

Debrief: Apollo 8 – 1969

Capsule Communicator (CAPCOM): ...like to cycle your Zero Optics switch prior to beginning P52.

Narrator: Debrief: Apollo 8.

Frank Borman: Roger. We're gonna see if we can find some stars here before we do the P52.

CAPCOM: And it's sort of in a paraphrase of a poem...

Narrator: Debrief is to gather useful information after an event that might have gone unreported during the event itself, and to start to draw some conclusions.

CAPCOM (Harrison "Jack" Schmitt): Can you read me, Apollo 8?

Frank Borman: You're loud and clear, Jack.

CAPCOM (Harrison "Jack" Schmitt): Okay. 'Twas the night before Christmas and way out in space, the Apollo 8 crew had just won...

Narrator: A machine may be said to be born when it first performs a useful function. This, then, is the birth of a machine and the beginning of an achievement – 363 feet tall, weighing just under six and a quarter million pounds. Capable of 180 million horsepower, the first-stage engines came from Louisiana; the second-stage came from California, as did the third. They were proved out for the mission in Alabama. The vehicle destined to make the Moon touchdown on a later Apollo mission comes from New York. The guidance and navigation equipment within the narrow instrument ring grew in Wisconsin, was checked in Massachusetts. Electromechanicals within the Command and Service Modules are from Florida. Display systems from New Hampshire. The astronauts' space suits are from Delaware. The mission commander was born in Indiana, grew up in Arizona. On its Moon voyage it will be controlled from Texas, serviced by computers in Maryland, splash down near Hawaii. The giant crawler on which it rides was made in Ohio. The genius and sweat of literally the entire nation ride the mission.

The dream of man, the long, impossible dream to reach out to the Moon, is coming true. These men will lead the way: Colonel Frank Borman, Navy Captain Jim Lovell, Lieutenant Colonel Bill Anders. The successful conclusion, the happy ending, is history. But gaps remain. Importantly, part of the task of filling those gaps belongs to each individual, a self-debriefing to evaluate the larger significance of the event which might have gone unnoticed in the excitement. For some this reevaluation has already begun. Dr. Norman Vincent Peale:

Norman Vincent Peale: The mission of Apollo 8, quite apart from its significant scientific meaning, stimulated an immense rejuvenation of the spirit of mankind. And that spirit needed rejuvenation. A year featured by two grim assassinations, by riots, by racial and social strife, and a baffling attempt to end a war left men with a dull sense of frustration. Then at the end of such a year came the Apollo 8, an incredible adventure, when three intrepid spirits circled the Moon, fascinating the imagination of man. Their willingness to stake their lives on the enterprise, the infinite perfection of detail which worked precisely, and their deep spiritual understanding of

the greater world in which God presides, communicated a new sense of man's greatness and gave the world a fresh sense of meaning.

Narrator: Dr. Norman Vincent Peale.

Ptolemy suggested that the Earth might be round. Columbus gave a practical demonstration of the fact. If any lingering doubt remains, now man has seen with his own eyes.

Frank Borman: I have a beautiful view of the S-IVB and the Earth here all in one. I'll try to get a picture for you.

CAPCOM: Hope so.

Narrator: The S-IVB is the third-stage rocket engine. Droplets of its vented fuel scatter around it. The speed of the spacecraft, outward bound, brings us face to face with another acceleration, a new fact of life. Historian Arthur Schlesinger, Jr.:

Arthur Schlesinger, Jr.: The salient fact of our age is the fantastic speedup in the velocity of history. It was as recently as 1903 that the Wright brothers soared for a moment over the sand at Kitty Hawk. And today 65 years later, within the same lifetime of many men, astronauts fly around the Moon. And now the velocity of history is carrying us into a new phase in the human adventure. No one knows where this new phase will end, in what triumph or tragedy. But it is clear that the flight of Apollo 8 begins a new epoch in the history of man.

Narrator: Historian Arthur Schlesinger, Jr.

Part of beginning an epoch, in the present instance, is keeping house for six days in a space about the size of the back seats of three station wagons packed for a family vacation. As you watch motion pictures taken onboard, you will hear comments relayed to Houston on the same subject.

CAPCOM: How's it hanging?

James Lovell: Happiness is bacon squares for breakfast.

CAPCOM: If you don't eat'em all, bring'em back; we'll polish'em off here.

Frank Borman: Okay, Houston. Apollo 8 here. I stand corrected. William had one Marezine. He didn't tell me about it; he snuck it.

Narrator: Part of the astronauts' working gear is a helmet holding earphones and microphone in position. It's called a Snoopy hat.

Bill Anders: Man, you're looking pretty small down there now, Houston.

CAPCOM: We're carrying a big stick, though.

Bill Anders: Just barely make out Clear Lake.

CAPCOM: And your nozzle temperatures, Bill, have dropped from about 94 to around 66.

Narrator: This is Mission Control. It stands as the first rank of the unnumbered and innumerable Apollo team. Flight controllers man the consoles. They watch a continuing readout of every system in the capsule, three shifts around the clock. All flight controllers speak to the astronauts through one voice, the Capsule Communicator of each shift. He is an astronaut himself, best-suited to sense the needs, the stresses, the preoccupations, the environment of the men so far away.

The line of communications is spread 'round the world. Land bases must be supplemented by ships carrying the special equipment needed to keep the channels open. Aircraft become flying transmitters and receivers. Other nations help with deep space communications. Australians join the team in Canberra, Spaniards in Madrid; the third base is in California. Men, women, and machines spread 'round the world. This team is knit by faith and acceptance of responsibility for perfect performance. It stretches back through the ranks to each workman involved in American industry. They kept faith in a spirit of dedication to excellence. The successful completion of the mission is a witness to how they came through. And once achieved, this dedication may be applied in other directions. Henry Ford made comment:

Henry Ford: The courageous voyage of the Apollo 8 astronauts has done more than extend our knowledge of the universe. It has enlarged the spirit of man. If we can successfully challenge the mysteries and dangers of outer space, surely we can move confidently now to achieve a better, more peaceful life for our fellow humans here and throughout the planet Earth.

Narrator: Mr. Henry Ford.

Not all giant eyes and ears on Earth are turned toward the spacecraft. The sensing machines of the Space Particle Alert Network face the Sun. From our life-giving Sun streams a hail of infinitely small pieces of matter. On Earth we are shielded from them by our cloak of atmosphere and our magnetosphere, the integument of Van Allen belts. The men and women of SPAN monitor sunspot and solar flare activity, looking for clues to an imminent rise in the stream of potentially hazardous space particles. The team grows wider, deeper, stronger.

History repeats itself in paraphrase. This is the shot seen 'round the world. This is the first shot of Earth live on television. The mission was conducted in the plain sight of the entire world, literally.

Jim Lovell: Happy birthday, Mother.

Narrator: Back in 1961 when Apollo goals were first set, President Kennedy said, "Whatever mankind must undertake, all men must freely share." Apollo 8 remained true to that pledge. On television it gave us a new look at the Moon and a new look at ourselves. This is Thomas J. Watson, Jr.:

Thomas J. Watson, Jr.: Ten years ago it seemed probable that Russia would make this flight before us and would make a Moon landing first as well. With the Apollo 8 flight, it becomes

obvious that we have moved into the lead. We can be thankful that the United States has shown the world once again that it can accomplish any tasks it decides upon.

Narrator: Thomas J. Watson, Jr., chairman of the board of IBM.

Direct from the deep space tracking antenna in Madrid, these pictures were passed along to the Eurovision network, to London, Paris, Rome, West Germany, Scandinavia. They were seen in Warsaw, Prague, in Moscow. Citizen of the world, winner of the Nobel Prize for peace, Dr. Ralph Bunche:

Ralph Bunche: Apollo 8 and those stout-hearted astronauts have given to mankind a new and limitless perspective in the universe, and to the Earth an added dimension of proximity and neighborliness in the solar system. The epic flight of Apollo 8 in cracking the Moon barrier demonstrates that man now has the capability to soar as high and as far as his dreams may project.

Narrator: Dr. Ralph Bunche of the United Nations.

Jim Lovell: Okay, Houston. The Moon is essentially gray, no color, looks like plaster of Paris or sort of a grayish deep sand.

Narrator: Christmas Eve. The date of a mission is dictated by launch windows which open and close in a long cycle; if you miss one you wait. The December window opened the 21st, closed the 27th, so the date and hour of the Apollo 8 mission was really determined billions of years ago when the celestial clock was first set in motion. It timed out to the Christmas season. Bob Hope reported a Vietnam reaction:

Bob Hope: All joy, believe me all joy. The men I spent Christmas with have a lot on their minds but the Apollo 8 trip turned out to be as important as anything. What the three astronauts did rubbed off on a lot of guys. Everybody grew a little tall and that was double if you were away from home. And I think it'll be months before we know how much it meant to all of us and all the people of the world.

Narrator: Bob Hope.

It was Christmas on Earth and on the Moon.

Frank Borman: The Moon is a different thing to each one of us. I know my own impression is that it's a vast, lonely, forbidding-type existence, or expanse of nothing, that looks rather like clouds and clouds of pumice stone, and it certainly would not appear to be a very inviting place to live or work. Jim, what have you thought most about?

Jim Lovell: Well, Frank, my thoughts are very similar. The vast loneliness up here of the Moon is awe-inspiring, and it makes you realize just what you have back there on Earth.

Narrator: Wasteland, desolate, inhospitable, in unremitting procession. The apparent speed at which you see these pictures is not real-time, only a technical camera was carried on the mission, altitude about 70 miles, shot with a long lens.

Jim Lovell: Mike, I think I can say without contradiction there's been a mighty long dry spell up here.

CAPCOM: I guess you can say anything you like without contradiction.

Narrator: This film was taken through an optical sighting instrument onboard the spacecraft. Two separate images converge on the single eyepiece; it was intended only for space navigation. Navigation in space requires three dimensions instead of two. Scientific sextant observations made on Apollo 8 were a practical, potentially vital gathering of scientific data. Taking the longer view of the scientific value of the mission, comment was made by Dr. Leo Goldberg, astronomer.

Leo Goldberg: I believe the Apollo 8 mission will ultimately prove to be of enormous scientific importance as a vital step that had to be taken before men actually land on the Moon. Once they do, the exploration of the Moon is bound to give us crucial information on how the Moon and other bodies in the solar system were formed. Furthermore, the mission proved that we now have the capability to move large and complicated scientific equipment around in space and to deploy it almost anywhere we wish to in the space between the Earth and the Moon. I find this to be a very thrilling prospect indeed. But no matter what happens in the future, the voyage of Apollo 8 will be looked back upon as the mission that proved we could really operate in space on a large scale.

Narrator: Astronomer Leo Goldberg of Harvard University.

The condition of zero gravity, when you get accustomed to it, has some very practical applications.

The Command Module on Apollo 8 serial number 103, did not change at Christmas, but there was talk of reindeer and Santa Claus.

Jim Lovell: Right. He was looking for a chimney on 103 here, but he didn't see any.

CAPCOM: You could've left the hatch unlocked for him.

Jim Lovell: I'll think about that one.

CAPCOM: Think real hard, Jim. EECOM says he could've slipped down the steam duct.

Jim Lovell: Sounds good. About that time, Bill would have been boiling water.

Bill Anders: In the beginning God created the Heaven and the Earth. And the Earth was without form, and void, and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters. And God said, "Let there be light." And there was light. And God saw the light, that it was good, and God divided the light from the darkness.

Jim Lovell: And God called the light Day, and the darkness he called Night. And the evening and the morning were the first day. And God said, "Let there be a firmament in the midst of the

waters, and let it divide the waters from the waters.” And God made the firmament, and divided the waters which were under the firmament from the waters which were above the firmament. And it was so. And God called the firmament Heaven. And the evening and the morning were the second day.

Frank Borman: And God said, “Let the waters under the Heaven be gathered together unto one place, and let the dry land appear.” And it was so. And God called the dry land Earth, and the gathering together of the waters called He Seas. And God saw that it was good. And from the crew of Apollo 8, we close with good night, good luck, a Merry Christmas, and God bless all of you, all of you on the good Earth.

Narrator: Isaac Asimov is a professor of biochemistry and a prolific writer of science fiction. For many years he’s been thinking in terms of an Earth to Moon to Earth trip. Asimov has a special point of view.

Isaac Asimov: The feat of Apollo 8 is of peculiar interest to myself because it places me in the unaccustomed position of being over-conservative. In 1939 I wrote a story describing, in essence, this flight. I placed it in 1973. I suppose if someone has asked me then, “Do you really suppose people will fly around the Moon and back to Earth by 1973,” I would have answered “Not really, but it makes a good story.” Well, they did it in 1968, and I am more happy than I can say.

Narrator: Isaac Asimov stands with one foot in the world of science and one foot in fantasy to take a fictional look at the future, and underestimates. With both feet in the practical world that now includes outer space, a comment returning from the returning space capsule during a TV transmission starts us off in another direction.

CAPCOM: We have you about 180,000.

Bill Anders: Looking at yourselves – you’re all looking at yourselves as seen from 180,000 miles out in space.

Jim Lovell: Mike, what I keep imagining is if I’m some lonely traveler from another planet what do I think about the Earth from this altitude, whether I think it’d be inhabited or not.

Narrator: Friday, December the 27th: reentry, splashdown, acquisition, recovery. The last 15 minutes of the flight began at a speed of almost 25,000 miles an hour. Then, only five miles from the appointed rendezvous in the Pacific, it ended, speed: zero. If a machine may be said to be born when it performs a useful function, perhaps it is said to die when that function is fulfilled. And having died it will be enshrined next to its still young ancestors, the aircraft of Orville and Wilbur Wright, Lindberg’s *Spirit of St. Louis*. But this is not an end, far from it. It is part of a much longer plan.

It has been estimated that at some time or another during the flight of Apollo 8 over one billion people all over the face of the globe were tuned in to the spacecraft by television or radio. The experience was most widely shared.

The astronauts return to the world of men. But there's more. A week to the day after the Apollo 8 splashdown, another Apollo spacecraft had taken up its position on pad 39 at Cape Kennedy. The countdowns by calendar and clock have begun to bring it to the same moment at which we first saw this Apollo 8 the night before it was born. As launch windows open and close, the next missions move forward. Two test flights of the lunar landing vehicle, and then the proposed landing on the Moon. And plans are in the making now which include flybys of other planets, visits to what Dr. Bunche calls neighbors.

Eric Hoffer is a writer, until recently a working longshoreman, whose deep insights into the nature of man have stirred the thinking of many. Let me quote Eric Hoffer's words.

"I always felt that man is a stranger on this planet, a total stranger. I always played with the fancy that maybe a contagion from outer space was the seed of man, hence our preoccupation with heaven, with the sky, with the stars, with a God who is somewhere out there in outer space. It's a kind of homing impulse; we are drawn to where we came from. And I'm just tickled to death that this thing is being done by squares, you know, by average Americans, not by these pretentious intellectuals. Because this is the great genius of the average Americans: they take something momentous and make an un-momentous thing out of it. And by the time they are through with it, traveling into space and to the distant stars will become routine. This is why America is an ambiguity in the world. Because we make it so that there are no exceptional persons required to do anything."