

# Hangar Digest

VOLUME 3, ISSUE 3

JULY 2003

## From The Editor

**MARK YOUR CALENDARS** for the museum's "Grand Reopening", Saturday, August 16, 2003.

Yes, the wait is over. After almost two years of restricted access, you are welcomed to rejoin us at what again will become one of Delaware's most visited cultural tourist attractions. Much has been accomplished during your absence, we have missed you and we are looking forward to your return! For up-to-date information on the day's activities, please call (302) 677-5938 after the 4th of July .

It is time to elect five members to the AMC Museum Foundation's Board of Directors. The five can either be those who are currently serving on the board and whose term is due to expire, other nominations appearing on the ballot and persons nominated from the floor.

This year's election will be held at 10:00 AM Eastern Daylight Savings Time at the AMC Museum prior to the Foundation's monthly business meeting on September 3, 2003. All members are cordially invited to attend and remain for the business meeting following the election. Those unable to attend will find an absentee ballot on page eight. Your vote is important and the Board thanks you for your participation.

Harry E. Heist, **Editor**

## From the Director

Remember the good-news bad news jokes? Well we've had some good news over the past three months and the bad news is no joke. I'll start with the bad news first since we do have some potential solutions to our latest challenge. Due to the base's requirement to provide a large work area for a long term Air Force maintenance team, we were going to lose our restoration hangar. Up to this point we have always had an area within the maintenance complex to work on our aircraft and the proximity to the maintenance shops has made it easy for the base to provide us specialized assistance when we needed it. After some negotiations in which a workable compromise was attained we will share our hangar with the new maintenance team. It is not an ideal situation but it is a  
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## LOOKING BACK

MAC aircraft, as well as those from other commands, will soon sport a gray finish instead of aluminum. Gray paint is being made the standard finish because it doesn't soil as quickly, is easier to clean and is smoother than the present unfinished surface. Aircraft will get the new color as repainting is required.

Source: MAC aircrew Newsletter, November 1969

**Correction:** In April's issue, Medal of Honor recipient James P. Connor was incorrectly identified as James O'Connor. The editor apologizes for the error.

## **From the Director (Cont.)**

practical workaround for everyone. While we were working this challenge, we discovered that hangar 789 is indeed going to be torn down within the next several years to make room for a new building. The good news portion of this revelation is that Civil Engineering is actively working to find us a home for storage and restoration. We have a good chance of getting reasonable accommodations but it is unlikely we will receive another useable aircraft hangar.

The other not so good news is that the weather and various procedural problems have delayed starting the new road. We have been assured that those difficulties will be overcome and the road will be ready for our Grand Reopening. 95% of the perimeter fence has been installed, just waiting on the gates and the completion of the road.

The good news is that we have had the new aircraft parking pad installed and all the aircraft are now in their new parking spots. That is important as we are scheduled to take delivery of a C-130 Hercules this summer. The C-130 will fill a major gap in our tactical aircraft collection.

The World War II Troop Carrier reunion in April was a major success. We have heard nothing but good reviews from the attendees and we were able to record more than twenty oral histories.

We are consistently busy with new projects and old challenges so it never gets boring — and that's no joke.

## **Out and About by: Jim Leech**

Crusin' around the museum recently, I decided to spend the time visiting projects that are currently in progress and introduce you to some folks that are the driving force of The Air Mobility Command Museum.

Here we are at hangar 789, better known as our restoration facility. The KC-97 is parked outside the hangar and for the past year or so volunteers John Demory and Tom Davis have been hard at it putting the finishing touches on its restoration. They are in the process of outfitting the interior of the plane with the refueling tanks and repairing the insulation on the fuselage walls. As soon as the wash contractor on base can fit it in, the plane will go to the wash rack for an interior wash to clean the lower area of the plane before the rest of the fuel tanks can be installed. Then we'll tow it over to the museum and put it on display while minor work is accomplished.

Driving up to the museum, I see volunteer Chester "Smitty" Smith mowing the berms in Commemoration Park. Smitty is our resident landscape artist and his efforts are viewed by all who visit the museum. Weeds are his name, pulling them is his game.

Out on the pad, volunteer project coordinator Hank Baker and company are busy on the C-133. They are in the process of painting the white cap on the plane and preparing the gear pods for painting. Some of the work is quite strenuous and I see Joe Fournier is huffing and puffing as he watches Duffy grind away on the pod. Doc is up above working on the decals with shop specialists while Ed Barnes, Rich Goldey and others are working the electric and hydraulics inside the plane.

Inside the building Deborah Sellars, collection manager and graphics department supervisor, is busy in the graphics shop filling yet another of the many requests for decal/sign support. She's currently creating the Air Transport shield for the C-54 fuselage and at the same time, printing the 100th or so decal for the C-133 guys. I didn't know a plane had that many decals. Our director, Mike Leister, also keeps her print schedule quite full with jobs to do.

Speaking of Mike, he's on the phone again so I can't give you a good update on what he has going at this time.

John Taylor is at it again, or should I say still, unraveling yet another computer glitch that we all take turns providing for him.

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## **Out and About (Cont.)**

Bill Hardie has just about finished the museum store upgrade. He has installed slatwall display areas for the merchandise and has outfitted the store with a new checkout counter and display cabinet. The storage area has also been upgraded and the way it functions is quite breathtaking!

Rich Breckenridge, our active duty operative, is out in the hangar assisting a squadron in setting up for a retirement today. His duties take him anywhere he is needed in the norm of daily operations.

A peek into the archivist's office finds Harry Heist putting this episode of the newsletter together. He inquires of my article and I respond I'm in the process of completing it as we speak. He reminds me of the deadline. Yes Harry, it'll be ready by.....now!

Me. I'm preparing to once again reshuffle the planes outside and hopefully park them in a more permanent spot. I've played enough with the little cutout planes in my office and think I have the winning scenario with and for a winning team. Thanks all!

## **Meet Museum Volunteer Al Yerger**

Al is one of the museum's volunteer docents and he has also participated with the restoration of the C-133 Cargomaster. He has been with the museum since 1999.

He retired from the United States Navy in 1972 with the rank of Chief Petty Officer.

His active duty tours included assignments with the Naval Aviation Ordnance Test Station at Chincoteague, Virginia, the Patuxent River Naval Air Station, Maryland and with the Navy's Early Warning Mission flying the Atlantic Barrier air patrols.

In his free time he enjoys camping and fishing and is active with Saint Stephens Episcopal Church in Harrington, Delaware. He and his wife Arlene reside in Felton, Delaware and will celebrate their 53rd wedding anniversary in September.

Al is the contributing author in this issue with "An Early Warning Connection".



## **Early Warning and The Cold War**

The end of World War II brought with it the Cold War, a new threat to world peace. Nuclear arms technology advanced rapidly and fast long-range bombers were developed both in the Western countries and in the Soviet Union. It soon became apparent that the security of the North American continent depended on having the capability to detect a nuclear attack as far in advance as possible.

Beginning in the early 1950s the Pinetree Early Warning Line, the Mid-Canada Line and the Distance Early Warning (DEW) Line were constructed across Canada, Alaska and Greenland to give such a warning. They were supplemented by the U.S. Navy's Atlantic and Pacific Barrier air and sea patrols, additional radar sites in Iceland, the Faroe Islands, England and the Texas Towers off the east coast of the United States. Later as the threat of attack by ICBMs increased, the Ballistic Missile Early Warning System (BMEWS) was added with sites in Alaska, Greenland and England. In the late 1970s the AWACS aircraft came into USAF service.

For over fifty years thousands of air and ground personnel, both U.S. and Canadian, worked round the clock to insure that any threat to the North American continent would be detected. However, aging facilities, improved technology and the ever-diminishing threat of attack from the former Soviet countries, have resulted in the dismantlement of most of the older Early Warning systems. The Texas Towers had a short life when one of them collapsed in a storm in 1961 with the loss of the entire crew. The Navy's Atlantic and Pacific Barrier air patrols ended in 1965. Alaska's Communication System (White Alice) was sold to a private company in 1970 and the NARS System (North Atlantic Radio System) was shut down in 1992. The DEW Line, the centerpiece of the Early Warning effort, has been replaced by the North Warning System and the BMEWS has been upgraded to a new phase-array radar system. The AWACS aircraft continue in service with the United States, Saudi Arabia, NATO, France and the United Kingdom.

Source: <http://earlywarning.westgeorgia.org>

## An Early Warning Connection

The Personal Account of:

Chief Petty Officer Al Yerger, USN (Ret)

The bus came to a stop and we all rushed to get inside the warm dry bay of hangar #1. There was a cold damp rain falling from a very black night sky and the aircraft commander remarked that this was an awful night to go out on a flight. This was Argentina, Newfoundland and we were a Navy Early Warning Squadron with the task of protecting North America from surprise attack from over the North Pole. This was the era of the Cold War.

We quickly set about the task of preparing the sleek black Super Connie (WV-2) for a Barrier Flight, good flying weather or not.

We were a crew of thirty one. I was the electrician/cook. We had an aircraft commander, two co-pilots, one navigator, two combat information center (CIC) officers, one crew chief, three flight engineers, one electrician, two radio operators and three electronic technicians to service the radar and other electronic equipment. The remaining fifteen crewmembers were radar operators and plotters.

Having completed my preflight duties as crew electrician, I began stowing the foodstuffs that were delivered from the mess hall. Steak tonight! With everything in its place and all the preflight work completed and the paper work signed off, the Super Connie and crew were ready to go flying. Just as we were taking our places to prepare for the flight, the navigator remarked that it might be a long night and hoped we had enough coffee. I assured him we did as the number two engine came to life and we were under way. Another day at the office began.

As the aircraft commander and flight crew completed their preflight checklists, the Connie took its place at the end of the runway. Awaiting clearance to take the active, the rain continued to fall with the temperature hovering around freezing. Not a good sign for aviators. The clearance came and we took the runway and the takeoff roll began for what would prove to be a long night. The giant Connie performed well as usual and soon we were airborne and into the clouds, climbing to Barrier altitude.

We never did break out of the clouds that night. With our radar now in full operation we felt safe or safe as could be expected under these very difficult flying conditions. At level off I would make my rounds to check the operation of the onboard electrical equipment. I would usually start in the cockpit and move aft to the galley, the radar compartment and then on to the tail section. I checked the generators, alternators, flight instruments and the auto pilot. Joked a little with the flight engineer and then moved to the cabin rechecking the lights. Then to the navigator's station to check the compasses. Don't want to get lost tonight. Found the radio compartment OK and then on to the plotting board lights in the CIC center. I then checked the baggage compartments for smoke and loose gear. Then I moved aft to check the radar cooling fan. All was OK at this time. I then checked the engines and the leading edge of the wing with the aid of two flood lights installed in the fuselage. All was OK there also. No ice build up, no draining fluids. With all checks completed, I returned to the flight station and reported the aircraft was OK. This flight was only 30 minutes old so it was too early to cook. Nothing to do but take it easy for an hour or so if I'm lucky.

My luck ran out about thirty minutes later. The radar technicians came to me with the news that the APS 20 radar transmitter was overheating. Could I do anything to help? We made a few quick checks of the radar and as we checked the temperature was still rising. This big bird was of no use flying the Barrier that awful night if the radar had to be shut down. The cooling fan was checked about an hour before, during the preflight, and it was running smooth and cool. I suggested that the technicians contact the aircraft commander

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## **An Early Warning Connection (Cont.)**

and inform him of the trouble while I checked the fan in the aft baggage compartment. After gaining access to the compartment, I noticed the odor of hot insulation and in checking I found the fan to be running rough, slow and overheating. I quickly joined the technician and the aircraft commander on the flight deck. I suggested that we shut down the cooling fan for fear of a fire developing. The fan was shut down and the radar temperature began rising rapidly. We began to feel that this night might be a lot shorter than planned. Without our radar we were wasting our time. Going back to our base would have been great that night but it would have left a big hole in the radar picket line. We did not want to be the crew that caused this to happen. The technician and I suggested we go to maximum cooling on the aircraft air conditioning and see if this would keep the radar temperature cooler. The flight engineer went to max cooling and soon the temperature in the cabin dropped dramatically and the temperature on the APS 20 slowed but did not cease rising. The aircraft was equipped with personal air vent ducts. They provided additional cooling at the different stations throughout the aircraft. The technician and I decided that since the cabin was now running so cool we would disconnect these air vent and connect the output lines to the radar cooling ducts to see if there would be sufficient air flow to help keep the temperature under control. With this accomplished, we sat back to see the results. In a few minutes the temperature began to drop and the radar remained on.

We continued on for five or six hours. I fed the crew, cleaned the galley and the Barrier flight was starting to wind down. In thinking back over that night, it seemed so incredible that it was so cold outside and we were ready to abort a flight for an overheat.

Settling in for the ride home to Argentia, I noticed the sound of the engines was not right. The normal purr we all became used to was now starting to sound like a roar. The deck angle started to increase and the nose of the aircraft was going up! Time started to move slowly and the roar increased and so did the deck angle. I was called to the flight deck by the flight engineer. I was directed to check the outside of the aircraft. With the aid of the wing leading edge lights and the drift meter the engines could be seen from the inside of the aircraft. The lights were turned on and I was shocked to see spears of ice extending from the prop domes (spinners). Ice was collecting on the forward engine cowlings to the point that the props were knocking it loose. With the aid of the drift meter, I could see that the belly radome was covered with ice. We were encased in a large block of ice! Now the big question, can the airplane develop enough power and keep it long enough for us to reach our base? At METO power (highest power maintained continuously) the base lights came into view. I think we were all saying — Come on Super Connie, keep us in the air until we reach home. Moments seemed like hours as the flight crew struggled to keep us flying. The base was now in clear view. It sure looked good! Now could the airplane be controlled so as to make a safe landing? We were about to find out as we were cleared for a straight-in approach. With all hands strapped in, we waited for that squeal of rubber on the runway. Suddenly it was over. We were cleared to the hangar and after engine shutdown we quickly departed the aircraft. The hangar crew roped off the area to avoid injury from falling ice.

Chief Petty Officer Yerger was assigned to the Airborne Early Warning Squadron WV-2 at Patuxent River Naval Air Station, Maryland and was on temporary duty at Argentia, Newfoundland.

## **The Super Constellation**

The C-121 “Super Connie” had a very unique shape to it — wings with a definite sweep, four 3,400 hp. engines, a lengthened fuselage and a three fin tail. This “Super” version of the Connie had many variants signifying its widely diverse missions. These missions included the transportation of troops and cargo, as well as serving President Eisenhower as Air Force One, “Columbine III”. It also saw duty as a radar-picket aircraft, early airborne warning, submarine hunter and as an airborne relay station. The C-121s were often rebuilt and modified, so an airplane built in the early 1950s might in fact be “newer” than one built ten years later!

## Airlifts Remembered: Operation Helping Hand

**THE BACKGROUND:** At 5:36 p.m. on Good Friday, March 27, 1964, the twentieth century's most intensive earthquake to hit North America struck South Central Alaska leaving 131 dead and damages estimated between \$400 and \$500 million. Registering 9.2 on the Richter Scale the quake produced a seismic sea wave (tsunami) felt as far away as Japan, Hawaii and California. The initial earthquake and a long series of aftershocks left Anchorage in ruins and destroyed large sections of Seward, Valdez, Whittier, Cordova, Kodiak and Kenai. Following the governor's emergency proclamation, President Lyndon B. Johnson declared Alaska a major disaster area. Within hours of the first tremor, the U.S. military launched Operation Helping Hand, a joint military and civilian effort unparalleled in Alaskan if not in our nation's history.

**THE AIRLIFT:** As fast as communications were reestablished between the military installations, Civil Defense Headquarters and the devastated communities of South Central Alaska, calls began pouring into the Command Post of the Alaskan Command. Immediately the Alaskan Air Command alerted the Air Force Logistic Command requesting that they respond to the supply requirements without delay. In turn the Military Air Transport Service (MATS) was notified and transport aircraft, located throughout the United States, were alerted to airlift emergency supplies to Alaska.

Twelve types of aircraft participated in the airlift including C-124 Globemasters, C-133 Cargomasters, C-97 Stratofreighters, C-123 Providers, C-135 Stratolifters and C-119 Flying Boxcars operating from terminals as near as McChord AFB, Washington and as far away as Dover AFB, Delaware. Most of the cargo was discharged at Elmendorf AFB outside of Anchorage or at Eielson AFB near Fairbanks; however, several missions proceeded to bases in the Aleutian Islands.

Under the direction of the Alaskan Command, all the forces teamed up to complete many jobs. Military airlift arrived with vital cargo ranging from field kitchens and food for the hungry, purification units to provide potable water, toys for displaced children and gifts from throughout the United States. Perhaps the most outstanding single operation of the airlift was a combined MATS-Alaskan Air Command-Alaska National Guard mission that involved the airlift of a 520,000 pound Bailey Bridge\* from Elmendorf to the Soldotna-Kenai area on the Kenai Peninsula. The Army Engineers, having trucked the bridge in sections from Anchorage to Elmendorf, loaded it onto a MATS C-124, several Alaskan Air Command C-123s and two C-119s. Sixty sorties, over a period of five days, were required to move the bridge. The bridge's largest single payload of 45,630 pounds was airlifted by a C-124.



**Corner of Fourth Ave. & C St., Anchorage**

During the operation's 21 day duration, over 3,700,000 pounds of cargo were airlifted. MATS broke its disaster relief record by moving more than 2,750,000 pounds of supplies and accumulated more than 1,300 flying hours. By the end of April, Anchorage and the other devastated communities had begun to recover and required limited assistance.

**AN ACCOUNT BY THE EDITOR:** On Easter Sunday Dover AFB launched its first two C-124 missions in support of Operation Helping Hand; more Dover missions would follow over the airlift's 21 day duration. Our crew departed Dover on April 15th and proceeded to McGuire AFB to on-load vans and electric generators. From McGuire, with several stops en-route, our destination was McChord AFB, Washington. Following our crew rest we flew on to Elmendorf AFB. Considering the considerable damage to the structures nearby, the landing and taxi-in at Elmendorf were uneventful as the runway sustained little or no damaged.

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## Airlifts Remembered (Cont.)

The tower was a total loss and a mobile unit was being used for air traffic control. Hangar walls were cracked, warehouses were buckled with their roofs collapsed and the eight story USAF hospital had received considerable damage.

Having had a few extra hours added to our crew rest, before we were to proceed out the Aleutian Chain to the Naval Air Station at Adak and further on to Shemya Island, we had the chance to see the devastation first hand. I recall that Ship Creek, near the gate at Elmendorf, was teeming with salmon not oblivious to their disruptive surroundings. In Anchorage, homes, automobiles, movie theatres and department stores disappeared into holes thirty or more feet deep. Literally, the bottom had dropped out of the city. Needless to say an awesome sight to behold!

Earthquakes are a daily occurrence in Alaska. As of this writing an earthquake of Richter Magnitude 3.20 was recorded 24 miles East of Anchorage at a depth of 15 miles.

\*The Bailey Bridge is pre-engineered and built on site with ready-to-assemble pre-fabricated components.

Sources: *U.S. Geological Survey*; Haulman, Daniel., *Humanitarian Airlift Operations*; Alaskan Air Command Publication: *Operation Helping Hand*; *The Bailey System*; Heist, Harry, *memoirs*.

## The Hall of Heroes

On February 24, 1969, Airman First Class John L. Levitow was assigned duty as a loadmaster aboard an AC-47 "Spooky" gunship flying a night mission in support of Long Binh Army Post in South Vietnam when his aircraft was struck by a hostile mortar round. The resulting explosion ripped a hole two feet in diameter through the wing along with more than 3,500 holes in the fuselage. All occupants in the cargo compartment were wounded and slammed against the floor and fuselage. The explosion ripped an activated flare from the grasp of a crewmember who had been launching flares to provide illumination for Army ground troops engaged in combat. Airman Levitow, though stunned by the concussion of the blast and suffering over 40 fragment wounds in his back and legs, staggered to his feet and turned to assist the man nearest to him who had been knocked down and bleeding heavily. As he was moving his wounded comrade forward and away from the opened cargo compartment door, he saw the smoking flare ahead of him in the aisle. Realizing the danger involved and completely disregarding his own wounds, Airman Levitow started toward the burning flare. The aircraft was partially out of control and the flare was rolling wildly from side to side. Airmen Levitow struggled forward despite the loss of blood from his many wounds and the partial loss of feeling in his right leg. Unable to grasp the rolling flare with his hands, he threw himself bodily upon the burning flare. Hugging the deadly device to his body, he dragged himself back to the rear of the aircraft and hurled the flare through the open cargo door. At that instant the flare separated and ignited in the air but clear of the aircraft. Airman Levitow, by his selfless actions, saved the aircraft and its entire crew from certain death. For his heroism he received the Congressional Medal of Honor from President Richard M. Nixon on May 14, 1970.



John Levitow was a regular visitor to Dover AFB and to the museum. On several occasions he was guest speaker at the graduation ceremonies for the Airman Leadership School. He was the Airlift/Tanker Association's "Hall of Fame" inductee for 1998 and a C-17 Globemaster III was named for him on January 23, 1998, "*The Spirit of John L. Levitow*". He passed away at his home in Connecticut on November 8, 2000.

Sources: *USAF Southeast Asia Monograph Series, Vol. VII, Mono. 9*; *Air Force News Service*; *Airlift/Tanker Assoc.*

NOTICE OF THE MEETING OF:  
THE AMC MUSEUM'S BOARD OF DIRECTORS

Members of the Air Mobility Command Museum are cordially invited to attend the Museum's Foundation Meeting for the purpose of electing five (5) members to the Board of Directors. The meeting will be held at the AMC Museum, 1301 Heritage Road, Dover Air Force Base, Delaware on Wednesday, September 3, 2003 at 10:00 a.m. Eastern Daylight Savings Time.

The following persons have been nominated:

- Mr. LeRoy Klein\*
- Lt Col Phil White, USAF (Ret)\*
- Ms. Mary Skelton\*
- Col Emmett Venett Jr., USAFR (Ret)\*
- Mr. Richard Caldwell<sup>1</sup>
- Col Robert Welsh, USAFR (Ret) <sup>2</sup>
- \_\_\_\_\_
- \_\_\_\_\_

\*Denotes Incumbent.

<sup>1</sup> Richard Caldwell is the AMC Museum's Educator. He is responsible for designing tour packages for school groups, works on various research projects and is instrumental in the design and construction of exhibits. He doubles as a tour guide and guest speaker for various service organizations. He is a former Delaware Assistant Secretary of State and was Director of Teacher Training at Delaware State College. He has served on Kent County Delaware's Committee on Drug Abuse and the Kent County Development Planning Committee. He is an Army veteran of the Korean War.

<sup>2</sup> Robert Welsh entered the Air Force in 1967 through the Reserve Officer Training Corps. A command pilot, he has over 5,000 flying hours in both tactical fighters and strategic airlift aircraft. As an F-4 Phantom pilot he flew 144 combat missions over Laos and North Vietnam during the Southeast Asia conflict. He served as the 512<sup>th</sup> Airlift Wing's Deputy Commander for Operations, Support Group Commander and the Logistics Group Commander. He retired from active duty in April 2002. He currently serves on the City Council of Dover, Delaware.

If you desire to write-in your nomination you may do so; however, nominees must be members (Friends) of the AMC Museum. Board members must be available to attend the monthly business meeting and serve on such committees as designated by the Board's President. Those elected will serve a term of three years. **(Select no more than five of the nominees).**

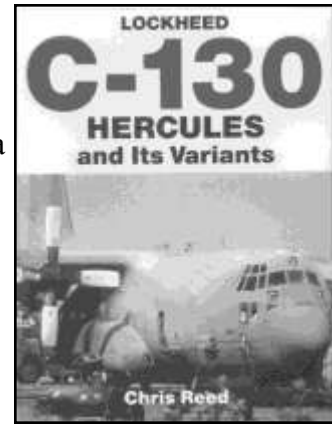
You may cast your vote by: US Postal Service – AMC Museum Foundation, P.O. Box 02050 Dover AFB, DE 19902-2050; e-mail [harry.heist@dover.af.mil](mailto:harry.heist@dover.af.mil); FAX (302) 677-5940 or by your presence at the meeting. Absentee votes must be received prior to August 29, 2003. The Board thanks you for your participation.

(signed)  
Lt Col Phil White, USAF (Ret.)  
Secretary  
June 4, 2003

## **Recommended Reading: Lockheed C-130 Hercules**

“Lockheed C-130 Hercules and Its Variants”, by Chris Reed, chronicles the development and career of the world’s predominant military airlifter, from its origins in the depths of the Cold War through the present day. Over 170 photographs, many never before published, show the “Herk” in a variety of roles and paint schemes. Coverage includes gunships, electronic warfare and reconnaissance models, testbed and special use aircraft and NAVY models. Close-up detail photos of several variants will be of interest to the scale modeler.

This book is available from the museum’s gift shop and can be purchased for \$33.00 including shipping and handling, payable by check, VISA or MasterCard.



Please call (302)677-5992 or e-mail: [william.hardie@dover.af.mil](mailto:william.hardie@dover.af.mil) to place your order.

## **Artifact Facts by: Deborah Sellars**

The small, green, plastic individual tropical survival kit pictured is only 4¾” by 3¼” by 1¾” high; however, inside it is packed with everything a downed airman needs to stay safe, healthy and alive.

On top is a list of instructions; for example: “be alert” and “insect repellent applied to fiber makes good tinder.” Under that is a booklet of blank paper, a pencil and the following:

- plastic food sample bag
- bandaids
- aspirin
- mosquito headnet and mittens
- compass
- surgical razor
- elastic gauze bandage and tape
- insect repellent
- anti-malaria tablets
- antiseptic solution
- 16” -long flexible saw
- matches
- anti-diarrhea tablets
- water purification tablets

Once you’ve opened one of these kits you may as well use everything in it as you’ll never get it repacked correctly and the lid closed.



## **Join In The Fun**

Now that the access to the museum will no longer be an issue and thousands of visitors are expected, we are looking for dedicated men and women to become volunteers. If you have the time to spend a few hours a week to help out in our restoration facility, commemoration park, gift shop, working as a docent or a member of our clean-up crew we would be pleased to welcome you aboard.

Pictured is MSgt Rich Breckenridge, our chief of restoration, washing down the C-47. One of the many necessary jobs here at the museum. Don’t worry if heights are a problem, we will keep you on the ground.



## “Name the Plane”

The airplane that I asked you to identify in the last issue of the Hangar Digest is the Lockheed Martin C-130J “Hercules”.

The C-130J is the latest addition to the C-130 fleet. It incorporates state-of-the-art technology in reducing manpower requirements and lower operating and support costs over the earlier C-130 models. Compared to older C-130s, the J model climbs faster, flies further at a higher cruise speed and takes off and lands in a shorter distance. A stretch version, the C-30J-30, adds 15 feet to the fuselage thus increasing its usable cargo compartment space.



The C-130J is crewed by two pilots and a loadmaster. The new glass cockpit features multifunctional liquid crystal displays for flight control and navigation systems, dual mission computers operate and monitor the aircraft systems. The cockpit is fitted with low-power color radar, a digital moving map display and dual inertial and global positioning systems. New turboprop engines with **six bladed** all composite propellers along with an automatic thrust control system optimizes the balance of power on the engines allowing lower values of minimum control speeds and superior short-airfield performance.

This must have been a toughie as few readers submitted an entry and not all of them correctly identified the aircraft as the C-130J. Our randomly selected winner of the “Name the Plane” contest is Mr. Bruce Keyser of Dover, Delaware and he will receive the book “Lockheed C-130 Hercules and Its Variants”. Congratulations!

This time I ask you to identify the airplane depicted below to include the manufacturer, mission, design and series (if applicable); i.e., Boeing B-17G. Please send your entry either by letter, e-mail, fax or post card to any of the addresses listed on the last page. **Please do not leave your entry by phone.** I will designate each correct response with a number ID from which I will randomly select one winner. Please send your entry as soon as possible and please include a return address. The winner will receive a book selection from the museum’s gift shop. Good luck and thank you for your participation!

(Museum staff and volunteers are not eligible)



## Around the Bases: Grand Forks AFB, North Dakota

Grand Forks Air Force Base is located near the North Dakota-Minnesota border approximately 75 miles north of Fargo and 145 miles south of Winnipeg, Manitoba, Canada and is the home of the **319th Air Refueling Wing (Air Mobility Command)**.

During the early 1950s, the Air Force announced plans to build an Air Defense Command (ADC) fighter-interceptor base in eastern North Dakota and in 1954 Grand Forks was chosen as the site for this new installation. Contractors began construction of the base with grubbing operations for a 12,350-foot runway in February 1956. During that same month, the Air Force announced it would build up Grand Forks in order to support Strategic Air Command (SAC) bombers and tankers as well as the ADC fighter-interceptors.



In February 1957 ADC activated the 478th Fighter Group at Grand Forks. This organization served as the host unit for a fighter-interceptor squadron, an air defense sector operation and the SAC units. In December 1957 the Air Force activated the Grand Forks Air Defense Sector of the North American Air Defense Command (NORAD). The sector became operational with the semi-automatic ground environment (SAGE) system in December 1959. The Grand Forks Air Defense Sector covered the air space of three US states and one Canadian province. In the meantime SAC activated the 4133rd Strategic Wing (Provisional) as a tenant unit in September 1958.

In 1960 the Air Force stationed the first flying units at Grand Forks AFB and SAC organized the 905th Air Refueling Squadron (ARS) there in February. The 905th ARS acquired its first KC-135A Stratotanker on 6 May 1960. Earlier that same week, on 1 May, ADC transferred the 18th Fighter-Interceptor Squadron (FIS) and its F-101B Voodoos from Wurtsmith AFB, Michigan to Grand Forks. On 28 December ADC activated the 478th Fighter Wing, replacing the 478th Fighter Group and placing the operations of the 18th FIS under its control.

On 1 January 1962 SAC transferred the 30th Bombardment Squadron (BMS) from Homestead AFB, Florida to Grand Forks and assigned it to the 4133rd Strategic Wing. The 30th BMS acquired its first B-52H Stratofortress on 29 April 1962.

On 1 February 1963 SAC organized the 319th Bombardment Wing (BMW) at Grand Forks. The 319th BMW replaced the deactivated 4133rd Strategic Wing. SAC assigned the 905th ARS and the newly organized 46th Bombardment Squadron, equipped with the B-52H bombers, to the 319th BMW. The 30th Bombardment Squadron was deactivated that same day and ADC turned command and control of Grand Forks AFB over to SAC. The Air Force also deactivated the Grand Forks Air Defense Sector and the 478th Fighter Wing in 1963. The 18th FIS continued to operate from the base and for a short time (July 1963-October 1964) the 319th took over responsibilities as the host unit.

Numerous organizational changes occurred at Grand Forks in 1964. SAC activated the 804th Combat Support Group to assume duties as the host unit and stationed the 4th Air Division (later, Strategic Aerospace Division) there in September. Two months later SAC organized the 321st Strategic Missile Wing (SMW) and construction began on a Minuteman II missile complex. The 321st SMW became operational in December 1966.

From 1963 to 1974, during the war in Southeast Asia, the 319th BMW's mission expanded to include sending bomber and tanker aircrews on temporary duty assignments in support of B-52 and KC-135 operations. Tanker crews participated in refueling operations for both bombers and fighters. The bomber crews flew their B-52s from bases in Guam, Okinawa and Thailand. Bomber crews participated in Operation ARC LIGHT in 1968 and Operations LINEBACKER I and II in 1972.

**(Continued on the following page)**

## **Around the Bases: Grand Forks AFB, North Dakota (Cont.)**

Grand Forks experienced several major changes during 1971 to 1973. ADC deactivated the 18th FIS in April 1971 and in its place stationed the 460th FIS there with its F-106 Delta Darts. Meanwhile SAC transferred the 4th Strategic Aerospace Division to Francis E. Warren AFB, Wyoming in June 1971. SAC then tasked the 321st SMW to assume duties as the base host unit. During this period construction began to upgrade to the Minuteman III missiles and that project was completed in March 1973.

As the activities in Southeast Asia decreased, the 319th BMW focused its full efforts on training its crews to fly strategic strike missions. The wing continued its record of outstanding performance, being selected as the best unit in SAC and receiving the Riverside and Omaha Trophies in 1978. The wing also earned the Dougherty SRAM Trophy during the SAC Bombing and Navigation Competition in 1978, Mathis Trophy in 1980 and Bartsch Trophy in 1982. In addition, the 319th BMW received the Air Force Outstanding Unit Award for its performance during 1977 to 1979.

The 319th had the mission of providing massive firepower anywhere in the world on very short notice. In a demonstration of this capability, the wing flew four B-52s on a 31 hour mission to deliver conventional bombs on a simulated runway target in Egypt during Exercise Bright Star in 1981. Excellent navigation and precision bombing made the 15,000 mile flight, the longest non-stop B-52 bombing mission in SAC history, a complete success.

In 1987 the 319th BMW converted to the Rockwell B-1B Lancer and to the Boeing KC-135R Stratotanker and in 1988, SAC stationed the 42nd Air Division at Grand Forks designating it the host support unit, replacing the 321st SMW. Meanwhile in 1989, the wing deployed both the B-1s and the KC-135s to Mountain Home AFB, Idaho to test the wing's capability in operating from a forward location and in December, the wing's KC-135Rs flew air refueling missions in support of the US forces invasion of Panama during Operation JUST CAUSE. The tankers also provided air-to-air refueling during the deployment of US forces to the Middle East during Operation DESERT SHIELD in 1990, followed by Operation DESERT STORM in 1991.

In 1991 SAC again made significant organizational changes at Grand Forks. It deactivated the 42nd Air Division in July, appointing the 319th BMW as the host unit. Additionally, SAC redesignated the 319th Bombardment Wing as the 319th Wing and the 321st Strategic Missile Wing as the 321st Missile Wing in September.

On 1 June 1992 the Air Force deactivated SAC and Grand Forks AFB was reassigned to the newly established Air Combat Command (ACC). The 319th Wing was redesignated the 319th Bomb Wing. The KC-135R tankers were reassigned to the 305th Air Refueling Wing, Air Mobility Command (AMC) at Grissom AFB, Indiana while remaining physically stationed at Grand Forks. The 905th ARS, also physically remaining at Grand Forks, would be further reassigned to the 43rd Air Refueling Wing at Malstrom AFB, Montana on 1 July 1993.

As part of the restructuring process, the Air Force reassigned the 321st Missile Wing from ACC to the Air Force Space Command in July 1993 with further designation as the 321st Missile Group. Meanwhile, in October, the 319th Bomb Wing was redesignated the 319th Air Refueling Wing (ARW) and was assigned to AMC. At the same time the 905th ARS was reassigned to the 319th ARW and the 46th Bomb Squadron joined the newly activated 319th Bomb Group, an ACC unit. Completing the restructuring of Grand Forks, the 906th, 911th and 912th Air Refueling Squadrons were assigned to the 319th ARW in 1994.

Ending an era of over 30 years of heavy bomber operations at Grand Forks, the last B-1B Lancer departed the base in May 1994 and the Air Combat Command deactivated the 319th Bomb Group in July. And, in 1998, the Air Force would remove the Minuteman III missiles from Grand Forks and deactivate the 321st Missile Group. All missiles were moved to other locations and the silos were placed in caretaker status.

**(Continued on the following page)**

## **Around the Bases: Grand Forks AFB, North Dakota (Cont.)**

Following the wing's restructuring in 1994, the 319th ARW deployed their KC-135Rs to Turkey in support of Operation PROVIDE COMFORT, Operation SOUTHERN WATCH and VIGILANT WARRIOR in Saudi Arabia, Operation DENY FLIGHT in Italy, Operation UPHOLD DEMOCRACY in Haiti and Operation CONSTANT VIGIL in Panama.

The 319th continued its vital role in the Air Force's "Global Reach, Global Power" mission. In early 1996 the 319th Services Squadron deployed to Guantanamo Bay, Cuba providing humanitarian assistance for Haitian immigrants fleeing political strife in their country. In March 1996 members of the 319th deployed to Istres, France in support of Operation DECISIVE ENDEAVOR in order to monitor flying in the airspace over Bosnia-Herzegovina and the second half of 1996 was just as busy with deployments to Qatar, Saudi Arabia and Rwanda.

Numerous tasking by the 319th ARW continued throughout 1997. The wing deployed to England in support of the European Tanker Task Force and to Saudi Arabia to support the Southwest Asia Tanker Task Force. However, the most memorable event occurred during the winter of 1996-97 when a record number of blizzards dumped record amounts of snow on Grand Forks AFB and the surrounding communities culminating in the spring with the worst flood on record for the region. Members of the 319th ARW were instrumental in protecting the city and sheltering victims against the rising waters.

Two major deployments occurred during 1998, one to the Persian Gulf in support of a force build-up in response to the Iraqi aggression and the other to various sites in Europe in support of the NATO forces in Kosovo defending against the Serbian aggression. Both operations, DESERT FOX and ALLIED FORCE, continued into 1999.

A \$9 million renovation of the Grand Forks AFB runway forced the 319th ARW to relocate their operations to MacDill AFB, Florida from June to August 2000. The men and women of the 319th did this while successfully maintaining a steady flying and training schedule and continued to support Operations NORTHERN and SOUTHERN WATCH.

Following the tragic events of 11 September 2001, the 319th again stood up with a quick reaction alert force in support of homeland defense. Today the men and women of the 319th Air Refueling Wing are committed in support of Operation ENDURING FREEDOM, the mission aimed at finding and eliminating the terrorist organizations involved in those September 11th attacks.

Source: <http://grandforks.af.mil>

## **The KC-135R Stratotanker**

The Air Mobility Command manages a total inventory of 546 C-135 Stratotankers, of which the Air Force Reserve and Air National Guard fly 292 of those in support of AMC's mission.

Of the original KC-135As, more than 400 have been modified with new CFM-56 turbofan engines produced by CFM-International. The re-engined tanker, designated the KC-135R can offload 50 percent more fuel, is 25 percent more fuel efficient, costs 25 percent less to operate and is 96 percent quieter than the KC-135A.

Source: <http://www.af.mil/news/factsheets/KC-135>



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