

PERSONNEL RECORD UPDATE

306th BOMB GROUP ASSOCIATION

Date . . . . .

Complete this form and return to Russell A. Strong, Secretary, 306th BG Assoc., 5323 Cheval Place, Charlotte, NC 28205, to be filed with 306th records.

LAST NAME: *Stevenson* FIRST NAME: *Robert* MI: *E*, TITLE: *Dr.*

Street Address: *P.O. Box 689* Telephone: *(619) 481-0850*

City, State: *Del Mar, CA* Zip + 4: *92014-0689*

Winter Address: \_\_\_\_\_ Telephone: ( )

City, State \_\_\_\_\_ Zip + 4: \_\_\_\_\_

Date of birth: *15 Jan. 21* Wife's name: *Jerani* #c: *2*  
#gc: *1*  
#ggc: *—*

College(s) attended: *UCLA, U. So Cal.* Degree(s), & when: *BA '46 MA '48 Ph.D. '54*

Last employment & job title & retirement date: *Deputy Director Space Photography, Office of Naval Research; 2 April 1988*  
*Secretary General, Intl. Assoc. Phys. Sci., Ocean, 1982-1985*  
Serial #(s): *A0694722* Squadron: *368th* Specialty: *Navigator*

Date joined 306th: *9 May 44* If combat, what crew? *William M. Nash*  
Special duties or assignments w/306th: *Actually, we started with Wayne Erwin, but asked Maj. Salada to relieve our crew of him 2nd week in June.*

No of missions flown: *29* Date of last mission: *25 Sept. 44*

Date leaving 306th: *28 Sept. 44* Highest rank/grade w/306th: *1st Lt.*

Other 8AF units served with, and when:

Top service assignment after 306th: *Chief, Photo Radar Interpretation Program, WADC, Dayton, OH 1951-1953*  
USAF retirement date: *7 Oct. 63* Rank/grade: *Capt.*

Copies of old 306th orders, either from the Group or Station 111, or any of the Squadrons or other units serving with the 306th, are sought by the secretary, as many of these do not appear in any collections of materials in National Archives or the Air University.

If you know of others who served with the 306th and who do not appear in the current 306th Directory, please add their names and current/WWII hometowns or other addresses to the back of this sheet so that searches may be implemented to add them to our present 306th roster.

**From:** R. Stevenson <vega@oceans.org>  
**To:** Russell.a.strong306@worldnet.att.net <Russell.a.strong306@worldnet.att.net>  
**Date:** Tuesday, February 20, 2001 6:05 PM  
**Subject:** Hello, and some stuff

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Hi Russ,

I'm happy to learn that you now have an E-mail address so that I may send on to you some of my mental ruminations, good, bad, or indifferent. Accompanying is an account that I'm beginning about our flight from Hunter USAAF to Nutt's Corner, Ireland. I've sent it off the Grover Goode to learn how much more he can add to my memories (should be a lot). I send this early piece on to you to learn whether or not you'd be interested in all, some, any of the details of this saga.

Let me know, aloha, Bob

Hi Grover,

I have located all of my navigator's log sheets for the flights we made from Hunter AAFB, to Nutt's Corner, RAF Depot; even the one for the infamous leg from Goose Bay to Meeks Field, Iceland. The last named is a "weird" log sheet, in one way, as it has no data on our arrival. Of course, I know why, but I thought I might have written something; such as, "the flaming asshole," or words to that effect.

I'm going to give you some of the bare bones of the various legs we flew, [1] from Hunter (Savannah), on 7 April 44, to Dow Field, Bangor, Maine; [2] Dow on 10 April, to Goose Bay, Labrador; [3] Goose Bay (For some reason I did not put the date on the sheet.). Time of departure was 0232 GMT?) to Meeks USAAF Base, Iceland. I'm guessing that it was 19 April as we flew [4] from Meeks to Stornoway on the 21, and we had stayed at Meeks for a day getting a new radio; Then [5], on from Stornoway 22 April to Nutt's Corner, Ireland.

At Hunter we picked up B-17G 42-97339, it having come from Cheyenne on 19 Feb. 44. Erwin signed for it, before we did the flight tests, and screamed that if we lost it he'd owe \$250,000. (The plane was finally assigned to the 600 BS, 398 BG, Nuthampstead on 5 May 44. Two weeks later, it was missing-in-action over Berlin, 19 May 44; two got out and were POWs.);

We left Hunter with the compass still not aligned and my Radio-Direction-Finder (RDF) not working. They told us we'd have to get those fixed at our stop at Grenier AFB, Manchester. We were in the clear, flying at 5,000 feet all of the way, and were diverted to Dow Field, Bangor, when we reached Providence.

The next day, a civilian wearing a red and black-checked mackinaw got us out onto the compass-rose, helped us swing the compass, aligned it in the plane, got a navigator's seat for me, and a new radio (RDF). I remember it was COLD out on the field, with ice patches all over the place. For me, from southern California, it was the first iced ground I'd ever seen.

We flew to Goose Bay the next day, 9 April 44. We got off about

noon, flew to Presque Isle, and then straight on up to Goose Bay, arriving there about 3:30 PM. A short flight, for which I was glad, because from the St. Lawrence River north, the map was blank! Nothing on it, but one river, with no name. The biggest problem I had was getting Erwin to change the compass heading routinely as the magnetic variation changed from +20° at Dow to +33° as we came into Goose Bay. He refused to change his compass, saying, "You don't know what the hell you're doing." So I came up, talked to Joe (co-pilot) in the bomb bay, and he agreed to keep Erwin busy doing something else whenever I needed to change the compass--I could do that because the master flux-gate was with me, the cockpit's compass being a "slave." That worked, and Erwin never caught on.

Interestingly, although I have the time of take-off from Goose Bay (0225 GMT), I did not note the date. In reconstructing from the date we flew on to Stornoway, I think from Goose Bay to Meeks, Iceland, was 19 April.

The log looks as if I had a pretty good check on our course and position, especially as we were "dead-on" when we crossed the radio range on the tip of Greenland. My entries stopped, though, after my last ETA, followed by some scribbled headings, apparently as I tried to keep up with Erwin's twists and turns trying to "fly the Meeks radio range," which was not working, as I told him more than once. We landed at 1345, giving us a total flight time of 11 hours 20 minutes---10 minutes short of our available fuel.

We stayed at Meeks for a day, while they installed two new radios; a new RDF for me, and a new Command Set for the cockpit. I knew my RDF had gone out again about an hour after we passed Greenland. I wasn't sure that the Command Set was out, but Erwin insisted. The Ops Officer had told me that their range was screwed up the day we flew in, a condition they had messaged to Erwin about a half-hour before we were due to arrive. I think we also wanted that day, as a crew, to recover from the scare we all had experienced from Erwin's idiotic flying, and from our decision to stay with him, at least until we reached our eventual bomb group. I can remember that I was exhausted!!

On 21 April, we headed out of Meeks for Prestwick, Scotland, by the way of Stornoway, with take-off at 0510 GMT (?). I remember it was daylight when we crossed the Iceland coast, at exactly the point I had seen two days before and had told the pilot then that we were 10 miles south of Meeks. At least, I felt vindicated in my mind. We flew through smooth, clear skies, with the smoothest ocean I can ever remember seeing, but which was only visible through holes in the smoothly layered undercast. We were at 9,000 feet until about 1 1/2 hours out of Stornoway when we were advised that the Irish Sea was overcast, we couldn't fly over it, and would have to overnight at Stornoway.

We let down to 5500 feet, "in the soup, not too heavy," I noted, when Erwin announced "This is just like the other day," and began climbing. He finally reached 14,500 feet at 0700, had turned 40° to the right of course, with me trying to convince him that the Stornoway range was good, and there was no problem in getting into the field. Suddenly, at 0716, he began to follow my instructions. I didn't know until later that his response was due to Joe holding a monkey wrench over Erwin's head.

We let down following my headings, and were over the water south of the Island, heading south, when we broke out at 1000 feet at 0740. We then made a 180° turn, heading for Stornoway, were at 350 feet when we saw the coast at 0820, made our turn toward the runway (still invisible in the fog), crossed the air field boundary and landed at 0910.

It was, if I say so myself, a perfect "blind," radio range approach; a maneuver I had practiced many times on the ground, but never in the air. I think it was at that moment that I thought, "Stevenson, maybe you can navigate."

The party that night was great, as I remember it, especially the Scotch whiskey, and the cheese they had on the dining tables was magnificent.

The next day, under brilliant clear blue skies, we headed out of Stornoway at 0953, headed on down the Irish Sea, past Dunnegan Head and the Isle of Skye to the coast west of Tobermorey. We started out at 9,000 feet, but were ordered down to 6,000 at 1036, then got the word that Prestwick was full, so go on over to Nutt's Corner. As we crossed over the edge of the Island of Arran, we changed course to the west, hit the Nutt's Corner range at 1115. All was still bright and clear, so Erwin only had his usual problems in getting the plane on the ground; at 1138 hours, 22 April 1944.

So, there we were, safe and reasonably sound in, what I told my mother was the most beautiful, green, countryside I'd ever seen in my life. O.K. Now Conselor, I plan to put this together with some charts, to show our courses, some pictures, mainly yours, and to fill in the gaps with interesting tales. I expect you to come up with a lot of discussion; such as, how it was in the back with you, Scotty, Heller, Schonekas, and Bob "?. Some of your experiences on the ground (not about my efforts with the USO girls), and about the food we received at the various stops. I do remember that what we had at Meeks, Iceland, was particularly bad. So, whatever you can do, to fill in the gaps, and then I'll send it off to Russ Strong, to see whether or not he'd like this. There's hardly anything written about trans-oceanic transits.

Send photos!!!!!!!!!! And, find some from the crossing, other than those at Goose Bay.

20 September 1997

Dear Bob:

I am certainly glad you found us!

I remember that you were on the mailing list at one time, but that you disappeared and I could not locate you.

But, here you are back, and I am including in this packet two back copies of Echoes, as well as a directory. Another copy of Echoes will be along shortly, as it will be mailed this next week.

Sorry you can't make it to Orlando, but hope to see you in Savannah in 1998. Now, there will be no excuse, you have a year's warning.

Thanks for reacting,

1 April 99 (and its no April Fool's joke)

Dear Bob:

The special order shows the Manning crew was assigned to the 306th and the 367th 30 Oct 44. I don't have any way of tracking from my own personal records when they appeared, but as they were housed in my barracks I was aware of them.

The officers were as green as grass when they arrived, I do recall, and were the butts of lots of humor. And I remember they were around for quite a while before flying much at all. The red numbers on the sheet show the dates I found them flying in November.

They did fly as a crew 2 Dec and again on 5 Dec. I was gone on 27 Nov so have no knowledge of what went on around the barracks when they turned up missing. My recollection is that Tannanbaum, the bombardier, was a bit of an ass.

The sheet lengthwise is from the Group inventory of all its aircraft, done by Group Operations. Those dates differ widely from yours.

The other sheet from "Big Triangle First" shows we got the plane on 31 Mar 44, and it came from the 457th. Who named the plane I do not know, but it had had that name for quite a while. Manning's crew did not name it and get it painted in two days. The painting was a bit complicated for that.

The 367th was not big on permanently assigning planes to crews. The planes were spotted in the formations and the crews tended to move up as they gained more proficiency. Some of them never did get proficient, as you may have observed.

# DR. ROBERT E. STEVENSON, OCEANOGRAPHER

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Post Office Box 689, Del Mar California, CA 92014-0689, U.S.A.

Telephone: (1) 619-755-8153 • Facsimile: (1) 619-481-6938 • Internet: vega@oceans.org

Hi

Russ,

As far back as I can recall any of my logical thoughts, I wanted to fly; in airplanes. Lindbergh, Doolittle, Roscoe Turner, Wiley Post were my heroes. In those days of the 1930s, I read every nickel pulp magazine I could find on the aerial exploits during "The Great War."

In June 1940, the government's Civilian Pilot Training program came to Fullerton, my home town. In August I had my civilian pilot's license. For the next the next 15 months, I flew whenever I could dig up \$5/Hour for the rental of a J-3 Piper Cub.

War came on 7 December 1941 while Robert Finch and I flew over the U.S. Fleet in Long Beach Harbor, wondering why the guns on the ships followed us as we crossed back and forth over anchorage.

The next day most of the guys with whom I'd learned to fly enlisted in the Navy Air Arm. "Are you crazy? Fly off ships over water? Forget it!" About half of them never made it back from the Battle of Midway.

I enlisted in the Army Air Force as quickly as possible; not to fight dastardly enemies, or to stand firm for any patriotic philosophy, or even home, Mom, and apple pie. I joined to fly!! And, as an aerial navigator in those days of the 1940s, it was the most satisfying occupation I could ever imagine, or that I've ever had.

Why do I relate these early, halcyon days of mine? Because, it was a huge step for me to become an oceanographer. I **hate ships**, especially when they are floating on the ocean. **They constantly move**. Yet, after four years majoring in geology, crawling for days on end through mountain brush and desert sands, and staring down rattle snakes, sitting on the deck of a research vessel had a certain attraction.

For fifteen years, I never participated in a research cruise during which I did not at one time or another, curse the ocean, the ship, and my stupidity for being out at sea.

In the late 1960s, at a chance meeting, I was introduced to photographs of ocean features taken by astronauts from manned spacecraft. I was stunned by the dynamics of the sea-surface that could be evaluated by this technique. When NASA invited me to brief the astronaut crews training for SkyLab, in 1973, and such briefings became part of my duties with the Office of Naval Research, the rest of my career was set.

Since then, I have trained all of the astronauts in "space oceanography" and prepared observational experiments for every Earth-orbital NASA manned space flight. From the eager efforts by the astronauts, details of the ocean never before imagined have been defined; examples of which are in the accompanying paper on Spiral Eddies.

I must point out, that the best part of this approach to oceanography meant that I never had to go to sea again!! And, the view from space is nearly as good as from the nose of a B-17 "Flying Fortress."

all my best,  
Bob

They are from the following dates:

1. 20 May 44
2. 22 May 44
3. 28 May 44
4. 6 June 44--2nd mission
5. 8 June 44
6. 18 June 44
7. 21 June 44
8. 6 July 44
9. 11 July 44
10. 13 July 44
11. 16 July 44
12. 18 July 44
13. 20 July 44
14. 4 Aug 44
15. 5 Aug 44
16. 6 Aug
17. 25 Aug 44

I think most of those are "me," but there were some days in June; such as, the 15th, when I was grounded for a sinus infection. And, I may have mistaken some in July, but I don't, at this sitting, think so.

Thanx much Russ. I'm sending you a check that should cover the Mission Reports. Whatever is left, put it towards my annual contribution.

All my best,

A handwritten signature in black ink that reads "Bob" with a long horizontal stroke extending to the right.



# Dr. Robert E. Stevenson, Oceanographer

P.O. Box 689, Del Mar, CA 92014-0689, USA

Voice: (1) 619-481-0850 • Fax: (1) 619-481-6958 • E-mail: [robert@oceans.org](mailto:robert@oceans.org)

Russ Strong  
Secretary  
306th BG Association

Hi Russ,

29 March 98

Thank you for the mission reports you sent. They are tremendous! You've probably been congratulated for your foresight in acquiring these intelligence papers, but please accept one more congrats from me!! For anyone trying to put together the memories of a combat tour, they are absolutely essential.

I've been able to assure myself that what I remember did happen, that I flew with crews other than my prime crew, but had forgotten who and where, that sketchy events did take place, in some cases a little different from what I thought. All in all, I am at once impressed with 54-year old memories, and surprised at others that should have stayed with me.

I knew that the 23 May 44 mission to Metz had actually resulted in bombing Nancy instead, but I had really forgotten that I flew with Al Rehn's crew.

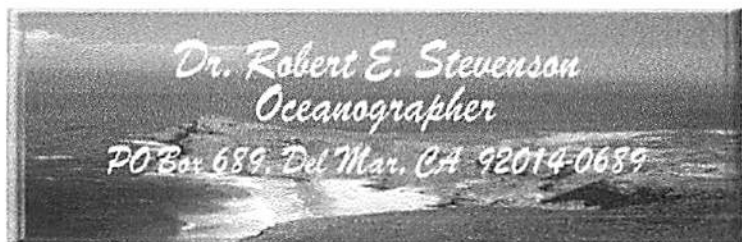
I also recalled that I had flown with Curtis' crew, filling in for his not-severely wounded navigator, but I had not remembered that it was the 17 June mission. We were flying deputy to the group leader; a Col. Williams and crew from Wing Hdqtrs. Flying with Curtis, I made sure that I knew our location at every minute. We flew over a nearly solid undercast for most of the mission, but finally saw a target of opportunity. It was a small bridge with a "red cross" building on the north shore. I told Curtis. He tried to communicate with the lead, but was ordered to keep radio silence.

We bombed. Blew the bridge, but with the undercast moving in fast, we were unable to determine whether or not the "red cross" was obliterated.

On return, a major discussion took place concerning the actual location of the target. I, and several other navigators, had a location some 10-15 miles north from that of the lead navigator. The colonel didn't like being told that a 2nd Lt. navigator knew the target and his captain navigator didn't. The discussion got heated. I was not silent, that's for sure, but I was saved when Col. Robinson pulled me out of Interrogation and sent me to dinner.

The next day, the recon photos proved that all of us 2nd Lt. navigators had been correct. And, yes, we had destroyed the "red cross" building north of the river. Col. Robinson was all smiles, called me "Bob," but suggested that in the future I might want to be more considerate of high-ranking officers than I had been the previous day.

Well, it's really great to bring back those "historic" events. Having said that, I would like to ask for another batch of mission reports.



18 March 99

Hi Russ,

I sent this off to Ian  
White, 305<sup>th</sup> BGMA associate.

From some of the stuff  
he has received, & sent to me,  
it seems as if the 305<sup>th</sup>  
was almost on a different  
mission than we.

The photos are good,  
I think.

Cheers,

Bob

# Dr. Robert E. Stevenson, Oceanographer

P.O. Box 689, Del Mar, CA 92014-0689, USA

Voice: (1) 619-481-0850 • Fax: (1) 619-481-6938 • E-mail: [vega@oceans.org](mailto:vega@oceans.org)

Russell A. Strong  
Secretary, 306th BGA  
5323 Cheval Pl.  
Charlotte, NC 28205

Hi Russ,

6 Jan 98

It was great talking with you this morning (my time). Those halcyon days with the 306th seem so far, but also so close. Our experiences were certainly deeply planted in our minds, but some with "disappearing ink." I'm doing my best to repair the worn spots.

I'm writing a pamphlet for the young folks who go through the "Sentimental Journey" at air shows. They all have a hundred questions, starting with "How did it really feel flying in that plane?"

Your book is great, and has been a tremendous help to my memory, as has the 368th Squadron Combat Diary. Then, I learned that Grover Goode, waist gunner, had a personal diary of our missions, including the number of each plane in which we flew. That helped a lot, but also brought questions that that I hadn't even thought about earlier.

So, I need some of the Mission Intelligence Reports. I'll probably need more later, but this bunch will be a great start.

They are:

23 May '44, Metz Area  
11 June '44, St. Andrew.....  
12 June '44, Lille/Venderville  
15 June '44, Nantes  
17 June '44, Orlean Brecy  
12 July '44, Munich  
17 July '44, Ham & Jussy  
25 July '44, St. Lo  
3 Aug '44, Merkwiller  
12 Aug '44, Chamont  
15 Aug '44, Frankfurt

*Priority Mail*  
*12 Mar 98*

Then, Russ, please send a copy of your book, for the AZWing library, to:

Col. Richard Exler  
Arizona Wing/CAF  
P.O. Box 2969  
Mesa, Az 85214

*12 Mar 98*

All my best,

*Bob*

*Priority Mail*

# DR. ROBERT E. STEVENSON, OCEANOGRAPHER

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2/28/98

Hi Russ,

I thought I've give you my schedule so you could judge your timing in getting the Mission documents to me. Also, hope you got the pictures O.K. There'll be more than those as Groves digs them out. And, I've call Russell Schoneker, in Louisiana. Other than some of the problems attributed to age, he's in good spirits.

The 1<sup>st</sup> week of March, I'll be in Houston briefing the next three <sup>SL</sup> crews in the weather & oceanographic <sup>features</sup> they can (1) expect, & (2) ~~that~~ which I want observations during their flights.

The 4<sup>th</sup> week of March, I'm off to Mesa, AZ for 2 weeks with the AZ Wing & their B-1G. I would much like the copy of your book to reach Dick Exler, the adjutant, before I arrive. I'd really like to have, too, the Mission documents before then. Groves, Russell & I are re-visiting, mentally, our tours, & I'm writing a CAF booklet, so we need all the help we can get.

Take care. Cheers, Bob

Russ,

A copy of a worn, folded page that was in with a bunch of my navigator's logs. Only two of combat missions, but all four covering the Atlantic transit from Savannah. Some hints were useful; #14, 16, 17 & 20! Cheers, Bob

118-4.1  
15 April 44.

HINTS TO A NEW OPERATIONAL NAVIGATOR

1. Make sure all your flying equipment is taken to the line from your barracks.
2. Study your target folder before and after briefing. You should be able to draw an exact picture from memory.
3. Be sure you have obtained all essential maps and charts, and that they are the correct ones.
4. Make careful notes on all information given in the briefing.
5. Draw up your flight plan accurately; the time you save on the ground makes for a better job in the air. Make late metro changes.
6. Brief your officers and enlisted crew thoroughly on the planned course and rendezvous at the airplane, and explain how you will expect them to cooperate with you on reporting information.
7. Check your guns, flying equipment and airplane; i.e. compass, repeaters, drift meter, radio compass, Gee, interphone, parachute, navigation equipment, flack suit, escape kit, oxygen masks, First Aid kits.
8. On take off, check your Gee and Radio Compass, immediately check your compass error, and remember Gee is an aid to navigation and not a means of navigation.
9. Throughout the mission carry an air plot. Get as many winds as possible.
10. Warn your pilot of approaching turns, their direction, and new Mag. Hdg.
11. Warn your crew two minutes in advance of the type of friendly fighters rendezvousing.
12. Don't forget! Position and Time of Bombs Away; True Heading; Air Temperature, Altitude, and your crew's observations as to Bombing results.
13. When under attack, don't shoot like hell; to hit a "Jerry, use the zone system of firing.
14. If you forgot a "Relief Can", roll up a map and use the B-5 drift meter hole.
15. When your windows frost, open the Astrodome and wedge in a cartridge case, or partially open the message window by holding your foot behind it. Your Weems Plotter makes an excellent scraper.
16. When you are doing your work properly, you have no time to think of your "Sugar" or to get nervous.
17. Armor plate should be secured in place on the floor of your compartment. Your "steel helmet" should be worn unless you have a very thick head. Your "Flack Suit" may be heavy, but remember it is the type of metal you take off by pulling a string.

118-4.1  
15 April, 44

18. Make sure each piece of your equipment is kept in its usual place and that all heavy objects, (ammunition boxes, armor plate) are secured. Keep your gun secured in position, except when it is being fired.

19. KNOW YOUR POSITION AT ALL TIMES.  
DEFEND YOUR AIRCRAFT.  
KEEP AN ACCURATE AND COMPREHENSIVE LOG.

20. Combat flying places the greatest demand on the use of common sense known to mankind. (NEW PROVERB)

\* \* \* \* \*

SPACE RESERVED FOR NEW HINTS PICKED UP FROM OLD CREWS AT NAVIGATOR'S NEW STATION.

**From:** Grover C. Goode <mcgoo@citynet.net>  
**To:** 'Russell.a.strong306@worldnet.att.net' <Russell.a.strong306@worldnet.att.net>  
**Date:** Saturday, July 07, 2001 10:42 PM  
**Subject:** FW: Bob Stevenson

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Russell, I'm re-sending. I note that I had an extra "s" in your address.

-----  
From: Grover C. Goode[SMTP:mcgoo@citynet.net]  
Sent: Saturday, July 07, 2001 10:34 PM  
To: 'Russell.a.strong306@worldnet.att.net'  
Subject: Bob Stevenson

Russell and June:

I received an e-mail from Jeani Stevenson( Bob's wife) earlier this week in which she advised me that Bob had a recurrence of prostate cancer, that he was greatly dehydrated, and that he had been admitted to Wilcox hospital (that's the only name she gave me), in Honolulu. I hadn't heard from them for several days and tried to call him at home. No answer so I e-mailed Jeani.

About an hour ago I got the following note from Jeani:

"Grogy, he's in the hospital, Wilcox 808-245-1100 room 422. Call the nurses station to see if they can answer the phone for him, if I am not there. Got to go. I am at the Holiday Inn 808-823-6000 rm 2212 because the hospital is an hour drive. His sons went home but my sis is here from NY. He has cancer of the liver now too. I won't be long.... send love and prayers. He would love to hear your voice, Grover. Aloha, Jeani."

I called him at the hospital about an hour ago and talked with him several minutes. He sounded as though he was very tired. I suppose Jeani's e-mail says it all.

Hope that the two of you are well.

Grover





Aero-Gram  
from Colonel Bob

21 Sept. 98

Hi Russ,

On my recent, 72-day tour with the Sentimental Journey and our Heinkel-III, I met a guy pilot, who flew with the 306<sup>th</sup>. He is:

Oran Smith  
Veterans Home, Box 94  
Buffalo, WY, 82834

Oran's memory isn't good, but after some discussion, he remembered the "Fit in Bit in" squadron. I couldn't be sure how good that info. really is. Also, he was not clear at all about his time with the 306<sup>th</sup>. He said he flew 35 missions but also talked about the Oct. '42 mission. He'd appreciate being a member, tho. Bob  
all my best

# COL. BOB STEVENSON

P.O. Box 689, DEL MAR, CA 92014-0689

TELE: 619-481-0850 FAX: 619-481-6938 E-MAIL: VEGA@OCEANS.ORG



Russell Strong  
5323 Cheval Pl.  
Charlotte, NC 28205

Dear Mr. Strong,

17 Sept. '97

I have noted, with great pleasure, the announcement in the September '97, Air Force Magazine, of the 306th Bomb Group reunion, 6-9 November 1997, in Orlando, FL.

I was in the 306th, 368th Squadron, from April through September 1944. For some years I was in communication with the 306th Bomb Group Association (?), but it suddenly disappeared and I could not find its remnants. Your announcement was, therefore, of keen interest.

In 1996, I joined the Arizona Wing, Confederate Air Force, in order to fly, once again, in a well-restored B-17G, "*Sentimental Journey*." My wife and I, she is also an active Wing member, have just returned from a three-week segment of the annual tour of the B-17 and our Heinkel-111 to air shows in the mid-Atlantic states. I can tell you that there is not a bit of a question about the feeling of *deja vu* when one climbs into the "*Sentimental Journey*." Fifty years disappear in an instant!

It would be great if I could let know that the Fort would be available to fly into Orlando, but, as you can imagine after touring for seven months, there is a lot of necessary maintenance. The winter months are the time when the volunteer mechanics and engineers are eager and free to work in Mesa.

Unfortunately, I will not be able to come to Orlando this November. Over the years, I have become a consultant to the Astronaut Office, Johnson Space Center, briefing the crews on Earth observations during their upcoming flights. I am scheduled that week to brief the next four crews preparing for missions.

I do want to be included on your 306th list of members, however. It would be wonderful to be able to attend your next reunion.

I am enclosing a computer print-out of a photo of part of the crew with whom I flew. Our official crew photograph is stored away, somewhere.

With all my very best,

*Bob Stevenson*

**From:** Grover C. Goode <mcgoo@citynet.net>  
**To:** 'Russell.a.strong306@worldnet.att.net' <Russell.a.strong306@worldnet.att.net>  
**Date:** Saturday, August 25, 2001 12:36 PM  
**Subject:** FW: Bob Stevenson

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From: Jeani[SMTP:jeani@lava.net]  
Sent: Wednesday, August 22, 2001 5:04 PM  
To: Grover C. Goode  
Subject: Re: Bob

Dear Grogie,

The write up in the program for the service read:

Dr. Robert E. Stevenson

Bob was born in Fullerton, CA. on January 15, 1921. He died at Wilcox Memorial Hospital on Aug. 12, 2001, at 80 years of age.

Bob is a WW II veteran, serving with the United States Army Air Corp, as a navigator of a B17 in the 306th bomb group that flew first over German.

Bob completed 29 missions; two were on D-day.

Bob directed the satellite Office of Naval Research (ONR) at Scripps Institute of Oceanography in La Jolla, California, from 1970 to 1988. He received numerous awards during his career, including the highest given to a civilian by the federal government, the Meritorious Civilian Service award, which was granted for his work at ONR, Scripps.

In 1989 Bob was appointed the honorary position as Secretary General of the International Association for the Physical Sciences of the Oceans (IAPSO). He served eight years to bring oceanographers from around the world together in unified assemblies. Two major IAPSO assemblies took place in Vienna, 1991; and Honolulu, 1995.

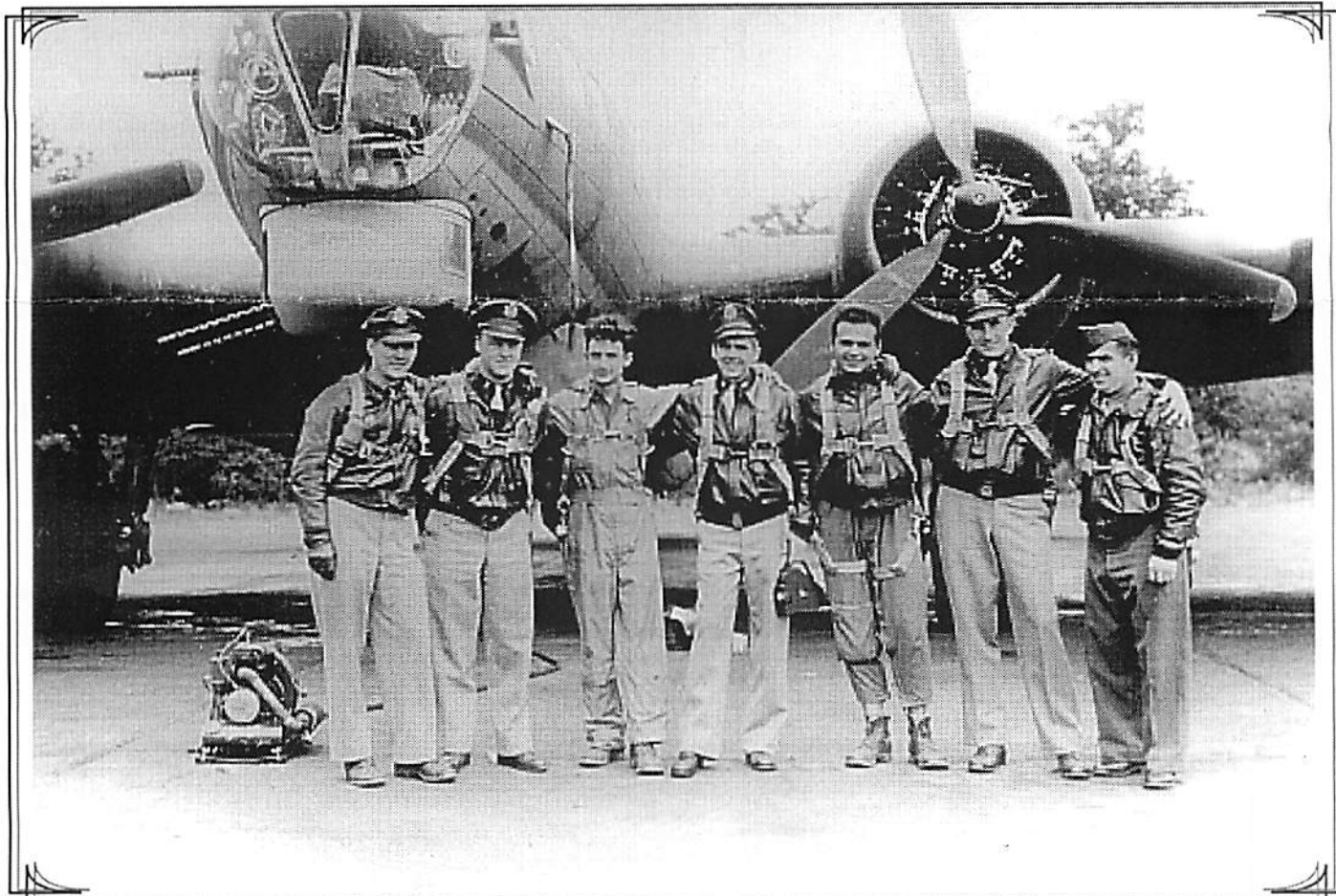
>From the NASA Gemini days in the 60s to the present time Bob was an Oceanographer Consultant to the Astronaut Corp. At the time of his death, he and Dr. Paul Scully-Power (now director of space exploration for Australia) were writing an instructional computer CD-ROM entitled <sup>3</sup>Astronaut Guidelines for Ocean Observation.<sup>2</sup>

Scully-Power explains, <sup>3</sup>Bob Stevenson was the Father of Space Oceanography. He instructed each and every one of them [the astronauts] in the greatest of all endeavours: looking at mother Earth, understanding what they saw, and recording that which was new. In this sense he is singularly responsible for one of the greatest treasure troves of knowledge that we have today of the Earth.<sup>2</sup>

Bob is survived by his wife, Jeani Stevenson of Princeville, and two sons, Robert K. Stevenson of Fullerton, CA; and Michael G. Stevenson and his wife Mary of Alexandria, VA; a granddaughter, Caprice; and numerous cousins.

>

## 368 Bomb Squadron, 306 Bomb Group United States 8th Air Force



This photo was taken on 20 July 1944, at the hard stand of B-17 #690, Thurleigh, following busman's holiday cross-country after 13 bombing mission.

"The Belle of the Brawl" was the name given to this B-17 by the crew members.

Crew Members from left to right:

1st Lt Billy Nash, Pilot

1st Lt Joe Shepard, Co-Pilot

SSgt Paul Heller, Tail Gunner

1st Lt Bob Stevenson, Navigator

SSgt Scotty Scottoline, Radio Operator

1st Lt Paul Anderson, Bombardier, and

MSgt Robert "Pop" Kelly, Flight Engineer.

# Dr. Robert E. Stevenson, Oceanographer

P.O. Box 689, Del Mar, CA 92014-0689, USA

Voice: (1) 619-481-0850 • Fax: (1) 619-481-6958 • E-mail: [vega@oceans.org](mailto:vega@oceans.org)

Russell A. Strong  
Secretary  
306th Bomb Group Association

Dear Russ,

2 October 1997

It was surely good to hear from you and to know that I am back with the 306th. I have no idea what happened, but whatever, it is really comforting to be in communication with you again.

It was a really pleasant surprise to see our crew picture printed so soon in **306th Echoes**. The photograph was taken after a "fun flight" on a day off. Lt. Col. Odle (I thought I remembered that he was Deputy Group CO?) needed to get to Liverpool, so he had the basic crew (pilot, co-pilot, navigator, and flight engineer) rousted out of bed to fly him there. Paul Anderson decided he'd like to go--what else was there to do--as did Heller and Scottoline.

Those were the guys on the crew who loved to fly. So, we got Odle to Liverpool, then toured northern England over to the North Sea Coast, then south past Flamborough Head, where a lot of Lanc missions departed, but we never had seen the headland. We toured back to Thurleigh at about 500 feet, making sure, though, that we were at 1,000 feet as we entered the pattern. 'Twas a fun flying day; one of a few.

On a mission, we had two more gunners, of course. They were **Robert Daly**, ball-turret, and waist gunner **Grover. C. Goode**, who was 19 and we called "Junior."

There were two others when we first arrived at the 368th; pilot **Wayne H. Erwin** and the 2nd waist gunner, **Paul Schonekas**.

Erwin had been O.K. during phase training, but on the flight over, ferrying a new B-17G, he began to show an arrogance we not seen before, and during a couple of flying circumstances a little out of normal; such as, clouds and night-time, requiring instruments, became unstable--nearly a panic. An incident going into Reykavik nearly killed all of us. The crew wanted to leave him then, but I persuaded them that a pilotless crew at a transit base would not remain a crew long.

As was usual in those days, the new pilot flew with an experienced crew for four missions, and the new crew flew with an experienced pilot. We flew our fifth mission, the second one flown on D-Day by the 306th (you have Erwin down as "William," P.3, April '97), our 6th and 7th missions, with Wayne, but it was then quite clear to all of us that he was not competent to fly combat. It's a story in itself, but he simply didn't have the guts to fly a satisfactory formation position.

The enlisted men voted unanimously to refuse to fly with Erwin. Both Andy and I

agreed, and Joe felt he should abstain considering his "yes" vote might be construed as his eagerness to become the crew's pilot. So, Andy and I went to Major Maurice Salada the afternoon of the 7th mission (I remember Salada as the CO of the 368th Squadron--he must have gone over to the 423rd later). His response to our story and request was "I wondered how long it would take you."

We were relieved of mission assignments until Salada found another pilot. I flew one mission with John Curtis, filling in for his navigator who'd gotten some flak in the butt, and Joe flew one mission as co-pilot.

**Billy Nash**, back from a bout with hepatitis, came around a few days later and said he'd like to fly a mission with us; to learn whether or not we'd all fit well. Billy's crew had been shot down while he was in the hospital, and he had about the same number of missions as we. We flew, we all liked each other, Billy and I became close friends, and remained so throughout the rest of WW II. All of this took place in mid-June and as soon as Maj. Salada knew we were a crew, we were assigned to plane number 690.

Billy Nash died about four months ago. His widow, Marge, is at 2418 Foxwood Road, South, Orange Park, FL 32073, Tel: 904-264-5162. It was a real blow to me. I'd lost track of him, found his address in the latest AFA Directory, called him. He was just back from the hospital--lung cancer--sound weak, but we made arrangements to meet in September when I would be with the CAF B-17G, "Sentimental Journey" at air show in south Georgia. I called him the next week to give him some dates, He'd died the day after we talked the week before.

I found Paul N. Anderson's phone number in your directory. I'd talked to him several times while he was in Scottsdale, AZ, but the number I'd had was out of service when I tried early this year. I called the number in your directory, his wife, Ardith, answered. I didn't know her, but she told me that Paul had died last year, suddenly. Ardith was Paul's second wife and knew nothing of his tour with the 8th, or any of the people with whom he flew.

Emedio Scottoline's cousin's daughter (I don't know what that makes her.) is a rising young novelist, Lisa Scottoline. She's also a lawyer. I'd written to her after reading one of her books, asking whether or not she was related to Emedio. She told me, sadly, that Scotty had died about 18 months ago--sadly because he was the favorite "uncle" of all the girls in the family.

I don't really know about Joe Shepard, but I'm guessing he's gone, too. Joe was a Mormon, an Elder in the Church. I tried to call him when I was in Salt Lake City in 1980, doing some research on my family at the Mormon Library. I learned that I could reach him only through the Church. They'd take a phone message and relay it to him. When I got no answer, I wrote him, and his wife Lois (who I knew and who was blind by then). All I received was a note from the Church that Elder Shepard was ill and could not answer the letter.

In your Directory, you have an entry for Paul Schonekas, I called but got no answer. I'll try again. And, I saw a picture of Grover Goode on a river bench in Bedford, taken during your trip there in May '96, so it would seem that our waist gunner is still around.

I know nothing of Robert Daly or Paul Heller. Paul was from Providence, Rhode

Island, so I'm about to make a directory call to learn whether or not he's listed.

I should note that I am a "colonel" only by virtue of being a member of the CAF, in which everyone is a "colonel." I made captain when I return to active duty in '51-'53, then was in the active USAF Reserve through 1968; that is, assigned to a Mobilization Position and an air base, when reductions caught me. I did some correspondence courses for a while, but the demands by the faculty and students at Texas A&M and Florida State, where I was a professor of oceanography at each, began to take all of my time. With 20 years in the Reserves, but only 18 1/2 good years, and on inactive Reserve status, from which you never recover, I was retired as a captain in 1963, without benefits.

I thought you should know something about our crew during our days at Thurleigh; the place whose name we never knew until long after our service with the 8th. I can tell you the story of Nash and I signing up for a second tour at 25 missions, but perhaps all of such tales are for another time.

Again, Russ, thanx so much for "bringing me home."



So I don't cut some crew photos from the 306th Echoes, I'm sending in this way my order for a 368th Combat Diary, and a copy of your book, First Over Germany. along with a check for \$17.00, in this manner. Thanx, Russ.

Enclosed is my check for \$55.00 to cover the costs of the Diary and your book, and the postage and handling.

I am also sending a contribution to Bob Houser in Des Moines.

**305th Bomb Group Information  
Mission to Merkwiller  
3 August 1944**

by  
Ian White  
Irlthlington, Northants, England

With some assistance from both former 305th veterans and official archive departments both within the UK and the United States, I have managed to piece together part of the story of that day.

The Mission involved the 305th, along with the 306th and the 92nd, in the bombing of the Oil Refineries of Merkwiller, France. This target was a crucial part of the Nazi war effort, producing a great proportion of synthetic oils and gasoline fuels for both Nazi ground and air forces.

It appears that the mission that day departed around 10.55 in the morning, forming up over Podington at around 5,000 feet. The three groups formed into the 40th Combat Wing, thereafter proceeding to the English coast, departing over ~~Southwold~~. - lowest ft.

The inbound course flown, took the 40th Combat Wing across the Dutch coast at Goree; then over the Maas River, turning south towards Kaiserslautern, a City well known to the 8th Air Force.

Part of the recent research has led me to believe that there may have been an error in judgement, on the part of intelligence produced at H.Q. High Wycombe. Briefing Officers' seemed to have been under the impression that the German flak batteries, known to have been located at Kaiserslautern, had recently been removed or neutralised. This was in fact not the case.

As the bombers of the 40th CBW, including those of the 305th, crossed over this City, they were immediately targeted by strong and accurate flak. It is believed that these guns were controlled by the central flak battery near to Kindsbach, a suburb of Kaiserslautern.

For many minutes, the bombers of all three groups came under continuous fire from the ground. It was during this period that the 366th 'planes of Lt. Ben Buttrey and Lt. Clifton Alford were hit. The first to fall was the Alford crew aboard 44-6130, close to the forest area of Landstuhl, below Kaiserslautern. I have received information from Germany in recent weeks which gives some account of the final resting place of this aircraft, and the bodies of its crew.

Only one member survived, the tail gunner Sgt Zoltan Rovack. He apparently managed against all odds to bail out from his tail position, just as the ship exploded. Rovack landed in his parachute some half a mile from the main wreckage, and was almost immediately captured by local civilians. These local villagers had the initial intention of lynching Sgt Rovack on the spot. Luckily there were a few level headed members within the group, and he was marched to the local Mayors office, but not

I have  
real  
difficult  
in this  
claim.  
The inbound  
course  
was  
plotted  
to look  
avoid  
Kaiserslautern  
The track  
was at least  
4 miles east  
of the edge  
of the  
plains  
boundary  
The 306th  
reported  
that  
chute.



before being severely kicked and beaten.

High above, the formation continued to follow their course, south, towards Stuttgart. Most of the ships had suffered various degree's of flak damage, including that of Lt Buttrey, 42-39966.

I have been most fortunate to have correspondence with the bombardier of that crew, Robert Horn. Robert has explained much of what happened to his ship, the loss of two engines and straggling behind the formation; losing height and air speed all the time. They were set upon by a number of German fighters, ME-109's and FW-190's, and it was these which finally brought the death of the ship.

Much of the equipment aboard had failed, and with no hope of regaining altitude and the safety of the group, the crew bailed out. In doing so, they all narrowly avoided the explosion of the ship, two members having wounds from the continuing fighter attacks as they jumped from the aircraft. All of the crew survived to become Pow's.

### Kaiserslautern onwards

Most of the ships of the 305th were suffering with flak damage, including the central character of this research, 42-31255 "Miss Liberty Belle".

A letter received from Kenneth Sherman, Pilot of 42-102962 that day, has explained that during the flak attacks, most of the 305th 'planes raised up 12 feet in an attempt to avoid the flak bursts. Ken recalls, through his diary journal of the time, witnessing the demise of Lt. Alford and crew aboard 44-6130. He vividly wrote within his diary, seeing their ship being hit in the fuselage close to the radio room. Flames and smoke appeared to be coming through the radio hatch and the waist windows as the 'plane began to peel off to the left, flying right by his window. Ken watched helplessly as the stricken 'plane, with nine crew aboard, began a torturous serious of left hand and right-hand loops. Momentarily, the fire seemed to extinguish itself due to another explosion. However the fire re-ignited, and the plane continued down, spiralling out of control. It exploded close to the ground and no 'chutes were observed.

*Maybe  
but a  
buttle  
effort. The  
blast radii  
of an 88  
was 50 ft  
the effect is  
150-200+*

"Miss Liberty Belle" had her own problems at this time. During the flak bursts over Kaiserslautern, she had suffered the loss of one engine. Momentarily the 'plane dropped from the High squadron, and began to straggle. In a copy of a letter, written in November of 1944 by a Lt. John 'Pete' Peterson, the description of those events points to the fact that the "Belle" had been substantially damaged and was in danger of being left behind. Lt Peterson was flying as bombardier with the Lt. Buck crew aboard 43-37529 on this mission. Peterson recalled in his letter, that the pilot of "Miss Liberty Belle" and a close friend, Lt. Donald 'Duane' Morrill, had radioed that they had trouble with their engines, one being completely U/S. However, Lt. Morrill and Lt. Barnett must have pulled out all the stops, boosting the three remaining good engines and brought them back into formation.

The formation had by now reached the Initial Point, making their turn over the City of Stuttgart. This would place them on a direct course, heading west, towards their intended target of Merkwiller. It was at this very moment that all hell broke loose, with German fighters dropping from the skies above. Robert Polich, the lead Pilot in the High

*Is true,  
they were  
40 miles east  
course!*

squadron aboard 42-31365 recalled seeing Me-109's, Fw-190's and twin engine Me-210's involved in the attacks. The two engine Me-210's appeared to be shadowing the formation on the whole length of the bomb run. Perhaps they were guiding the single engine fighters into attack? Either way, I have received reports from a number of those who were there that day, including also Bradford Savietz the Radio Operator aboard the J. 'Deacon' Towers crew flying 42-31480. In fact, Brad recalls within his diary page for this mission, having his first shot at a Nazi 'plane!

I have a lot of trouble with that description

The German fighters came down in groups, dropping low to the 9 o'clock position, and making several passes through the bomber formation. Many of the Pilots appear to have tried to manoeuvre their ships up and down by several feet, allowing each others top turrets to fire upon the fighters as they came through. Of course, this was limited, as they all had to stick to a steady course being on the bomb run. Robert Polich recalls that it was a hot few minutes, much sweat, a lot of fighter activity. However, all of his crew were on the ball! Ken Sherman noted that his ball turret gunner gained a probable hit upon a German fighter, as it passed beneath them. Over on the Towers aircraft, 42-31480, the pilot Joseph 'Deacon' Towers recalls within his wartime journal that quote "Met Luftwaffe again but good.... Really out in great numbers."

It certainly appears, from the small number of people I have received letters from, that this was indeed an intense attack. It was made all the worse by the fact that the friendly fighter escort had not made contact with the bomber formation at that moment. The 40th CBW, and those of the 305th, were left to defend themselves as best they could. Records, and eyewitness testimony, indicate the Germans had between 20 to 30 fighters in the area of Stuttgart-Merckwiller, enough to cause the bomber crews many heart stopping moments.

Not true! P-51's picked up the 40th at 1405 hrs

### Merkwiller destroyed

The formation kept together despite continuous German fighter attacks. At approximately 15.15 hours the bombers were over the target.

There was constant escorting fighters to the Dutch coast.

official target time was 1530.

The 40th CBW was at 20,200'

The 'planes of the 305th, along with the other two groups making up the 40th CBW, were at 15,000 feet. Bombs were released over the centre of the facility, marked by several large storage tanks. Ken Sherman, aboard 42-102962, recalls within his diary seeing the oil refinery being "blown to hell;" the first explosions sending fire up to their own height, with smoke billowing above them a further 5,000 feet. The sight of these enormous plumes of smoke, against a blue sky must have been very dramatic.

I doubt this!!

The refinery itself was indeed totally destroyed, as can be seen in the following photographs. The results of this raid would be later witnessed by advancing US Infantry units, towards the end of the war, and it was they who took these photographs in 1945. Production was never restarted at this facility, the destruction being so total.

I'm sure this is true.

Picture one, Left, shows the centre of the Refinery with its pipework and storage tanks twisted by the force of the fire and explosions. The second picture, Right, was taken upon the entrance of the Refinery and the only structures remaining are the cooling

Bombing with 100 B-17's was overkill.

towers. (Photographs via National Archives, College Park MD.)

The course of the target was off to the west. Note the official course chart. If the lead is turn to Saarbrücken the High Sq. was probably tired of following an off course leader.

Once the bombs had been dropped, the formation began to make a slow turn towards Saarbrücken, following their designated course for home. An interesting point has emerged from official intelligence reports, compiled by the 305th after the raid. It appears that as the various groups and squadrons began this turn, the High squadron of the 365th became separated from the 366th Lead and 364th Low squadrons. I have yet to verify this fact and/or to discover why this should have happened.

The remaining part of the mission, the return to friendly skies, was for the most part uneventful. There was a little flak experienced over Saarbrücken, but as Ken Sherman noted 'Not bad!' — Again, we did not fly over Saarbrücken!

For the crew aboard 42-31255 "Miss Liberty Belle", the real story was about to begin. A second engine failed prior to reaching the Channel. Upon reaching the English Coast, the waist gunner of the crew Francis Schmidmeister, looked out to see the White Cliffs pass beneath them. He assumed that all would be OK and that they would be landing back at Chelveston in a short while. Schmidmeister walked through into the radio room, where Don McQueary was seated at his radio set. At this point, Frank recalls that he may have fallen asleep, as he remembers nothing of what happened next.

The 305th began to circle the field, many ships firing red flares which denoted wounded aboard. It was one such aircraft, the number or crew is still unknown, that was called in ahead of the "Belle". Lt. Don Morrill and Lt Tom Barnett, the two Pilots' of 42-31255, radioed the tower to report that they had two engines shut down, and had difficulties with a third. Despite this, they elected to go around again and make a second approach, allowing those with wounded to land first.

### Emergency landing

The B-17's of the 305th had begun to circle the field, all had various degree's of damage, many wounded aboard. 42-31255 "Miss Liberty Belle" was in some distress, with two engines shut down and a third failing.

It was around 18.00 hours and the many aircraft of the group were in the process of landing. Ken Sherman recalls with the aid of his diary journal of that time, that he and his crew arrived at the head of the formation, being one of the very first to land after making a sharp peel off. Both he and others in his crew witnessed the "Belle" in some distress, his waist and tail gunners having a better view of the event from where they stood in the waist area. Ken believes that Lt's Morrill and Barnett had radioed the tower, indicating that number 4 engine had started to burn.

Records that I have obtained seem to show that at least two engines had been feathered and shut down, and it may well have been number 4 that was the third engine to fail. This is further confirmed by the reading of Lt John 'Pete' Peterson's letter which he wrote in 1944. Peterson writes that his friend, and Pilot of "Miss Liberty Belle", Lt Don Morrill, had radioed the tower informing them that his ship was in serious trouble. The tower is reported to have given clearance to make a straight in approach. Peterson goes on to recount that the "Belle" didn't have enough power, and fell short of the runway whilst on approach, crashing just 3 miles from Chelveston near the village of

I guess you know that there was another "Liberty Belle" #42-30096, 385th B.G. ditched in North Sea, 30 Nov. '43.

Wymington.

This period of the story does seem to be rather confused, because there are unconfirmed reports that 42-31255 was indeed making an attempt to land but was crowded out by another B-17, The name of the crew or their ship is still not known or its presence confirmed. In any event the "Belle" continued to fly over the base, making a heading towards Podington. Here she was seen circling at least twice by people within the village of Wymington.

One of the first to sight "Miss Liberty Belle" was volunteer fire member Brian Spencer. Brian was on duty at the time, standing at the fire-watch building in Rushden Road. He recalls watching as a B-17 began to drop from the sky, circling first once then a second time, each movement becoming lower and lower. As the ship passed across the valley, from the direction of Irchester, Brian noticed smoke was trailing from one of the 'planes engines. He remembers the aircraft being extremely low by this point, following a course over the 'Rectory' house, across the main Rushden Road, and into the heart of the Village.

The next eyewitness was Graham Barnes. At the time, he was with his younger brothers' at the back of their parents house in Rushden Road. He vividly recalls seeing the shape of the B-17 suddenly appearing over head. The wings of the Fortress spread right across the roof of his house and that of his neighbours either side, with more to spare. He clearly remembers looking straight at the faces of two of the crew, they were wearing their leather flight helmets and goggles, so close that he was sure he could have reached up and touched them. The 'plane had passed over the roof of Graham's house just missing the chimney pots by about 10 feet! Graham watched in amazement as the Fortress passed over head towards three large elm trees, just to the end of his garden. The 'plane appeared to hit the top most branches, making the leaves shake violently. These elm trees were no more than 60 feet high.

Further in the Village one of the Home Guard volunteers, Michael Smith, had seen the arrival of the 'plane. Michael has said that he remembers seeing red flares being fired from the rear as she started to fly over the village.

A short distance away from Michael, a group of teenage boys were standing in a scrub area, known locally as the 'Stone Pits'. One of them was Terry Tobin, the son of local Policeman Reginald Tobin. Terry recalls hearing an almighty roar, and upon looking up, the sky turned black! like an eclipse of the sun. The Fortress passed right over his head at an incredibly low height. It all happened in less than a couple of seconds.

In the village High street, another person saw the arrival of the "Belle". Arthur Rawlins was home on leave and staying with his parents. He had been serving with the Royal Navy for the last 3 years in the Mediterranean. Arthur recalls first hearing a roar of engines, then as he looked out of his parents bedroom window, seeing a large four engine bomber heading directly for the village church tower. This tower is 120 feet high, and he could see there was no way that this 'plane would clear it. He watched as the plane appeared to bank slightly to port, making a shallow turn away from the church. He lost sight of it from then on, as it took a course over the 'Stone Pits' and towards Poplar farm.

# DR. ROBERT E. STEVENSON, OCEANOGRAPHER

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The enclosed is a copy of the page-proof of an article that will appear in the October 1998 issue of *Spaceflight*, The International Magazine of Space and Astronautics, published by the British Interplanetary Society.

When published, some of the illustrations will be in color, but I'm not sure how many, and I'm not sure how many copies I'll receive from the publisher. As we begin the "dog-days" of summer. I thought you might enjoy this "preview" to make the days pass more quickly than they might otherwise do.

The article will be up-dated by the author, Bert Vis (who I have known for some years); that is, I'm now the Secretary General Emeritus of IAPSO, for example.

Actually, Bert has written quite accurately and has followed the sequence of events in this story as closely as possible considering the memories, and available notes, from the people involved.

I think it is an excellent example of the early days of the Space Shuttle when the astronauts and space flight commanders were in charge. before the bureaucrats got

# The NEREUS Programme

Many scientific disciplines have made a great step forward with the beginning of manned space flight. One of them is oceanography, and with the space shuttle programme, opportunities arose for specialists to observe the world's oceans from space first-hand. One indeed made it into orbit on board STS-41G in 1984. This is the story of the NEREUS programme, which should have led to several flights by Robert E. Stevenson and Paul D. Scully-Power, the world's two foremost space oceanographers, and to their moving around between crews and missions. The long-term intentions were not however achieved.

BY BERT VIS  
The Netherlands



Paul Scully-Power is shown wearing a NEREUS program patch. However, the patch would not be worn during his mission.

P. SCULLY-POWER

## Introduction

Robert Stevenson became involved in space oceanography by coincidence in August 1966. At the time, he was working at the Biological Laboratory of the US Fish and Wildlife Service's Bureau of Commercial Fisheries in Galveston, Texas, where he was studying the influence of the ocean on the annual shrimp crops. During a meeting in Boulder, Colorado, Paul Lowman, a geologist from NASA's Goddard Space Flight Center, asked him to look at a photograph of the Florida Keys, that was taken by Ed White during Gemini-IV. The photo turned out to hold the clue to a question that had puzzled marine biologists

for decades: how did shrimp larvae move from west of the Keys to the Florida Bay when the currents flow continuously in an opposite direction?

Of course, Stevenson was excited by the many features he had seen just in this single photograph and about a week later, he went to NASA's Manned Spacecraft Center in Houston to see more of them. By chance, a former colleague from the US Air Force turned out to be working in the MSC photo lab and from then on, Stevenson got all the relevant Gemini photos for study and evaluation.

In September, Lowman was to brief the Gemini-XII crew, Lovell and Aldrin, on Earth observation. Although he only had some 30 minutes for his briefing,

he gave Stevenson five of them to specify features he would like the astronauts to photograph for him. Even this limited time resulted in some of the best ocean photography made during the Gemini programme.

By now, Stevenson was well-known at MSC and he continued his involvement in the manned space programme by putting together the oceanography parts of the Earth observation programmes for the two Earth orbital Apollo missions, Apollo 7 and 9. After the Apollo programme was concluded, he naturally went on helping to put together the Earth observation programmes for Skylab and ASTP. For the latter, he was assisted by Paul Scully-Power, an Australian oceanographer working for the US Navy in Connecticut as part of an exchange programme. Together, they set up a programme of observations to be conducted by the Apollo crew for six days once the joint portion of the flight would have been concluded. This ASTP project proved very successful and it was then, that both oceanographers decided a long-term programme should be organised. But after ASTP, manned space flights were halted for several years and for the time being, nothing happened.

When the first class of shuttle astronauts was selected by NASA in 1978, Stevenson was asked to give a course in oceanography. Over a two-week period, he gave five day-long lectures on the subject. Not long after the crews for the first space shuttle mis-

Paul Scully-Power, chief astronaut John Young and Bob Stevenson (from the left) in Mission Control during the STS-2 mission in November 1981.

R. STEVENSON



missions were assigned in March 1978, Stevenson started working intensively with the STS-2 crew, Joe Engle and Dick Truly, as well as Sally Ride, who was a support crew member for that flight. He began travelling to the Johnson Space Center, the MSC's new name since 1973, on a regular basis. It was also around that time, that Stevenson began to realise that briefing and training was becoming more than a one-man job. He would need help and after working with him on ASTP, the logical choice was Paul Scully-Power. When Stevenson called him, Scully-Power enthusiastically agreed, and in 1980 he too began making regular trips to Houston.

**NEREUS**

At the time, it was still expected that the space shuttle would give routine access to space with flights as often as once every two weeks. In the period leading up to the operational flight phase of the space shuttle programme, Stevenson and Scully-Power occasionally talked about the possibility of flying in space themselves, but were never able to make up their minds on how to propose such a project should seats become available. Scully-Power even came up with a name for their 'programme', though it was not and never became an official US Navy project: Navy Environmental Research Experiment Using Shuttle, or NEREUS. The name was an appropriate one, as Nereus was a sea god from Greek mythology.

The programme had first been outlined in a proposal, which had been presented to the US Navy in 1979. The early stages were to use US Air Force and NOAA satellites to collect thermal infrared images of significant, tactically important areas of the ocean. Eventually, the effort was to evolve into flying Navy personnel on a regular basis aboard shuttle missions carrying suitable sensors, such as synthetic aperture radar, scatterometers, scanning microwave radiometers and a large selection of visual sensors and cameras. This group of sensors, which would be taking up a major part of the shuttle's payload bay, would fly on two to three dedicated NASA-Navy missions annually. Although the US Navy turned the plan down, Stevenson and Scully-Power considered their activities in the years to come to be an (unofficial) part of NEREUS.

**Flight Opportunities Come and Go**

Early in 1982, while Stevenson and Scully-Power were briefing the STS-3 crew on oceanographic phenomena

they were to observe, astronaut Dick Truly, who had been listening in on the briefing, raised the idea that the two oceanographers should fly themselves to see the features they were explaining to the crews. Stevenson said it might indeed be profitable, but added that since there was very little chance they would be able to fly, the next best thing was to prepare the astronauts as thoroughly as possible. But Truly had been serious and did not leave the idea at that. He got together with George Abbey, who at the time was Chief of the Johnson Space Center's Flight Operations Division. Shortly thereafter, in March, Abbey told Stevenson and Scully-Power that the two should plan on flying in 1983. And although no further details were given, Abbey's remarks in the months following made it clear that he had not been joking. No indication had been given as to what crews the two would be added to but that was not too much of a problem. Stevenson and Scully-Power were in Houston, involved in the briefing and training of shuttle crews, at least every six weeks and although they were not part of the astronaut corps, their ties with the astronauts had become so close that they could almost be seen as an unofficial part of the astronaut office, attending the traditional Monday-morning all-astronaut meetings, parties, etc. They even acted as occasional babysitters for astronauts' children. It was clear they would easily blend into any crew.

In May 1982, Abbey told Stevenson that he was to fly on STS-7 while Scully-Power would be added to the STS-8 crew. Both would then fly together on a later mission that at the time was still in the planning stages. It would carry the Shuttle Imaging Radar, or SIR-B [1] in a high-inclination orbit. Although both oceanographers were involved in the planning by selecting sites for the radar's imaging, up to then neither had thought about actually getting the chance to fly on the mission. Instead, they had lobbied to get a geologist-astronaut on board: Kathy Sullivan. They succeeded in that and the mission later flew as STS-41G.

Abbey had discussed the idea of giving the two oceanographers seats on the shuttle with NASA administrator Jim Beggs, and the Head of Space Systems in the Office of the Chief of Naval Operations, Rear-Admiral Bill Ramsey. Ramsey sent a letter to Secretary of the Navy John Lehman, which was then sent on to Lt-General James Abrahamson, who at the time was in charge of the space shuttle programme at NASA Headquarters. It returned to Ramsey with affirmative responses from all parties on 7 July 1982. In addition, Lehman told Ramsey

to send a further letter to Jim Beggs as soon as possible. Ramsey in turn asked Rear-Admiral Brad Mooney, Oceanographer of the Navy, Abbey, Stevenson and Scully-Power, to draw up the letter that would express the Navy's urge to fly an oceanographer. Within a week, it was sent out to Beggs.

It should be noted that the assignments were in no way documented officially anywhere and that these letters were as 'official' as things would get. In Houston however, the astronauts were all aware that the two oceanographers would actually fly on the shuttle. But soon, there would be a change in plans, one of many to come. In April, the crew for STS-7 had been announced and it included Sally Ride, who would become the first American woman to fly in space [2]. The press attention for the flight had immediately risen to immense proportions.

The assignment of a non-career astronaut (the term 'payload specialist' had still to be invented) would have caused an even bigger media circus, not in the least since on top of all this, at the age of 62 Stevenson would have been by far the oldest astronaut to date to fly in space. Therefore, early in July, Abbey told Stevenson that he would not fly on STS-7 after all. Instead, he had plans to move him up one flight to STS-6. But almost immediately it became clear that STS-6 was already at the limit of the weight it could carry into orbit and no further mention of a possible assignment to that mission was made.

At about the same time, Joe Engle, who had been commander of STS-2, had been asked by the Air Force to study the feasibility of KSC launches of the shuttle on missions with a higher than 57° inclination. While conducting his study, called "High Flight", Engle had recognised the immense opportunities for observing the Earth during those flights and he approached Stevenson and Scully-Power, asking them to prepare the photographic part of this type of mission, indicating that one of them might be on the crew of one or more of these flights. An observation proposal was worked out, but in the end the mission never flew.

Shortly thereafter, in December 1982, Paul Scully-Power's assignment to STS-8 was also cancelled. The two oceanographers were told that since NASA Headquarters had decided the problem of space sickness was of critical importance, physician astronauts would be added to shuttle crews to study the problem. As a result, Norm Thagard was included in the STS-7 crew while Bill Thornton would complete the STS-8 crew, tak-

ng Scully-Power's unofficial and still unannounced seat. Although these additions were only announced on 21 December 1982 [3], Stevenson and Scully-Power were already informed on 10 December. As it turned out a few days later, George Abbey had known since the summer that NASA Headquarters was thinking of putting physicians on the two flights, which may have been the reason that neither oceanographer had started actual mission training up to that point.

Abbey immediately started trying to find another mission for Stevenson. But by then, the flight schedule was quite heavily loaded and adding Stevenson or Scully-Power to a crew was not easily done. STS-9, carrying Spacelab-1, was out of the question as its crew already included two payload specialists. On the very day he told Stevenson and Scully-Power of Thagard's and Thornton's addition to STS-7 and 8, Abbey asked Admiral Mooney to request General Abrahamson to put a Navy oceanographer on STS-10. But this mission, which would later fly as STS-51C, was also out of the question: the USAF refused categorically. It was to be the first dedicated Department of Defense mission and totally shrouded in secrecy. The Air Force was not going to 'compromise' this by adding crew members that were not vital to mission success. Such was the security surrounding the flight, that even though the briefings Stevenson and Scully-Power gave to the crew were totally unclassified, they had to ask for specific permission before they could be given. On top of that, the briefings were held in a guarded and secure room at JSC and although both had the appropriate clearances, they were not allowed to see the mission charts. They were not even told the basics such as altitude, the inclination or the scheduled launch time, which made it quite difficult to determine the most interesting sites to photograph and prepare the crew. By correctly guessing the orbital data, some good photography was obtained after all, although the Air Force studied the pictures for several months (!) to make sure security was not breached by releasing them. The reluctance to make the photos available to the Navy oceanographers outraged a number of admirals to the point that they came into action, the final result being that from then on, Stevenson and Scully-Power could work with the crews of future classified missions without much trouble.

All in all, both Stevenson and Scully-Power were still without a flight. Missions 41B and 41C already had such heavy workloads that it was decided additions to the crew would not be



The various emblems connected with the program:

top left, the NEREUS program patch.

top right, the STS-41G crew patch.

bottom left Bob Stevenson's personal patch.

bottom right, Paul Scully-Power's.

In the end, the crew patch was the only one that made it into orbit.

R. STEVENSON  
NASA  
R. STEVENSON  
C. BURGESS

wise. On the next flight, STS-41D, the first payload specialist from private industry was scheduled to fly: Charlie Walker, who represented McDonnell-Douglas. He was one of a new class of space travellers consisting of non-career astronauts, foreign guests such as Saudi Prince Sultan Al Saud, and US government 'observers' like senator Jake Garn and congressman Bill Nelson.

All these more or less exotic passengers that were to fly on the shuttle were seriously limiting the possibilities for Stevenson and Scully-Power to do their observations from orbit. And with their numbers growing, there even was the hazard of the two oceanographers missing out on flying altogether.

### First Flight

However, both Abbey and Beggs were determined to have them fly, and so, they asked Bob Crippen how he felt about having Stevenson as seventh crew member on STS-41G. Since this would be the largest shuttle crew to date, they told Crippen that the decision was up to him, but he and his crew accepted without any problem.

In April 1984 word was given to Admiral Mooney, the Navy's 'sponsor' of the programme, that a flight had finally been set for Bob Stevenson. Paul Scully-Power would act as backup and when the latter would fly later, Stevenson would in turn serve as his backup. But fate stepped in. Shortly after being assigned to STS-41G, and even before it was made public, Stevenson decided to step down in favour of Scully-Power. His wife was terminally ill and it was obvious where he wanted to put his priorities. It turned out he had made the right decision, as his wife died the week prior to the launch.

On 13 June 1984, Scully-Power was officially announced as a crew member for the mission [4], having started informal flight preparations already in April. On 27 June, he reported to JSC to begin training [5]. He was, in effect, working as a full-fledged member of the crew. Although he was officially called a payload specialist, he never worked out of the payload specialist office, but instead, had a desk with the other crew members in the astronaut office. This of course, was a result of the long-time association he had with the astronauts.



During the pre-flight press conference, Scully-Power was asked what he would be specifically looking for, to which he replied that since he had specialised on the understanding and the measurement and dynamics of ocean eddies, he would be studying those in particular. He also would interact with oceanographers who in the course of their normal research programmes were working in various parts of the ocean aboard ships. After the mission, the data collected by both sides would be compared [6]. Nevertheless, no firm observation plans were put together, but as Bob Stevenson put it years later, "he had more notes for his flight-suit pockets than any other crew member". Many astronauts would probably state that Scully-Power's job was the best any space traveller could ask for: simply looking out of the window, observing the Earth and the oceans. For recording his observations, Scully-Power could use three Hasselblad cameras, and an Aero-Linhof 4x5 inch film format camera that had been supplied by the US Navy.

Like so many aspects of the NEREUS programme, its funding was a matter that was not handled the way it was usually done when payload specialists were flying on the shuttle. During the pre-flight press conference, Scully-Power had been asked if the US Navy was reimbursing NASA for his training, or if NASA was bearing those costs. His reply had been "I don't know the answer to that question, because I don't get involved with money" [7]. The fact of the matter was, that the costs were actually divided between NASA and the Navy. While the Navy would pay Stevenson's and Scully-Power's salaries and travel expenses, and the Navy Intelligence Command bought the special cameras to be flown, NASA took care of all other costs, like flight suits, travel to and from KSC on NASA aircraft, the regular cameras and film they would use, etc.

Stevenson's 'Navy Space Oceanographer' wings with the trident emblem. These wings were issued only to him and Scully-Power.

R. STEVENSON

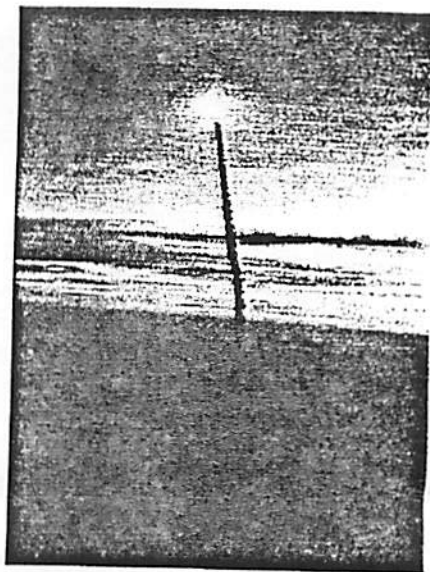


STS-41G, Challenger's sixth flight, was launched on 5 October 1984. As soon as the spacecraft was in orbit, Scully-Power began observing ocean phenomena from the flight deck. He used the daylight passes to watch and make notes using his tape recorder. During the night-time passes, he would float to the middeck where he would make additional notes in writing. In addition, he used the night-time passes to assist the other payload specialist, Marc Garneau from Canada, in his experiment programme.

### Follow-On Flight Scheduled for Stevenson

After a mission lasting a little over eight days the shuttle returned to Earth. It had been a huge success from an oceanographic point of view and Scully-Power had made observations that would result in a better understanding of ocean currents and the influence of the oceans on the Earth's atmosphere. Thanks to his discoveries, long-term weather forecasting could be done more accurately.

On 18 December, two months after the flight, a special briefing was organised for Admiral James Watkins, the Chief of Naval Operations. The day before, Secretary of the Navy Lehman had been briefed by Scully-Power and Stevenson and, excited by what had been told and shown, he had contacted Watkins to say that he absolutely had to hear this himself. It was obvious when Watkins walked into the room, 25 minutes late, that he was not very interested in the subject. He made it clear that the 15 minutes he was about to spend were the absolute limit he and his company, consisting of five other admirals [8], were planning on listening to what these oceanographers would have to say. But it was an hour and a half later that Watkins, who by then had cancelled his follow-on meeting, enthusiastically told one of the other admirals to call Lehman and inform him that it should be arranged



The space shuttle Challenger, carrying the STS-41G crew, climbs into the early morning sky above the Kennedy Space Center on 5 October 1984. NASA

to have Bob Stevenson get his flight as soon as possible. He stated that he regretted he had to leave and when saying good-bye he told Stevenson to keep him informed on all developments as soon as he had been assigned to a crew. Within a few hours after the meeting, Lehman phoned NASA to arrange Stevenson's assignment.

Later that afternoon, both Stevenson and Scully-Power met with Jim Fansen, Beggs' legal advisor at NASA Headquarters. On 20 December, Lehman wrote a letter to Beggs in order to arrange a flight for Stevenson, who shortly thereafter was informed by Fansen that he was to be included in the STS-51G crew. Launch was scheduled for June 1985, with Joe Engle as commander.

### Schedules Changed: Stevenson not Assigned

Engle's crew thought Stevenson's participation would be a great idea and Admiral Watkins also reacted enthusiastically when he was told of the decision. But soon, the plans were overtaken by events. On 1 March 1985, one week before its scheduled launch, STS-51E was cancelled due to problems with the TDRS payload [9]. As a result, a major reshuffling of crews began. The 51E crew, commanded by Karol 'Bo' Bobko, was moved to STS-51D, while Dan Brandenstein and the rest of his STS-51D crew became STS-51G. The original 51G crew became STS-51I.

Several payload specialists were also moved to other flights, but George Abbey told Stevenson he did not have to worry and that he was going to remain with Engle's crew.

Stevenson was quite happy with this, as were his crewmates-to-be. In fact several may have been very happy indeed: one of the crew members was Dr Bill Fisher, an MD, who wanted to perform some minor surgery experiments in space. As Stevenson put it:

"None of his crewmates would ever consider being around Bill when he had a knife in his hand. I figured that as the first person born this century to fly, the least I could do was permit Bill his experimentation."

In the meantime, during a meeting on 1 April, Jim Beggs assured Admiral Mooney that he was indeed committed to flying a second Navy oceanographer on the shuttle. In a letter to Beggs, dated 7 May, Assistant Secretary of the Navy Melvyn Paisley wrote that he was pleased with this support, and after formally nominating Bob Stevenson for that flight he outlined the plans the Navy had after that mission:

"The oceanographic information obtained from 41G was especially important to the Navy. We learned from that flight that even though the astronauts are eager and good ocean observers, the expert eye of the oceanographer is the key to success in this area. Dr Robert Stevenson, Office of Naval Research, is our nominee on the next available mission. He is an expert oceanographer with the credentials to make another mission a similar success."

"It is clear we are in the early stages of space oceanography, which is providing us with important new insights about the complexity of the ocean. We have much to learn about the ocean from space. The next logical step might be to plan regular, periodic flights by civilian and uniformed Navy oceanographers aboard the shuttle and eventually become part of the space programme. In this way, the data gathered systematically from space could be used to improve our understanding of the complex structure of the ocean and, in turn, enhance naval operations. I was also pleased to hear you are willing to assist us in taking the necessary action to start such a programme."

But first of course, Stevenson would have to fly. He was to start training with the crew in May for an August launch. Because of his close ties with the astronauts he had already spent much time in the simulator with different crews. Abbey felt that all he needed to train for was doing his job and staying out of the commander's and pilot's ways. Of course, the former was no problem: after all, it was the stuff that for years now, he had been teaching the astronauts to do.

Although the original NEREUS concept now called for Scully-Power to act as backup, he would not. During



The STS-41G crew was the largest to fly in space up to that point. Standing (from the left are Paul Scully-Power, commander Bob Crippen and Canadian payload specialist Marc Garneau. Seated are, from the left, pilot Jon McBride, and mission specialists Sally Ride, Kathy Sullivan and Dave Leestma.

NASA

the year after his flight, he was occupied to a degree that would not allow him to undergo the necessary training. Stevenson would have to do it on his own.

Unfortunately, fate intervened again. Following its deployment from the payload bay of STS-51D, the Leasat-3 communications satellite malfunctioned and was left stranded in low Earth orbit. In mid-May, it was decided that a shuttle would go up, rendezvous with the satellite and try to repair it. Joe Engle's STS-51L was the mission that got the assignment [10]. All experiments were removed from the flight to make room for the extra fuel that would be needed for the rendezvous and the equipment necessary to repair the satellite. A sad result of this was that Stevenson also lost his place.

However, in mid-1985 NASA administrator Jim Beggs, who was a staunch supporter of the NEREUS programme, informed John Lehman and George Abbey that he thought STS-61C would be a good flight for Stevenson to be moved to. Again, nothing came of it. Political pressure put Congressman Bill Nelson forward for a seat on the space shuttle and on 4 October 1985 the latter was assigned to the flight [11]. Once again, it seemed as if Stevenson was left out with empty hands.

But later that month, while Stevenson was in Houston to brief the crews for missions 61A, 61B, 61C and 51L, he was approached by Dick Scobee, who asked him if he already had a new flight assignment. When Stevenson said that he had not, Scobee offered him to join the 51L

crew. He was told that he could teach Christa McAuliffe how to do Earth observations. As such, it would give her something exciting to do during the flight, also since her workload was not very full to begin with.

Technically, STS-51L was not the best type of mission Stevenson could ask for. Due to the low inclination of only 28.5°, not as much ocean as could be hoped for would be covered. But both STS-7 and STS-61C flew at that same inclination and the 51L crew members were all close friends and so, Stevenson was real happy with the offer and gladly accepted.

For some two weeks, he was an unofficial crew member of STS-51L, until he was bumped again, this time

Bob Stevenson near his house in southern California, October 1996.

BERT VIS



by Hughes payload specialist Greg Jarvis. Jarvis' crewing history had been somewhat similar to Stevenson's: he too had been removed from several missions to make way for people such as Jake Garn and Bill Nelson. Now, Hughes insisted on Jarvis occupying the extra seat if one was available. NASA gave in, which meant that Stevenson was once again without a crew [12].

On 4 December 1985, NEREUS lost one of its greatest supporters. NASA administrator Jim Beggs took an indefinite leave of absence [13], after being indicted for mis-appropriation of federal budget funds when he was working for General Dynamics. Although these charges turned out to be false and were dropped, with an official apology from the Justice Department to Beggs [14], he did not return to his post as administrator. Before he left NASA however, he had given instructions to make sure Stevenson would get his flight. George Abbey was told to get him on the first available and suitable mission.

### October 1986 Flight (STS-61K) for Stevenson

It was later in that same month, when Abbey was having a drink with Stevenson, that the latter said it seemed that in order to get on board the shuttle, he should plan so far ahead that no crew had yet been assigned. Abbey smiled and said that things were not that bad. In fact, he said, a new flight already had been picked and it was far better than 51L for Stevenson's work: STS-61K, which



On Challenger's mid-deck, Marc Garneau and Paul Scully-Power conduct one of the Canadian experiments carried out on STS-41G. Scully-Power assisted in several of these experiments when he was not busy with his own observations. NASA

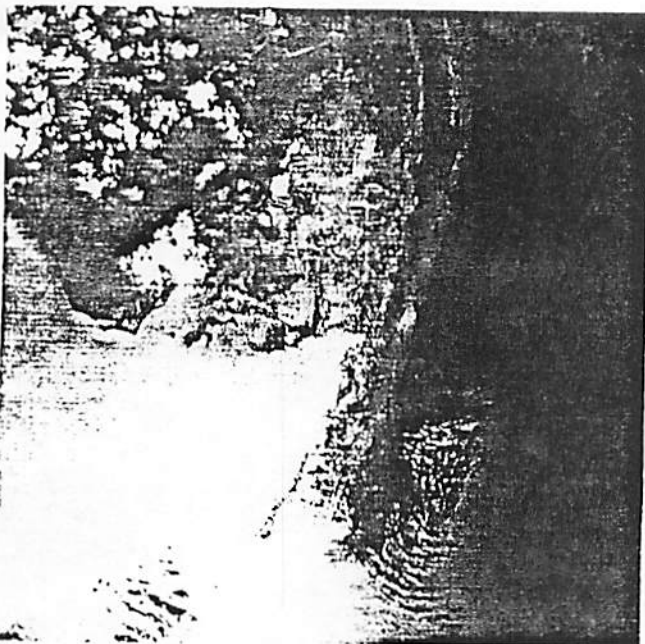
would have a 57° inclination, ideal for observing the Earth. All crew members were close friends of Stevenson's: commander would be Vance Brand, pilot Dave Griggs and mission specialists Bob Stewart, Claude Nicollier and Owen Garriott. Two payload specialists already had been assigned: Byron Lichtenberg and Mike Lampton. The mission would be a re-flight of the Earth observation part of STS-9/Spacelab-1. Abbey told Stevenson to talk to Brand and the other crew members the next day, to see how they felt about taking him along. As it turned out, the crew welcomed him with open arms and quickly decided to make Stevenson an

integral part of the crew, which would work around the clock in two teams. As by now, the hectic times were over for Scully-Power, he could and would act as backup.

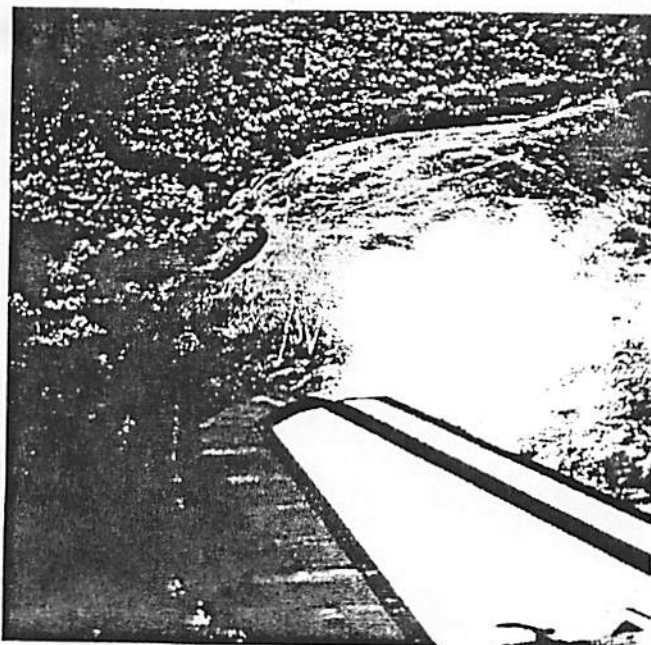
Stevenson's addition to the crew was met with great enthusiasm from all sides. Abbey informed NASA Headquarters, which in turn informed the Secretary of the Navy and the Chief of Naval Operations. Stevenson himself informed Admiral Mooney. The agreement was unanimous.

Of course, the 'lessons learned' during STS-41G would be put into practice by Stevenson. One of the biggest restrictions on Scully-Power's flight had been the impossibility to observe

The photo that started it all: Ed White shot this view of the Florida Keys during Gemini-IV in June 1965. NASA



An STS-77 view of the coast near Miami, Florida, shows dozens of ship wakes. This and other ocean phenomena were studied by Scully-Power on STS-41G and were to be observed by Stevenson on STS-61K. NASA



and to photograph interesting sites round the clock. Not only was it physically impossible for him to be on the flight deck all the time, but 41G also had designated sleep periods, and commander Bob Crippen had made sure they were kept. It did not necessarily mean the crew members had to be asleep, but those who were awake were not allowed to make any noise to prevent others from waking up. This made it impossible for Scully-Power to use cameras in those periods. Since they automatically advanced the film, they would have made far too much noise, especially in an otherwise totally quiet spacecraft.

It was also recommended by Scully-Power to fly a complete Hasselblad camera (including the full set of lenses) on the next mission, for exclusive use by Stevenson, as well as some 5-8 extra magazines of film, and several extra audio tapes for making notes [15].

Another thing was that after 41G, it was determined that it would be of importance to photograph a certain feature with as many cameras and types of film at the same time as possible. On STS-61K, which was an Earth observation mission in the first place, this could be accomplished. The European Space Agency (ESA) would be sending up a number of brand-new mapping cameras with 9x9 inch film and when Nicollier informed ESA that Stevenson had been assigned to the crew, they immediately offered to fly up to three times as much film so there would be enough to cover the ocean sites he would want to photograph. All in all, it promised to be a perfect mission. It was scheduled for launch in October 1986 and it would have had excellent lighting conditions for the entire duration of the flight. Many North Atlantic and North Pacific regions would have been photographed for the first time and with cameras of unprecedented quality. In addition, having had observers on the flight deck around the clock would have enabled the crew to view certain locations for the first time.

By then, the two oceanographers, George Abbey and Chief of the Astronaut Office John Young had agreed that after STS-61K, Stevenson and Scully-Power would fly once again, together, on a specially selected high inclination mission. After that flight they would give way to other Navy oceanographers, both civilian and military, although Scully-Power thought that he might want to fly a third time. So did Stevenson, but he had set an age limit of 70 for himself, stating that "I would probably give too many bureaucrats heart attacks if I insisted on flying."

The Navy also was expanding its

activities. In the second half of 1985, Admiral Mooney had established the Navy Manned Space Committee. This committee would co-ordinate the Navy's manned space flight efforts, and included among others the Chief of Navy Space Systems, the Chief of Navy Intelligence, the head of the Naval Research Laboratory, the Navy Oceanographic Command and both Stevenson and Scully-Power as chief advisors.

At the time, Stevenson already had his personal patch that he would be wearing on his flight suit. Several astronauts had suggested that both he and Scully-Power should think about having one and some even came up with suggestions on what it should include. Stevenson's depicted events, discoveries and interests from his career in the air force and as an oceanographer, showing the Viking god of thunder, Thor, launching the shuttle. Thor had been the symbol of the 368th Heavy Bomber Squadron, the US Army Air Force unit in which Stevenson had flown in 1944. In the sky, the constellation Lyrae was depicted, with its main star Vega, Stevenson's favourite when doing celestial navigation. A Zeppelin flying over a spiral eddy on the ocean's surface completed the design. Stevenson had discovered spiral eddies from photographs taken during manned space flights, and had promoted the use of airships as oceanic research vehicles.

Paul Scully-Power also had had his own patch design, although he did not get to wear it during his flight. Looking much like the STS-41G crew patch, it showed a kangaroo, symbolising his native country. There also was a NEREUS programme patch, showing the sea god Nereus rising up from the sea with a shuttle orbiter flying overhead. In addition to these patches, none of which flew in space, both oceanographers had name tags for their flight suits. The tags had wings in which the central circle depicted a trident, the symbol for Oceanographer of the Navy, on otherwise standard US Navy wings. Officially approved by the US Navy, it was the new emblem for 'Navy Space Oceanographer'. To date it has been issued only twice: to Stevenson and Scully-Power.

### NEREUS' End

In any case, in early January 1986 it seemed that Stevenson would finally get his chance. But it was not to be. On 28 January 1986, the space shuttle Challenger exploded during the launch of STS-51L, the very flight Stevenson had been removed from at the insistence of Hughes. All upcoming

missions were put on hold. The NEREUS programme also came to a stop at that time and when flights resumed on 29 September 1988, it was not picked up again: the STS-51L disaster had meant the end of the programme. It is interesting to note, by the way, that had Stevenson indeed flown in space, he would have been the first-born person ever to do so.

Not only were the chances to fly as payload specialist drastically limited with the return to flight but also debriefing opportunities with returned crews. Before 51L, Stevenson would happen to give a shuttle crew a last-minute briefing in the crew quarters at the Kennedy Space Center and would be waiting to debrief them almost immediately after landing. This was of course possible due to the close relationship he had with most, if not all of the astronauts. According to Stevenson:

"It was really useful to talk to the crews as soon as possible after they landed. It always amazed me how much they forgot of the details, feelings and nuances of the Earth after they had been back for a week or so".

After the Challenger accident however, NASA became more stringent than before and no one would be allowed into the crew quarters. Although Stevenson was at KSC for the launches of STS-26, -27 and -29, all briefings and debriefings had to take place at JSC in Houston.

With the possibility to fly a Navy oceanographer on the shuttle gone, the Navy's interest in space-based oceanography also began to wane. Nevertheless, for the 1987 astronaut selection, Admiral Mooney hand-picked three Navy oceanographers who were submitted as candidates, but none of them was selected. Remarkably though, another Navy oceanographer, Lt-Cdr Mario Runco, who had applied 'on his own', was selected in 1987. His wife, Lt-Cdr Susan Runco, who was an oceanographer herself, was assigned to take over the duties of the Navy's Ocean Science Advisor at JSC, Cdr Don Mautner. This assignment was primarily to support Stevenson and Scully-Power. After the Runco's retired from the Navy, no new Navy oceanographer was assigned to JSC. In the following years, when the cold-war threat disappeared, the Navy lost its interest in ocean observations from space altogether.

Both oceanographers also moved on in their careers. Some time after the Challenger accident, Paul Scully-Power was given other duties at the Naval Underwater Systems Center in New London, Connecticut, and was effectively out of the space business. In 1996 he left the US Navy and re-

turned to his native Australia. Bob Stevenson retired from the Office of Naval Research in April 1988 and took on the position of Secretary General of the International Association for the Physical Sciences of the Ocean (IAPSO), a position he still holds today. By that time, George Abbey was working at NASA Headquarters and although no more flights by oceanographers were planned for the future, he and the Astronaut Office felt it necessary to continue the oceanographic observations as had been done until then. Stevenson was given a contract by the Lockheed Engineering and Science Company which was responsible for the Shuttle Earth Observation Programme. Under this contract Stevenson and Scully-Power prepared a training manual for astronauts on oceanography from the shuttle [16]. In addition, Stevenson is still preparing shuttle crews to observe the oceans and conduct experiments as well as evaluating the films and observations made by the various crews.

### The 'Other Side'

Given the backing NEREUS got from NASA officials and the US Navy it is interesting to note what happened in the former Soviet Union. There, the Director of Space Oceanography of the Soviet Academy of Sciences, Dr Konstantin Fedorov, was basically doing the same work that Stevenson and Scully-Power were doing at JSC. But although Fedorov briefed each cosmonaut, there is no indication whatsoever that Fedorov got even a fraction of the support his two colleagues in the US were getting. Also, it seems Fedorov did not get the same enthusiastic response from the cosmonauts that the shuttle astronauts were giving Stevenson and Scully-Power. All in all, Fedorov only saw few of the photos the cosmonauts took from Salyut and Mir and reportedly, the ones he did get to see were not of the same quality as those made by the astronauts. Still, he was considered the Soviet expert on space oceanography until his death in October 1988.

Stevenson did meet Fedorov on a number of occasions and in a bizarre coincidence, after having known each other for some 30 years, found out they were second cousins: Stevenson's grandfather and Fedorov's grandmother were brother and sister!

In spite of the fact that there was little or no co-operation for Fedorov, an oceanographer reportedly tried to become a cosmonaut in the Soviet Academy of Sciences' group: 36-year old Ziyatdin Abuzyarov, of the Hydro-Meteorological Center of the USSR in Moscow. In July 1970, he passed the

medical commissions, no small feat to begin with. However, in the end, for unknown reasons he was not accepted by the GMVK [17] and was not included in the cosmonaut-detachment. In 1974, he was also removed from the reserve-list.

### Conclusion

It can only be guessed what the NEREUS programme would have evolved into, had Stevenson and Scully-Power flown on STS-7 or STS-8 and had the Challenger accident not happened. All in all, at the time, it was considered important enough to have at least three missions carried out and all delays could not prevent that right up to the Challenger disaster, NASA was trying to make seats available to the two men. Indeed, the results of Scully-Power's flight were extremely promising and both NASA and the US Navy were in favour of the programme. After the Challenger disaster however, the rules were changed and for the foreseeable future no new flight of an oceanographer payload specialist, either military or civilian, is to be expected.

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17. GMVK: State Interdepartmental Commission, the commission which makes the final selection of new cosmonauts.