

LINDSEY M. SILVESTER

Education:

B.S., Military Engineering, U.S. Military Academy, 1943
M.S., Aeronautical Engineering, Princeton University, 1949
Graduate studies, Systems Management, University of
Southern California, 1972-74

Experience:

- 1973-Present Staff Scientist, System Planning Corporation. Mr. Silvester conducts analyses of tactical and strategic warfare systems with emphasis on penetration of hostile defenses, weapon delivery, laser guided weapons, and conventional munitions. He assists in studies to improve test and evaluation procedures.
- 1973 Consultant to Aerojet Ordnance and Manufacturing Company, stationed in Honolulu, Hawaii. Mr. Silvester provided product planning service to the home office while assisting the staffs of Commander-in-Chief, Pacific (CINCPAC), Hq Pacific Air Forces, Hq U.S. Army-Pacific, and Hq Pacific Fleet with their ordnance problems. He participated in programs to assist the services in developing their requirements for new/improved conventional cluster bomblets and air-launched rockets as well as the services' evaluation of new ordnance introduced into S.E. Asia combat.
- 1971-1972 Director of Operational Requirements, Hq Pacific Air Forces. Mr. Silvester assessed operational need and developed Required Operational Capability (ROC) documentation for improved fighter aircraft, gunships, support aircraft, ordnance, avionics, and other materiel for employment by the Pacific Air Forces and S.E. Asia allies. This required continuing coordination with USAF planning and R&D agencies, industry, and S.E. Asia combat forces. New target acquisition sensors and laser target designator devices were introduced for combat evaluation during his tenure. (In December 1972 he retired from the USAF as Colonel and Command Pilot with 29 years of service.)
- 1969-1970 Director of Tactical Evaluation, Hq Pacific Air Forces. Mr. Silvester directed studies toward more effective application of tactical air forces in S.E. Asia. Combat information was gathered, refined, and analyses performed to improve USAF interdiction of North Vietnamese logistics in Laos, improve weapon delivery accuracy, decrease USAF losses, evaluate sensors, and develop tactics. He provided the major inputs to the USAF-wide study to develop Air Force "lessons learned" from the S.E. Asia conflict. He served as the USAF

member of a joint study group to determine how DoD could assist the Republic of Korea to acquire its own military RDT&E capability.

- 1966-1967 Member, Tactical Group, Requirements and Development Division O/JCS (J-5). Mr. Silvester served as prime JCS contact for direction of "Joint Task Force Two," a major joint operational test to evaluate capabilities of U.S. strike and reconnaissance aircraft to penetrate hostile electronic defenses. He addressed problems unique to the diverse participants--Joint Staff, operations researchers, service planners and operators, and the testing organization located at Albuquerque. With approval of OSD, he established an exchange-of-information on aircraft low-altitude operations with the U.K. Defence Operations Research Establishment.
- 1964-1966 Chief, Future Systems Division, DCS/Plans, Hq Strategic Air Command. Mr. Silvester directed the assessment of SAC operational needs and development of ROC documentation for new/improved strategic systems--such as AMSA (later the B-1), WS-120A (a proposed follow-on to MINUTEMAN), reconnaissance vehicles, and an improved airborne command-and-control system.
- 1962-1964 Senior SAC Representative to Air Force Space System Division, Los Angeles. Mr. Silvester provided on-the-spot SAC representation to this R&D agency and to Los Angeles area contractors producing strategic weapon/support systems, keeping developers current on strategic requirements and concepts.
- 1957-1962 SAC B-47 Combat Crew Commander, Squadron Commander, and Deputy Wing Commander for Maintenance. While Squadron Commander, Mr. Silvester was responsible for the state of combat readiness of his unit, including 20 combat crews, support airmen, and 16 B-47 jet bombers. As Deputy Wing Commander for Maintenance, he directed the wing total maintenance effort on 48 B-47 aircraft and 24 flight-refueling tankers.
- Earlier Mr. Silvester flew bomber combat in World War II and later served as test engineer/pilot at Wright Air Development Center, Ohio, developing flight test methods and instrumentation. He attended an Air Force jet fighter-gunnery course and served at Hq USAF as Tactical Systems Officer, focal point for development of a new tactical bomber and all-weather delivery in fighter aircraft.

Professional Affiliations:

Order of Daedalians

American Institute of Aeronautics and Astronautics

MY POST WWII ASSIGNMENTS:

COL. LINDSEY M. SILVESTER

DATE	ASSIGNMENT	LOCATION	REMARKS
45-46	R&D Proj. Officer	Propeller Lab. WRIGHT-PATTERSON AFB, Dayton, O.	Checked out in choppers: R-4, R-5, R-13. Flew some of Prop Lab's experiments in B-29.
46-48	Student, AF Inst. of Technology (Aero- nautical Eng.)	WPAFB, Ohio	
48-49	Student, Adv. Aero- Eng. (Master's Deg.)	Princeton Univ. Princeton, N. J.	Flew at Stewart AFB, NY, B-25's & P-51's
49-53	Flight Test Officer Flight Test Div.	WPAFB, Ohio	Good flying. Flew F-51, F-80, F-84, F-86, B-47, B-57, B-45, B-50, and of course, B-29.
53-57	Tactical Air Develop- ment Officer, Air Staff, Pentagon	Washington, D. C.	Flew at Andrews AFB B-25's & T-33's. Attended F-86 Fight- er Gunnery Course, Nellis AFB, Reno, Nevada
57-58	Squadron Commander, 393rd Bomb Sqdn., 509th Bomb Wing	Walker AFB, Roswell, N. Mex.	Enjoyed this assign- ment! 15 B-47's attached to Squadron. 509th BW moved IN TOTO to Pease AFB, New Hampshire, summer, 1958.
58-60	Commander, 509th Organizational Main- tenance Sqdn, 509th Bomb Wing (B-47's/ KC-97's).	Pease AFB, N. Hampshire	New SAC maintenance concept to centralize crew chiefs, mainten- ance specialists, inspectors, etc.
61-62	Deputy Commander, Maintenance (B-47's KC-97's) 100th BW	"	My domain included 4 maintenance squadrons, 1400 men.
62-64	Senior SAC Repre- sentative, AF Space Systems Div., Los Angeles, Calif.	Los Angeles, Calif.	A 10-man operation. Mainly a waste of time and effort. Flew T-39's ("Sabre- Liner").
64-66	Chief, Future Sys- tems, HQ SAC	OFFUTT AFB Omaha, Nebraska	Flew T-39's ("Sabre- Liner").
66-69	Member, Tactical Warfare Group, O/JCS Pentagon	Washington, D. C.	Flew T-39's.
69-70	Director, Tactical Evaluations, DCS/OPS HQ PACAF	Hickam AFB, Hawaii	Grounded due to "lack of equipment". Received flight pay nevertheless. Only junior birdmen

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70-72	Director, Operational Requirements, DCS/OPS, HQ PACAF	"	<i>Why waste flying time on the old heads about to retire? A good policy!</i>

RETIRED 1 Dec. 1972

SILVERSTEIN

REPORT OF DITCHING

Mission No. 12, 1, Dec 1944

Date of Report; 15 Dec. 1944

Wing: 73rd. Group. 499th. Squadron: 878th. plane No. 42-65245

Time, altitude and location of trouble: On return from target,
flying about 4500 ft.

Ditching: 2316 (local time), 13 Dec 1944; about 80 miles northwest of base.

Rescue: 1630, 14 Dec. 1944; approximately the same location. Rescue performed
by USN destroyer.

Cause of ditching: Improper navigation primary cause; lack of fuel final cause.

Crew:

Position	Name	Rank	ASN	Last Seen
Commander	Silvester, Lindsey M.,	1st Lt	0-26157	Rescued
Co-pilot	Snow, Kenneth M.,	2nd Lt	0-761198	"
Bombardier	Morris, Russel S., Jr.	2nd Lt	0-698753	"
Navigator	Sonenshine, Irving	2nd Lt	0-551594	"
Engineer	Unger, Robert W.	2nd Lt	0-66739	"
Radio Operator	Lalke, Paul J.	Cpl	32694261	"
Radar "	Brown, Johnny D.	Sgt	36705672	"
Top Gunner	Schuh, Joseph R.	Sgt	37601407	"
Left Gunner	Butscher, Peter,	Sgt	35337928	"
Right Gunner	Yensen, Oscar H.	Cpl	12080567	"
Tail Gunner	Foley, James E.	Cpl	31342609	"

Interviews:

Interview arranged by Maj. M. J. Shaver, 499th Group S-2. Interrogation carried out by Lt. A. H. Banner, Wing Personal Equipment Officer, Major Shaver, and the assembled special staff of the group. Report prepared by Lt. Banner.

Narrative Report:

The primary cause of the trouble on the return flight was navigation. Loran was used on the first part of the flight, checked where possible with other fixes. The last accurate check was a combined Loran and Radar fix at Iwo Jima. About 200 miles south of Iwo Jima, an hour and a half after dark, the overcast cleared so the first celestial fix was obtained. As the Loran did not coincide with the dead reckoning, and as it was the first time the set had ever been used by the navigator (it was the first time the set had ever been installed in the aircraft), its reading was discarded. However - the sextant was faulty and neither the navigator nor the bombardier could obtain accurate fixes with it. The course was changed several times to meet with the different fixes. The forecast wind had been inaccurate on the way to the target, so it was compensated for the return. The ETA was 2105

DB
forecast wind inaccurate;
compensated for.

and after a considerable period had gone by, the combination of factors made the navigator believe that had over shot the island. The course was changed to 113 while the radio operator obtained a QM. Within five minutes the QM was obtained, and the course was changed back to 110. The new course was held until just before ditching when the pilot changed it to 70° (the direction of the landing strip at the base) to head into the wind. The navigator estimated that their original course would have taken them only twenty miles to the west of the base.

The fuel was getting extremely low. The engineer hopes that the cruise control, which had been carefully followed, was correct and the fuel gauges incorrect, for then they would have had enough fuel to reach the base. However, an engine went out, and soon a second was unable to pump enough gasoline to function correctly. The gauges in the remaining engines read 10 gallons each. The cowl prop was feathered. The airspeed dropped off to 150 mph., and altitude was lost steadily. Finally when it became obvious that the base could not be reached and that the engines would soon stop from lack of gasoline the pilot deliberately took the craft into the water.

Preparations for ditching were started about 2200 (local time). All ammunition was fired from the machine guns and cannon; flak suits, bomb bay tanks, bomb racks, radar equipment and other equipment were jettisoned. The individual crew members prepared all necessary equipment for ditching, taking to their ditching stations, flares, axes, first aid kits, water bottles, flash lights, and other gear that they considered would be of use in survival. Each man was assigned certain duties to do in ditching, like the removal of emergency kits. All escape hatches except the astrodome were removed.

However, after opening the bomb bay doors it was found to be impossible to close the right rear door. The door had been used on the normal opening mechanism, but the normal and emergency mechanisms would not close it. Prior to take off the auxiliary motor was connected to the doors, but even that would not work. The door was watched by the gunner who reported that it would close only half way and then fall open again. When the pilot would bank the plane it would close two thirds of the way, but fall back again. Consequently the one door was open during the ditching. They found it impossible to close the door from the forward compartment into the bomb bay after opening it to jettison gear.

Distress radio procedure was set up to reach the search and rescue craft. The call was received, but because another plane in distress was using the same frequencies, reply was not received. Finally, unable to verify contact with anyone, they announced over the distress frequency that they were ditching. This message was not received by stations monitoring the frequency. The IFF had been turned to emergency.

About 2245 the crew began to assume their ditching positions. The pilot and copilot stayed in their positions with their safety belts fastened. The engineer stayed in his position, safety belt fastened, the Vary pistol and flares and some first aid kits tucked in his jacket. The bombardier took a position next to the engineer with his back braced against the copilot's armor plate, head and back well padded, and his feet firmly braced. The radio operator took his assigned position at the navigator's table, his legs braced and his head padded with an open parachute, and resting in his arms on top of the table. In the unpressurized compartment the remaining crew members ditched. The right gunner assumed his position sitting on the left side of the bulkhead. The radar operator sat on the

right side, his feet braced against the small platform below the rear entrance. Against him were braced the navigator and top gunner. The left gunner was supposed to sit against the door in the pressure bulkhead, but it would not remain closed so he took a position lying down with his feet braced below it. The tail gunner who had come forward to assist in the jettisoning of the equipment decided that with the time remaining it would be safer to stay there than proceed back to his own position, so he assumed a position between the left gunner and the life raft, interlocking his arms with those of the gunner. All padded themselves against the impact as carefully as they could, the left gunner even using an opened parachute to keep his face and body from hitting the projecting metal corners of the camera hatch.

In landing the landing lights were used to pick up the white caps of the wave crests. At about 500 feet the lights were turned directly down to judge the altitude, and thereafter they were used pointing straight ahead. The trailing antenna could not be used cause it was stuck. The sea was not very rough and the wind velocity was between 15 and 20 mph. The landing attitude was that of a normal landing of a B-17, with the nose a little high for a B-29 landing. Full flaps were used, and the landing speed was estimated to be about 90 mph. Just before landing the pilot gave the final signal on the warning bell, but it was heard in the aft section only by the tail gunner - the crew in that part of the plane knew only by the characteristic motion of the ship that the landing was about to be made.

There was only one impact felt which, although considerable, was not as great as anticipated. They noticed no component of side slippage to the deceleration, but the displacement of the four-gun turret towards the navigators table indicated that it was present. No equipment broke loose on impact. The auxiliary power plant and the battery remained intact. Even the emergency gear in the rear compartment stayed in position. Observations made the next day indicated that the nose had not broken in and probably only the rear bomb bay door had broken off. The flaps had been torn off.

All crew members except the bombardier found their ditching positions satisfactory. The bombardier was carried away by the impact and thrown through the nose of the ship. He sustained no injury and swam back to the life rafts. The co-pilot bruised his head slightly after breaking the control column.

Water immediately flooded the aircraft, in the forward section from the broken nose, open escape hatches and possibly from the open door to the bomb bays; in the aft section from around the turret and hatch, and coming through the radar compartment. Because of the flooding the crew thought the ship was in imminent danger of sinking so they left immediately. As the survival gear was heavy and difficult or impossible to put out through the escape hatches it was left behind. The engineer stood up to close the electrical switch to decrease the fire hazard and had the gear he was carrying swept away from him by the water pouring in through the escape hatch.

Only the radio operator was trapped. He was first somewhat squeezed in by the turret, and then, freeing himself, discovered that it was impossible to pass by the turret to his normal escape hatch above the engineer. He started out for the rear exit but was unable to make his way through the radar compartment. One of the crew members tried to get back to him but was unable to do so. The radio operator then returned to the UFC compartment and flashed his flashlight through the top blister. The other crew members saw it and chopped out the dome with their knives.

No difficulty was experienced in removing the blister. It was estimated that the entire exit, including the removal of the radio operator, took about a minute. The only crew members going into the water were the bombardier, the pilot and the tail gunner; the pilot because he found it impossible to crawl on top of the fuselage, and the tail gunner because he dived from the hatch.

The life rafts had not been released from the interior of the aircraft so the external releases were used. One raft became entangled with the ship's antenna and the antenna had to be cut away with knives. Considerable difficulty was also experienced in removing the Gibson-Girl radio which also had to be cut free. Both rafts inflated and all crew members boarded them without difficulty. One raft had its bottom torn by obstructions and remained consistently about two-thirds full of water. No gear was found in the life rafts except the oars and one can of water.

The night was spent with six men in one raft, five men in the other. They did not wish to drift apart, yet if the rafts were held close together they chafed upon each other, so two men shoved them apart while two men held them together. Originally they tried tying the rafts together but the rope available was so short that the jerk as they rode the swells was too great. Even holding the rafts by hand tore the cemented rubber loops of the life line from the raft. The sea anchors were put out.

In spite of the fact that all were fully clothed, even with flight jackets, they were cold all night. Nine of the eleven men were seasick from the combination of swallowing salt water and the erratic motion of the rafts. During the night they heard an aircraft pass overhead, and they tried to signal it with their flashlights - they had no flares available - but there was an overcast.

The next morning they discovered that they were only a quarter mile from the still floating aircraft, so they returned to it. The aircraft was floating on a level plane, the forward section floating near the midwing level, the tail an estimated three feet above the water line. They found water in the unpressurized section about four feet deep. They reentered the aft section and salvaged all the equipment they could, the extra life raft (it had to be removed through the normal entrance), the first aid kits, a parachute, and other articles. They attempted to save the separate life raft kits which belonged in the rafts they already had afloat, but the kits sank as they were thrown out. A salvaged one-man life raft also sank. The remainder of the day they stayed close to the floating aircraft.

The Gibson-Girl radio was put into operation at dawn. No trouble was experienced in its operation. The antenna was sent up on the kite (the wind had freshened to an estimated 25 mph). The automatic SOS was used fifteen minutes before and fifteen minutes after the hour.

Up to the time they were sighted by the search planes the crew had used neither the water nor the rations aboard the life raft. All were chewing gum and attributed to it the fact that they felt no great thirst. When they were sure the searching aircraft had sighted them they ate some of their rations and drank some water.

At 1200 a PB7 search plane came directly to them at low altitude apparently homing on their SOS. The signal mirror from the life raft was used to signal it. After buzzing them several times it disappeared. From then on planes would appear, circle them, and return over the horizon. At 1630 they were rescued by a destroyer.

It was necessary for the destroyer to sink the still floating aircraft with gun fire. Numerous rounds of 40 mm and 5 inch shells were expended until a shot hit the wing tanks. The plane then turned on its side and sank slowly into the ocean.

Comments of the crew upon the ditching and the emergency equipment were:

1. The bombardier felt his position was too insecure, and thought that he might find a better ditching position aft.
2. The crew aft felt divergently: A. That with the crowded condition had the impact been harder, several would have suffered broken bones; and B. That it was the crowded condition that prevented them from being thrown around by the impact.
3. The entire crew believed that if they had been told that the water was likely to rush into the cabins without the aircraft sinking as a consequence, they would have taken more time in the exit and taken the emergency equipment with them.
4. They felt it would have been much safer had the emergency equipment been stored some place accessible to the outside of the aircraft, either in the life rafts or available through the life raft bay. Failing that, they felt it would have been good to have lines on the equipment so it could be tied to themselves before ditching to assure finding it before departure.
5. The radio operator suggested that an extra escape hatch above the navigator's position would have been good.
6. The pilot did not believe that a dropable floating flare would have been of any use in the night ditching.
7. The pilot thought that the numerous times they had practiced the ditching drill were not wasted, and planned to continue with further practice.
8. The door in the rear pressure bulkhead they felt should have a more adequate lock on it.
9. They believed an alarm bell should have been installed in the ditching compartment, or even better, an intercom outlet.
10. They wished for some method of communicating between the search aircraft and life raft so they could have been informed as to whether to plan for another night or more in the life raft.

Discussion and remarks:

The ditching was well handled throughout, the crew going about its duties calmly and intelligently, and the airplane commander setting the craft down with excellent judgement and skill. The whole ditching shows that with a measure of skill the B-29 aircraft can be successfully ditched and, once ditched, will float for a long period providing the gas tanks are empty.

The few errors and misapprehensions made by the crew were:

1. The astrodome should have been removed previous to the ditching so that the radio operator would not run the risk of being trapped.
2. The tail gunner should have stayed in his own position, for there he has an excellently braced position and a readily available escape hatch. Had the impact been greater he would have been thrown from the position he assumed for this ditching.

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3. While the cause of worry on the part of the crew members is well understood, it would have been better if they had expended the few extra seconds to remove the most essential kits from the rear of the plane. Had they been separated from the aircraft and rescue long delayed, the lack of water and equipment could easily have proven fatal.

4. The Gibson Girl radio should have been put into operation as soon as possible instead of waiting till dawn.

5. The suggestion that emergency gear should have been tied to their bodies with lines is ill-advised, for a heavy kit can easily be caught in a sinking aircraft, pulling under with it the crew member tied to it. If such lines are used they should be held in the hand, or at most tied with a slip knot to the clothing.