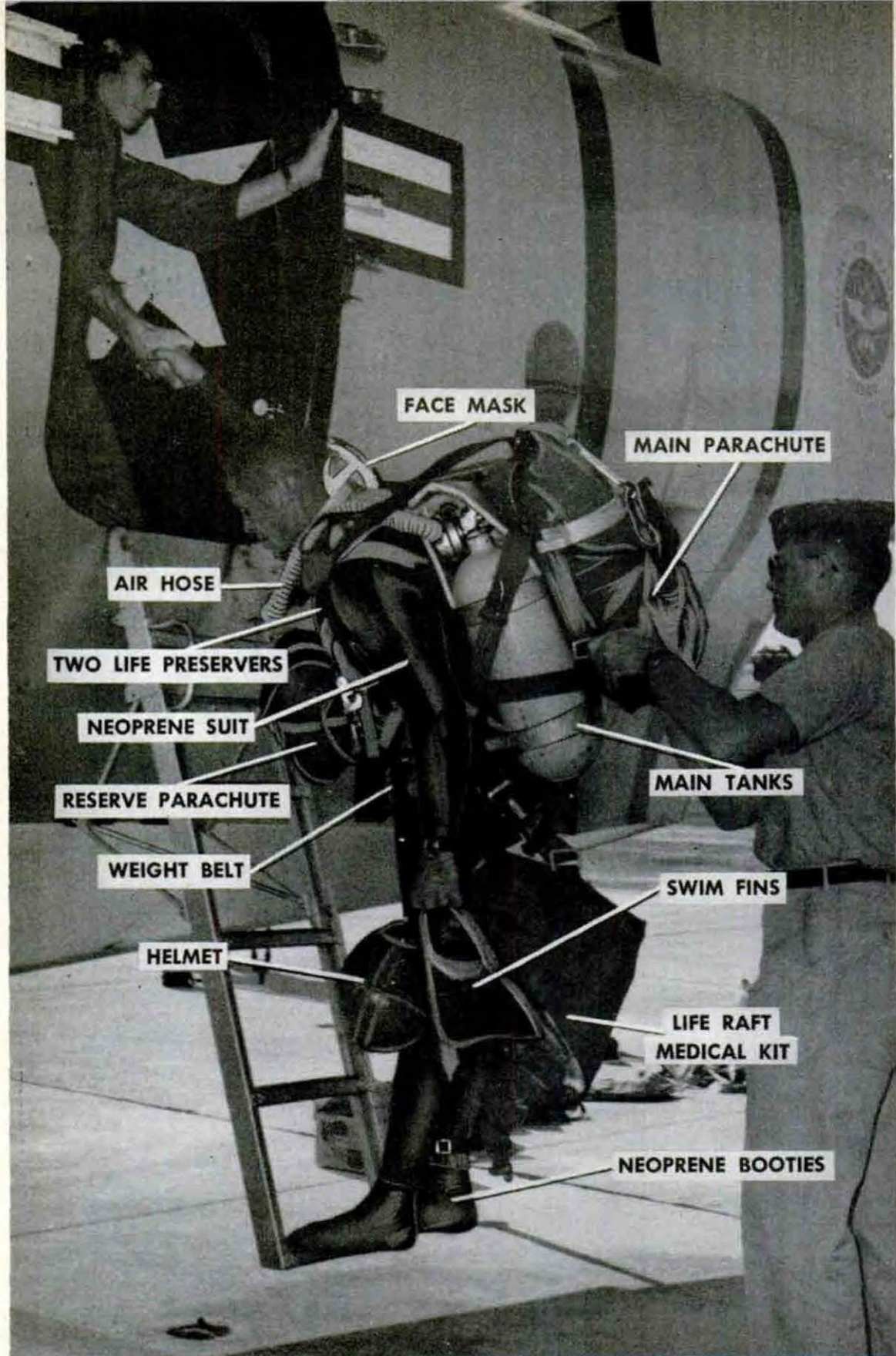




JUMPING FROG, loaded down with 180 pounds of gear, is equipped to parachute into ocean, swim underwater

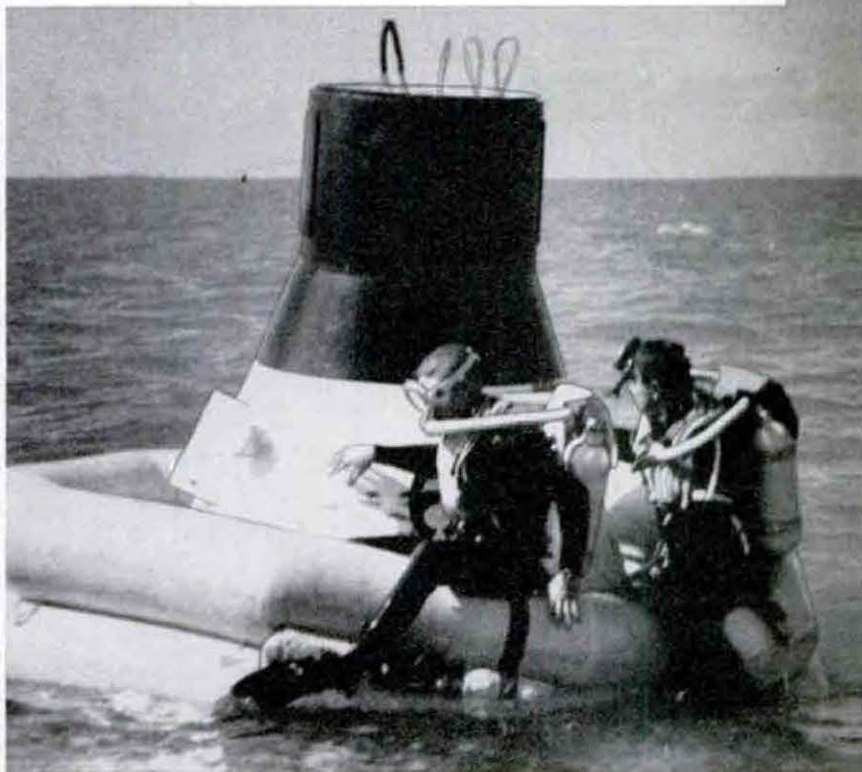
The Celebrated Jumping Frogs

... parachute from planes in scuba gear to save satellites and astronauts. They are part of the Air Rescue Service which has made some of the most dramatic rescues in the annals of disaster

By
Kevin V. Brown

IN THE BRILLIANT glare of publicity surrounding the on-again-off-again attempt to orbit a man around the earth early this year, some of the light spilled over onto a new group of rescue artists, who have developed new techniques in the old craft of saving people.

Combining the skills of underwater swimmers and



PARARESCUE TEAM, after securing spacecraft, awaits pickup



1

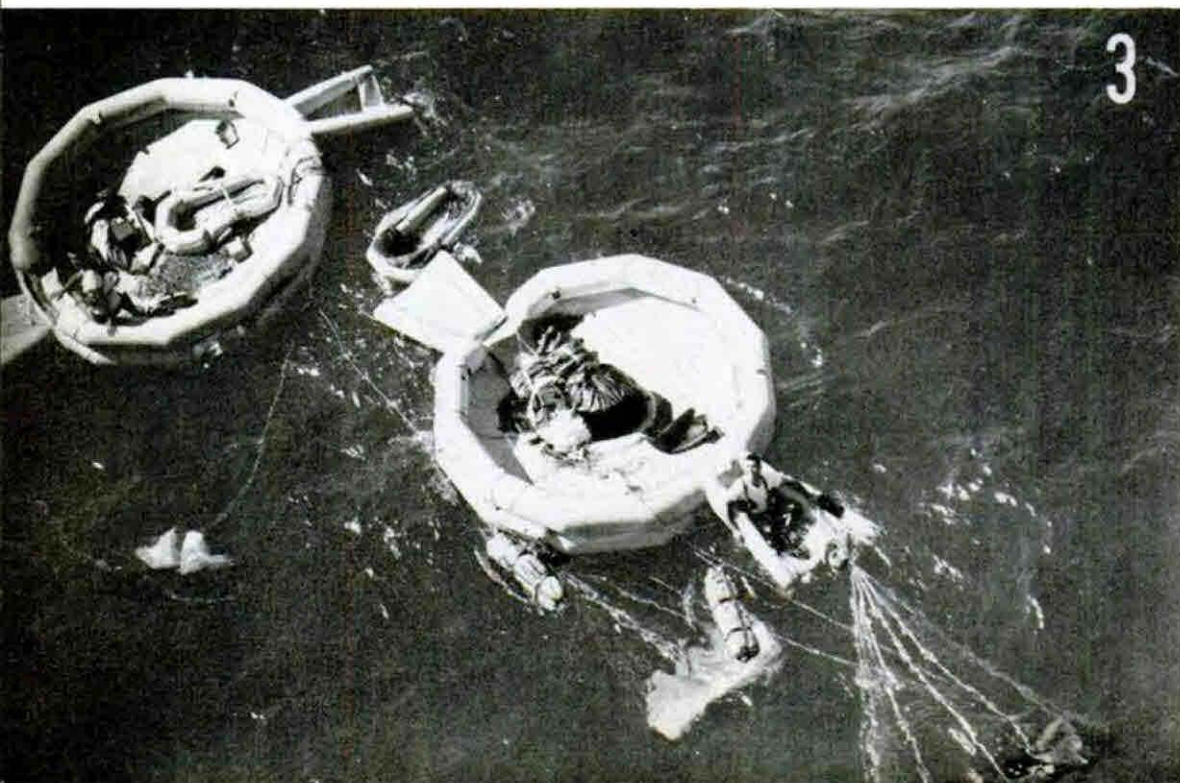


2

PARARESCUEMAN deploys life raft on dropline as he floats down to save Discoverer satellite

ALONGSIDE SATELLITE, frogman awaits drop of large life raft. These pictures were shot during actual recovery

DISCOVERER XXIX is now secure (in black tarpaulin) aboard life raft. Rescue was made last year in Pacific



3



SPACECRAFT RECOVERY is similar. Two-man team attaches floatation device to capsule before inflating it

paratroopers, these flying frogmen were assigned the emergency task of recovering the astronaut if he landed anywhere outside the planned impact areas. The system they have perfected is to parachute near a floating spacecraft, swim to it underwater, secure it to a huge liferaft and, if necessary, render first aid to the occupant.

The idea of putting parachutes on frogmen and flying them to the scene of a rescue is the latest development in techniques used by the U. S. Air Force's much-decorated Air Rescue Service. And these pararescuemen, as the airborne scuba divers are called, are probably the most renowned jumping frogs since Mark Twain's fictional friend failed to get off the ground some years ago in his story of "The Celebrated Jumping Frog of Calaveras County."

Pararescuemen are, in fact, all things to all men in trouble—precision parachutists, gifted underwater swimmers, skilled medics and experts in survival.

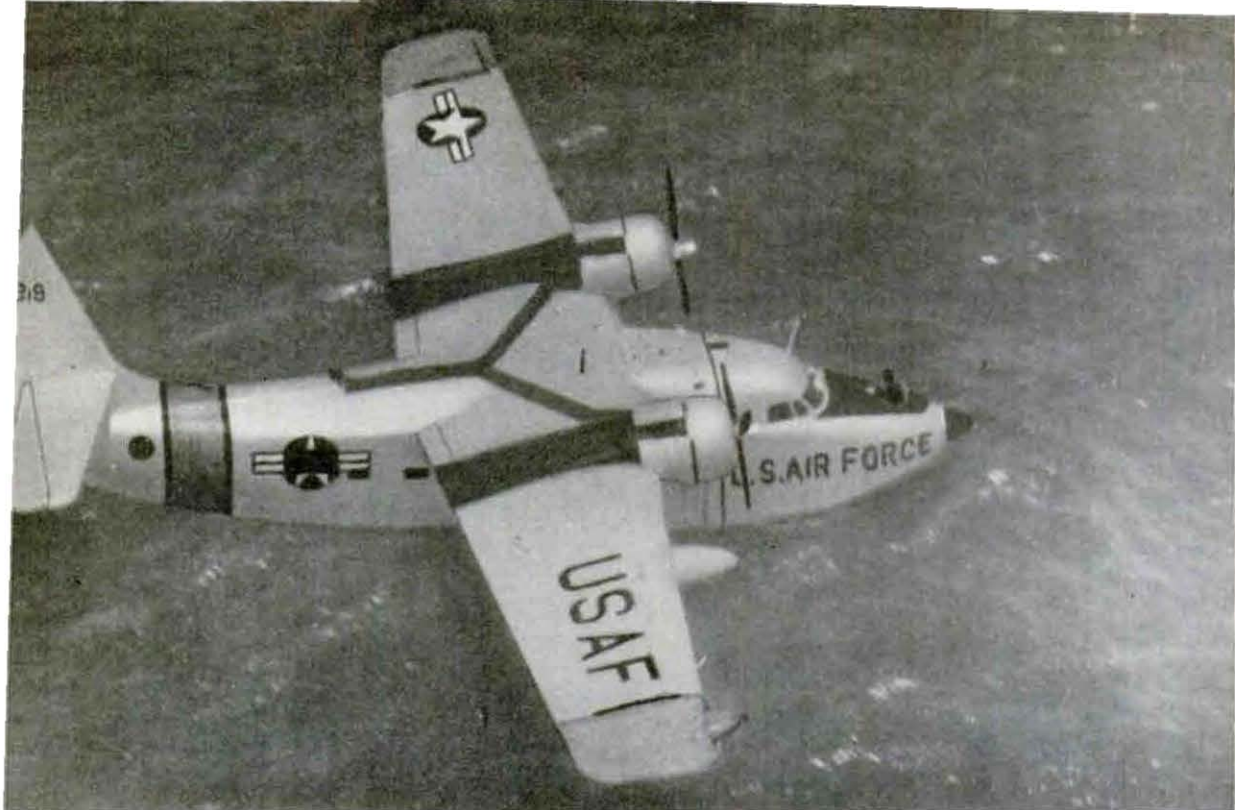
Equipped for action, a pararescueman can easily double his normal weight. Ready to jump, he carries as much as 180 pounds of gear. Over his rubber scuba suit, helmet

and boots he wears: Oxygen equipment, including two tanks, hose and face mask; two parachutes, one for emergency use in case the first fails; two life preservers to help him float, and 20 pounds of weights to help him sink (for underwater swimming); swim fins and a surface snorkel; a life raft; a diver's knife; a medical kit; and a tool belt, which includes all the instruments he needs to secure a satellite or spacecraft.

Pararescuemen have made the transition from parachutist to frogman in as little as 90 seconds. In training, they have jumped from planes and secured simulated spacecraft in less than five minutes.

The pararescuemen who specialize in recovering satellites operate out of Hickam Air Force Base, Hawaii. At this writing, fourteen Discoverer satellites have been recovered after orbiting the earth, sometimes by mid-air snatches by Air Force planes and sometimes by jumping the frogmen. If the snatch fails, the frogs jump.

The flying frogmen who are trained to recover Mercury astronauts and their spacecraft have done most of their training in the Gulf of Mexico. They were, however,





DRAMATIC RESCUE of survivors of airliner shot down by Chinese Reds is made by Air Rescue plane



FACES OF SURVIVORS of another airliner ditched at sea tell story of another dramatic rescue by ARS

←**ARS HELICOPTER** hoists to safety crewman from foundering ship off coast of Okinawa. Other crewmen cling to railings. Pounding surf drove ship onto reef and forced open her watertight door, flooding her

deployed in the Atlantic Ocean for the suborbital flights of both Lt. Comdr. Alan Shepard and Capt. Virgil Grissom, as well as for the full-orbital attempt by Col. Glenn.

Their techniques for recovering both satellites and spacecraft are similar.

Here is the sequence for spacecraft:

When the spacecraft is located, a smoke bomb is dropped to check wind direction, then the aircraft (usually a Douglas SC-54 *Rescuemaster*) flies into the wind at an altitude of about 1200 feet. When it is over the spacecraft, it drops a spotter chute which always drifts downwind. The chute is weighted to approximate the weight of a fully equipped pararescueman.

On the next pass, also upwind, the crew clocks the time it takes the airplane to fly from the chute to the spacecraft and, when the plane has flown the same number of seconds on the opposite side of the capsule, two frogmen jump.

Using this system, they have landed as close as 10 feet from the capsule.

When his main chute opens, each pararescueman discards his spare chute while still airborne and deploys his small rescue raft and first-aid kit at the end of 10-foot droplines. The raft automatically inflates on the way down. Just as his feet touch the water, the pararescueman releases his

chute which billows away in the wind, and he is now a full-fledged frogman.

Next, the two-man team joins up, orients itself on the spacecraft and swims to it, dragging their rafts behind them. (The rafts, kept only for emergencies, are seldom used. Or as one Air Rescue wag put it, "They're for frogmen who are afraid of the water.") If the sea is calm, they swim on the surface. If not, they can make better time underwater. Since they have been breathing oxygen from the time they jump, the transition is no problem.

Meanwhile, their aircraft has circled the scene and, when the two of them have reached the capsule, the plane makes a low pass and free drops (without parachute) a special floatation device for the capsule.

If the astronaut is believed to be in serious need of medical attention, the plane will also drop an MA-1 kit, a more sophisticated medical first-aid kit which includes two large-size life rafts connected by a long, floating cable. Dropped upwind of the capsule, the MA-1 kit—the two rafts with the cable between them—floats down to the capsule and, like a South American cowboy's *bola*, wraps itself around the capsule where the pararescuemen can get at it.

When the special floatation device hits

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The Celebrated Jumping Frogs

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the water, one of the pararescuemen swims out to retrieve it. Then, together, they position it under the spacecraft, securing it firmly in place and, when all the kinks are out, inflating it. With the capsule now safe from sinking, they get the astronaut out and render whatever aid seems necessary.

If undamaged, the capsule could probably float indefinitely. However, once the hatch is opened to get the astronaut out, water can flood it and sink it. This happened to Capt. Grissom's capsule. So the pararescuemen use the extra floatation device.

All of which raises a question. Why wasn't this system used on the Grissom shoot? A frogman gave the wallflower's perennial answer, "Nobody asked us."

The Mercury space program is under the direction of the National Aeronautics and Space Administration, a civilian agency. In all of the space shots so far, it has assigned the Navy the task of recovering the capsule in the primary impact areas (areas about 50 miles wide and 100 miles long), and it has assigned the Air Force the task of recovering the capsule anywhere else.

The original Navy system, using Marine helicopters and crews, lifted both the astronaut and capsule directly out of the water without any extra floatation gear. It worked to perfection after Comdr. Shepard's flight but, following the loss of Grissom's capsule, the Navy apparently abandoned the system and deployed both surface vessels and frogmen into the impact areas for Col. Glenn.

It's still interesting to speculate, however, whether the Grissom capsule could have been saved if the frogman system—of putting a float under the capsule first, *then* getting the astronaut out—had been used.

Wallflowers or not, the pararescuemen believe they're on the right track for perfecting a system that will recover almost any future spaceman or spacecraft.

Meanwhile, they are only one element of the Air Force's celebrated Air Rescue Service (ARS), which has its headquarters in Orlando, Fla., and units scattered—on 24-hour call—throughout the world. While part of its present assignment is obviously wrapped up in the future (space), ARS is justly proud of its past which has made it one of the most highly decorated and widely respected units in the world.

Conceived in the tragedies of World War II—the tragedies of downed airmen and others caught behind the lines who could not be rescued because there was no really consistent system developed for doing so—the Air Rescue Service was actually born

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following the war in 1946. Its primary duty was, and is, the recovery of downed combat airmen, and its primary piece of equipment was the then recently developed helicopter. It still has helicopters (the Sikorsky H-19, Boeing H-21 *Workhorse* and Kamam H-43 *Huskie*), but has since added amphibians (the Grumman SA-16 *Albatross*) and, of course, the jumping frogs.

It has also added many other duties.

To put it in its simplest terms, the Air Rescue Service flies whenever and wherever it is needed—in peace or war. In its 16 years of existence it has answered distress calls—airlifting survivors or dropping medical supplies and equipment—during and after such natural disasters as floods, earthquakes, hurricanes, typhoons, air crashes and shipwrecks, and such man-made disasters as the Korean conflict.

It has rescued from certain death more than 8000 persons, many of them non-Americans, and has aided more than 50,000 while flying nearly 45,000 missions. Individually and collectively, Air Rescue Servicemen have probably created more good will abroad than any other Americans.

As early as February, 1947, ARS men established an emergency airlift when the Mamore River in Bolivia flooded, wiping out native villages in a mountainous region covering an area of more than 100 square miles. Under these hazardous conditions, they evacuated hundreds of natives. When it was over, their commanding officer was awarded Bolivia's highest decoration, the Condor of the Andes, the equivalent of our own Congressional Medal of Honor.

In 1953, thousands of persons were saved by ARS men in the disastrous floods in the Netherlands and England. Dutch Queen Juliana and Prince Bernhard were flown over the stricken areas by ARS aircraft and, in England, probably the greatest single act of heroism was performed by Airman 3/C Reis Leming who, in spite of the fact he couldn't swim, pushed a rubber life-raft into the swirling waters and, in three trips, rescued 27 persons unaided. He collapsed after the third trip. Queen Elizabeth granted him the George Cross, the first foreigner in history to receive it.

Snatched From the Rigging

ARS men rescued stranded Japanese seamen following a typhoon. In one of these rescues, the helicopters just managed to save the crewmen who were clinging to the rigging of their sinking ship. The hull had already sunk from sight.

Perhaps the outstanding sea rescue occurred in 1954 off the coast of Red China. A British airliner, bound for Hong Kong, had been shot down without warning by

Communist jets. Nine of the people aboard were killed, and the survivors were afloat in a life raft within the 12-mile limit set by the Communists as their international boundary. Red China radios warned that all "war planes" which entered the area would be fired on.

An Air Rescue *Albatross*, stationed at Clark Air Force Base in the Philippines, flew to the rescue. The pilot, Capt. Jack Woodyard, ignored the warnings and, after locating the raft, set down in the water and taxied alongside it where his crew gathered the survivors aboard. One of them, a young Chinese girl, died on the flight back.

All of the above rescues, remember, were of non-Americans and outside of the normal line of duty of the Air Rescue Service. Most of its work, in addition to salvaging satellites and spacecraft, is directed toward rescuing survivors of U. S. military and civilian air crashes and assisting in rescue operations after domestic disasters such as the spring floods in the Middle West and the summer hurricanes on the East Coast.

Its finest work of all, perhaps, was done during the Korean War. No other unit was cited for bravery as often. Perhaps the most outstanding example was the night rescue of an F-51 pilot who had been shot down and had parachuted into the Taedong River in enemy territory.

Blind Rescue Under Fire

Knowing only the approximate position of the downed airman and under continual enemy fire, Lieut. John Najarian landed his *Albatross* on the river without lights and with only a vague idea of the Taedong's depth and width. Taxiling through the dark, he saw a blinking pinpoint of light and headed toward it. It was the downed pilot, using his emergency flashlight. The pilot was gathered aboard and while the shore batteries continued their fire, the takeoff was made in total darkness. Najarian could see neither the water nor the horizon in the blackness. It was successful, however, and, after clearing some high-tension wires at a bend in the river, with the flak still bursting around his plane, Najarian headed for home. For his heroic effort, he was awarded the Distinguished Service Cross, this nation's second highest medal.

As the wise man said, the past is but prologue. The Air Rescue Service has a noble past, but perhaps it's only a prologue to what it might now accomplish as it trains itself for the space age. These rescue artists, who don't always get the glory but take a perverse pride in saving those who do, will now be waiting around to welcome travelers from space and carry them safely home.
