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AFTERMATH OF A TRAGEDY

Shocked Nation Mourns Loss of McAuliffe, Astronauts in Explosion

A Search for Meaning In Disaster's Wake

Members of the Maryland State Board of Education were meeting in Baltimore when they heard the news that the shuttle Challenger had exploded.

"There was a kind of shock that I had never seen before, not in either of the Kennedy assassinations, not in any catastrophe that we have ever experienced," said Gus Crenson, the board's director of communications.

Kathy Rokasy, a 3rd-grade teacher in Elyria, Ohio, had taken her class from the East Gate Elementary School to NASA's Lewis Research Center in Cleveland. There the class of 30 watched the launch on a huge screen in a room ringed with six television monitors.

After the explosion and a "dead silence in the room," Ms. Rokasy said, she asked the children to "explain what they saw." They calmly asked questions: Was Christa hurt? Did the astronauts die in the ocean? Were the astronauts' children watching television, too?

Robert Grossman, a member of the communications staff of the Los Angeles Board of Education was driving to work when he heard the news on the radio.

"My first thought was that my boss and the board president were sitting in the grandstand" at Cape Canaveral, he said—"in the same grandstand as the family and kids of Christa."

"I got a sickening feeling in my stomach, then got a little fuzzy, thinking, 'Can it be for real?' "

Harriet Arvey, director of support services for the Houston Independent School District, was in her office talking with a county mental-health official about establishing a crisis team when a secretary relayed the news.

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NASA

SHARON CHRISTA MCAULIFFE

The Joy and Triumph Ended With One Terrible Moment in the Sky

By Blake Rodman

CAPE CANAVERAL, FLA.—It was bitter cold last Tuesday as the sun rose in the clear, ice-blue sky over Central Florida's swamps and citrus groves. Driving up to the Kennedy Space Center's press and VIP viewing area, I could see the space shuttle Challenger poised for the morning's liftoff, some three miles away on the launch pad.

The cold snap, which had forced area citrus growers to fire up smudge pots in their orchards during the night to protect delicate crops, had also worried NASA officials. They had spent Monday trying to reschedule a launch date for Challenger, after a stubborn screw on the orbiter's hatch door forced them to scrub the blastoff once again. The decision was to try for a Tuesday launch, regardless of the cold.

The VIP viewing area was empty when I arrived. Buses bearing state finalists from the teacher-in-space competition and other educators would arrive soon. I had spent the previous week with them, attending a NASA-sponsored conference, sharing brief hello's and conversation in the hotel lobby, waiting for the event that had drawn us here.

Because of the repeated delays, work obligations had forced many of the several hundred educators here for the weekend to return

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At 11:39 A.M. Eastern Standard Time last Tuesday, in a flash of fire and smoke seen by millions, the nation's teaching corps gained a long-awaited moment in the public spotlight.

But it was a terrible moment, bought at a price that no one had foreseen.

Sharon Christa McAuliffe, who was to be the first teacher and the first "ordinary person" in space, died with six other crew members of the shuttle Challenger when it exploded 10 miles above the Florida coast and 74 seconds after liftoff.

It was a day of cruel ironies and common grief.

Jubilant teachers and schoolchildren had cheered Ms. McAuliffe as she entered the spacecraft. On board, she received a symbolic apple from NASA technicians. And farther away, in classrooms throughout America, children awaited the televised start of a space adventure dedicated to them.

The stage was set for America's "Teacher in Space" to fulfill a personal dream and complete the project that had stirred the collective imagination of her profession.

But in the briefest of interludes, the script went awry. Joy turned to sorrow. Technology's bright promise lost its luster. And what was to be a classroom in space became in one awful instant a lesson in mortality.

Ms. McAuliffe's role as the first private citizen in space had sharpened the nation's interest in the flight. And her incongruous fate—to be also among NASA's first in-flight casualties—left a deep national scar.

In what was believed to be an unprecedented gesture, President Reagan postponed that evening's State of the Union address. Flags were lowered to half mast. The Olympic torch in Los Angeles was relit. On Wall Street, the stock exchange went silent for a solemn minute of respect. Washington's Air and Space Museum drew crowds paying tribute to the shuttle crew's black-draped official portrait.

And in cities and towns across the nation, people sought through memorial services and conversation to relieve the sense of loss.

They also sought meaning. Why had the impossible happened?

The wisdom of sending citizen-astronauts into space was questioned. NASA drew heavy criticism for its ambitious schedule of shuttle flights and for what one congressman called its "public-relations hype." Some critics even suggested that manned space flights were unnecessary; robots and satellites would suffice, they said.

But in a brief and eloquent speech to the nation, President Reagan called the seven who died "pioneers on the last frontier" and pledged that the space program would go on. Risk, he told America's children, is the price of achievement. "The future doesn't belong to the faint-hearted," the President said. "It belongs to the brave."

And on an edition of ABC-TV's "Nightline," one child, reading from a class essay she had written on the shuttle accident, expressed in eloquent simplicity the central core of a nation's grief. She had been scared, and upset, and sad, she said, because Ms. McAuliffe "was a mother and a teacher."

L.S.R.

National Broadcast Of Lessons Planned

By J. R. Sirkin

WASHINGTON—The National Aeronautics and Space Administration is preparing a nationwide television broadcast to schools next week as part of an effort to salvage its imperiled teacher-in-space project.

According to an official of the Public Broadcasting Service, the telecast was expected to receive official sanction at NASA headquarters in Washington this week. It will feature Barbara R. Morgan, the runner-up to Sharon Christa McAuliffe in the competition to be the first teacher in space, and perhaps several astronauts, the official said.

Ms. McAuliffe perished along with six others in the fiery explosion of the space shuttle Challenger last week.

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Aftermath of a Tragedy: One Terrible Moment

The Joy and Triumph Ended With One Terrible Moment in the Sky

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home. A contingent of six from the National Education Association, including President Mary Hatwood Futrell, had left on Monday afternoon, expressing disappointment over having to miss the triumph of one of their own.

To escape the morning's cold, I sought refuge in the press office, located on a little hill next to the VIP viewing area.

From there, at about 8:30 A.M., I watched as NASA cameras recorded what would be the last images we would see of the New Hampshire teacher who had captured the hearts and imagination of the nation, Christa McAuliffe.

Smiling that now familiar smile, she tucked her curly brown hair into a liner cap, donned a space helmet, and climbed with the six other flight-crew members aboard Challenger, the vehicle that was to carry her—and vicariously the entire teaching profession—to new heights.

Meanwhile, NASA spokesmen were telling reporters that agency officials were optimistic about the day's launch plans. An electrical problem had been repaired, they said. Now the only apparent hindrance to liftoff was the row of icicles on the fixed launch tower. "We are checking to make sure the ice doesn't pose any threat to the launch," a spokesman said.

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When I re-emerged from the press office at 9 A.M., the educators had arrived. I walked over to join them.

Of the 112 teacher-in-space finalists, now known as NASA's "Space Ambassadors," only about 30 had been able to stick it out through the launch delays. Fewer than 100 of the other 250 teachers and education officials invited to view the launch and attend the NASA conference remained.

But many of those who had endured the delays could not now endure the freezing cold. They waited in buses.

Others wandered the VIP viewing area, mingling with other NASA-invited visitors, setting up cameras, and talking with reporters across a low, white picket fence that provided a small measure of seclusion for those not eager to meet the press. As a registered participant of the NASA-educator conference, I was able to move from the press gallery to the VIP grounds at will.

Small groups of people huddled under blankets and sheets of plastic to keep warm. A finalist spotted what he thought was a school of porpoises rolling in the flat waters of a lagoon that curled around in front of the viewing area. And off to the side, under a long yellow tent, vendors sold "mission 51-L" commemorative envelopes and souvenirs, as well as coffee.

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As the countdown progressed to its final hour, the anticipation and excitement grew. "This bird is going up, it's finally going up," said Gerald Loomer, one of the teacher-in-space finalists from South Dakota.

"My God, this is exciting," another finalist said. "Can you imagine how Christa feels now?"

The atmosphere was infectious. I found that I, too, had butterflies in my stomach.

When a NASA official announced that the countdown would continue after a standard hold at the nine-minute mark, a cheer erupted. The space ambassadors began moving together to an upper corner of the bleachers.

Also congregating at the top of the bleachers—under a sign with big red letters reading, "Go Christa"—was the 3rd-grade class of Scott McAuliffe, Ms. McAuliffe's son. Scott, however, was to view the launch with his father and 6-year-old sister Caroline from the roof of the nearby launch complex.

I snapped several pictures of the class, then dashed over to where the space ambassadors stood, hoping to record their reactions to the launch.

A large digital clock down by the lagoon flashed away each passing second of the countdown. At every minute mark, the teachers cheered.

"I can't stand the suspense," one of them said, and began leading an impromptu cheer.

"Give me a C," she called, and the entire group shouted, "C." They proceeded to spell out the now familiar name. "What does it spell?" the teacher asked. "Christa," the group roared back.

It was at this point, with five minutes left in the countdown, that Margaret J. Lathaen, a teacher from Texas and one of the 10 finalists in the teacher-in-space competition, told me about a message the space ambassadors had sent Ms. McAuliffe earlier in the week. It read:

"When that shuttle goes up, there may be one teacher on board but the spirits of 2.5 million teachers and all their students will be with you."

"We asked that she be given this just before she boarded the shuttle," Ms. Lathlaen said, as the clock continued toward zero.

Finally, at 11:38 A.M. Eastern Standard Time, only 10 seconds remained.

"Ten, nine, eight, seven," shouted the teachers, counting down the final ticks.

At T minus six, the shuttle engines fired on schedule, shooting out plumes of white exhaust from the launch pad. "Five, four, three, two, one," the teachers chanted.

Then, with the deafening roar of the booster rockets and a tide of cloudlike exhaust, the shuttle, riding piggyback on its rust-colored fuel tank, rose majestically into the sky, trailed by yellow rocket fire as bright as the sun.

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I could barely hear the cheering of the teachers over the roar.

I watched for several seconds, before turning to quickly snap several pictures of upturned faces, looking skyward.

Then I turned back to the shuttle—and one terrible moment in the sky.

At a minute and 15 seconds after take off, when Challenger was approximately 10 miles above the earth and traveling at 2,900 feet per second, there was a giant flash and a burst of smoke engulfed the space craft. The violent boom of the explosion followed.

At first, most of us in the viewing stands were not aware that disaster had struck. We simply thought the booster rockets had separated from the larger external tank, and we gasped in awe at the beautiful display of color and light above us.

But where was the shuttle? It had vanished. There was nothing to be seen beyond the sausage-shaped cloud that hung in the sky. And particles falling with long white contrails from the cloud.

BLAKE RODMAN

BLAKE RODMAN

Teachers, most of them "space ambassadors," gathered early to observe the launch. "Go Christa" became a chant as the shuttle lifted off, then all gazed in silent awe at the flight moments before it ended.

"Flight controllers here looking very carefully at the situation," a public-affairs officer reported over the sound system. "Obviously a major malfunction."

The jubilation ended. Solemnity and silence ensued, as everyone scanned the sky for some trace of Challenger.

Finally, realization came with numbing force. "We have a report from the flight dynamic's officer," the NASA official reported. "The vehicle has exploded."

"No, no, no, oh God, no," someone cried.

"My God, Christa," said another teacher, sobbing. "It just can't be."

Though I didn't want to, I felt compelled to turn and record the scene on film. What I saw was looks of quiet horror, tears, faces etched with pain and disbelief, people consoling one another with a touch.

Behind me, a NASA official was asking all spectators to return to the buses immediately. But no one could move. Some of the teachers had slumped back onto the benches and sat with their hands covering their faces. Others hugged or clutched a neighbor for support. Still others stared blankly upwards.

John Cazanas, one of the finalists from Iowa, turned to me with tears in his eyes and said, "How can it be? I just don't believe it. She was one of us. One of us."

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Slowly, people began moving toward their buses, still staring at the mushrooming cloud above with its white streamers.

"That's not allowed," said Patricia P. Sturges, a teacher from West Virginia. "It's just not allowed." One week earlier, Ms. Sturges had told me of her dream to one day travel in space.

"When I'm there watching Christa, I'll be watching her do what I've dreamed about doing," she had said. "It will bring me satisfaction to know that somebody is up there, and that it's a teacher."

Shaken, I watched as Scott McAuliffe's 3rd-grade class climbed down from the bleachers, the children staring inquisitively into the somber faces of their chaperones. The students seemed confused and unable to understand what had happened. "Where did all the joy and excitement go?" they seemed to be wondering.

Suddenly, someone yelled, "Parachutes."

BLAKE RODMAN

First shock, then disbelief, and finally pain and anguish overwhelm viewers in the bleachers, left, and Christa's parents, Edward G. and Grace Corrigan, and her sister Betsy, below.

AP/WIDE WORLD PHOTOS

A spectator with binoculars had spotted a parachute drifting through the white clouds and contrails. People gathered around hopefully. Was it possible for anyone to have survived that explosion, I wondered as I spotted the chute.

"Those parachutes are believed to be paramedics going into the area," the public-affairs officer announced over the loudspeakers, dashing hopes that there had been survivors.

Later in the day, other NASA officials would say that the parachutes had not been paramedics, but probably chutes attached to sections of the two white booster rockets, which are normally recycled after a launch. Falling debris, they would say, had prevented rescuers from entering the crash area for nearly an hour.

Frank C. Owens, a NASA educational-programs officer and one of the organizers of the week's conferences, was ashen-faced as he helped the teachers board one of the buses. I had talked with him earlier that morning. "It may sound corny," he had said then, "but the energy and enthusiasm of this group of teachers could launch that shuttle."

The viewing area empty, the buses loaded, I turned to walk back to the press office. And for the first time, I realized how wrenching the experience had been. My entire body seemed to be shaking, a shivering that would continue on and off uncontrollably for more than an hour. I was nauseated and fatigued.

In the parking lot behind the bleachers, I met a dazed Gordon Corbett, a teacher finalist from Maine, who was searching for his car. "This is a very hurt group here," he said, pointing toward the educators' buses. "One minute we were participating in the excitement and laughter and then this. Oh God, this. It's awful."

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The press room was in a whirl. The horrific events had suddenly turned what was to have been a rather routine space-shot story into the story of a lifetime for most of the journalists here.

Trying to reach their editors and news managers, reporters massed around 10 telephones on one side of the room. While radio reporters dramatically described the explosion, writers furiously tapped out their stories on portable computers.

The team of NASA spokesmen at the press office fielded questions from all sides. But there were no answers for the journalists to report, only the gruesome details of a tragedy they had already witnessed.

Brian Ballard, editor of the student newspaper at Ms. McAuliffe's Concord (N.H.) High School, attracted a circle of reporters as he described how he felt watching the explosion.

"It was very frightening," he said. "My heart went from my chest down into my legs."

Brian said he had not known Ms. McAuliffe very well. "But I sure wish that I had," he added.

I left the newsroom to get some fresh air and walked down by the viewing area, now quiet and empty. The American flag, snapping in the wind on a pole down by the lagoon, would soon be lowered to half mast. A few wispy clouds lingering out over the Atlantic were the only trace of the morning's events.

As a former teacher myself, I kept thinking of those I had stood beside on the viewing stands and of all the teachers and students watching the event on television across the nation. This was to have been their day. It all seemed so wrong, so unfair.

Late that night, as I was waiting for my flight home, I called Mr. Owens, the NASA official who had accompanied the teachers back to their hotel in Orlando.

He said there had been only silence and tears on the return trip, but that back at the hotel the teachers had spent "a quiet time together" talking about Ms. McAuliffe, her mission, and what their mission would now be.

All of the teachers, Mr. Owens said, had indicated that, regardless of the day's tragedy, they would apply again for a trip on the shuttle.

He also said the teachers remained committed to carrying on the work Ms. McAuliffe had begun.

"They all felt that Christa would have wanted them to continue their work to improve education in this country," Mr. Owens said.

"You know," he added, "a lot of good comes out of adverse and difficult times."

What he was saying, it seemed to me, was that the healing had begun.

Aftermath of a Tragedy: Grief for a Hometown Hero

'I Was Confused When I Saw Everyone's Head Go Down'

By Alina Tugend

CONCORD, N.H.—Residents in this snow-covered New England town united last week in churches, homes, and bars, trying to understand a public—yet very personal—tragedy.

Within hours of the shuttle explosion, Concord was thrust into the national spotlight, as reporters and photographers from across the country descended on a citizenry jolted from joyful celebration to stunned grief in seconds.

Like most of the city's 33,000 residents, students at Concord High School, where Sharon Christa McAuliffe taught, observed the event on television. Wearing party hats, the students were gathered in the cafeteria watching the liftoff, not realizing immediately what had happened.

"I was confused when I saw everyone's head go down," said Alex Scott, a sophomore at the school. "Someone yelled 'Quiet!' I was still full of it. I walked back to the class and didn't believe it. I thought we'd go back to class and she'd be up in space."

"Shocked," "numbed," and "devastated" were the words people most often used to describe their feelings. Even those who didn't know Ms. McAuliffe—or Christa, as she is universally called here—knew a friend or a neighbor who did.

And many, like Mandana Marsh, a local photographer and mother of a 4-year-old girl, likened their feelings when the shuttle exploded to the day President John F. Kennedy was shot.

"I was watching TV with my daughter on my lap when I saw it explode," Ms. Marsh said. "I couldn't help it. I burst into tears."

A Town's Mourning

Flags flying at half mast in front of the gold-domed statehouse and across the city were the most immediate signs of Concord's mourning. Soon there were others. On the night of the explosion, residents gathered to pray at St. Peter's Church, where Ms. McAuliffe had taught religious classes.

In another sort of establishment—a bar near the downtown area—Judy McGowen, a waitress, said everyone was devastated by the incident.

"I had to send our 16-year-old waitress home," she said. "Many of the kids who work in the kitchen had Christa as a teacher or were looking forward to having her."

A sign in the window of a market read: "Challenger Crew and Christa were brave. Let us be brave and attend a church service of your choice." In this city where phone calls are still 10 cents and the main street is called Main Street, many residents turned to that traditional source of comfort.

Prayer Service

At a prayer service Wednesday morning at St. John the Evangelist Church, 300 uniformed students who attend St. John's Regional Catholic School, ranging from kindergartners to 8th graders, somberly listened to Father Daniel Messier try to explain the incomprehensible events that had unfolded before them.

"We're fortunate that we can come together and pray," said Sister Irene Turgeon, principal of the school. "Christa's hope will give them the courage to move on with life. I'm sure some will say this is God's fault; we say God's ways are strange."

Later that evening, a memorial service was held at the same church for all mourners. Friends, students, and those who had admired Ms. McAuliffe from afar crowded into the church. Many shed quiet tears as one priest told them, "Christa had a special and unique gift. She brought us laughter and life. As she told the students at Concord High, 'Reach for the stars.' "

Second Crisis

The high school where Ms. McAuliffe taught was the focus of much of the attention, as teachers and counselors grappled with their own sorrow and that of the students.

It was the second tragic incident in as many months. In December, a recent dropout from the high school was fatally wounded by police in a gun battle in a school hallway after holding two students hostage at gunpoint.

UPI/BETTMAN ARCHIVE

BRIGHT MEMORIES: In memorial services and personal reflections, Christa McAuliffe's many students and friends last week recalled such happy times as this encounter last summer.

Many had hoped the space launch would help students overcome that incident. Now, teachers are passing around the same memo on dealing with grief and loss that they circulated in December.

"We're getting experienced at this sort of thing," said John Reinhardt, director of school psychological services.

The high school was closed Wednesday, but counseling services were made available to the students.

Two signs at the school showed how quickly elation had turned to grief. One, over the front entrance, was an advertisement for a satellite dish. It read: "Helping Bring Christa Down to Earth."

Another, on a tree on the front lawn, read: "We Love You Christa." The tree was decorated with black ribbons, Ms. McAuliffe's picture, and a poem dedicated to her. Students hugged each other and wept in front of the memorial.

Flowers, Telegrams

Hundreds of flowers and telegrams poured into Concord High School, including one from a Maine teacher offering to teach without salary in Ms. McAuliffe's place.

School personnel also received offers of psychological help from as far away as California. President Reagan sent a condolence letter that was not to be made public until after the private memorial service for students and teachers that was scheduled to be held last Friday.

City officials are considering naming a new elementary school after Ms. McAuliffe.

Said Mark Beauvais, superintendent of schools for the district and a personal friend of Ms. McAuliffe: "I'm a superintendent. On the other hand, I'm a human being and have some very strong feelings of sadness and despair."

Murals and Posters

At the district's elementary and junior high schools, classes started late Wednesday as faculty members met with counselors and psychologists. When the children did come to school, many returned to halls and classrooms filled with space murals and bright posters commemorating their teacher in space.

At Walker Elementary School, an office was set aside for those teachers who felt the need to be alone during the day. Playing in the snow outside were bundled-up children who, had the launch gone according to schedule, were to have attended a Wednesday "Blastoff Breakfast."

Mayor James MacKay proclaimed Friday "Christa McAuliffe Day." A citywide memorial service was scheduled to be held Friday night.

Steve McAuliffe, Christa's husband, traveled with his two children to Framingham, Mass., with Ms. McAuliffe's parents. He and the children were expected to return to Concord over the weekend. Until then, their chocolate-brown house remained empty, with only a police car standing guard in front.

As the media representatives depart and the local papers find other news stories to report, Concord struggles to pick up the threads of normal life. But clearly it will be a long time before last week's sadness fades. For as Father Messier said: "Christa became Concord through this. When she got on the shuttle, we got on with her. And when that explosion took place, it took place in our hearts."

Community Leader, Advocate for Teachers, Mother of 2

Sharon Christa Corrigan was born in Boston on Sept. 2, 1948, the daughter of Grace and Edward G. Corrigan. She grew up in Framingham, Mass., a Boston suburb.

Although she was christened "Sharon," she was called Christa from the start, and once told a reporter she had not known her given first name until she read the certificate for her First Holy Communion.

At Marion High School, a parochial school, she participated in activities ranging from basketball to the Girl Scouts to glee club, and started a holiday food-basket program for the needy.

She also met her future husband, Steven J. McAuliffe, at Marion High, recalling later that she had noticed him on the first day of her sophomore year. They married in 1970, the same year she graduated from Framingham State College with a degree in history.

After their marriage, the McAuliffes lived for eight years in Washington, D.C., where Mr. McAuliffe attended law school and worked as a defense lawyer for the Army.

While in Washington, Christa McAuliffe taught fulltime, waited on tables part-time, and earned a master's degree in education administration from Bowie State College in Maryland.

In 1978, the couple moved to New Hampshire, where Mr. McAuliffe went to work for the attorney general's office, and Ms. McAuliffe taught in a number of public schools.

While teaching at Bow Memorial School near Concord, N.H., in the early 1980's, Ms. McAuliffe was president of the local affiliate of the National Education Assocation. Mel Myler, executive director of the state affiliate, recalled how Ms. McAuliffe "took on the local school board" over a conflict concerning the teachers' contract.

In New Hampshire, an entire town votes on the contract, Mr. Myers explained, saying that Christa had "presented the teachers' views to the community—and won." Those were pivotal years in her development as a teachers' advocate, he said.

In 1982, Ms. McAuliffe began teaching at Concord High School, where she taught social studies and a course on the American woman.

In New Hampshire, she led a Girl Scout troop, hosted inner-city students who came north to New England for study, taught religious classes at St. Peter's Church in Concord, performed in community theater, and worked as a family-planning counselor.

She also raised two children, Scott, now 9, and Caroline, 6.

"Christa was unique, but she wasn't unique," Mr. Myler said. "In most cases, specialness comes through where you go to school, how much money you make. She had unique qualities, but she didn't bring with her all those material qualities Americans equate with success. She embraced the qualities of a good teacher."

Until the tragedy, he said, "we in Concord had no idea of the impact she had on the nation. We were wrapped up in the fact that she was a colleague and friend."

That national impact was apparent last week in the hundreds of cards, telegrams, and flowers sent to Concord High School, he said. It was also reflected in memorial services held around the country, culminating last Friday with a national service for all of the crew members at the Lyndon B. Johnson Spaceflight Center in Houston.

Mr. McAuliffe was expected to attend the Houston ceremony, as were the President and Mrs. Reagan, members of Congress, and other public officials. —A.T.

AP/WIDE WORLD PHOTOS

AP/WIDE WORLD PHOTOS

***SAD REALITIES:** Students at Concord High School had prepared a festive celebration in the school cafeteria for last week's liftoff moment. Carina Dolcino, president of the senior class, was among the hundreds of Concord students watching the flight of Challenger end in disaster. Below, other Concord High students leave school in what many described as "a state of shock." Ms. Dolcino, right, and fellow students later that day attended a memorial service held at St. Peter's Church in Concord.*

AP/WIDE WORLD PHOTOS

Aftermath of a Tragedy: The Impact on Children

TV Brought the Trauma To Classroom Millions

AP/WIDE WORLD PHOTOS

JANET KNOTT/THE BOSTON GLOBE

For young children at a special memorial service for Ms. McAuliffe at St. John the Evangelist Church in Concord, Christa McAuliffe's hometown, it was a time of bewilderment. At Cape Canaveral, Fla., students and teachers from Concord, reacted with horror and confusion.

By Lynn Olson

It was the classroom lesson no one had anticipated.

Across the country, students and teachers who had gathered to share the excitement of the launch instead experienced the immediacy of death, brought home with horrifying impact by television.

Some 2.5-million students nationwide were viewing Challenger's takeoff via satellite dishes hooked up to their schools. Others were watching the live broadcast on cable. And by afternoon, countless millions more schoolchildren were sitting in classrooms listening to radios or watching continuous replays of the event on public and commercial stations.

In McCall, Idaho, some 1,000 students in grades K-12 were watching the liftoff and keeping an eye out for their hometown teacher, Barbara R. Morgan, who was scheduled to replace Sharon Christa McAuliffe on the flight should the need arise.

After the explosion, teachers kept the students gathered in a few large viewing rooms for an hour or two to discuss what had happened and to follow the news coverage. Superintendent of Schools Everett D. Howard said staff members were "really just trying to get through today" before making other plans.

At Hall High School in Spring Valley, Ill., 150 students were viewing the NASA broadcast of the launch in the cafeteria. The school is home to "Classroom Earth," the nonprofit group that was coordinating the satellite relay of Ms. McAuliffe's lessons from space.

When the accident occurred, there was just "stunned silence," said a Hall science teacher, Steve Fannin, who had applied for the teacher-in-space program along with 11,000 other candidates. "Initially, we didn't know what to think. But as the moments continued, it was just a shock, utter disbelief."

"Some of us did the final countdown," recalled Charlotte A. Gregory, superintendent of the Bath Central School District in Bath, N.Y. "Everybody was happy. I guess we did not believe what we saw. We were still hunting for the shuttle at the time we saw the explosion."

In school after school across the country, teachers, students, and administrators described long minutes of silence followed by crying, despair, anger, and questions for which there were no satisfactory answers.

'What Happened?'

"We've been hearing about kids who want to go over and over 'How was the shuttle built? What was the ice doing on it yesterday?' A variety of questions about 'How do these things work?' " said Sandra S. Fox, director of the Good Grief Program in Boston, which is designed to help teachers support students in schools where a child or colleague has died.

Since the explosion, Ms. Fox said, her staff has been answering calls from schools throughout the New England area. "There are some kids who are angry," said Ms. Fox. "I just talked to a young man in high school who told me that the kids in his school were all angry with the space agency because they'd been pushing too much, and they shouldn't have tried yesterday."

Elementary-school children have also expressed a feeling that Ms. Fox said older students probably share: "This lady was a mother. She had no business going up in this thing."

"The other thing I've been hearing a lot," she added, "is the trouble teachers are having with their own feelings. I have heard probably half a dozen times today about teachers who were watching the launch with kids, saw what had happened, burst into tears, and left the room."

Shared Event

Although technology brought the day's tragedy into the homes of citizens nationwide, it was particularly painful for the education community, which had been preparing for and building up to Ms. McAuliffe's historic flight for more than a year.

"The interest was phenomenal," said John D. Cecil, director of elementary and secondary programming for the Public Broadcasting Service. The social-studies teacher's in-flight lessons were scheduled to be aired on P.B.S. on day four of the mission. According to Mr. Cecil, nearly all public-television stations in the country were planning to carry them.

"As a wild guess, I'd say probably in the neighborhood of 20-million kids would have been watching those lessons," he said. "This is really devastating for everyone."

The National Science Teachers Association had distributed information about the lessons along with teaching guides to its 40,000 members, and had helped NASA develop the materials.

Walter J. Westrum, executive director of Classroom Earth, said that some 2,000 elementary schools and high schools across the country had sent in letters confirming that they would be viewing the launch and the lessons by satellite. In the three weeks before the takeoff, he said, student volunteers answered hundreds of calls a day.

Local Efforts

States, districts, and individual schools had tried equally hard to promote the teacher in space and make her "real" for students.

The Learn Alaska Network, an educational satellite system sponsored by the Alaska Department of Education and the University of Alaska, had planned to broadcast the launch and the ensuing lessons to schools and homes in more than 250 communities. In October, Ms. McAuliffe and Ms. Morgan had participated in a live broadcast for the network that enabled students from across the state to ask questions over a special audio system and talk to the teachernauts.

"We've done all that we can to whip up community interest in science and NASA," said Michael D. Abbiatti, dean of the Southfield Middle School in Shreveport, La. "We were trying to immerse this area in the space program."

For the last month, the school system had been carrying out "Extraterrestrial Education," a full-month program involving students and community members that was designed to culminate with the flight.

Pupils and teachers had been following the shuttle's itinerary over computer and via satellite. And last Friday, 500 students were scheduled to take a field trip to the local public-television station for a special program to coincide with the space lessons.

"We plan to grieve and we plan to collect all the information we possibly can and then forge ahead," said Mr. Abbiatti. "People will ask, 'What happened? Why?' If people are questioning and they really want to know, that's when we can react as educators."

Hometown Loss

But in the astronauts' hometowns, the strongest reaction was one of profound loss, even though residents continued to express enthusiasm for the shuttle program.

At Auburn High School in Auburn, Wash.—the alma matter of the shuttle's commander, Francis R. Scobee—students were home the day of the explosion while teachers came to school to assign semester grades.

Two of the state's finalists for the teacher-in-space program, who teach at the school, first heard the news over the public-address system. One of them, Kathy Willson, was still reading over Ms. McAuliffe's lesson plans the day after the disaster, hoping to revise them to use with her students.

The day following the explosion "was even harder," she said, because the truth had "just sunk in." Students at the school observed a minute of silence last week, while two of their classmates played taps over the public-address system.

Quick Response

At schools where students were present and watching the event, teachers and administrators responded quickly to their concerns.

In Alaska, the Learn Alaska Network put together a special program that it broadcast at 12:30 P.M. the day of the explosion. The show included an address by Gov. Bill Sheffield, and a high-school science teacher and a psychologist were available to answer students' questions.

"Some of the students just put their heads down on the desk and watched in disbelief," said Marjorie M. Benning, utilization manager for the network. She added that the network is encouraging teachers to go

Encourage Students To Express Their Feelings, Experts Suggest

By Lynn Olson

Experts on children's mental health last week urged adults to encourage students to talk about the space-shuttle deaths and to be receptive listeners.

And they cautioned that over the next few weeks, children may become fearful, misbehave, or develop such somatic symptoms as headaches and stomachaches. Students may daydream, have problems sleeping, express feelings of futility, or show a decline in the quantity and quality of their schoolwork, they said.

Being actual witnesses to the fiery tragedy on television, experts agreed, may have a powerful effect on some children.

'Going With Her'

"Christa humanized it, personalized it, and created an intimate mutual identity," said Dr. Kent Ravenscroft, associate clinical professor of psychiatry at the Georgetown University Medical School, "as if it were their teacher going up into space. And in effect, they were going with her by proxy."

"I had one boy who said that he was riding right up in the rocket with her and then he felt himself explode," he continued. "It was so intolerable that he finally denied it."

Other experts agreed that because a teacher was aboard the shuttle, and because schools had purposefully stirred children's enthusiasm in the weeks preceding the launch, the disaster could have a great impact on some students.

But they noted that the extent to which children reacted would depend on their age, their intellectual and emotional development, any personal experiences they had had with death or loss, and their personality.

Vulnerable Children

Students who had personal contact with the astronauts or their families or who were in schools that had primed them to be deeply involved with the flight could be expected to react more strongly, they said.

Other particularly vulnerable children are those whose mothers have died recently or whose parents are going through a divorce, students who are the same age as Ms. McAuliffe's children, students who are feeling inadequately cared for, and those who are angry with their teachers or their parents.

Although most older children are able to tell the difference between a news event and fantasy, and will have some understanding of death, young children will not be reacting to the event itself as much as to the groundswell of feeling among adults and peers, they said.

"Younger kids will almost pick up the vibrations," said Dr. Ravenscroft.

Opportunity for Teachers

More important than the content of teachers' activities will be their willingness to "take leadership," said Dr. Gilbert W. Kliman, co-author of *Children and the Death of a President*, a book about the effect on children of John F. Kennedy's assassination.

As part of the study for the book, Dr. Kliman sent a questionnaire to the teachers of 800 youngsters in a small Northeastern city.

His study found that teachers who took the initiative and immediately organized classroom discussions and activities for their students had a positive effect. Those who refrained from communicating with children or sharing their feelings actually hindered students' ability to cope with trauma.

"While young children frequently wished to be President before this assassination," said Dr. Kliman, "that same generation of children had an immediate chill and a long-range freeze on their ambitions politically, and particularly for leadership and for the office of President."

His current concern, he said, is that the explosion of Challenger will have a similar, negative effect on children's attitudes toward space exploration and other adventurous, scientific activities, particularly among girls.

Teachers should be honest in any dealings with children, said Frank Burtnett, assistant executive director of the American Association for Counseling and Development. He cautioned counselors and teachers not to make the event end at 11:39 A.M. Jan. 28.

"This is a time when honesty and facts should really come through," he said. "We need to give answers as best we know them to kids, and not give them more mysteries."

Grieve Differently

Experts also cautioned that children's reactions to death are different than those of adults—and may be what a teacher least expects.

"Grieving children may look bad rather than sad," said Dr. Lillian H. Robinson, professor of psychiatry and pediatrics at the Tulane School of Medicine. "If they raise hell, if they misbehave, or if they do things to keep themselves busy and preoccupied, it's so they don't have time to feel sad or anxious. What we see in a child who is grieving is often the defense against sadness and anger rather than the feelings themselves."

In addition, young children have a tendency to act out their emotions. "I would anticipate children all over the nation to be playing at shuttles blowing up and things like that," she said. "Sometimes they might be making jokes about it. But it's not necessarily disrespectful or bad for them to do that."

Other students may try to distance themselves from the event by handling it intellectually, said Sandra S. Fox, director of the Good Grief Program in Boston, which helps children cope with death. Such children may ask endless questions, trying to gather as much information as they can about the event, she said.

For the majority of children, the immediate response should be over in a few days, added Dr. Kliman. But long-term, subtle effects on character and motivation should be of concern to educators, he stated, noting that he is still seeing the effects of the Kennedy assassination on people.

Dr. Albert Clark, director of student-health services for the Los Angeles Public Schools said he did not expect the shuttle explosion to have an "untoward" effect on most students.

Experts agreed that teachers should emphasize the known risks that were involved in the space flight, the bravery of the astronauts, and the importance of such people's risk-taking to society.

They also said that teachers should share their feelings with students, in effect giving children "permission to grieve."

But they cautioned adults not to "overwhelm" children. The risk, said Dr. Ravenscroft, is that teachers will project their own feelings onto students rather than listening to what children really think.

A gentle, "backdoor approach" to discussing the disaster, he said, is to get children talking about how other children reacted, "to come at it through somebody else at some other place at some other time."

Any immediate, concrete actions—such as writing letters of condolence, holding a memorial service, or playing the national anthem—would also help, experts said.

Teachers' Gatherings

Equally important, teachers should gather to discuss their own feelings and to overcome their anxieties and fears about saying the wrong thing to students, said Ms. Fox.

Although experts could not give a ready answer about whether schools should proceed with some form of Ms. McAuliffe's in-flight lessons, they cautioned that it may be too soon for the experience to be productive. The most important factor in the decision, they added, may be how ready teachers feel to cope with it.

The American Association for Counseling and Development has published a special issue of its journal, *School Counselor*, on teaching children about death and dying. For a copy of some of the articles, call the A.A.C.D. at 800-545-A.A.C.D.

PAUL KAPTEYN/THE MIDDLESEX NEWS

Stunned students at Marian High School in Framingham, Mass., watch telecast of the explosion of the space shuttle Challenger. Christa McAuliffe, a native of Framingham, graduated from the high school in 1966.

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ahead with the lesson plans as best they can, and is asking students to write letters of condolence to their peers in Concord, N.H., and to Barbara Morgan, as well as putting their own feelings on paper.

"Lots of our students live in small communities and are very familiar with the traumas of being close to the land and the environment," said Ms. Benning. "They see these kinds of things happen. It's not totally without context."

That feeling was shared by Corbett Lawler, principal of Killeen High School in Killeen, Tex., which is located just outside Fort Hood, the largest military installation in the free world. "Our youngsters generally have military attitudes," said Mr. Lawler. "Many of them are not at all a stranger to death and to violence."

Like many other schools nationwide, Killeen was responding quietly to the tragedy and its students decided to send letters of condolence to the families of the astronauts. Thousands of schools also flew their flags at half mast.

"I would say that we will definitely be watching our students very closely, at least in the next few days," said Principal Richard W. Lundgren of Eagle Bend High School in Eagle Bend, Minn. "As we get over the shock of it, we're trying to get the students' feelings out about what has happened and work with them as we can."

Positive Steps

In addition to sending letters to the communities and families of the seven astronauts, a number of schools have taken steps to honor their memory.

In Bath, N.Y., an ecumenical service was held at a local church. Bath High School has also begun a collection to which students and teachers nationwide can contribute, called "Pennies for Space," funds from which will be donated to NASA to contribute to the shuttle program.

At the Blue Lakes Elementary School in Miami, students were planting seven trees in memory of the space travelers. And at Flagami Elementary School, also in Miami, about 400 students released balloons into the sky on Friday at noon and recited a message of sorrow in unison in memory of Ms. McAuliffe.

On Jan. 29, New Hampshire public television produced a half-hour program called "Challenger Tragedy: Helping Our Young People Cope," which included interviews with child psychologists and educators from the University of New Hampshire to help teachers devise strategies for getting young people to deal with the disaster. The station is making the videotaped program available to other public television stations.

The Massachusetts and Rhode Island public-television stations also showed the program last week, and the Massachusetts station was planning to make it available to schools.

Staff Writers Robert Rothman and William Snider also contributed to this report.

Aftermath of a Tragedy: Private Tears, Public Plans

Stunned Educators Grieve McAuliffe's Loss, Search for Meaning

Continued from Page 1

As an education professional, she said, "my first feelings were thoughts of the teacher. I'm a mother, too, and so of course I thought of her kids."

"I just sat in my office for a while, listening to the radio, letting it all sink in," said Ms. Arvey.

Across the country, such scenes were repeated last week as teachers, students, school administrators, and others tried—in public and private ways—to come to grips with the magnitude of the shuttle disaster, in which the "teachernaut" Sharon Christa McAuliffe and six astronauts were killed.

Meetings were halted and class routines were disrupted. At many schools, principals relayed the news over the public-address system, and called on students and staff members to observe a moment of silence.

Reaction in New Hampshire

In Ms. McAuliffe's home state of New Hampshire, more than a score of education officials viewed the liftoff together on television.

Like other school officials who had gone to Cape Canaveral expecting to see the event firsthand, Robert L. Brunelle, New Hampshire's education commissioner, had to return to work after the launch was repeatedly delayed.

So Mr. Brunelle and a group of his colleagues at the state education department had gathered around a television set.

"Most people and I did think at first that the solid fuel rockets had just disengaged," said Mr. Brunelle, recounting the scene as department officials watched the shuttle explode. "But then I realized it was too early in the flight for that to happen."

Suddenly, he said, "it became very quiet. People were stunned and dismayed." Like many Americans, he compared the scene to that following the assasination of President Kennedy.

"It's really a personal loss," Mr. Brunelle said. "You felt as though 'Why did this have to happen to this individual?' Not ignoring the other six, but a lot of us identified with Christa."

A Renewed Commitment

After the initial shock, many educators began searching for something constructive to salvage amid the disaster.

For some, it meant a renewed commitment to strengthening education in science and technology.

Lynn Bondurant of NASA's Lewis Research Center—a former teacher, principal, and school-board member who oversees the agency's educational programs for the Midwest—said: "First we react, then ponder. Hopefully, this won't lessen our enthusiasm for having educators in space, and sharing new technology with children in schools. We had events scheduled with Christa. She is no longer here, but what she was going into space for—to continue teaching—still is."

Edith E. Westermann of the Washington, D.C.-based Young Astronauts' Council, likewise suggested that enthusiasm for science among young people may grow, rather than diminish, in the wake of the tragedy.

Noting that the council had been "flooded" with questions from students and teachers after Tuesday's accident, she said her group found much support for continuing space exploration.

"Although the tragedy is profound, teachers and students feel that the Young Astronauts and other space programs should be continued," Ms. Westermann said. "They want Christa McAuliffe's dream to be realized through dedication to the space program and to education."

In one effort to deal with the deluge of requests for information, the Young Astronauts group scheduled for last Friday a live interactive television hookup between Chicago's O'Hare airport and Seattle schools to handle questions from a group of 4th, 5th, and 6th graders.

Commemorative Projects

Others announced plans or began discussing ideas for specific commemorative projects at the national, state, and local levels.

In Washington, D.C., Senator Arlen Specter, Republican of Pennsylvania, asked President Reagan to rename the U.S. Education Department building—which houses some NASA offices—after Ms. McAuliffe.

In New Hampshire, Mr. Brunelle said, "we're considering two or three kinds of ways in which to commemorate Christa's spirit, enthusiasm, and commitment to teaching"—among them a scholarship fund.

Judith A. Resnik, one of the astronauts on the Challenger, will be honored in several ways in her hometown, Akron.

At her alma mater, Firestone High School, she will be the first inductee in the school's "wall of fame," said the principal, Robert Hatherill.

The school will also name its library for Ms. Resnik, and the Akron Board of Education will establish a scholarship in her name for a female graduate who plans a career in the sciences, Mr. Hatherill said.

Scott Thomson, executive director of the National Association of Secondary School Principals, said NASSP is "kicking around ideas on what to do."

One possibility, not yet approved by the group's board, is to give an annual award in Ms. McAuliffe's name to "a principal who is courageous in some way," Mr. Thomson said.

"Christa is a woman in the Oregon trail tradition," he added. "She had extraordinary courage, like the women on the wagon trains."

Whatever the memorials, whatever the plaques and the tributes, observed Mr. Brunelle, "now I think time will be the best healer of all. It always is. As time goes by, I hope we will have learned something from this."

As for the first teachernaut, he said, "She will be a role model, absolutely, for youngsters and teachers, both."

And Mr. Bondurant of NASA observed: "The 'Teacher in Space' logo is beautiful and a telling symbol. It is a torch coming out from the earth. The flames are to symbolize the light from education and from knowledge."

We have the responsibility to pass the torch to the next generation," he continued. "We have to go on."

Written by Associate Editor Gregory Chronister and Staff Writer James Hertling, with reporting by Assistant Editor Lynn Olson and Staff Writers Elizabeth Rose, Robert Rothman, and William Snider.

More Space Flight for Teachers, President Says in Brief Address

By James Hertling

WASHINGTON—Only hours after last week's shuttle explosion, President Reagan said in a nationally televised address that the country would continue to send civilians—including teachers—into space.

His expression of support for the program, coming amid the outpouring of shock and grief over the disaster, was applauded by some, but not all, who were listening.

"There will be more shuttle flights and more shuttle crews and, yes, more civilians, more teachers in space. Nothing ends here. Our hopes and our journeys continue," said Mr. Reagan.

"The Challenger crew was pulling us into the future, and we will continue to follow them," said the President, who was to attend a national memorial service in Houston last Friday.

"In memory of the crew and in memory of Christa, I would hope they'd keep the program and send a teacher up," commented Mary Hatwood Futrell, president of the National Education Association, of which Ms. McAuliffe was an active member.

Investigation Seen

Several lawmakers, however, questioned whether civilians should fly in space.

"I do believe personally that only astronauts trained in this program should be the ones to go up in the shuttle," said Representative Harold L. Volkmer, Democrat of Missouri and chairman of the House Science and Technology Subcommittee on Investigations.

Similarly, Senator John Glenn, Democrat of Ohio and the first American to orbit the earth, told reporters that the purpose of the shuttle program was scientific research and not "to put the butcher, the baker, and the candlestick maker on those rides."

The House Science and Technology Committee will hold hearings on last week's explosion after NASA completes its inquiry, said the panel chairman, Representative Don Fuqua, Democrat of Pennsylvania.

Although no cause has been identified, some lawmakers suggested that because of the space agency's ambitious shuttle plans this year, NASA was under pressure—particularly from commercial customers whose satellites would be launched from the shuttle—to press ahead with this mission.

But Jesse W. Moore, director of the Johnson Space Center in Houston and the official who gave the final order to launch last Tuesday morning, said at a press conference that "there was absolutely no pressure to get this launch up" and emphasized that "flight safety is our top priority in the program."

Mr. Moore announced the suspension of all shuttle operations and the appointment of an interim board of inquiry until a final one is appointed.

And late last week, White House officials said Mr. Reagan was considering appointing an independent panel to look into the future of NASA's space program.

The investigation, officials told *The New York Times*, would not center on the shuttle explosion but would include a review of the NASA board of inquiry's work.

'We Mourn Seven Heroes'

Following is the transcript of President Reagan's Jan. 28 statement to the nation on the shuttle crash, as recorded by The New York Times.

Ladies and gentlemen, I planned to speak to you tonight to report on the state of the union, but the events of earlier today have led me to change those plans.

Today is a day for mourning and remembering.

Nancy and I are pained to the core by the tragedy of the shuttle Challenger. We know we share this pain with all of the people of our country. This is truly a national loss.

Nineteen years ago, almost to the day, we lost three astronauts in a terrible accident on the ground, but we've never lost an astronaut in flight; we've never had a tragedy like this. And perhaps we've forgotten the courage it took for the crew of the shuttle, but they, the Challenger seven, were aware of the dangers and overcame them and did their jobs brilliantly.

We mourn seven heroes: Michael Smith, Dick Scobee, Judith Resnik, Ronald McNair, Ellison Onizuka, Gregory Jarvis, and Christa McAuliffe. We mourn their loss as a nation, together.

The families of the seven—we cannot bear, as you do, the full impact of this tragedy, but we feel the loss and we're thinking about you so very much. Your loved ones were daring and brave and they had that special grace, that special spirit that says, "Give me a challenge and I'll meet it with joy." They had a hunger to explore the universe and discover its truths. They wished to serve and they did—they served all of us.

We've grown used to wonders in this century; it's hard to dazzle us. For 25 years, the United States space program has been doing just that. We've grown used to the idea of space, and perhaps we forget that we've only just begun. We're still pioneers. They, the members of the Challenger crew, were pioneers.

And I want to say something to the schoolchildren of America who were watching the live coverage of the shuttle's takeoff. I know it's hard to understand that sometimes painful things like this happen. It's all part of the process of exploration and discovery, it's all part of taking a chance and expanding man's horizons. The future doesn't belong to the faint-hearted. It belongs to the brave. The Challenger crew was pulling us into the future and we'll continue to follow them.

I've always had great faith in and respect for our space program, and what happened today does nothing to diminish it. We don't hide our space program, we don't keep secrets and cover things up. We do it all up front and in public. That's the way freedom is, and we wouldn't change it for a minute. We'll continue our quest in space. There will be more shuttle flights and more shuttle crews and, yes, more volunteers, more civilians, more teachers in space. Nothing ends here. Our hopes and our journeys continue.

I want to add that I wish I could talk to every man and woman who works for NASA, or who worked on this mission, and tell them: "Your dedication and professionalism have moved and impressed us for decades, and we know of your anguish. We share it."

There's a coincidence today. On this day 390 years ago, the great explorer Sir Francis Drake died aboard ship off the coast of Panama. In his lifetime, the great frontiers were the oceans, and a historian later said, "He lived by the sea, died on it, and was buried in it." Well, today we can say of the Challenger crew, their dedication was, like Drake's, complete. The crew of the space shuttle Challenger honored us by the manner in which they lived their lives. We will never forget them nor the last time we saw them this morning as they prepared for their journey and waved goodbye and "slipped the surly bonds of earth to touch the face of God."

Aftermath of a Tragedy: How the Project Evolved

UPI/BETTMAN ARCHIVE

At a hometown celebration last August in Concord, N.H., Sharon Christa McAuliffe led the Nevers Band with help of its director, Paul Giles.

Teacher in Space: A Strategy To Widen NASA's 'Civilian' Support

By J. R. Sirkin

Designed as a showcase for the nation's resurgent space program, the launching of a teacher into space backfired unimaginably for the National Aeronautics and Space Administration last week with the disintegration of the space shuttle Challenger and the fiery death of its crew.

Announced by President Reagan 10 weeks prior to the 1984 Presidential election, NASA's "Teacher in Space Project" was initially condemned by educators as a "gimmick" that would do nothing to solve the problems of "schools on earth."

But long before last week's ill-fated launch, the project had succeeded in capturing the imagination of tens of thousands of teachers and their students, largely due to the participation of Sharon Christa McAuliffe, the high-school teacher from Concord, N.H.

NASA spent more than $1 million to prepare and distribute educational materials to coincide with the launch and to capitalize on the heightened interest in space that Ms. McAuliffe's participation was expected to spark among the nation's youth.

As part of that effort, the space agency hired for one year the eight teachers who had been finalists with Ms. McAuliffe and her back-up, Barbara R. Morgan, and put them to work at speaking engagements and on projects at NASA installations around the country.

It also invited the other teacher-in-space semifinalists—two from each state—to become "Space Ambassadors" along with the finalists, and has paid their expenses for speaking engagements and other presentations about the space program.

"There was definitely a planned program in mind, not just a public-relations stunt," one NASA official insisted last week.

Launched in 1982

According to NASA officials, the idea of sending civilians into space originated within the agency in 1982, when James M. Beggs, the former NASA administrator, decided that "it was time to get a handle on how the agency might include private citizens" in the space-shuttle program.

Until last week, NASA had hoped to send two or three civilians into space each year, officials said. Recently, the agency invited journalists to apply for a space flight, and the announcement of a third flight opportunity was expected in mid-April.

According to Alan Ladwig, the manager of NASA's space-flight participant program, the rationale for sending nonprofessional astronauts into space rests on the 1958 charter that established NASA, which called for the widest possible dissemination of information about space-flight experiences.

But critics of NASA charge that the agency was under pressure to include civilians in the shuttle operations to offset the commercial and military aspects of the program.

Also, during the mid-1970's, NASA had come under severe budget pressure, slowing the development of the shuttle program. The inclusion of civilians was seen as one way of building public support for the program.

A task force established by NASA's citizen-advisory council studied the issue of civilian participation for a year and a half before it agreed with Mr. Beggs that the time had come to send civilians into space. In keeping with NASA's charter, it recommended that the civilians chosen should be "professional communicators," who could best disseminate information about the space program.

The council further recommended three categories of communicators from which the space agency should choose: oral communicators, visual communicators, and teachers, Mr. Ladwig said.

Teacher Chosen

Based on the council's recommendations, NASA formed in 1984 a space-flight participant program as part of its office of space flight, which manages the shuttle program, Mr. Ladwig said. In April of 1984, a committee composed of seven senior NASA officials recommended that the agency choose a teacher as its first civilian in space, he said.

Mr. Beggs "concurred" with the committee's recommendation, Mr. Ladwig said, and because the decision was "historic," the White House was given the option of announcing it. The President could have vetoed the idea of sending a teacher into space, Mr. Ladwig said, but instead he embraced it.

White House officials stressed last week that the idea of sending a teacher into space was NASA's, not theirs. "The project was organized by NASA and the final selection was made by Jim Beggs," said a spokesman for Richard G. Johnson, assistant director for space science and technology at the White House.

On Aug. 27, 1984, as part of a "major education address" in which he called on schools to raise the scores of the nation's students on standardized tests, reduce the dropout rate, and adopt tougher discipline measures, Mr. Reagan announced that the first cvilian to fly on the shuttle would be a teacher.

"When the shuttle lifts off, all of America will be reminded of the crucial role teachers and education play in the life of our nation," the President said.

Hostile Reaction

The immediate reaction of teachers' organizations to the President's address was hostile.

"We don't need to send one teacher into outer space," said Mary Hatwood Futrell, president of the National Education Association, the nation's largest teachers' union. "We need to send all teachers into their classrooms fully equipped and ready to help students learn."

But later, as the symbolism of Ms. McAuliffe's role grew, the hope that her flight would somehow increase the prestige of a tarnished profession took hold among many educators.

The spreading national enthusiasm for the project seemed, in fact, to energize the work of states and special commissions around the nation that were exploring ways to upgrade the status of teachers.

And despite their unions' criticism, individual teachers quickly took to the notion of being the first civilian in space.

Within weeks of the President's announcement, NASA reported that

Continued on Page 10

President Announces the Program

President Reagan announced plans for the "Teacher in Space" program during a speech to winners in the Secondary School Recognition Program on Aug. 27, 1984. An excerpt from his remarks follows:

If we apply technology to education with thoughtful skill, good education will be available to all. Education and technology will enable all to participate fully in the wonders and benefits of American life.

One area where those wonders and benefits are most apparent is space. It has long been a goal of our space-shuttle program to some day carry citizen passengers into space. Until now we had not decided who the first citizen passenger would be. But today I am directing NASA to begin a search in all of our elementary and secondary schools—and to choose as the first citizen passenger in the history of our space program one of America's finest: a teacher.

When that shuttle lifts off, all of America will be reminded of the crucial role teachers and education play in the life of our nation. I can't think of a better lesson for our children, and our country.

Aftermath of a Tragedy: How the Project Evolved


UPI/BETTMAN ARCHIVE


UPI/BETTMAN ARCHIVE

Ms. McAuliffe triumphed over 11,000 other applicants to become America's first teacher in space. Left, Vice President George Bush announces her selection. Above, fellow teachers and finalists David Marquart of Boise, and Peggy Lathlaen, from Friendswood, Tex., congratulate her. At top right, teacher in space during training.

Teacher in Space: NASA's Bid for Broader Support

Continued from Preceding Page

it was receiving some 400 inquiries a day about the teacher-in-space project.

According to the Council of Chief State School Officers, which NASA engaged to coordinate the search for the teacher to ride the shuttle, some 100,000 inquiries poured in.

Chiefs Go Along

According to Mr. Ladwig, NASA asked the C.C.S.S.O. to coordinate the search because "we needed an organization that had a network in place" that reached into schools in all of the states.

Although among its members were outspoken critics of the Administration's education policies, the group agreed to help "based on the fact that it seemed appropriate to us to have a teacher be the first civilian in space," said George Rush, the director of technology projects for the C.C.S.S.O.

Aided by representatives from six state education agencies, the chiefs developed and distributed application materials for the project. NASA retained veto rights over the materials.

The 17-page application form included essay questions that asked the applicants why they wanted to participate and what projects they would undertake as part of the flight. Such questions were designed to "get a sense of the applicants' creativity and their ability to communicate," Mr. Rush said.

"We wanted an effective spokesman for education, and NASA obviously wanted someone who could speak well of their program," he added.

The lengthy forms, developed in the winter of 1984 and made available to teachers on Dec. 1, were also credited with dissuading all but the most interested teachers from applying.

114 Semifinalists

From the more than 11,000 teachers who had applied by Feb. 1, 1985, each of the 50 states, overseas territories, agency schools, and Bureau of Indian Affairs schools chose two nominees, for a total of 114.

Under the guidance of the chiefs, each of the states and the other entities established procedures for selecting their two semifinalists. Some, like Massachusetts, set up a civilian commission that recommended a half-dozen or so teachers, from whom the state education commissioner chose the final two.

In other states, a civilian commission chose the two semifinalists; in Ms. McAuliffe's home state of New Hampshire, the commission made its selections from among 74 applicants.

"In our state, we made a definite commitment that whomever we picked had to be an outstanding teacher and also be able to project herself, realizing what they were going to have to do," said Robert L. Brunelle, the state's education commissioner.

The week of June 22, 1985, the 114 semifinalists gathered in Washington, D.C., where they were informed of current developments in the space program and met with a national review panel, which chose the 10 finalists.

The 20-member panel was chosen by NASA and the C.C.S.S.O.

Initially, NASA had intended only to select a flight candidate and a back-up. But during the June ceremonies, it dubbed the 114 semifinalists "space ambassadors," creating a nationwide network of teachers who could promote the goals of the space program.

"That kind of developed afterward, when we realized that we had all of these excellent teachers from all of the states," Mr. Ladwig said.

Similarly, the agency decided that the eight finalists not chosen for the mission could be useful working at NASA centers around the country. "That also evolved as we proceeded," Mr. Ladwig said.

Ten Finalists

Mr. Beggs announced the 10 finalists on July 1, and six days later, they traveled to the Johnson Space Center in Houston for a week of medical examinations and briefings about space flight.

Later that month, the finalists visited several other NASA installations.

From July 15-18, the space-flight participation committee interviewed the 10 finalists. It submitted recommendations to Mr. Beggs, who selected Ms. McAuliffe as the flight candidate and Ms. Morgan as her alternate.

On July 19, Vice President George Bush announced their selection at a White House ceremony attended by Mr. Beggs, Secretary of Education William J. Bennett, and the 10 finalists.

In August, the 10 finalists reviewed the proposed lesson plans that the 114 semifinalists had submitted for use on the shuttle, and decided on the ones that Ms. McAuliffe would present, according to Doris K. Grigsby of NASA's educational-affairs division.

The agency hired consultants to help Ms. McAuliffe and Ms. Morgan write the lesson plans and prepare the teacher guidebooks that it distributed to schools across the country.

Ms. McAuliffe and Ms. Morgan began their flight training on Sept. 9 at the Johnson Space Center, where they spent some 100 hours learning about life on the shuttle.

"They require some special attention you don't need to pay to professional astronauts," said John Lawrence, a spokesman for the Johnson Space Center.


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NASA


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The seven crew members were: back row, left to right, El Onizuka, Christa McAuliffe, Greg Jarvis, and Judy Resnik; front row, left to right, Mike Smith, Dick Scobee, and Ron McNair.

The Crew of Shuttle Mission 51-L

Following is a list of the six astronauts killed aboard the space shuttle Challenger along with teacher Sharon Christa McAuliffe.

Gregory B. Jarvis. 41. A civilian engineer with the Hughes Aircraft Company, Mr. Jarvis was a payload specialist on the Challenger mission, assigned to conduct six days of orbital experiments on fluid dynamics. He is survived by his wife and three children.

Ronald E. McNair. 35. A physicist and mission specialist on the Challenger crew, Mr. McNair was the second black American astronaut in space. He had been on one previous shuttle mission. During the flight, he was to launch a small science platform to study Halley's comet. He is survived by his wife.

Ellison S. Onizuka. 39. A lieutenant colonel in the Air Force and an aerospace engineer, Lieut. Col. Onizuka was to act as a mission specialist aboard Challenger, which was his second shuttle voyage. He is survived by his wife and two children.

Judith A. Resnik. 36. An electrical engineer and mission specialist aboard Challenger, Ms. Resnik became, in 1984, the second American woman to travel in space when she served on the maiden voyage of the space shuttle Discovery. Survivors include her brother, who was at the launching site last week.

Francis R. Scobee. 46. A veteran test pilot and commander of the Challenger mission, Mr. Scobee also served as pilot of the Challenger's voyage in 1984. He is survived by his wife and two children.

Michael J. Smith. 40. A commander in the Navy and an astronaut since 1980, Comdr. Smith was pilot aboard the Challenger. Although he had never been in space, he was one of the most seasoned pilots in the astronaut corps. He is survived by his wife and three children.

Finalists Knew of Risks on 'the Frontier'

By James Crawford

"This is still the frontier," says Michael W. Metcalf, one of 10 finalists in the competition to become the first teacher in space. "Pioneers have always taken risks, and all of us reached for those risks gladly."

"I'd go tomorrow if they'd let me," adds Niki Mason Wenger, another finalist whose support for NASA's teacher-in-space project remains unshaken despite the worst disaster in the history of the space program. "Especially now since the accident, it's more important than ever that we [continue efforts] to explain aerospace as our future."

Mr. Metcalf, a government and geography instructor from Hardwick, Vt., and Ms. Wenger, who teaches gifted and talented students in Parkersburg, W.Va., are among eight finalists who took this year off from teaching to work for NASA in promoting links between education and space exploration.

Both teachers expressed personal grief at the loss of Sharon Christa McAuliffe and the six other crew members of the space shuttle Challenger. Last summer, before Ms. McAuliffe was chosen for the mission and Barbara R. Morgan was designated as her back-up, the 10 candidates had trained together at the Johnson Space Center in Houston.

Since then, the group has kept in close touch, writing a curriculum together and coordinating the lesson plans that Ms. McAuliffe was to teach from space.

Based at the Goddard Space Flight Center in Maryland, Mr. Metcalf has spent most of this school year addressing groups of educators on what he calls "a three-fold agenda": the need not only for improved mathematics and science education, but for a "holistic approach" in applying other disciplines to the problems of space, and for an international perspective.

"Some of the kids in our classrooms today will be the first Martians," he explains. "They'll need to know how to problem-solve and answer questions in . . . space law, space economics."

The everyday problems of social interactions will be of as much concern in space as on earth, he predicts, adding that Ms. McAuliffe, also a social-studies teacher, shared this view.

"I agree very much with Christa's philosophy that history should be taught as a chronicle of the people, not of battlefields or political campaigns," Mr. Metcalf says, citing her emphasis on the experiences of women pioneers crossing the plains in Conestoga wagons.

Ms. Wenger has also traveled widely to speak on behalf of the space program. Until the shuttle accident put the manned space program on hold, she was working on plans to link experiments on future missions to classroom instruction, via public television and computers. One example was a planned observation of Halley's comet next month.

As a teacher with a special interest in gifted and talented students, Ms. Wenger has been investigating ways to channel their abilities into space-related activities. "These skills need to be recognized and nurtured rather than squelched," as often happens, she says. One potential project would involve "mentorships" with space scientists.

Mr. Metcalf and Ms. Wenger maintain that all participants in the teacher-in-space project were conscious of the considerable risks of space flight, even though they were seldom discussed.


UPI/BETTMAN ARCHIVE

The 10 teacher-in-space finalists during their first look at Houston's space center last July. From bottom right, Kathleen Beres, Robert Foerster, Judith Garcia; Peggy Lathlaen, David Marquart, Christa McAuliffe, Michael Metcalf, Richard Methia, Barbara Morgan, and Niki Wenger.

Exhilaration and Risks

During the project, Ms. Wenger says, "Christa was exhilarated and happier than she'd ever been. She achieved her dream and she died accomplishing it."

In interviews since last summer, Ms. McAuliffe frequently minimized the dangers of her upcoming mission, on one occasion describing it as safer than "driving around the New York streets." But her life-insurance company apparently disagreed, canceling her policy after she was selected for the flight.

A week before the accident, Corroon & Black Inspace, a Washington firm that specializes in insuring space equipment and astronauts, gave Ms. McAuliffe a $1-million personal-accident policy.

"We donated it as an act of goodwill, to show our appreciation for her and our support of the teacher-in-space idea," said Gail Granato, an assistant vice president of the company.

Other Finalists

Following is a list of the eight teacher finalists and a description of their work at NASA facilities:

Kathleen Anne Beres of Baltimore, Md., is working at the Marshall Space Flight Center in Huntsville, Ala., producing video tapes of research processes at NASA laboratories.

Robert S. Foerster of West Lafayette, Ind., is assigned to the Lewis Research Center in Cleveland, where he is helping NASA distribute materials through the National Diffusion Network.

Judith Marie Garcia of Alexandria, Va., has worked at NASA headquarters in Washington and the Langley Research Center in Hampton, Va., producing materials on the work of space scientists, engineers, and technicians and coordinating launch conference support.

Peggy J. Lathlaen of Friendswood, Tex., is based at the Johnson Space Center in Houston, where she is involved in curriculum development and setting up a mentor program.

David M. Marquart of Boise, Idaho, has been working at the Ames Research Center in Mountain View, Calif., on an electronic networking system and has edited a newsletter for the 114 state finalists in the teacher-astronaut competition.

Michael W. Metcalf of Hardwick, Vt., is assigned to the Goddard Space Flight Center, Md., and is developing a teacher resource center in Vermont.

Richard W. Methia of New Bedford, Mass., serves as a liaison at NASA headquarters with the Young Astronaut Organization.

Niki Mason Wenger of Parkersburg, W.Va., is based at the Langley Research Center in Hampton, Va., where she serves as a link to organizations devoted to educational programs for gifted and talented students.

Aftermath of a Tragedy: A Space 'Pioneer'

'I Watched the Space Age Being Born; I Would Like To Participate'

Applicants for the "Teacher in Space" program were asked to answer several essay questions. Christa McAuliffe's responses follow:

Why do you want to be the first U.S. private citizen in space?

I remember the excitement in my home when the first satellites were launched. My parents were amazed and I was caught up with their wonder. In school, my classes would gather around the TV and try to follow the rocket as it seemed to jump all over the screen. I remember when Alan Shepard made his historic flight—not even an orbit—and I was thrilled. John Kennedy inspired me with his words about placing a man on the moon, and I still remember a cloudy, rainy night driving through Pennsylvania and hearing the news that the astronauts had landed safely.

As a woman, I have been envious of those men who could participate in the space program and who were encouraged to excel in the areas of math and science. I felt that women had indeed been left outside of the most exciting careers available. When Sally Ride and other women began to train as astronauts, I could look among my students and see ahead of them an ever-increasing list of opportunities.

I cannot join the space program and restart my life as an astronaut, but this opportunity to connect my abilities as an educator with my interests in history and space is a unique opportunity to fulfill my early fantasies. I watched the Space Age being born and I would like to participate.

Space-Shuttle Special Project Description:

In developing my course, The American Woman, I discovered that much information about the social history of the United States has been found in diaries, travel accounts, and personal letters. This social history of the common people, joined with our military, political, and economic history, gives my students an awareness of what the whole society was doing at a particular time in history. They get the complete story. Just as the pioneer travelers of the Conestoga wagon days kept personal journals, I, as a pioneer space traveler, would do the same.

My journal would be a trilogy. I would like to begin it at the point of selection through the training for the program. The second part would cover the actual flight. Part three would cover my thoughts and reactions after my return.

My perceptions as a nonastronaut would help complete and humanize the technology of the Space Age. Future historians would use my eyewitness accounts to help in their studies of the impact of the Space Age on the general population.

I would also like to record much of the daily activity on videotape and slides. A visual message would have a greater impact on an American public than just the written word. Interpersonal relationships would be so different in a spacecraft where people have to live and work in such a limited environment. Stress, reactions to problems, and the daily exchange of information would be ideal material for sociology, American culture, and history courses and the course on The American Woman.

The dress of astronauts, the inside of the space shuttle, the opportunity to ask questions about what people are doing and feeling would certainly add a new dimension to a personal, primary source.

How do you expect to communicate during the year following your return from the space flight mission?

The chance to share my experience with educators and to have a direct impact on education is an exciting prospect. The network of national, regional, and state educational conferences would provide me with the ideal way to disseminate information after the space flight.

For example, over 4,000 educators attended the most recent National Social Studies Conference in Washington, D.C. Annually, conferences are held throughout the country for every educational discipline. The conference system of large audience lectures and small personal workshops would make it possible to reach many educators and thereby have a direct impact on students across the United States.

As a conference speaker, I would share my space flight experience through a slide or videotape presentation and lecture, followed by a question and answer session.

As a presenter in the workshop format, I would have the opportunity to meet with small groups of educators from different disciplines and give them suggestions for class projects and activities. These would include role-playing problems in space travel, journal writing, comparing fantasies about space travel with the realities of the trip, researching the history of space exploration, model building, collecting oral histories of different generations in order to compare perspectives about the progress of the Space Age, and debating the merits and uses of space technology in terms of politics, science, defense, art, and as an aid to humanity.

NASA

Last fall, as part of her initial orientation, Ms. McAuliffe was given a tour of the Kennedy Space Center. She is seen here at Pad 39A with the solid rocket boosters and fuel tank in the background.

'I Still Can't Believe That I'm Going'

In a July 22, 1985, interview on NBC-TV's "Today" show, Christa McAuliffe discussed her selection by NASA with Bryant Gumbel. Excerpts from the network's transcript follow:

Gumbel: Simple question: Why you?

McAuliffe: It's really hard to say. There were 10 people. We were such a cohesive group, enthusiastic, really enjoying teaching. I think any one of us would have done a really good job. I don't know what put me over the top, but I'm delighted to be here.

Gumbel: When you first applied for this, did you think you had even a prayer?

McAuliffe: I really didn't. I was almost doing it kind of like when you play the lottery. If you don't play it, you don't win. And when I filled out that application, that's really how I felt. I figured there'd be at least 50,000 people across the country who would be slipping that into the mailbox around the same time I did it.

Gumbel: What about when you made it down to the last 10? Did you think, then, maybe?

McAuliffe: Well, then the possibility became very real, and I really started to think what the impact would be on my teaching career and on my family. But it was still really exciting.

Gumbel: Has it all hit you, yet?

McAuliffe: No. No. I don't think so. I still can't believe that I am going to actually be going into that shuttle. It just really doesn't seem possible. Maybe when I'm on the launch pad it will.

Gumbel: What are you most excited about?

McAuliffe: Seeing that Earth from that perspective. You know, it's such a big place, here, but being able to look at it from a new perspective. And I hope I could bring that wonder and that excitement back to the students.

Gumbel: Maybe just a little bit of fright, too?

McAuliffe: Not yet. Maybe when I'm strapped in and those rockets are going off underneath me there will be, but space flight today really seems safe. We had a good example of that when NASA shut down the last one through the computer because one of the back-up systems wasn't working.

'Slip the Surly Bonds of Earth'

President Reagan concluded his televised message on the death of the seven space-shuttle crew members last Tuesday with a poetic fragment that sent many viewers searching through literary references.

"We will never forget them," the President said, "nor the last time we saw them this morning as they prepared for their journey and waved goodbye and 'slipped the surly bonds of earth to touch the face of God.' "

Were the last dozen lines from Shakespeare, many wondered? Or James Michener's novel *Space*? Or perhaps the popular motion picture "Out of Africa," in which the Danish writer Isak Dinesen conveys the joy of turn-of-the-century flight?

Actually, the President had juxtaposed lines from a World War II-era sonnet, written by a 19-year-old American airman who had volunteered for the Royal Canadian Air Force.

Titled "High Flight," the sonnet reads:

Oh, I have slipped the surly bonds of earth,
And danced the skies on laughter-silvered wings;
Sunward I've climbed and joined the tumbling mirth
Of sun-split clouds—and done a hundred things
You have not dreamed of—wheeled and soared and swung
High in the sunlit silence. Hov'ring there,
I've chased the shouting wind along and flung
My eager craft through footless halls of air.
Up, up the long, delirious, burning blue
I've topped the wind-swept heights with easy grace,
Where never lark, or even eagle, flew;
And while with silent, lifting mind I've trod
The high, untrespassed santity of space,
Put out my hand, and touched the face of God.

The poet, John Gillespie Magee Jr., was killed in action near Great Britain on Dec. 11, 1941.

Special Telecasts for Children Readied

Continued from Page 1

PBS will beam the broadcast nationwide, with possible corporate underwriting by the International Business Machines Corporation.

The program will be televised during school hours, and will be designed for use in classrooms, where many students witnessed via television the explosion of the shuttle.

The broadcast will probably include an educational component as well as attempts to explain to students what happened to the shuttle and its passengers.

"We intend to support educators and students," said Mary H. Lewis, the deputy manager of the teacher-in-space project. "My understanding is that we will encourage students to use the guidebooks [developed by NASA for use in schools in conjunction with the Challenger flight] and we will encourage teachers to talk to students about the loss of Christa and the shuttle."

NASA officials had met Thursday afternoon in Washington in what one called a "strategy session" to plan how the agency would respond to last week's shuttle disaster.

On Friday morning, a NASA spokesman said that no decisions had been reached about how the agency would proceed.

But later that day, John D. Cecil, the director of PBS's elementary- and secondary-education programming, said that NASA had already begun working on a program with public station KUHT in Houston, which had been scheduled to broadcast Ms. McAuliffe's live lessons from space.

"They will definitely do something," Mr. Cecil said.

PBS officials had been trying to get a nationwide program on the air to help students deal with the trauma of the space shuttle as early as Tuesday of this week.

"We're not going to wait for NASA," Mr. Cecil had said earlier.

But PBS's efforts were frustrated by the space agency, which had "put a lid" on its astronauts, refusing to allow any of them to appear on television, Mr. Cecil said.

According to Mr. Cecil, at least three major PBS affiliates—WNET in New York, KTCA in Minneapolis, and KUHT in Houston—had already begun to produce local programs last week in response to the disaster.

He said it was not clear late last week whether any of those programs would be broadcast independently of the NASA telecast.

Mr. Cecil said each of the programs the affiliates were putting together would help students "process their thoughts and their feelings" about the explosion of the shuttle and the death of its crew members.

He indicated that PBS might attempt to link the Minneapolis program with the NASA broadcast from Houston, because it apparently will include students in a studio audience, giving them an opportunity to ask questions to a panel of experts.

Vow To 'Follow Through'

Despite the growing concern last week over the continued participation of civilians in the nation's space program, officials of NASA's education division vowed to "follow through" on the educational aspects of the teacher-in-space project.

The agency spent more than $1 million on educational programs developed for use during the mission that was to begin with last week's launch, including the preparation and distribution of a 16-page "Teacher in Space Project" guidebook.

More than a million copies of the guidebook were distributed to schools across the nation, as part of an effort to spark students' interest in science and in the space program.

During her flight, Ms. McAuliffe was prepared to conduct two lessons that would have been beamed live to classrooms across the country. The first, "The Ultimate Field Trip," explained life aboard the shuttle. The second, "Where We've Been, Where We're Going, Why?" examined the benefits of manufacturing in space and the technological spin-offs of the space program.

The guidebook provided a brief summary of these activities, but also included several detailed, "concept-based" lessons for students, designed to stimulate their critical thinking and problem-solving skills, Ms. Lewis said.

Ms. McAuliffe was also to have conducted a series of experiments involving seven different scientific principles. On earth, Ms. Morgan would have conducted the same experiments, which would have been transmitted to schools.

Ms. McAuliffe's lessons would have been videotaped and made available to schools after the flight.

'Not Merely an Event'

Despite its failure—perhaps in part because of it—last week's launch appears to have captured the attention of the public as few events in recent history have. And NASA officials view the renewed interest as an opportunity to salvage something of value from catastrophe.

"I intend to make sure that this is not merely an event, but a program that will continue," said Robert W. Brown, the director of NASA's education-affairs division.

"Obviously, given the nature of the situation, we have to regroup and review the plans we had on the drawing board. There has to be some interruption with all due respect to those men and women who gave their lives," he said.

By sending a teacher into space, "we just wanted to catch people's attention," said Doris K. Grigsby of NASA's education-affairs division. "In that, we've been successful."

"I feel confident that in some way we're going to make use of the educational momentum we have going," added Bob Mayfield, an adjunct professor at Oklahoma State University who developed the materials Ms. McAuliffe was to have used as part of her in-flight experiments. "I imagine every effort will be made to make a positive thing out of this."

But first, he said, "We've got to take care of the human needs."

Television was only one of several yet-to-be-determined fronts on which NASA officials were planning to move last week to help turn last week's experience into something more positive for students.

Central to those activities, it appears, will be the semifinalists for the teacher-in-space flight, the so-called "space ambassadors."

According to NASA officials, Ms. McAuliffe's flight would have provided the most visible and direct link between NASA and the schools, but not the first.

"NASA has had an educational-programs office for years," Ms. Lewis said. Among the educational activities the space agency sponsors are:

- An aerospace educational-services project, which employs some 28 teachers who travel throughout the United States helping colleagues and students understand aerospace science.
- A student shuttle-involvement program, which features a competition among students to have experiments performed in space;
- Two apprentice research programs, which enable bright minority high-school students and other gifted students to work with NASA scientists and engineers during the summer;
- Operation Liftoff, a new program to develop materials for elementary-school students that will encourage them to learn about science and mathematics;
- The SEEDS project, which involves some four million students in growing and comparing seeds in space.

Leaders Pay Tribute to Shuttle Crew

Mary Hatwood Futrell, watching in her office as the shuttle took off, "just sat here and cried," after realizing that the Challenger had exploded 74 seconds into its voyage.

"Do I feel down? No. Do I feel sad? Yes," Ms. Futrell said. "But I don't think Christa's personality would allow you to stay down. . . . I think of her as a very positive, very outgoing kind of person."

Albert Shanker, president of the American Federation of Teachers, called Ms. McAuliffe a "symbol of hope and optimism for teachers and students around the nation. She represented her two million colleagues with great distinction, and as fellow teachers, we were enormously proud of her."

The House and Senate unanimously adopted a resolution expressing "sorrow and regret" over the fate of the Challenger mission.

Senator John Glenn of Ohio said "Occasionally, our judgments, the things we do are not perfect. Sometimes, triumph is accompanied by tragedy. We hoped to push this day back forever, but that was not to be. So the tragedy is not for our space program, but for all Americans who share a sense of loss."

Secretary of Education William J. Bennett, as Mr. Reagan had, addressed the nation's schoolchildren. "This is a very sad day for all of us. You should be proud of Christa McAuliffe, one of your teachers, and of the other brave Americans who were willing to take a great risk for the good of our country," he said.

The National Science Teachers Association, which coordinates student activities associated with the shuttle program for NASA, is encouraging teachers to use the lessons prepared by Ms. McAuliffe "without the benefit of space assistance," said Bill G. Aldridge, executive director of the N.S.T.A.

The Council of Chief State School Officers, which helped select the first teachernaut, expressed "shock and grief." The group, which had urged students to leave porch lights on to celebrate Ms. McAuliffe's classes from space, now asks "everyone" to turn on a light in conjunction with any national commemoration. —J.H.

Semifinalists Today Serve as NASA Space Ambassadors

Below is a list of the teachers designated by NASA as "space ambassadors." All were semifinalists in the "Teacher in Space" competition. Participants were making plans this month to form an organization to maintain the ties they had developed in recent months.

The list was provided by the Council of Chief State School Officers.

Alabama: Sophia Ann Clifford, Erwin High, Birmingham; Pamela Sue Grayson, MinorHigh, Birmingham.
Alaska: Mildred J. Heinrich, Robert Service High, Anchorage; Richard C. Houghton, Napaaqtugmiut High, Noatak.
Arizona: Robert Carpenter, Secrist Middle, Tucson; Robin Kline, Tonalea Elementary, Scottsdale.
Arkansas: William A. Dempsey, Arkansas Senior High, Texarkana; Mary Beth Greenway, Parkview High, Little Rock.
Bureau of Indian Affairs: Stanley Renfro, Wingate High, Fort Wingate.
California: William M. Dillon Jr., Peninsula High, San Bruno; Gloria M. McMillan, La Jolla High, La Jolla.
Colorado: James Kim Natale, Pomona High, Arvada; Robert Stack, Shawsheen High, Greeley.
Connecticut: Robert Mellette, Conte Arts Magnet, New Haven; David Warner, Westminster, Simsbury.
Delaware: Henry E.W. Bouchelle, Pilot, Wilmington; Stephanie Gerjovich-Wright, Stanton Middle, Wilmington.
Department of Defense: Mary Smothers, Kaiserslautern American High, Germany; Kenneth Van Lew, Frankfurt High, Germany.
Department of State: Donald Jonasson, Jakarta International, Indonesia; Bruce Wixted, American of Kuwait, Kuwait.
District of Columbia: William A. Barwick Jr., Woodrow Wilson High; Nancy J. Cooksy, Eastern High.
Florida: Susan W. Forte Georgestone Vocational, Pensacola; Michael D. Reynolds, Duncan U. Fletcher Senior High, Neptune Beach.
Georgia: Thomas Phillip Garmon, Benjamin E. Mays High, Atlanta; Carol G. Hickson, Fernback Science Center, Atlanta.
Guam: Dale J. Jenkins, St. John's, Tumon Bay; M. Bernadette McCorkle, Vocational High, Barrigada.
Hawaii: Joseph Ciotti, St. Louis High, Honolulu; Arthur Kimura, McKinley High, Honolulu.
Idaho: David M. Marquart, Boise High, Boise; Barbara R. Morgan, McCall-Donnelly Elementary, McCall.
Illinois: John D. Baird, Quincy Senior High, Quincy; Lynne M. Haeffele, Bloomington High, Bloomington.
Indiana: Robert S. Foerster, Cumberland Elementary, West Lafayette; Stephen L. Tucker, West Vigo High, West Terre Haute.
Iowa: A. John Cazanas, Rockford Senior High, Rockford; Lori M. Goetsch, Mount Pleasant Junior High, Mount Pleasant.
Kansas: Wendell G. Mohling, Shawnee Mission Northwest High, Shawnee Mission; Barry L. Schartz, Goddard High, Goddard.
Kentucky: Sue Ellen W. Darnell, North Marshall Junior High, Calvert City; Judy A. White, L.C. Curry Elementary, Bowling Green.
Louisiana: Deborah Harris, Rusheon Junior High, Bossier City; Denise VanBibber, Alexandria Country, Alexandria.
Maine: Gordon L. Corbett, Yarmouth Intermediate, Yarmouth; William C. Townsend, Sumner Memorial High, East Sullivan.
Maryland: Kathleen Beres, Kenwood High, Baltimore; David R. Zahren, G. Gardner Shugart Middle, Hillcrest Heights.
Massachusetts: Richard Methia, New Bedford High, New Bedford; Charles Sposato, Farley Middle, Framingham.
Michigan: Derrick Fries, Seaholm High, Birmingham; Sharon Newman, West Hills Middle, West Bloomfield.
Minnesota: Steve L. Brehmer, Wanamingo Public, Wanamingo; Katharine Koch-Laveen, Apple Valley High, Apple Valley.
Mississippi: Connie Moore, Oak Grove High, Hattiesburg; JoAnne Reid, Weir Attendance Center, Weir.
Missouri: Christopher W. Brown, McCluer North Senior High, Florissant; Richard K. Kavanaugh, Park Hill R-5, Kansas City.
Montana: Paul Dorrance, Helena High, Helena; Patricia Johnson, Capital High, Helena.
Nebraska: Roger U. Rea, Northwest High, Omaha; James R. Schaffer, Lincoln East High, Lincoln.
Nevada: Erika J. Turner, Chaparral High, Las Vegas; Joan C. Turner, Las Vegas High, Las Vegas.
New Hampshire: Robert Veilleux, Central High, Manchester.
New Jersey: Jeannine M. Duane, Black River Middle, Chester; Binnie J. Thom, Walter C. Black, Hightstown.
New Mexico: Jennifer Dotson, Jones Ranch School, Jones Ranch; Laura Reeves, Rio Grande High, Albuquerque.
New York: Susan A. Agruso, East Islip High, Islip Terrace; Edward F. Duncanson, Crispell Middle, Pine Bush.
North Carolina: Ernest W. Morgan, Morganton Junior High, Morganton; Cynthia B. Zeger, Salisbury High, Salisbury.
North Dakota: Sherry L. Hanson, A.L. Hagen Junior High, Dickinson; Donald L. Hoff, Velva High, Velva.
Ohio: Gail B. Klink, Newark High, Newark; James B. Rowley, Centerville High, Centerville.
Oklahoma: Freda D. Deskin, Pauls Valley Middle, Pauls Valley; Frank E. Marcum, Booker T. Washington High, Tulsa.
Oregon: Stephen Boyarsky, Medford High, Medford; Michael Fitzgibbons, Forest Grove High, Forest Grove.
Pennsylvania: Patricia Plazzolo, Clairton High, Clairton; Charles Tremer, Southern Lehigh, Center Valley.
Puerto Rico: Nancy M. Lee, Roosevelt Roads Middle, Ceiba; John G. Wells, Roosevelt Roads Middle, Ceiba.
Rhode Island: Ronald Reynolds, Barrington High, Barrington; Leisa Sadwin, Halliwell, North Smithfield.
South Carolina: Michael H. Farmer, Riverside High, Greer; Myra J. Halpin, Gooseneck Creek High, Goose Creek.
South Dakota: Kevin M. Falon, Lincoln Senior High, Sioux Falls; Gerald E. Loomer, Rapid City Central High, Rapid City.
Tennessee: Carolyn H. Dobbins, McMurray Middle, Nashville; Bonnie D. Fakes, Lebanon High, Lebanon.
Texas: Peggy Lathlaen, Westwood Elementary, Friendswood; Stephen A. Warren, Stephen F. Austin High, Austin.
Utah: John W. Barainca, Brighton High, Salt Lake City; Linda J. Preston, Park City High, Park City.
Vermont: Gail Breslauer, Fayston Elementary, Waitsfield; Michael Metcalf, Hazen Union, Hardwick.
Virginia: Ronald C. Fortunato, Norfolk Technical Vocational Center, Norfolk; Judith M. Garcia, Jefferson School for Science and Technology, Alexandria.
Virgin Islands: Carol Eby, Peace Corps Elementary, St. Thomas; Rosa Hampson, Elena Christian Junior High, Christiansted.
Washington: Frances B. Call, Islander Middle, Mercer Island; Michael R. Jones, Kellogg Middle, Seattle.
West Virginia: Nancy M. Wenger, Vandevender Junior High, Parkersburg; Melanie B. Vickers, St. Albans Junior High, St. Albans.
Wisconsin: Ellen Baerman, Wisconsin Hills Elementary, Brookfield; Larry Scheckel, Tomah Senior High, Tomah.
Wyoming: Julie M. Gess, Evanston High, Evanston; Michael G. Pearson, McCormick Junior High, Cheyenne.