

Part 1

# The life and death of the space shuttle *Columbia*

By Ray E. Cartier

When “Orbiter Vehicle #102,” the space shuttle named *Columbia*, rolled out of Rockwell International’s facility at Palmdale, California, on February 23, 1979, the contractor and NASA had high expectations as to what the future would bring.

Upon the first test of the *Columbia* on March 9, 1979, the National Space and Aeronautical Administration (NASA) announced the expectation that “there will be more than 500 shuttle operational missions from 1980 through 1991.” They also ambitiously stated that the shuttles were designed for a minimum of 100 missions, with a two-week turnaround time between flights.

Upon completion of the last shuttle flight later this year, only 134 missions will have been made over 30 years. *Columbia* flew just 28 before it was lost in a disaster in January 2003.

The initial 17-minute test flight, at only 250 miles-per-hour on top of a former American Airlines 747 aircraft on March 9, 1979, was designed to test the adhesiveness of temporary tiles on the base of the shuttle, ones that

were to be replaced with others designed to protect the craft upon reentry from space.

On March 20, 1979, the piggy-backed shuttle left Edwards Air Force Base, California, landing initially at Briggs Air Force Base, Texas, then Kelly Air Force Base, also in Texas, followed by Eglin Air Force Base in Florida and finally at the Kennedy Space Center complex on March 24, 1979.

Several tests of the mated and the free flight glide tests of both the *Columbia* and the *Enterprise* shuttles took place at Kennedy Space Center. In retrospect, the most relevant NASA test failed and was not pursued. On August 21, 1979, the *Enterprise* was used in a test to determine if it was possible during *Columbia*’s first flight to monitor the tile areas via television monitors. To review the tiles in flight, 56 television cameras were positioned and when they failed to do so, the idea was apparently dropped.

On December 29, 1980, the huge spaceship, the size of a Boeing 727 aircraft, was mounted to the main liquid fuel tank and the two solid fuel boosters on either side of it. The main fuel tank was painted white with a

powdery substance and the entire launch package was assembled atop the giant “crawler” which transported the shuttle to the launch pad.



Space shuttle *Columbia*, officially designated “Orbiter Vehicle 102,” rolled out of a Rockwell International plant in Palmdale, California on February 23, 1979. The craft underwent its first test flight 14 days later, on top of a Boeing 747.



On April 12, 1981, the 20th anniversary of the cosmonaut Yuri Gagarin's first manned space flight, *Columbia* blasted off from the Kennedy Space Center. John W. Young, a veteran of four-flights, including a moon landing, was the commander, accompanied by rookie astronaut Robert (Bob) Crippen. The two-day mission was called STS-1 (Space Transportation System), with the purpose being to demonstrate safe launch into orbit and safe return of the orbiter and crew.

A major stamp show was held in Lucerne, Switzerland, on March 20-29 of that year. Called LURABA '81, it took place days prior to the launch of *Columbia*, the first space shuttle. The 21st Congress of International Federation of Aero-Philatelic Societies convened at the show and celebrated "Flight." The Swiss issued a postal card showing the *Columbia* with its white fuel tank rising from the launch site with the picture side of the card depicting the *Columbia* in Earth orbit.

To celebrate their participation in LURABA-81, cachet designers in the Soviet Union added the *Columbia* spacecraft within the cachet of a piece of postal stationery. Within days, this was brought to the attention of embarrassed Soviet authorities who pulled the postal stationery from all the post offices in the Soviet Union.



**As fate would have it, a test of using television cameras to monitor the status of protective tiles, ones that are critical for a space shuttle's successful reentry into the Earth's atmosphere, was unproductive.**



**At the LURABA '81 stamp show, held March 20-29, 1981, in Switzerland, the Swiss post office noted the pending launch of the first space shuttle with this picture postcard.**



**With astronauts John Young and Robert (Bob) Crippen aboard, Shuttle *Columbia*'s maiden voyage began on April 12, 1981.**



**This cachet publicizes the LURABA '81 stamp show in Lucerne, Switzerland, but was soon yanked from sale in post offices in the Soviet Union due to the depiction of the American space shuttle Columbia.**

The U.S. was their largest competitor in the propaganda side of space exploration and they were shocked to see an American craft getting free Soviet publicity. Luckily, one of these items was received in the mail from a Soviet space cover collector. It was cancelled on the date of the first *Columbia* launch.

*Columbia* went on to launch the crews of the next four consecutive shuttle missions. By not painting the main fuel tank white, all future launches had a rust-red fuel tank, thus saving approximately 600 pounds of unnecessary weight at several thousand dollars per pound. The fifth mission, on November 11, 1982, promoted the following historic "firsts:" first STS Operational flight; first shuttle to carry and deploy commercial satellites into space; first flight with a crew of four astronauts; and first flight with "mission specialists."

The sixth *Columbia* flight was the ninth shuttle flight. John Young made his sixth and last flight into space on this mission, which also took the first European Spacelab into orbit. Although three years late, the scientific experiments conducted



**This special cancel was applied to covers for the sixth flight of *Columbia*, when it carried Europe's *Spacelab* into orbit.**

by two German mission specialists in *Spacelab 1* had a 90 percent success rate. Houston, Texas, which is the site that takes over responsibilities for missions into space once the spacecraft clears the launch towers at Kennedy Space Center, created a special pictorial hand cancel for this event.

*Spacelab 3* was lifted into space by the next *Columbia* flight in April of 1985. The *Spacelab 2* experimental lab had not been ready at the that time but was ready for the next *Columbia* flight

and 19th shuttle mission for its astronomy experiments the following July. *Columbia* flew next on January 11, 1986, launching a communications satellite into orbit.

Seventeen days later, the shuttle *Challenger* was destroyed as it launched from Cape Kennedy, killing its crew of seven. The entire fleet of shuttles was grounded until the investigations took place and new safeguards were established. The result was a personal rocket ejection system through a new exit portal, successfully tested on December 7, 1987, using an Air Force C-240 aircraft.

*Columbia* was idle until it was used to conduct the launch of a Department of Defense imaging reconnaissance satellite, KH11, on August 8, 1989. The following year a *Columbia* crew deployed a communications satellite and for the first time recovered a satellite in orbit, the Long Duration Exposure Facility, which had been lifted into orbit by another shuttle five and a half years earlier.

By this time the shuttle launch schedule had picked up steam after being delayed for almost three years due in major

part to the shuttle *Challenger* disaster.

Moving ahead to the March 1, 2002, launch of *Columbia*, this 27th mission's purpose was to repair the Hubble Space Telescope. Its optics had warped slightly as the lack of gravity in space was not fully taken into consideration when grinding the lens in Earth's gravity. Though the differences were small, it prevented the Hubble from searching as far



**The explosion of space shuttle *Challenger* as it was launched from Kennedy Space Center prompted the installation of an escape system for astronauts, one that was effective only in limited situations.**

out into the universe as had been planned. Three men from the crew of seven took footholds on the extended Canadian robotic arm and caught the slowly spinning huge satellite carefully

in gloved hands. A cut in a glove would have been deadly and NASA along with others watching on live TV viewed the maneuver praying that it would go well. Capture was made on March 8, 2002, repairs were made, and the following day the behemoth satellite was released, to be placed again in orbit by controllers at Houston.



**Repair to the Hubble Space Telescope was accomplished on *Columbia*'s last successful mission, in March of 2002.**

on a beautifully clear day at the Kennedy Space Center. The crew consisted of two women including Kalpana Chawla of Asian-Indian descent, who had received her master's degree from the University of Texas at Arlington (UTA), Texas, my home town. I had met this very pleasant young lady on two occasions. It was her second flight. A dormitory on the UTA campus now bears her name and is called K.C. Hall by the students. The other woman was mission specialist Laura Blair Clark, a rookie. The commander was Rick Husband and William McCool piloted the flight.

On January 15, 2003, *Columbia* was again launched,



**Israeli issued a stamp on January 16, 2003 to honor Ilan Ramon, the nation's first astronaut, a payload specialist aboard *Columbia*.**

An African-American was the payload commander, Michael Anderson. David Brown was another mission specialist. The first Israeli astronaut, Ilan Ramon, was a payload specialist. The Israeli post office released a stamp to honor Ramon in conjunction with the launch of STS-107, the last flight of *Columbia*.



**Hopes were high for the space shuttle program when a block of eight U.S. stamps, four of which depict the craft, was issued in 1981.**

The stamp pictures an astronaut's helmet with reflections of both a U.S. and an Israeli flag. The *Columbia* is featured in the upper right hand corner.

Foam insulation around the sides of the rust-red fuel tank had been known to break loose during the vibrations and wind resistance encountered during launch, but

no major damage had been found on any of the preceding flights. Thus, when a larger piece hit the leading edge of the *Columbia's* right wing during lift-off on January 15, little concern was voiced. The flight and docking went smoothly. All of the mission's goals were accomplished and on February 1, 2003 the *Columbia* undocked

from the International Space Station for landing at the Kennedy Space Center where joyous friends and family had gathered to welcome the crew home.

*(This article by Ray Cartier is to be continued in the July-August 2010 issue of The Texas Philatelist.)* ★

## Part 2

# The life and death of the space shuttle *Columbia*

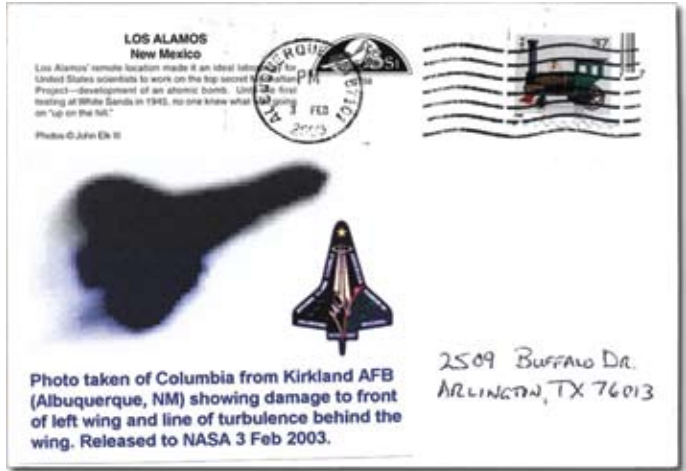
By Ray E. Cartier

(Part 1 of this article appeared in the May-June 2010 issue of The Texas Philatelist.)

At Kirkland Air Force Base in Albuquerque, New Mexico, a new camera was being tested to capture objects in space. With the space shuttle *Columbia* flying directly overhead, an opportunity presented itself to take a photo. The picture showed a darkened line of turbulence behind the left wing, the significance of which was not recognized at the time, and had it been, would have done nothing to avert the impending tragedy; it was already too late.

I was in Los Alamos, New Mexico, on that date, and not having listened to the car radio while driving up from Albuquerque, I asked why the flags were at half-mast. Upon being told that the *Columbia* had “blown up,” an impossibility as the shuttle was not fueled but was a glider, I returned to my car to get the news.

Although the post office in Los Alamos was closed that Saturday, I rushed to a sou-



**The author was in New Mexico as *Columbia* was descending. Upon hearing of the tragedy on February 1, he mailed some postcards, to which he later added a label with a photo taken of *Columbia* flying directly overhead Albuquerque's Kirkland Air Force Base on that fateful day.**

venir store, bought five postcards and stamps and then brought the cards to the post office, where the last mail pick up was still an hour away. When the five cards were returned postmarked two days later with a February 3, 2003, cancel from Albuquerque, I sent a letter with photocopies of the cards back to the postmaster in Los Alamos requesting replacement cancels. No answer was received. However, the photos were shown on television and in the papers a few days later and a label cachet was created because the photos were

processed and released from Kirkland Air Force Base on the date of the cancellation, thus adding a rather unique item to the tragic end of the mission.

Inside *Columbia*, the turbulence of the multi-thousand per hour return was causing concerns. Within the left wing, a hole in the protective carbon reinforced leading edge panel had allowed the friction-caused



**Upon hearing of *Columbia*'s fate, Space Unit member Terry Chamberlain lit out for East Texas and obtained a cancel on the date of the tragedy.**

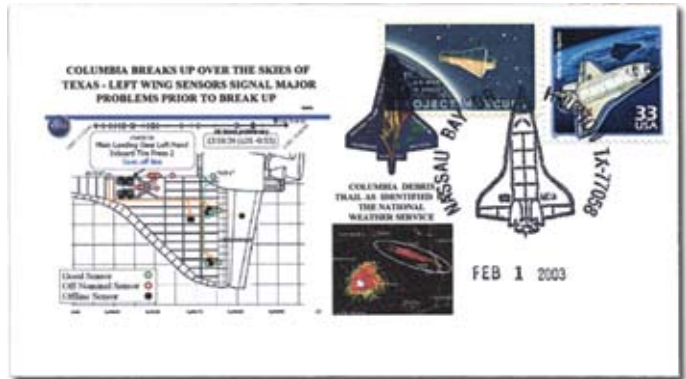
heat to burn into the wing's interior. Suddenly the wing tore off, the craft skewed and began disintegrating over the north central area of Texas. Wreckage fell, or floated down, over a 600-mile swath running into Louisiana.

A television station cameraman had been asked to get footage of the *Columbia* as it streaked through the skies south of Dallas. He did not realize at the time that he was capturing the tragedy over Texas on tape. The sonic boom was felt throughout the Dallas-Fort Worth area and much farther to the south.

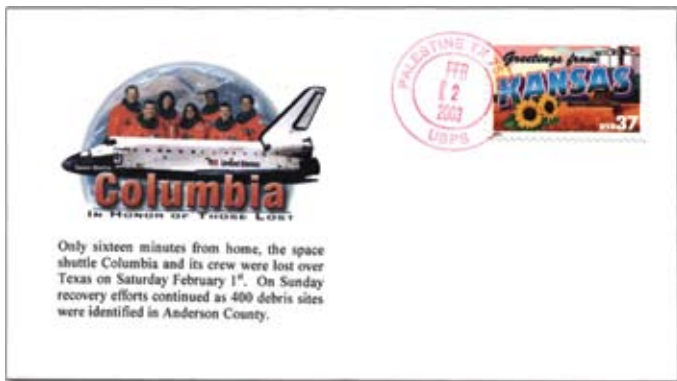
Communications in Houston went silent as the other signals dropped off their screens. Shock and disbelief filled the control room. *Columbia* was only 16 short minutes away from landing safely at the Kennedy Space Center.

Upon hearing the disastrous news, Terry Chamberlin of Rowlett, Texas, a member of the Space Unit of the ATA and the APS, drove from his home in a Dallas suburb to Nacogdoches with a small handful of covers. After some effort he was able to obtain cancels from that small town, upon which some of the *Columbia* debris had fallen, and later created his own cachets.

A special Nassau Bay cancellation, originally intended to commemorate the successful end of *Columbia's* mission, was applied to covers on the date of the disaster, February 1, 2003. The Houston postmaster said "All cancels are applied at ...77201," thus it appears that the canceller was actually utilized at the downtown post office rather than at the Nassau Bay branch. The downtown Houston post office also had a special pictorial hand cancel for the return to Earth, one that was applied to mail sent directly to them. A Kennedy Space Center cover shows both a machine



**Special cancels had been prepared in anticipation of the successful conclusion of *Columbia's* mission, and along with regular ones, wound up being used by collectors to note the loss that occurred instead.**



**Another cancel from an East Texas town located in *Columbia's* debris field was obtained on Sunday, the day after the shuttle disintegrated over the southern skies of the Dallas-Fort Worth area.**

launch cancel, along with a February 1, 2003, cancel for the loss of the crew and craft.

Somehow Terry was also able to obtain a Sunday, February 2, 2003, hand cancel from another town upon which pieces of the *Columbia* fell—Palestine, Texas. This town had once been the home to NASA's National Balloon Launch Facility. This is the date when the recovery operations began.

Terry called me on March 6, 2003, to advise that NASA, for the first time, was allowing some members of the press to accompany the teams who were searching for *Columbia* debris. Upon reaching the public affairs officer at the Johnson Space Center, I advised him that in the past I had been given NASA press passes on behalf of the *Astrophile* for several events.

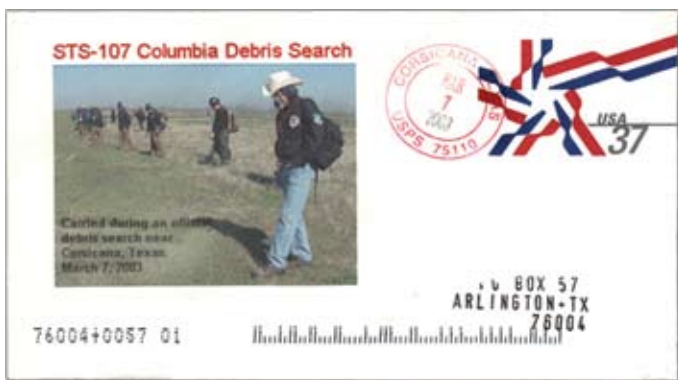
He thought he had met me, asking if I was kind of tall and thin. I wasn't about to question him and said "yes," resulting in the addition of my name to the list; I was to arrive at a meeting site near Corsicana, Texas, at 4 a.m. the next morning.

There was no time to buy and apply stamps, as well as address envelopes, so I bought a box of 500 stamped envelopes and started applying a do-it-

yourself rubber stamp for the post office box number I had just obtained for the American Topical Association. Finishing around 9:30 p.m., the box of envelopes was enclosed in a backpack along with a bottle of water and my 35mm camera and film. After four hours of sleep, I left with the covers for the two-hour drive down to Corsicana. There, 100-150 men had gathered in an old warehouse. Three groups

were made from those present after we were told where each group would be deployed and were thanked for the valuable contributions being made by all. Items already found in the local area were being placed in a secured area in a pattern showing where they were originally located on *Columbia*.

Vans pulled up and we boarded them for about a five-mile ride into a large area of barb-wire fenced cow pastures. A long line of men was set up, each man standing 10 feet distant from the next. I was asked to stay at one end of the line as we progressed very slowly across the field from one fence to another a quarter mile or so away. When we reached that point, the entire row moved to the left until I was standing where the first person in the line



**The author, shown in the foreground of this photo, carried 500 covers in his backpack while helping in the search for *Columbia's* debris. The photo was later added to complete the cachet.**



had originally stood, and we walked back across the field to the original fence. We continued this process throughout the day. The men were forest firefighters from all over the U.S. and most were Native Americans. Everyone took this business very seriously as we scanned every inch of the fields.



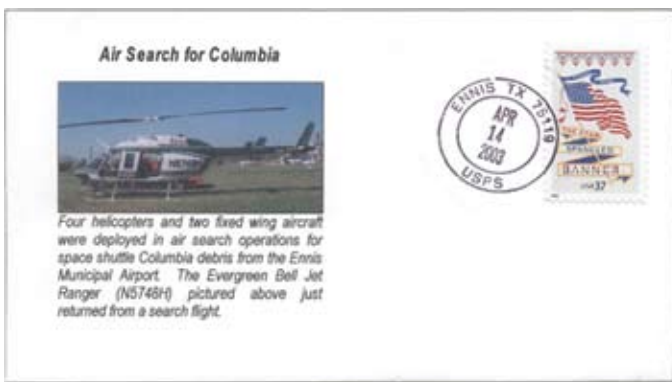
**Within a few months of the Columbia tragedy, philatelic agents were already preparing stamp issues to honor the crew, such as this design utilized by Micronesia and a number of other prolific topical stamp-issuing countries.**

The insulation aboard *Columbia* was almost the same light colored brown as dried cow patties, and many times someone would stop to make sure of which he was seeing. About five small pieces of foam and metal were found that day. I discovered a small metal plate sticking upright in a small clump of Johnson grass and called the next nearest worker to look at it—it was a piece from a tractor.

After being driven back to the gathering site, I headed for the Corsicana post office and asked to speak to the postmaster. Two hours and two long-phone calls from him to Dallas finally resulted in approval for me to hand cancel the 500 covers at a counter not being manned by a postal clerk. But a clerk was assigned to watch me and make sure that I didn't do anything

with the cancellation device except cancel the covers. Because of the scare over envelopes containing the poison powder Anthrax, envelopes were not handed back to me, but placed in the mail stream. They also had to be sealed, so I licked the tip of each flap and gave the covers, replaced in the box, to the postmaster, along with his canceller.

Two days later, the covers safely arrived. Another



**Air Search for Columbia**

Four helicopters and two fixed wing aircraft were deployed in air search operations for space shuttle Columbia debris from the Ennis Municipal Airport. The Evergreen Bell Jet Ranger (N5748H) pictured above just returned from a search flight.

**The largest organized search ever, for debris from *Columbia*, continued for months after the disaster, by foot, by horseback and by air, from East Texas into Western Louisiana.**

fellow Space Unit collector, Bob Boyd of Arlington, suggested that the cachet design feature a photo of myself on the search, noting, "This photo shows you and the backpack to substantiate your claim that you really did carry the covers." The Space Unit had 495 members at the time, so a "carried cover" was placed as a bonus in each copy of the next issue of the *Astrophile*.

I acquired a pass for Terry Chamberlin for the next press day on April 10, 2003, and he obtained a few covers canceled in Nacogdoches, Texas, for that search. His group also moved to Ennis, Texas, where he had more covers canceled and also photographed one of the four helicopters that joined horseback riders and two fixed-wing aircraft in the search. One of those helicopters became the source of another cachet of his design.

Once all the debris had been located, the next phase was an investigation of what had gone wrong. Suspicion about the role of the falling insulation made studies of that a priority. On June 2, 2003, we succeeded by phone in getting the San Antonio, Texas, postmistress to agree to cancel covers for us on June 6, the date of the first foam impact tests conducted in that city. A high impact, nitrogen gun was used to fire foam into a leading edge piece of wing from the shuttle *Discovery*. The impact resulted in a crack, but nothing that should have failed catastrophically. Again covers were made for Space Unit members.

A month later, on July 7, 2003, another gun test was made on a leading edge flap of the shuttle *Atlantis* with shocking results. A



**Tests conducted at the Southwest Research Institute in San Antonio, Texas, determined that a piece of foam insulation hit the left wing of *Columbia* during launch, sealing the shuttle's fate.**

sixteen-inch diameter hole was created by the impact! Terry had created a few covers for this event that proved beyond any reasonable doubt that *Columbia's* fate was sealed during the launch sequence.

On August 26, 2003, the *Columbia* Accident Investigation Board distributed copies of their report showing that the falling foam was the culprit in the destruction of the space ship *Columbia* and the passing of its crew.

*About the Author: Ray Cartier previously wrote "Fort Worth Plant Churned Out B-24 Bomber," an article that appeared in the November-December issue of The Texas Philatelist. Named a TPA Distinguished Philatelic Texan in 2009, he has actively collected space-related covers beginning with the launch of Apollo 8 in December 1968. Ray is past president of the Space Unit and the former executive director of the American Topical Association. ★*