SPACE CITY COVER SOCIETY

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SCCS

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HIGHLIGHTS OF 1979 ACTIVITIES: YEAR OF THE PLANETS

The closing year of the seventies was a triumphant one in U. S. space exploration, yielding historic and breathtaking closeup views of distant planets, moons and rings.

The excitement of 1979's planetary discoveries was interrupted briefly, in mid-year by a returning hulk -- Skylab. And even that went well; the Earth-orbiting experimental space station completing its atmospheric reentry and breakup without damage or injury.

NASA also had a perfect launch record in 1979, the second year in a row and the fourth in its 21-year history. The nine NASA launches for the year covered the gamut from high energy astrophysics, communications and cosmic ray particles to data on aerosols and ozone in the Earth's atmosphere.

Other NASA highlights in 1979 included continuing work, with some problems, on Space Shuttle development; a U.S./China agreement on cooperation in science and technology; expanded applications of space technology; continuing work on safer more efficient aircraft.

SKYLAB

Skylab, the 77.5-ton space station launched on May 14, 1973, to serve as home to three crews of astronauts for varying periods of time in 1973 and 1974, kept the world on tenterhooks right to the end.

In its operational lifetime, nearly 300 scientific and technical investigations were performed aboard the workshop: medical experiments on man's adaptation to zero gravity; intensive studies of the Sun, with a major scientific accomplishment in the monitoring of a solar flare; and detailed Earth resources experiments.

In the closing days of the reentry, a round-the-clock watch was set up at NASA Headquarters, in Washington, with crews ready to go anywhere in the world if necessary to handle emergency conditions.

From across the country and around the world, press and public attention was riveted on the reentry and its possible risk to heavily populated regions. NASA Headquarters hosted perhaps the biggest concentration of news media representatives ever gathered there. Also on hand, or on standby, were representatives of the White House, the Federal Preparedness Agency and the Departments of State, Justice, Transportation and Defense.

In Skylab's final few minutes of life, on July 11, the spacecraft overshot somewhat its predicted target in the ocean, dropping debris in the Indian Ocean and in Australia's Outback. In the follow-up, a NASA team traveled to Australia and gathered some samples of the debris for study.

HOW IT ALL ENDED

Skylab fell just before completing its 34,891st orbit of the Earth since it was launched in 1973. The craft began falling into the ocean along the 4,000-mile path about 11:30 a.m. (Houston time) July 11, 1979. Its return to Earth scattered tons of glowing debris in the night skies over Australia (Australia's time is 12 hours ahead of Houston's.) Some debris fell in the Indian Ocean, but the flight path, lined-patterned, carried debris into western Australia, where sightings were reported in Albany, Perth, Kalgoorlie and Esperance. The hunt for metal debris centered near Balladonia, a sparsely populated ranch area 530 miles east of Perth.

Flight Director Charles Harlan, at the Johnson Space Center in Houston, said some of the solar panels that provided energy for the space lab were lost as Skylab crossed over Ascension Island in the south Atlantic Ocean on the craft's final orbit of the Earth. Skylab was 69 statute miles above the Earth as it crossed over the island. During that final orbit, Skylab crossed Puget Sound in Washington state, Winnigeg, Canada, and Maine.

Space Center controllers had issued commands through a tracking station in Madrid, Spain, at 2:45 a.m. for the space craft to fire small rockets, or thrusters, causing it to begin tumbling end over end. The tumble was confirmed at 3:30 a.m. This had been done in hopes of allowing the debris to fall into the mid and south Atlantic Ocean.

During the night, controllers found that Skylab's re-entry point was shifting closer and closer to Australia, which could have caused debris to fall on more highly populated areas. Controllers worked through the night to keep Skylab in a stable position, moving sideways to its path of travel. As it dropped lower into the atmosphere, the controllers began using the thrusters tiny jets of compressed nitrogen to keep the craft in position.

When the craft was about 81 miles high and before control was lost, the thrusters were turned on a final time to push Skylab into the tumble. Flight Director Harlan said this was done to prevent the craft from skipping across the atmosphere like a flat rock thrown across a pond, and to make the point of re-entry more predictable.

Skylab, 118 feet long, and 22 feet in diameter, had as its major components a combination workshop and living chamber; an airlock module through which crews entered Skylab from an Apollo spacecraft; a telescope mount, and six large polar panels.

By converting sunlight to electricity, the panels powered the laboratory which once was manned. In the lab, nine astronauts studied the Earth through visible infra-red and microwave observations. They also studied the sun, using visible, X-ray and ultraviolet radiation. In addition, the astronauts studied the effects on man of extended space flights and zero gravity and tested design features of the craft.

During the launch of Skylab, a piece of metal ripped away, causing one of the winglike solar arrays to rip away, jamming the second one and exposing the laboratory to the sun. Space agency officials delayed launching the first crew of Charles P. Conrad, Joseph P. Kerwin and Paul Weitz until they devised a plan to free the remaining solar paend and cool the overheated orbiting workshop.

The crew was launched May 25, 1973, in a modified Apollo capsule, similar to the ones that carried men to the moon. The crew made repairs and remained in space 28 days, performing a wide variety of experiments.

Alan L. Bean, Jack R. Lousma and Owen Garriott were launched July 28, 1973, as the second Skylab crew. They too had problems, including a leaky thruster which threatened their mission. But the group stayed in Skylab 59 days.

The third and final mission to Skylab began November 16, 1973, with the launch of Gerald P. Carr, William R. Pogue and Edward G. Gibson. They worked in Skylab for 84 days setting records not only for endurance but for work accomplished. On February 8, 1974, Skylab was abandoned, with officials anticipating that it would continue to drift about 280 miles above the Earth for another nine years. However, officials had discounted the possibility of a strong surge in the activity on the sun.

Solar activity, sometimes measured by the number of spots on the sun, was very low during development of the Skylab program. Solar activity varies on an 11-year cycle and officials say they knew the activity would increase, but decided that it would peak well below what actually occurred.

The greater-than-expected solar activity affected Skylab in two ways: The additional energy from the sun in the form of an electromagnetic "wind" pressed Skylab down toward Earth; at the same time, the solar activity caused the Earth's atmosphere to bulge outward increasing the drag on the laboratory.

Officilas had hoped to develop America's next generation of space vehicle, the Shuttle Orbiter, before Skylab fell. New astronauts then could visit Skylab and, if necessary, install a small rocket to push it farther out into space or guide it to a safe, water landing. Reduced funding for the space program, and development problems with the Shuttle, ultimately put an end to this effort.

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SCCS SKYLAB CATALOG

The balance of this issue of The Space Log is devoted to our SCCS Skylab Catalog. It consists of four pages listing all of the Skylab covers produced by the Space City Cover Society.

The first cover was for the "Full-scale Test Version of Skylab Arrives at the Space Center in Houston." The date was January 6, 1971. The final cover in the SCCS Skylab Series was a "Double-Cancelled Skylab Falls." From the first to the last cover, a total of 80 different were produced.

As the Space City Cover Society has done in most of the other U. S. Space Programs, since our start in 1967, we have given the space cover collector about as complete coverage as one could ask for. We have tried not to burden anyone down with a cover for "every turn of a screw or fitting on of a spacesuit" but we have provided for what the majority of cover collectors describe as "major" events.

SCCS CATALOG OF NASA LOCAL POST ISSUES

The first section of our SCCS Cover Catalog was produced some time back. It consists of seven illustrated pages listing all of our covers that contain our NASA Local Post Issues. This covered first day covers, anniversaries of Mercury flights, anniversaries of Gemini flights, all of the Apollo flights and anniversaries pertaining to them, Skylab, special events, the Apollo-Soyuz mission, and Space Shuttle events.

If you do not have a copy of that section of the SCCS catalog, we will be glad to send one to you for only 45¢. That amount will help recover some of our cost of printing and postage, and our printing costs continue to rise almost on a monthly basis.