

Air and Space this Week

Item of the Week

APOLLO 9

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America justly takes great pride in the accomplishments of the Apollo Program. Even today, 55 years after that “small step,” Apollo images are still being used by advertisers to invoke a “we are high-tech” impression in the target audience. I’ll leave the coverage of the overall program, Apollo 11, and Apollo 13 to others, as they require full-length treatment. I have covered the lesser-known parts of Apollo in past Items of the Week, including: Apollo 7 in an Item about [Wally Schirra](#) (the only astronaut to fly in Mercury, Gemini, AND Apollo Programs); Apollo 8 in an Item about [Frank Borman](#); Apollo 10 in an Item about [Thomas Stafford](#); Apollo 12 in two different Items ([here](#) and [here](#)); [Apollo 16](#) in its own Item; Apollo 17 in Item about the “[Most Recent Footstep](#),” and the “[Lonely Six](#)” Command Module Pilots who orbited the Moon alone.

Apollo 9 was an important mission from both an engineering and scientific perspective, a story too important to not be included in the august list above.

It was successfully concluded 55 years ago this week.

THE SITUATION

NEW YEAR’S 1967

NASA was on track to fulfill JFK’s challenge to land on the Moon and safely return “before the decade was out.” Even though a strict meaning of “decade” gave NASA until December 31, 1970 (just as the new Millennium didn’t start until January 1, 2001!), and even though “decade” could be interpreted as “ten years after the challenge was made – on September 12, 1962, which gave even more time, NASA knew that the public would expect success by the end of calendar 1969.

The Gemini Program had been concluded successfully, where NASA learned and mastered the main tasks required for the developing Apollo mission profile, including rendezvous, docking and undocking, restarting rocket engines, and more. There had been a few bumps in the road along the way, most seriously the [emergency situation](#) on *Gemini 8*, but Gemini had paved the way to the Moon, “[On the Shoulders of Titans](#).” Several successive steps had to be completed successfully after Gemini for the challenge to be met in full. The Apollo launch system and its spacecraft were new and untried complicated spacecraft. Each major component required as thorough a flight test as possible before astronauts could be risked in a lunar landing.

Director of Flight Crew Operations, Deke Slayton, picked Mercury/Gemini veteran Gus Grissom to command the first Apollo crew. America's first Space Walker, Ed White, and Space rookie Donn Eisele were picked to join Gus. Eisele got hurt badly enough in the free-fall training plane that he had to have surgery on January 27, necessitating his replacement. Slayton named Roger Chaffee to Grissom's crew; Eisele moved to Schirra's crew for Apollo 2, joining Walter Cunningham. This would be the first test flight of the Command Service Module (CSM), the main Apollo crew capsule and its support/rocket system.

The second crewed Apollo mission was originally planned as more-or-less a repeat of Apollo 1. Schirra's team would have been the crew of Apollo 2, but NASA decided that a repeat was neither necessary or timely, so Schirra and company became Gus' crew's back-ups.

The new prime crew for the Apollo 2 was James McDivitt, who had commanded the Gemini 4 mission, with Ed White aboard as Spacewalker; David Scott, who had survived a very wild ride on the badly-malfunctioning *Gemini 8* and would later walk on the Moon as the mission commander of *Apollo 15*; and Russell Schweickart, the youngest member of NASA Astronaut Group 3, which included Dave Scott, Buzz Aldrin, Al Bean, Gene Cernan, and other luminaries. The mission for Apollo 2 was to test the Lunar Module (LM) in Low Earth Orbit.

The third crewed Apollo mission would be commanded by Frank Borman, and would be the first crew launch on a Saturn V to go to the Moon. His crew included *Gemini 7* crewmate, Jim Lovell, and rookie Bill Anders.

The crews were getting ready, but ...

SETBACK #1

... the LM wasn't ready. North American, the prime contractor for making the LMs for Apollo, was having trouble. They were manufacturing the LMs needed simultaneously, but successively, too, adjusting design in models early in the construction process based on knowledge gained during the building of earlier models. The first two built were too heavy for flight and were used as test beds (LM-2 is now in the collection of the National Air and Space Museum, on proud display). LM-5 was earmarked for Apollo 11.

NASA faced a difficult choice. If they stuck with the original plan, testing the CSM in LEO, then the CSM with the LM in LEO, followed by a mission to lunar orbit and back, there would be a serious and unacceptable delay waiting for LM-3 to be completed for the second flight.

NASA brass decided that the best way to maintain schedule would be to switch the second and third missions in the sequence: do the CSM test flight in LEO in the first, followed by a LM-less flight to lunar orbit and back for the second, and then a CSM and LM test in LEO for the third, before picking up the next two flights in the sequence, the lunar landing "dress rehearsal" and the first crewed lunar landing.

Slayton offered McDivitt the second flight slot, to keep his place in the flight schedule. McDivitt declined, wanting to stay with the mission he and his crew had been training for. So while he and his crew moved back one notch on the schedule, the schedule itself did not slip much.

And then....

SETBACK #2

Tragedy struck.

Gus Grissom and his crew were training heavily for a planned launch on February 21, 1967. Their CM was designated *AS-204*. It was the earlier-designed model, "Block 1," lacking the capacity to dock with the LM, but adequate for flight testing the CSM. The speed with which the testing/training program allowed safety shortcuts, and the *AS-204* crew were dealing with some squirrely electrical systems during a capsule test with a pure oxygen atmosphere at 15 PSI. A short sparked, and the rest was charred history. The Apollo program was set back 20 months while various systems in the CSM were modified and upgraded. *AS-204* was renamed *Apollo 1* in memory of Grissom, White, and Chaffee.

The test program for the Saturn and Apollo programs began before the end of the Gemini program and continued while the upgrades to the CSM were being designed and implemented. Keeping track of the various launch designations is difficult, see [here](#) and [here](#) for details. Apollos 2 and 3 disappeared as flight designations. *Apollo 4* launched on November 9, 1967, the first launch of a Saturn V rocket (with a successful re-start of the S-IVB third stage and high-speed test of the CM heat shield).

Apollo 5 was a test using the smaller Saturn IB with a complete Apollo spacecraft, including *LM-1*, that launched on January 22, 1968. Its Saturn IB was the one that *Apollo 1* had been sitting on during the fire, but it checked out OK and was used for this mission. *LM-1* was put through its paces by remote control, including firing both the *LM-1*'s Descent and Ascent stages, including a firing of the latter with the Descent Stage still attached, just as it would be on the Moon. Even though it was too heavy for a Moon landing, *LM-1* performed well.

Apollo 6 was a test of the Saturn V and its S-IVB third stage sending and the Apollo spacecraft (a CSM and mock-up LM) to lunar distances. It launched on April 4, 1968. The plan was for it to use the S-IVB stage for a trans-lunar injection then use the SM's main engine to put the spacecraft on a direct return trajectory (as was done with *Apollo 13*). The spacecraft experienced severe vibrations, which damaged some of the engines on the second and third stages during the Saturn's trip to LEO. The on-board guidance system burned the remaining engines longer than initially planned, getting the spacecraft to LEO, but in a more elliptical orbit than desired. The damaged third stage engine failed to re-ignite for the trans-lunar insertion. In spite of these failures, NASA engineers deemed the next mission, the first with a crew, was ready to go.

CARRYING ON

The original back-up crew for *Apollo 1*: Schirra, Eisele, and Cunningham, flew the ten-day Apollo 1 mission profile [successfully](#) in *Apollo 7*. The post-fire fixes were sound, and NASA got a thorough test flight of the CSM in lunar orbit; but the LM needed for the LEO tests was still not ready.

Borman's crew then flew the Apollo 8 mission (né Apollo 2) to the Moon, with the LM-less plan they had been training with, in December, 1968. NASA was now on a roll, coming off a major PR high after the success of the Apollo 8 mission, the *Earthrise* photograph, and the astronauts reading from *Genesis* in lunar orbit.

Next up was McDivitt's crew and Apollo 9, a full-scale test of the finally-ready LM in LEO. No *Genesis*, no Moon, no worries. **It was one of NASA's finest efforts, and you should know more about it.**

THE ASTRONAUTS

JAMES McDIVITT

Jim McDivitt was born on June 10, 1929, in Chicago, Illinois. He would spend his formative years in Kalamazoo, Michigan, and worked his way through two years of college at Jackson College, also in Michigan, finishing his two-year program in 1950. The Korean Conflict was heating up, and he signed up for the Air Force rather than wait for the Army to draft him. He applied for the aviation cadet training program and was accepted. He excelled in his studies, and was the first in his training class to solo. He earned his wings and was commissioned in May, 1952, and completed combat training in November of that year. He flew 145 combat missions over Korea, in both F-80s and F-86s, earning two DFCs in the process.

After combat, McDivitt received additional education and flight training, excelling in both. By June, 1959, he was assigned to be a test pilot trainee at Edwards AFB, where he received additional schooling, training, and high-speed flight experience. He was in line to become an X-15 pilot, but he heard that NASA was seeking applicants for their second pool of astronauts, so he applied. The Group 2 cadre was publicly announced in September, 1962. He was named to be the command pilot of *Gemini 4* on July 29, 1964, the first astronaut to command a crew on his first flight (there weren't enough Mercury vets to go around!) Slayton wisely paired him with Ed White; the two had been test pilot school classmates some years previously. There were two primary tasks for *Gemini 4*, a rendezvous with its booster's spent upper stage and the first U.S. Spacewalk by White. Rendezvous isn't as simple as it sounds, especially when the target vehicle is still venting fuel vapors, so that part didn't go too well, but the Spacewalk did, even if Ed did have one of his gloves drift away. The spacecraft's onboard computer failed during the end of the mission, so Flight Director Chris Kraft ordered McDivitt to use a "rolling" atmospheric entry, like the Mercury capsules used, where the spacecraft turned on its roll axis to facilitate even heating of the heat shield and provide some stability, rather than an Apollo-like atmospheric entry that required computer assistance. Their flight and Spacewalk were a big deal. Afterward, McDivitt was promoted to LtCol, and both he and White received NASA's Exceptional Service Medal from the hand of LBJ himself. They received a ticker-tape parade and a trip to the 1965 Paris Air Show, where they met Yuri Gagarin.

On March 21, 1966, McDivitt was named the back-up commander of AS-104, too soon to become known as Apollo 1.

DAVID RANDOLPH SCOTT

You met *Apollo 9*'s Command Module Pilot, David Scott, in the Item of the Week about the "Lonely Six." He wasn't part of that group, because *Apollo 9* didn't orbit the Moon, but he was a CMP, so he was included and described in that [Item of the Week](#).

RUSSELL LOUIS SCHWEICKART

"Rusty" Schweickart was born on October 25, 1934, in Neptune Township, New Jersey. His family was not wealthy, but Rusty (nicknamed for his red hair) dreamed of being either a cowboy or a pilot. There wasn't much call for the former in Joy-zee, so he received a scholarship to study aeronautical engineering at MIT (1956), where he also later earned a Masters degree in Aeronautics/Astronautics (1963). After his undergrad years, he served in the USAF and Massachusetts Air National Guard until he completed his Masters, earning his wings and racking up over 4000 hours of flight time, mostly in jets. He also worked at MIT as a research scientist, specializing in upper atmospheric physics. He applied for and was accepted into NASA's Astronaut Group 3 in October, 1963; he was the youngest of the group. On March 21, 1966, he was named to be Roger Chaffee's back-up on *Apollo 1*, which would end up putting him in the Lunar Module Pilot slot on *Apollo 9*.

THE MISSION: A RESOUNDING SUCCESS!

NASA had allowed the Mercury astronauts to name their capsules, and all did, including "Seven" in the name as a nod to there being seven of them. Gus named his *Gemini 3* spacecraft, the first crewed mission of the Gemini program, "Molly Brown," a reflection of the loss of his Mercury capsule [later proven to be not his fault]; he wanted something "unsinkable." After that, NASA forbade capsule names, until *Apollo 9*. Because that particular mission plan required the CSM and LM to fly separately, they had to have different call signs, so NASA relented on the no-names policy. The *Apollo 9* CSM became "Gumdrop" because of its shape, and the *Apollo 9* LM became "Spider," also because of its shape.

The *Apollo 9* mission was critically-important for the *Apollo* program. The LM had undergone a lot of design and construction problems, but NASA finally had a model good enough for flight test as a separate Spacecraft.

The mission planners did a fantastic job on the flight program; every element of Spacecraft operations required for the final Moon landing were flight-tested here: the plucking of the LM from the S-IVB upper stage; the transfer of astronauts from CSM to LM (both by the tunnel connecting them and by EVA); the undocking and separate flight of the LM; including firing both its Ascent and Descent stages; and the rendezvous and docking to get the two LM astronauts back aboard the CSM, which was the only one of the two modules capable of a safe reentry.

It must have taken two cool customers to board an untested Spacecraft, seemingly OK after a number of development problems, fly it far away (111 miles!) from the only Spacecraft that could get them home safely, and come back to rendezvous and dock safely, then get back aboard for home! But they did it, and did it well (*as only NASA could!*).

In a way, the Apollo 9 mission is the Rodney Dangerfield of Apollo. Everyone remembers the other Apollo missions more, albeit for different reasons. For example, Andrew Chaiken, in his excellent history of the program, gives Apollo 9 only a few-page passing treatment, in spite of recognizing that "... Apollo 9 was a test pilot's feast. In truth it was far more difficult, more ambitious, and in some ways more dangerous than Apollo 8."

The *Apollo 9* crew fully and successfully completed all mission objectives. They showed that the LM was a very capable Spacecraft for Apollo's needs, and that the program could move on to its *Apollo 10* "dress rehearsal" of the actual landing mission as planned and without delay.

The mission was not without complications, however. Schweickart suffered several severe bouts of motion sickness, vomiting several times over the course of the flight, a dangerous problem especially for those times he had to be in an enclosed Space suit.

AFTERMATH

The mission of Apollo 9 was an unqualified success, as previously related. But in spite of that, the post-Apollo 9 career paths of its crew were somewhat of a mixed bag.

JAMES McDIVITT

McDivitt became the Manager of Lunar Landing Operations in May, 1969, and led a team that planned the overall exploration program, including site selection. Immediately after Apollo 11, he became Manager of the Apollo Spacecraft Program, where he was the program manager for Apollos 12-16. He remained in the Air Force, and was promoted to BGen on February 17, 1972.

McDivitt got cross-wise with Chris Kraft, who had selected and publicly named Gene Cernan to be the *Apollo 17* Mission Commander behind his back. Cernan had wrecked a helicopter by accidentally flying it into the water, clearly pilot error, a fact which Deke Slayton had concealed from Kraft. McDivitt felt that the accident should have disqualified Cernan from any additional flights, and threatened Kraft with his resignation if Cernan were not removed. Kraft didn't agree, and McDivitt resigned from NASA, remaining in place until the Apollo 16 mission was completed. He then held several senior executive positions, taking final retirement, from Rockwell International, where he was SVP for Government Operations, in 1995.

James McDivitt passed away on October 13, 2022; he was 93. He received many awards and accolades, and even played himself in an episode of *The Brady Bunch*.

DAVID SCOTT

Dave Scott fared the best, at least at first, with respect to NASA. He went on to become the back-up Mission Commander for *Apollo 12*, which put him in line to be MC for *Apollo 15*, a slot he filled well. He was one of the most scientifically-enthusiastic of the Moonwalkers, and trained diligently and performed superbly on the Moon's surface.

Alas, the *Apollo 15* crew got caught up in a Moon-related money-making scheme built around postal covers carried to the Moon and cancelled there, for sale to collectors back on Earth. The

Apollo 15 astronauts received a reprimand (which essentially ended their prospect of getting any additional flight assignments). Their postal covers were initially confiscated, but they were returned to the astronauts in an out-of-court settlement. Scott says that Al Shepard, then the head of the Astronaut Office, gave him the choice of back-up *Apollo 17* Mission Commander (I don't know about that, since it would go against the "three mission" rule), or serving as a Special Assistant to the Apollo-Soyuz Test Project; Scott chose the latter. He would serve as the Deputy Director of NASA's Dryden Flight Research Center (now named the Armstrong Flight Research Center) and became its Director in April, 1975. NASA Center Director was a civilian appointment, so Scott retired from the USAF as a Colonel to take the post. He oversaw the Space Shuttle Approach and Landing tests, the retired from NASA in 1977. He subsequently served in a number of business and consulting capacities.

Scott received numerous awards and other accolades over the course of his career, including induction into the International Space Hall of Fame, the U.S. Astronaut Hall of Fame, and other similar recognitions.

But I personally think he is, and should be, the most famous today for his famous "Feather Drop" demonstration he conducted on the lunar surface on [live TV](#). He was a graduate of the US Air Force Academy here in Colorado Springs, where the school mascot is a falcon. He had taken a falcon feather to the Moon in his personal effects and held it and a much-heavier geologic rock hammer in his hands, facing the camera, and showed that if he let them go at the same time, they would both hit the lunar surface at the same time, saying "How about that! Which proves Mr. Galileo was correct in his findings (about gravity)." Could there possibly be a better educational outreach event than that?! Fellow Moonwalker and artist Alan Bean commemorated that moment with his famous painting, "[The Hammer and the Feather](#)."

At the time of this writing, Dave Scott is still with us, one of the only four of the twelve Moonwalkers still alive (Buzz Aldrin of *Apollo 11*, Charles Duke of *Apollo 16*, and Harrison Schmidt of *Apollo 17* are the other three).

RUSTY SCHWEICKART

Rusty's problems with motion sickness seriously impacted his career as an astronaut. He performed all of his duties on *Apollo 9*, but there were legitimate concerns about his getting sick while enclosed in a Space suit. [Bad things happen due the surface tension of unconfined fluids in free-fall, [just ask](#) Italian astronaut, Luca Parmitano! I saw him talk in person about his experience; it was quite frightening. He's a great storyteller, and he certainly had the attention of his audience as he described his plight!]

Schweickart was not considered for the back-up Lunar Module Pilot slot for *Apollo 12*, which would have put him in position to be prime crew LMP for *Apollo 15*. Alan Shepard, who was Slayton's deputy at the time, assigned Rusty to be on the back-up Commander for *Skylab 2* instead. Maybe it was because of the motion sickness, but Rusty said that his political liberalism, especially on the topic of civil rights, did not sit well with Shepard and some of his other astronaut colleagues. He certainly "marched to a different drummer," but it would be a

shame if politics were the reason for his re-assignment. [But I personally think it was. Shepard is not my favorite astronaut.]

Skylab 1 was the launch of the *Skylab* space station, without a crew aboard. One of the solar panels on the station unlatched prematurely and was ripped from the station by aerodynamic forces during its ascent. The other panel was intact, but jammed. Schweickart assumed the responsibility of development of the hardware and procedures that would allow the *Skylab 2* prime crew to save the station successfully. He then served on the “support crew” for *Skylab 4*, the final of the three missions to *Skylab*. He retained his flight status and went to NASA HQ as Director of User Affairs in the Office of Applications in 1974, where his primary role was transferring NASA technology to users. Monitoring of Earth resources from LEO was in its infancy at the time, and Rusty helped the U.S. Department of Agriculture utilize images and other data from *Landsat 1* (né the *Earth Resources Technology Satellite*), the first of a long and growing line of sensors that have greatly benefitted the American public and users around the world, and still do so today.

Rusty served two years as California Governor Jerry Brown’s Assistant for Science and Technology, and served for 5.5 years on the California Energy Commission. He established the Association of Space Explorers with first Spacewalker Alexei Leonov and others, and Chaired ASE’s Near-Earth Object committee, which provided one of the first good analyses of the threat posed to Earth by asteroid impact, an interest he followed up with the B612 Foundation and testimony before Congress on the impact threat. He, too, received the usual honors, awards, and accolades many astronauts get.

DIDJA KNOW?

There was at one point a plan to have a joint Gemini/Apollo mission, testing out the CSM in LEO by rendezvous with the *Gemini 12* capsule. But it was (rightly) deemed not worth the time delay just to have the two capsules together.

The Smithsonian National Air and Space Museum has the following Apollo 9-related artifacts in their collection: The Apollo 9 Command Module “Gumdrop,” Rusty Schweickart’s Spacesuit, McDivitt’s and Schweickart’s watches, and more; for a complete list and descriptions, see [here](#).

REFERENCES

APOLLO PROGRAM

Brooks, C.G. et al., 1979, *Chariots for Apollo: A History of Manned Lunar Spacecraft*, NASA SP-4205, <https://www.nasa.gov/wp-content/uploads/2023/03/sp-4205.pdf>

Burgess, Colin, 2013, *Moon Bound: Choosing and Preparing NASA’s Lunar Astronauts*, ISBN 978-1-4614-3854-0

Chaiken, Andrew, 1994, *A Man On the Moon: The Voyages of the Apollo Astronauts*, New York: Viking; ISBN 978-0-670-81446-6

Ezell, L.N., 1988, *NASA Historical Data Book: Volume III: Programs and Projects 1969-1978*, NASA SP-4012

JFK's Decision: <https://www.nasa.gov/history/the-decision-to-go-to-the-moon>

Apollo Flight Journal: <https://www.nasa.gov/history/afj/index.html>

Wikipedia List of Apollo missions: https://en.wikipedia.org/wiki/List_of_Apollo_missions

Apollo 4: https://en.wikipedia.org/wiki/Apollo_4

Apollo 5: https://en.wikipedia.org/wiki/Apollo_5

Apollo 6: https://en.wikipedia.org/wiki/Apollo_6

Apollo 7: [Mission Report](#) and https://en.wikipedia.org/wiki/Apollo_7

Apollo 8: [Mission Report](#) and https://en.wikipedia.org/wiki/Apollo_8

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NASA Apollo 9 Mission Report: https://www.nasa.gov/wp-content/uploads/static/history/alsj/a410/A09_MissionReport.pdf

NASA: <https://www.nasa.gov/missions/apollo/apollo-9-mission-details>

NASA: Apollo 9's 50th Anniversary: <https://www.nasa.gov/history/50-years-ago-apollo-9-completes-its-mission>

NASA Video: *Apollo 9: Three to Make Ready*, 1969:

<https://moon.nasa.gov/resources/308/apollo-9-three-to-make-ready-1969>

Apollo Flight Journal: <https://www.nasa.gov/history/afj/ap09fj/index.html>

NASA Three-Minute Read on Dave Scott's *Apollo 9* EVA: <https://www.nasa.gov/image-article/apollo-9-astronaut-david-scotts-spacewalk>

NSSDC: <https://nssdc.gsfc.nasa.gov/nmc/spacecraft/display.action?id=1969-018A>

NASM: <https://airandspace.si.edu/explore/stories/apollo-missions/apollo-9>

Planetary Society: <https://www.planetary.org/space-missions/apollo-9>

JAMES McDIVITT

NASA Bio: https://www.nasa.gov/wp-content/uploads/2016/01/mcdivitt_james.pdf

Official NASA Portrait: <https://www.nasa.gov/image-article/portrait-of-astronaut-jim-mcdivitt>

USAF: <https://www.af.mil/About-Us/Biographies/Display/Article/106275/brigadier-general-james-a-mcdivitt>

Hall of Valor: <https://valor.militarytimes.com/hero/391545>

NPR Obit: <https://www.opb.org/article/2022/10/17/former-nasa-astronaut-jim-mcdivitt-who-led-gemini-and-apollo-missions-dies-at-93>

National Aviation Hall of Fame: <https://nationalaviation.org/enshrinee/james-alton-mcdivitt-jr>

Wikipedia: https://en.wikipedia.org/wiki/James_McDivitt

DAVID SCOTT

Scott, David and Alexei Leonov, 2006, *Two Sides of the Moon: Our Story of the Cold War Space Race*, e-book with Christine Toomy, ISBN 978-0-312-30866-7

Worden, Al and Francis French, 2011, *Falling to Earth: An Apollo 15 Astronaut's Journey to the Moon*, Smithsonian Books, ISBN 978-1-58834-310-9

NASA Bio: https://www.nasa.gov/wp-content/uploads/2016/01/scott_david.pdf?emrc=54adfb

MIT: <https://news.mit.edu/2009/apollo-tt0603>

Hall of Valor: <https://valor.militarytimes.com/hero/143831>

Apollo 15 Flight Summary: <https://www.nasa.gov/history/afi/ap15fi/a15summary.html>

NASA Press Release Regarding the Stamp Issue: Look for the July 11, 1972 release here: https://www.nasa.gov/centers/johnson/pdf/83124main_1972.pdf

Wikipedia: https://en.wikipedia.org/wiki/David_Scott

RUSTY SCHWEICKART

NASA Bio: https://www.nasa.gov/wp-content/uploads/2016/01/schweickart_russell.pdf?emrc=a7ec6e

His own website: <https://www.rustyschweickart.com>

International Space Hall of Fame:
<http://www.nmspacemuseum.org/halloffame/detail.php?id=82>

NASA Advisory Council Ad-Hoc Task Force on Planetary Defense (2010):
<http://www.nasa.gov/directorates/heo/library/nac/planetary-defense.html>

Co-Founder of the B612 Foundation; his bio there: <https://b612foundation.org/members/rusty-schweickart>

TED talk about Asteroid Protection: <https://b612foundation.org/protecting-earth-an-astronauts-perspective-rusty-schweickart-at-tedxsonomacounty>

Wikipedia: https://en.wikipedia.org/wiki/Rusty_Schweickart

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