASTER THAT WOULD PERSUADE THE NEW PRESIDENT TO RETREAT
- THEIR MAN-ONTO-THE-MOON PROGRAM WASN'T TERMINATED UNTIL 1972

THE 'WHY' OF APOLLO

- "“It was a geopolitical mission to demonstrate U.S. power and prestige,” wrote eminent spaceflight historian John Logsdon. **“It restored the perception of America as a country that could be admired — a powerful and successful country.”**”
- Oberg’s corollary: EXACTLY TRUE. And the demonstration, as JFK had anticipated, had profound positive diplomatic, commercial, military, cultural, and technology-base benefits that made it well worth the price in time, treasure, and blood. It reversed the high-water mark of Soviet prestige and set that country onto the downward spiral to disintegration two decades later.

WHY WE WENT & WHY WE STOPPED

- The reason we stopped going -- and even before Apollo-11 had already shut down the production line of spacecraft and boosters -- was because it was never intended to be a sustained and expanding program.
- **It was absolutely the correct short-term response to Sputnik.** The US, the Soviet Union, and the rest of the world had begun to wonder which political system had the better chance of mastering future technologies, and their conclusions would have profound diplomatic, commercial, cultural, military, scientific, and other consequences.
- JFK picked the moon landing goal with exactly that in mind, and post-Apollo world history showed **his strategic vision was spot on** -- thanks to American technology management actually fulfilling his [and much of the rest of the country's] hopes.
- The USSR fell back from its apex in world esteem and **twenty years later collapsed** of a broken heart and soul [and budget]. That was Apollo's greatest short-term achievement, **entirely justifying the time, treasure, and lives that it cost.**
- Long-term, of course, it was **infinitely more rewarding** as an inspiration and as a compulsion to eventually expand on it.

THE LEGACY OF JULY 1969



FURTHER READING

- http://www.jamesoberg.com/2009_apollo_anniversary_his.html
- <http://www.thespacereview.com/article/3617/1>
- <https://www.popularmechanics.com/space/rockets/a22531/why-didnt-russia-make-it-to-the-moon/>
- <https://crashmacduff.wordpress.com/tag/luna-15/>
- https://fas.org/spp/eprint/lindroos_moon1.htm
- https://www.youtube.com/watch?v=__U1cf0KfWg