



## AAFAM Board Member CMSgt (Ret) Kenderes Recognized



*Gen Lord, Chief Kenderes and LtGen Kelley*

## AAFAM Board Member Inducted into AF Enlisted Heritage Hall - *by Air*

*Force Space Command Public Affairs*

Air Force Space Command and the Enlisted Heritage Hall at Maxwell AFB Gunter Annex in Montgomery AL, recognized for the first time the contributions of an enlisted person who devoted his entire working life, both in uniform and as a civilian, to the readiness of the ICBM force, in a ceremony August 31.

Retired Chief Master Sergeant Michael Kenderes, who currently resides in Santa Maria, CA, was recognized at a luncheon for his career contributions, which span the early days of the Titan I Intercontinental Ballistic Missile system through the Minuteman ICBM to the Peacekeeper. During this time Chief Kenderes led, trained, and positively influenced hundreds of Airmen and NCOs, gave valuable guidance to scores of officers, identified dozens of technical improvements to the weapon systems, and spent countless hours in the field himself, maintaining the strategic alert posture of missile forces.

Following his retirement from active duty in 1985, after 25 years of service in missiles, Chief Kenderes spent a further 13 years working as an Aerospace Field Engineer for GTE Corporation, supporting the Air Force in the deployment of the Peacekeeper system and in the implementation of the Rapid Execution and Combat Targeting modification for the Airborne Launch Control System and ground operations.

He will be featured in the Cold War exhibit at the Air Force Enlisted Heritage Hall.

The United States Air Force’s Enlisted Heritage Hall offers visitors a unique glimpse at our country’s rich history of military aviation. The mission of the Enlisted Heritage Hall is to preserve the rich and dramatic heritage and tradition of the enlisted corps of the U.S. Air Force and its predecessors in the development of air power to defend the United States. (Also see story on page 8)

### The Mission of the Association of Air Force Missileers -

- Preserving the Heritage of Air Force Missiles and the people involved with them
- Recognizing Outstanding Missileers
- Encouraging Meetings and Reunions
- Keeping Missileers Informed
- Providing a Central Point of Contact for Missileers

## A Word from the Association

**2004 Member Directory** - the recent member Directory, a 58 page document, was provided by e-mail to over 1300 of our members and by printed hard copy by mail to the other 500. The e-mail copy costs us nothing, but the printed copy was over \$6 including mailing. For that reason, in the future, we will continue to provide the e-mail copy or a CD-ROM copy free, but will have to ask for donation for members who want a hard copy. We can do an electronic edition more often - will go to a two year cycle for that version.

**Our Web Page** - Life member Nick Casale has done a superb job redesigning and maintaining our web page, including the addition of a "shopping cart" for easier ordering of AAFM logo items and documents.

**Dues Notices** - We recently sent many of you notices after you had renewed Sorry for the repeat notices - we have improved the way I provide the latest database to Kevin Mortensen, who mails the notices.

**DVDs** - many of you have asked for copies of the DVDs we have available for a donation. A few of you have had problems because of the paper labels - if you can't view your DVD, let AAFM know - we now make them without the labels. If you have videos (competitions, training videos, etc that we should have in our collection, send me the tape or disk and I will add them and return your original.

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Association of Air Force Missileers

PO Box 5693, Breckenridge, CO 80424

aafm@afmissileers.org www.afmissileers.org 970-453-0500

**Computer Crashes** - early this month, both the primary and backup AAFM computers crashed - luckily I back up everything several ways - but I may have lost a few e-mail addresses. If you aren't getting our e-mail updates, send me your address so I can get it back on the list. we send the monthly updates to over 1500 members, because it offers a superb, free way to keep you informed.

## Letters to the Association

*Address your letters to AAFM, Box 5693, Breckenridge, CO 80424, or send by e-mail to aafm@afmissileers.org. Letters may be edited to fit - content/meaning will not be changed.*

**Remembering Col Andrus** - The passing of Col (Ret) Burton C. Andrus brought back a flood of memories for me. Col Andrus was my first wing commander in the 341SMW in 1962, and what a colorful character he was! For example, he was the only wing commander I knew who had a license to drive a Minuteman Transporter-Erector. During the Cuban Missile Crisis of October 1962 he would patrol around the missile maintenance hanger at Malmstrom AFB in a blue flight suit, telling us scared-to-death young troops that "Khrushchev knew we were after his ass!" What an inspiration! I will never forget him. *Joe Andrew MbrNo A0476, Suffolk, VA*

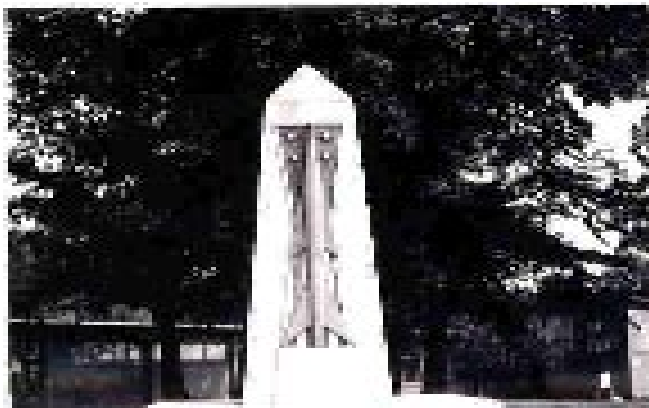
**Bitburg Missile Monument** - One of my German contacts sent me information about the Bitburg Missile Badge Monument that disappeared a few years ago. There is a security training center in an area that sounds to me like a former AB. Electronic security devices, areal of 30 ha, lots of hangars and no chance to look inside from outside. They advertise that they have 6 km of paved roads for driving practice and even more for off road. This village is near Kastellaun. A photo of the granite part of the monument is shown here - the missile badge and plaques are missing - will let you know if we find more. *George Kovach, MbrNo A1749, Sterling, VA*



*The monument today*

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## Letters (Continued from Page 2)



*The monument at Bitburg*

*For those who remember, the monument pictured above was placed at Bitburg by the Matador folks, and it disappeared during the closing activities at Bitburg. AAFM has tried to track down the monument for several years.*

**490MS** - The 490th Heritage Dinner went off without a hitch. To those who came we thank you for allowing us to host you at such a great event. To those who could not make it, we look forward at hosting you next year at an even bigger event, the 490th Joint Bomber-Missile Squadron Reunion. We hope to have a representative of every era of the squadron on hand. We are looking at June as the most likely date for the Reunion. Thank you everyone for your contributions, past and present. *1Lt Benjamin Bourcy, 490th Missile Squadron, Malmstrom AFB, MT*

**Hound Dog Restoration** - A friend and me, in association with the soon to be chartered AMMS Squadrons Association, have taken on the delightful project of restoring an AGM-28 with the serial number 001 to its former pristine and worthwhile beauty. We as missileers would like to invite our brotherhood to share in the glory of this project. Next week we are headed for NY to see if a missile that is in storage there, with no thoughts of restoration or display, will provide us with the parts to restore 001 "SNOOPY" to it's former beauty. We will also be stopping in Pa to pick up a starter found on Ebay and will become part of the restoration project. I will be snapping some photos as we go and will keep in mind that you may want some for an article. *Homer Warner, MbrNo A2360, Falls Church, VA*

*AAFM funded an Hound Dog project at the South Dakota museum last year - we are glad to see another in work.*

## Atlas Display Honored

The Oklahoma Museums Association recently announced the winners of its 2004 Annual Awards Program. In the category of "Outstanding Interpretive Exhibition," the Museum of the Western Prairie won for its latest permanent display, "Atlas: First Generation ICBM." The exhibit chronicles the history of the Atlas missile installations that were active in Southwest Oklahoma during the 1960's.

AAFM Member Samuel Jones, who lives in Stone Mountain, GA, represented our association at the opening of the Atlas Exhibit and was the featured speaker for the event. Samuel served in the 577SMS as a Missile Facilities Technician. His talk at the dedication reviewed the history of Atlas at Altus AFB and included some personal stories about his service there.

## AAFM Art Project

The twelve by six foot glass mosaic, "Countdown, 5-4-3-2-1" has been delivered to AFSPC Headquarters and we are waiting for installation and the dedication ceremony. The mosaic, by Denver artist Darrell Anderson, was a \$30,000 project and is an impressive work of art. It will be dedicated to "the men and women involved in operating, maintaining and supporting Air Force missile and space systems in the past, present and future." We will feature a full report on the dedication in the next issue. You can donate now to the project by using the form on the back cover.

Darrell was recently recognized by the Alliance for Contemporary Art of the Denver Art Museum for his public artworks, which include our piece, mosaics at Denver International Airport and a Denver city building, and other projects.

## Taps for Missileers

Former Capt William P. Buffington, served in Titan II in the 381SMW, lived in Alexandria, VA

Former Airman Stanley Dick, served in Atlas F in the 550SMS and lived in Cicero, IN

Former Airman Jerrie Jones. served in Atlas D in the 549SMS and lived in Sedalia, MO

Capt Rod McAllister served as a Standboard MCCC/DMCCC in Atlas at Schilling AFB, Kan. When Schilling closed, he was assigned to the 321SMW Command Post at Grand Forks

LtCol (Ret) Edmond Mitri Saad III served in Minuteman in the 44SMW and 341SMW, and in JSTPS, and lived in Livingston, TX



## Airborne Launch Control System - Part II

- by LtCol (Ret) Jon McLean, MbrNo

A2204, Marquette, MI

**The Crews** - From the front of the aircraft, the dedicated ALCCs' crews consisted of pilot, copilot, navigator, and boom operator; radio operators 1 and 2, and the radio maintenance technician; and the MCCC-A and DMCCC-A. On the ABNCP and AUXCPs, the flight crew was the same. The comm team was larger, with the addition of data operators (record copy communications). The battle staff varied in size depending on the mission, but full up it consisted of the emergency actions team (operations controller, who was also chief of the battle staff; EA NCO; and force status NCO); planning team (two each logistics, operations, and intel planners, all officers except for one senior NCO on the log team); communications officer, also head of the comm team; airborne emergency actions officer (ABNCP only), the general officer who could assume command of SAC forces under specific circumstances; the weather officer and civil engineer (EWO and major exercises only); and the steward (ABNCP only). (It's not a coincidence the steward and AEAO were on the ABNCP only.) The ops controller fulfilled the MCCC-A function, unless a dedicated ALCS crew member was aboard (this was an EWO function for the 2ACCS officers, also known as "luggers" for their code custodian duties). The comm officer fulfilled the DMCCC-A functions, except that after the comm teams transferred from SAC to AFCC, the senior operations planner became the DMCCC-A for key turn only. The ops planner was also intimately involved as part of the two-officer code control team during issues and recoveries.

The ALCC crewmembers at 4ACCS generally

came directly from missile wings, both Minuteman and Titan; some came from intervening assignments. The luggers at 2ACCS all had 4ACCS experience. The ABNCP and AUXCP ops controllers and ops planners came from SAC combat crew backgrounds, including bombers and tankers as well as missiles. The communications officers were true technical experts from a variety of communications assignments. All except the ops planners began their ALCS training at the operational readiness training school at 4ACCS. This was a formal Air Force school, equivalent to that run by 4315CCTS at Vandenberg. It was, to the best of my knowledge, the only formal school run by a line squadron. It provided an excellent knowledge base for the crewmembers who attended.

Part of ORT and the local upgrade and recurring training which followed occurred in the airborne procedures trainer. The original APT was, I believe, built by the 4315th training aids shop. It was not computerized, so operating it required a lot of knowledge of the operational system plus fast hands on the switches. It was replaced at 4ACCS and also at 2ACCS in the late 1970s with computerized APTs which provided a much more realistic environment. The simulation of the aircraft was so good that AEAOs received orientations in the 2ACCS APT as part of their initial PACCS training.

**The Equipment** - The ALCS equipment suite was deceptively small. Most of it was in compartment 1. The ALCC power supply powered all equipment except the code processor assembly (KI-21). The CPA held the volatile keying assemblies, each of which contained half of the decryption variables required to convert the classified commands (inhibit, CLIP, enable, ELC, and AUTO) into plain text. The CPA performed these computations. The VKAs would self-destruct (or, in later versions, self-erase) upon loss of power to prevent compromise in the event of a crash. The code retaining power supply contained a battery to supply power to the VKAs in the event of a power fluctuation, and a relay which would open after three minutes +/- 30 seconds to ensure VKA erasure. The data processor was the main computer, which formatted commands and ran test sequences on the equipment. It was about the size of a small suitcase, weighed 62 pounds (OK, I did a little research), and contained 4K of 8-bit memory. The tape reader read data from punched Mylar tape into data processor memory at about a meter per second. There were three tapes: the exercise tape, which contained test routines which the crew had to run to comply with weapon system safety rules before load-

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ing the crypto variable; the DPU operational program tape, which, no surprise, contained the routines to format and transmit commands; and the S-tape, which contained encrypted and wrinkled squadron secure codes for the classified commands. The waveform converter converted the commands received from the data processor into frequency shift keying format (Deuce), digital biphasic (Mod), or digital diphasic (ERCS). (Please don't ask me the difference between digital biphasic and digital diphasic; it's Greek (and Latin) to me.) The interconnecting box was an inert switch with an output jack to connect the waveform converter to an ARC-89 UHF radio.

The rest of the equipment was at the MCC-A positions. The MCCC-A operated the launch control panel and, on Cs and the E-4B, the 494L control panel. The LCP controlled all test routines and commands. It also contained the classified command interlock switches which were used to un wrinkle the secure codes and to input the CLIP codes (Cancel was 03414072; I can't remember Hold 1 and 2. Actually, I'd just as soon forget Cancel.) The 494L control panel allowed ERCS payload insertion, channel advance, and playback. The DMCCC-A operated the launch monitor panel, which, like the LCP, had a key switch to initiate ELC and AUTO. It also had readouts to verify command addressing, the radio permit switch which activated the transmitter, the crypto alarm override switch which was a good way to commit a WSSR violation if you didn't keep your wits about you, and the V-store erase switch, which immediately destroyed the VKAs and erased code processor memory in the event of emergency. That actually got used in earnest on a number of occasions, most notably when 262 ran off the runway at Ellsworth while hydroplaning in a downpour. But that's another story. The DMCCC-A also monitored the high altitude radiation detection system, which was supposed to detect high altitude EMP (never tested, fortunately). I know from experience that it did detect static electricity on the airframe, and nearby thunderstorms. One last important item was the ALCC switch. It was on a panel at the pilot's left elbow, and had to be on to permit transmitting classified commands. Like the rest of the launch-critical gear, it was checked as part of the upload test sequences. During the latter years of the KI-21's employment, it received maintenance by civilian technicians from the Air Force Cryptologic Depot at Kelly AFB, TX. Without these gentlemen's expert assistance, the KI-21 would

have ceased being a viable crypto equipment long before it was replaced by the KI-45.

The current version of ALCS uses multi-function displays to initiate and monitor commands. Think smaller, simpler, solid state; think ATM. The system now uses a pre-loaded mass storage unit—no more Mylar tape. The mass storage unit, like the code processor and VKAs, lives in a vault and is issued for upload and returned to secure storage after download.

**The Upload** - When preparing an aircraft for ground alert or an airborne mission (if the aircraft was not already on ground alert), the MCC-A had to upload the ALCC. This occurred with two major variations—one way at Ellsworth and another at Offutt. The differences were attributable to differing circumstances at the two bases, not on hardware requirements. The basic upload consisted of checking status of the equipment with power off and confirming all switches were in standby settings. The MCC-A would then apply power and load the exercise program tape. After that came the launch control group manual self-test, to ensure all launch critical functions could be performed properly. Launch control panel self-test and 494L control panel self-test followed if the calendar dictated; these were, if memory serves, 30-day requirements. Then the crew would perform a zero-variable sum check. If successful, that was clearance to load the operational program and S-tape, followed by loading the crypto variable and another sum check. If all went well, the crew would either shut down the equipment (for ground alert), or transfer to aircraft power and prepare for takeoff.

The differences between Offutt and Ellsworth related to the time limits imposed on the crew. At Ellsworth, there usually wasn't a big rush. The MCC-A typically arrived at a cold, dark airplane and had to get it powered up, then begin the upload. Typically, there were at most one or two other people on the plane, at least initially. This made code control challenging (think two-person requirements). It also meant the DMCCC-A had to go to the cockpit to turn on the ALCC switch during the test sequences. These factors introduced delays into the process. At Offutt, the crew doing the upload was typically preparing for a Looking Glass flight, and the AEAO's arrival imposed a strict time limit. The operations controller and comm officer arrived at the airplane to find the copilot running his and the pilot's preflight checklists, thus able to operate the ALCC switch. Power was on the airplane, as well as heat or air conditioning. (The uninitiated think of airliners when they think of airplanes. There are few large airplanes less like airliners than an unpowered EC-135 in

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the heat of an Ellsworth afternoon or in the cold of anytime at Minot in the winter.) The RM would be aboard, thus helping with two-person control. The lugger would arrive shortly with the ops planner, and would operate the launch control and launch monitor panels while the ops controller and comm officer were forward at the code processor. Net result: a good upload at Ellsworth took an hour; at Offutt, 35 minutes or less. When I arrived at Offutt from Ellsworth in 1975, I figured I had a pretty good handle on ALCS. I couldn't keep up with what was going on during the first upload I saw there, and I'm not too sure about the second.

**System Capabilities** - "What is the ALCS repertoire of commands?" That was a favorite standboard question at Grand Forks in 1970 or so. The answer was to be found on page 1-83 of T.O. 21M-LGM30F-1-6 (Ha! If you think my memory's that good, re-read my caution to the reader). Before Phase III was implemented, ALCS could transmit launch facility radio test (LFRT), a stream of data to the LFs which was reported to the ground crews as RADDAT or, in Deuce, Commands Received Airborne; PLC-A and PLC-B, the targeting and timing commands (but for PLC-B, only zero delay or infinite hold), both in CEP or MRT mode; enable; inhibit; cancel launch in process (Cancel, Hold 1, and Hold 2); execute launch; and automatic launch, a somewhat unfortunately-named command which wasn't really as Strangelovian as it may appear. "AUTO" simply combined enable and ELC into one command. In addition, the C-model aircraft could load the EAM into ERCS payloads (an all-call command), advance the transmitter channel, and playback the payload recording (both selectively addressed commands). For security purposes, uplink capability was not exercised unless a payload was about to be removed from an LF. When it was, an uplink test usually occurred, giving more reliability data to the analysts and good training to crews aboard Looking Glass and in the LCCs. Uplink tests required the ground crew to place the payload in uplink mode, a good security feature.

Aside from LFRT, none of the ALCS commands was accepted by the LF unless the LF was electrically isolated from all squadron LCCs, or if the ALCC holdoff timer expired. Ground MCCs had to reset the holdoff timer periodically or a) the LF would grant access to the ALCC, and b) the ground MCC would be in serious trouble. ALCS Phase III was intended to provide uplink status (as implemented, only from Peacekeeper, I believe) to the ALCC. It was planned to give the ALCC command data

buffer retargeting capability as well. Phase III capability, if any, came along after I left the system. For an ALCC to transmit successfully to an LF or an LCC, the airplane has to be in line-of-sight of the receiver. This is dependent upon several factors: the altitude of the aircraft; the elevation of the receive antenna; the radiated power of the transmitter on the airplane; and the terrain around the LF or LCC. I think the nominal value may be classified, but 200 nm is close enough for our purposes. Since the A-M system (Boeing) LFs retransmit operational commands (but not LFRTs), terrain masking isn't as serious for them as it might be. The B system (Sylvania), now found only in the Odd Squad (564MS at Malmstrom, never forget that Tall People Sure R Queer, an insider's mnemonic at the 341st) doesn't retransmit. To accommodate these various factors, the ALCC orbits had precisely-defined launch tracks. As anyone who has driven US 2 will recognize, it's easier to access Minot LFs than those at Malmstrom.

**Phases I, II, and III** - Phase III was ALCS as I knew it, with uplink status and CDB capability added. It's the only "phase" about which I've ever seen documentation, so the rest of this section, while pretty accurate, is conjectural so far as the definition of phases is concerned. Phase I (I assume) was ALCS as originally deployed. The equipment was the same (except for some esoteric modifications, notably to eliminate a spike to the data processor when the tape reader was turned on) with the exception of the keying assemblies for the crypto variable. Originally these were hard-wired K-plugs, similar in concept to P-plugs but different in physical format. Basically, they were rectangular boxes about 2" x 4" x 4", with a handle to facilitate insertion and removal. They could not be erased or volatilized (i.e., destroyed), so only one could be out of the secure storage vault at any given time. Like all subsequent keying assemblies, they required two person split handling (groups A and B). To load the variables, the custodians would bring the A plug from the vault, the crew would load it physically and then electronically into the code processor, the custodians would take it back to the vault, and then repeat the process with the B plug. A battery in the code retaining power supply would maintain the crypto variable in volatile storage in the code processor while the aircraft was on alert-unless the battery failed before scheduled change (about every 24 hours, I understand) or something went wrong during the battery change checklist. At best, this required the crew to go to the alert aircraft every 24 hours. At worst, it additionally required reloading the crypto variable, which

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would get not only the crew but also the custodians and probably the crew chief out of bed.

Phase II (standard disclaimer) fixed this awkward problem. The hardwired K-plugs were replaced with volatile keying assemblies, comprising a keying sub-assembly and fracturable keying element. The FKE was essentially a stressed-glass plate with half of the crypto variable on it in the form of a gold printed circuit. Two squibs, powered by capacitors, would fire pointed pistons into the FKE upon loss of power unless the VKA was safed. These pistons would fracture the FKE, and set of spring-loaded fingers further stressed the glass to ensure the fracture was sufficient to prevent reconstruction. There were several ways to test the squibs unintentionally, but there were surprisingly few instances of this in the real world. In the APT, on the other hand. . .

Before Phase III came into effect, new VKAs came on the scene, as did a new code processor (KI-45), both of which are still in use. The VKAs use erasable memory rather than an FKE. The workings are classified (it's crypto equipment), but it's a huge improvement. The VKAs can be recoded quickly and easily in the event of erasure. The KI-45 weighs about half of the KI-21's 45 pounds, installs in the airplane faster, and is more secure. A classified command control switch in both varieties of code processor must be turned on before the device will decrypt; closing the door forces the switch off. In the KI-21, the CCC switch was behind the main (and only locking) door, which leaves the VKAs accessible when the CCC is on. In the KI-45, the CCC switch is behind an auxiliary door, so the VKAs can remain secured with locks while the CCC is on. This prevents one inadvertent erasure mode, since opening the door to the VKAs erases the electronic memory in both versions of code processor.

**Test Missions** - ALCS crews conducted Operation Giant Ball (LFRTs and a communications poll) on almost every flight, and Looking Glass crews tested the ERCS as part of Giant Ball. But those weren't really test missions. ALCCs flew during Simulated Electronic Launch-Minuteman (SELM), and got to check out actual commands (with test launch codes and decryption variables, which was the case for all test missions). They launched missiles from Vandenberg AFB. They flew over the Hill Engineering Test Facility at Ogden AFB, UT, where simulators on the ground received and processed the airborne commands. There was a series of test missions in the ALCC-3 area to check for interference between ALCS

and the anti-ballistic missile system radars near Grand Forks. I made my furthest excursion into the Pacific—a whopping 270 nautical miles west of Vandenberg—while flying a mission to check out a new UHF antenna at a test LF. I'm sure there were other test missions. And of course, ALCS crews on alert responded to engine start and taxi exercises, along with the bombers and tankers at their alert bases.

**Significant Differences from Ground Minuteman Duty**

- The most obvious difference was that ALCCs move and run out of fuel. (I've used that line with command posts when status was slow to arrive during Giant Ball exercises.) At Grand Forks, all 448SMS crewmembers knew that when you were beyond Hope, you were almost at M-0. In an ALCC, the crew had to coordinate closely with the nav to have a clue as to their location. If you weren't in the launch track, your transmissions didn't count—especially on standboards. Not to mention that “scheduled landing base” and “actual landing base” are not necessarily synonymous. Weather has a huge impact on operations, perhaps more so than for ground crews. The good news is, if you divert, you invariably go to where the weather's better—at least at the time you divert.

A less obvious but more critical (if you take my meaning) difference is the variety of configurations in which you could find your system. Have we completed the WSSR requirements for system checkout? Are the codes loaded? Are the VKAs armed? Are we in level flight at cruise altitude, free of malfunctions potentially dangerous to flight? (If not, don't safe the VKAs (unless in EWO conditions)). What program is loaded? You get the idea. Complying with WSSRs was simple in theory, but when the evaluators in the trainer gave you a bag drag to a new airplane (or when fate did, on the real flight line), you had to be acutely aware of what checks were required. And code control was a constant issue, not something that we had to deal with mainly at squadron code change.

Crew coordination was crucial. I've mentioned the nav. But if your radios were on the wrong frequency, being in the proper launch track wasn't much consolation, especially in the critique. And don't forget to coordinate with the crews and command posts on the ground - they get a little testy if you don't. Pulling ground alert with bomber crews, especially during the Vietnam war, was an eye-opener. Getting a weather brief for the SIOP target area tends to focus your attention. Of course, ground

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missileers didn't get to go to the BX, O-club, or swimming pool on alert. But they generally didn't stay out for a week (or three or four days) at a time, either. Or, for that matter, shovel snow from in front of the nose gear.

ALCS has always been a small crew force. When I was involved, there were at any time less than 100 people involved in crew and staff (at all levels). Now there are 16. Small numbers mean that each crew member can have a proportionately larger impact on the system than is the case for ground MCCMs. It was much easier for an individual in ALCS to get a SAC form or publication changed. Likewise, one astute crew member could change operational procedures for the fleet. I'm reminded of then-Captain John Thornburg, standboard crew MCCC-A at 4th ACCS, who identified an LF at Warren which was often NR (no reply to LFRT). He proposed a change to the launch track, which was accepted and implemented; problem solved. Another difference was in the wing and squadron staffs. Some really understood ALCS despite no previous ICBM experience. Many were willing to learn. A few were close to clueless: one senior leader, and I honestly don't recall who, was quoted as saying something to the effect, "We'd have another good tanker squadron if they didn't have all that \*\*\*\* in the back!" In fairness, the "stuff in the back" did cause more delayed takeoffs and bag drags (unscheduled aircraft changes) than the basic -135 did. I used to think there was more esprit de corps in the ALCS units. That was certainly true when I arrived at Ellsworth from Grand Forks in 1973. But when I arrived at Malmstrom in 1985, I was forced to change my mind. Those guys (there were no women on Minuteman crews then, which brings me to my next point) were motivated. Concerning gender issues: I believe the first female Minuteman crewmember was then-1Lt Marcia Pooler, a 2nd ACCS comm officer in about 1976. Purists would say a commo with only ALCS experience but none in the ground system isn't really a Minuteman crew member. I'd say that anyone who is part of a crew that could potentially be required, and able, to launch 1000 LGM-30s is indeed a Minuteman crew member!

**What about Titan II?** - Occasionally during Looking Glass public affairs tours, we would get the perfectly reasonable question, "Does ALCS work with Titan II?" The answer was no, at least in the weapon system sense. Of course, as part of PACCS, ALCS comm teams were tasked with relaying EAMs to any SAC forces which needed them. From a weapon system perspective, there were at least two reasons why ALCS and Titan II didn't

make a good pairing. First, it's hard to imagine a scenario in which the Titan crew or LCC was disabled but the missile wasn't-the cableway wasn't that long. Second, a weapon system which required a BMAT, MFT, PSM-6, and shelves of tech data to ensure launch was too complex (some would say "primitive") to make remote control feasible. Titan crews, naturally, scoffed at the "bottle rockets" up north. But look who's still on alert!

*ALCS, Part I was in the June 2004 issue, complete with a detailed glossary of ALCS terms. Copies can be downloaded from the AAFM web site at [www.afmissileers.org](http://www.afmissileers.org) or are available by mail.*

## Annual Program Honors Pio-

**neers** - by Staff Sgt. Jennifer Thibault, Air Force Space Command Public Affairs

Air Force Space Command welcomed six more pioneers into the Air Force Space and Missile Program Hall of Fame 1 Sept. The program recognizes individuals who played a significant role in the early history of Air Force space and missile programs. This year's program is a feature event in AFSPC's yearlong celebration of, "50 Years of Space and Missiles." This celebration marks a number of key events in Air Force space and missile history that occurred in 1954, including the establishment of the Western Development Division, led by General Bernard Schriever.

"In keeping with our celebration of the 50 years of Air Force Space and Missiles, we've expanded our activities for the space and missile program," said Mr. Skip Bradley, AFSPC command historian.

Specifically, this year's program included two additional events: a panel of retired senior AFSPC officers speaking on "Operationalizing Space," and a tribute to a retired enlisted member for his contributions to the development of the Air Force's ICBM program. (See Story on Page 1 on CMSgt Mike Kenderes)

This year's Hall of Fame induction ceremony paid tribute to the largest number of new pioneers since the program began. The new Pioneers are: Retired LtGen Kenneth W. Schultz, retired Col. Edward E. Blum, Mrs. Rita C. Sagalyn, Mr. Wen Tsing Chow, Mr. William O. Troetschel and Mr. Rodney C. Pratt. The awards were presented by LtGen Dan P. Leaf, AFSPC vice commander.

Another milestone for this year's program is the  
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## **Pioneers** (Continued from Page 8)

induction of the first female pioneer, Mrs. Sagalyn, and the first Asian-born pioneer, Mr. Wen Tsing Chow.

The winners' contributions span a variety of fields, but all were instrumental in paving the way for current and future endeavors in the space and missile arena. "We're recognizing the depth and breadth of these pioneer's contributions to the Air Force's space and missile programs," said Dr. Rick Sturdevant, AFSPC Deputy Command Historian.

Gen Schultz managed the contract with ANSER Corporation to develop the initial Air Force Space Plan. He initiated acquisition of significantly improved reentry systems for the Minuteman, Polaris and Poseidon weapon systems, and he revitalized important measurement programs in support of ballistic missile programs. He also led design and development of the Minuteman III ICBM, the nation's first missile capable of carrying multiple independently targetable reentry vehicles.

A pioneer in the development of rocket propulsion systems, Col Blum, is responsible for the engineering and development of the Agena upper stage, the first successful spacecraft designed to serve a wide variety of on-orbit programs, beginning with the world's first reconnaissance satellite. He established the production line that turned out over 260 Agena's for use by Discoverer/Corona and other NRO programs, NASA's Lunar Orbiter and Mariner interplanetary probes, and many other space projects.

Over the course of 50 years, Mrs. Sagalyn played a key role in establishing and executing a space science and technology program at the Air Force Research Laboratory. She designed an ion-attitude sensor for measuring spacecraft pitch and yaw that was tested successfully aboard several Gemini missions in the mid-1960s. She initiated and led many programs, including the Chemical Release, Radiation Effects Satellite (CERRES) launched in 1990, Spacecraft Charging at High Altitude, Space Weather Prediction, Plasma and Particle Instruments on DMSP satellites, a Compact Environmental Anomaly Sensor for operational satellites and an active charge control satellite-mounted system.

During the 1950s, Mr. Chow managed the design, development and production in quantity of the digital computer and all-inertial guidance system for the Atlas intercontinental ballistic missile. He formulated the design of the first all-solid-state, high-reliability, spaceborne digital computer and established the basic systems approach to development and mechanization of guidance

systems for ICBMs, space boosters and manned spacecraft from Atlas, Titan, Saturn and Skylab, through Minuteman and the Space Shuttle.

A member of the Air Force's earliest satellite team, Mr. Troetschel, contributed to the establishment of an on-orbit operational control node at Sunnyvale for the relevant program offices in Los Angeles. The field office soon grew to become the Air Force Satellite Control Facility, with operational responsibility for all Air Force space missions.

Mr. Pratt was involved with design and development of the first SATCOM ground terminals for experimentation with the Echo 1 passive satellite. He conducted on-the-air, scientific experiments using the Initial Defense Satellite Communications Program series, Lincoln Experimental Satellites 5 and 6, the Tactical Communications Satellites, the Defense Satellite Communications System II series and the Air Force Satellite Communications system. He also accepted responsibility for the development of airborne terminal technology for future MILSATCOM systems.

The Air Force Space Pioneers Award was first given under the sponsorship of the National Space Club in Washington, DC, which in 1989 honored ten key military and civilian leaders in the Air Force space program. In 1997, the program was revitalized and established as an official Air Force award under AFSPC.

To date, 30 pioneers have been inducted, with another six to be honored this year.

**Learn more about Space and Missile Pioneers Program at <http://www.peterson.af.mil/hqafspc/50th/Pioneers.asp>.**

## **Reunions**

**AAFM** will meet in Cheyenne 27 Sept to 1 Oct 2006, at the Little America Hotel and Resort -details later

**TAC Missileers** - Nashville,TN, 1-3 June 2005, Airport Embassy Suites Tel 615-871-0033, contact Joe Perkins, 904-282-9064, e-mail perkster@fcol.com

**551SMS (Atlas)** - 20-23 April 2005, Fairborn Holiday Inn, Dayton, Ohio, contact Ken Fisher at 718-792-2360, e-mail 551sms@aol.com

**701st Tactical Missile Wing Reunion** - celebrating the 50th Anniversary of the Units arrival at Hahn Air Base Germany., 17-20October 2004, Whitehall Hotel, 105 Delaware Ave, Chicago, Phone 1-800-948-4255 for reservations. Contact Mike Kelly at 773-282-6558/ Fax 773-282-0089, e mail tkmjkelly@earthlink.net, 5833 Kolmar Ave Chicago Ill.,60646-5805

## The Missile and Space Organizations - Space Warfare Center



**History** - The Space Warfare Center's (SWC) role in the Intercontinental Ballistic Missile arena is only a bit over eight years old. In February 1996 the 576th Flight Test Squadron was reassigned from 14AF to the SWC, aligning ICBM testing with similar operational testing conducted in other commands. In April of 2000, Headquarters Air Force redesignated the 6595th Test and Evaluation Group (TEG) as the 595TEG, and AFSPC assigned the 595TEG to the Space Warfare Center, aligning the 576FLTS, 17th, and 14th Test Squadrons under the TEG. On 1 August 2002, the group was redesignated the 595th Space Group (SG) to better reflect the expanded mission areas the Group executes.

**The Unit and Mission** - Many SWC divisions have some involvement with Intercontinental Ballistic Missiles. The Air Force Space Battlelab is currently working a project to bring remote video capability to the unmanned Launch Facilities scattered across the northern plains. The Integration Division uses ICBM launches as targets of opportunity for a portion of the classified research and development they conduct. Of course the 595SG is the focal point for coordinating all test activities among US Strategic Command, AFSPC, 20AF, the Space Wings and all external agencies. But the rubber meets the road - or more appropriately, "the candle lights the sky" - at the 576FLTS at Vandenberg AFB.

The mission of the 576FLTS is to execute the Joint Chiefs of Staff-directed ICBM Force Development Evaluation (FDE) test program and execute AFSPC's operational tests for the Department of Defense. The squadron plans and performs ground, flight and space system tests in operationally representative environments. Throughout the entire process, squadron members collect and analyze accuracy, reliability and aging data which is then reported to the Joint Staff, Air Staff, Strategic Command and other higher headquarters and agencies.

**Test Launches** - The 576FLTS is almost a self-contained Space Wing. The unit operates and maintains facilities for both the A and B variants of the Minuteman

III weapon system as well as Peacekeeper. Operational ICBMs from Warren AFB; Malmstrom AFB or Minot AFB are selected at random for test launches. After a series of tests performed in the missile launch facility, the missile is taken off alert, pulled from the LF and shipped to Vandenberg AFB. There it is reassembled and placed "on alert" for several days prior to launch.

The 576FLTS runs virtually all of its own maintenance functions, including missile emplacement, munitions, codes, electronics lab, and everything else associated with assembling a 79,000-pound Minuteman III or 195,000-pound Peacekeeper ICBM. The missile operators assigned to the 576FLTS do not "pull alert" duty as they would at a traditional Space Wing. Instead, these officers plan, coordinate, execute and report on all the ICBM test launches that occur at Vandenberg. Certified missile operators from the Wing the missile was pulled from launch the missile in a somewhat modified operational environment.

**Simulated Electronic Launch** - The 576FLTS also conducts the Simulated Electronic Launch tests performed periodically at the Space Wings. In these tests, rather than bringing a missile to Vandenberg, personnel from Vandenberg go to the Wings. The 576FLTS testers work closely with the host unit maintainers and operators, who isolate launch facilities (LFs) and install test code components in the launch control center (LCC) and LFs. Once the LFs are completely isolated from others in the flight and squadron and any danger of an inadvertent launch has been eliminated, a series of test commands is issued from the LCC to test the functioning of all ground equipment, including the occasional ballistic opening of the launcher closure door. Once the testing is complete operators and maintainers install operational codes in the LFs and LCC and the isolated facilities are reconnected to the rest of the flight and squadron.



## The Missile and Space Organizations - 91st Space Wing



**History** - The 91st Bombardment Group (Heavy) was activated on 15 Apr 1942 training with B-17 Flying Fortresses. They moved to England in August 1942, assigned to 8AF. They operated primarily as a strategic bombardment organization throughout the war, flying bombing missions in Western Europe. The Group returned to the US in July 1945 and inactivated on 7 November 1945. The 91st Strategic Reconnaissance Wing was activated on 10 November 1948. The wing performed global strategic reconnaissance missions including aerial photography and mapping, and later adding aerial refueling missions. After being inactivated on 8 November 1957, they were redesignated and activated as the 91st Bombardment Wing on 15 November 1962 to train for global bombardment and aerial refueling. The wing moved to Minot AFB, ND in June 1968 absorbing personnel and equipment of an inactivated 455th Strategic Missile Wing (SMW) and redesignated the 91SMW, responsible for three Minuteman I ICBM squadrons: the 740SMS, the 741SMS and the 742SMS. Force modernization characterized Minot AFB during the 1970s.

**The Unit and Mission** - The Air Force selected the 91SMW as the first wing to convert to the Minuteman III ICBM in 1970. The first Minuteman III missile was accepted by the 91SMW on 14 April 1970. The following August, the first Minuteman IIIs were placed on alert status. The 741SMS became the first operational Minuteman III squadron in December 1970. By December 1971, the switchover to the new missile was completed. Rivet MILE, the Minuteman Integrated Life Extension, was begun in the mid-1980s at Minot as a modification program for missile support systems and facilities. The 91st Missile Wing (MW) completed its first major upgrade on the command, control, and communication systems of the Minuteman III ICBM's launch control centers in August 1996 with the new Rapid Execution and Combat Targeting (REACT) upgrade program.

The wing was redesignated the 90th Space Wing (SW) on 1 October 1997, along with the other three missile wings. The 91SW completed a program in 2003 to modernize their Missile Alert Facilities (MAF) through "Alert Imaging."

**91SW Today** - The wing controls 150 Minuteman III missiles, located over an 8,500 square mile area in north central North Dakota. Each missile is located in an unmanned remote Launch Facilities (LFs). All LFs are located at least three nautical miles apart and situated in unpopulated areas. The missiles are housed in hardened underground silos. Each LF has all the equipment needed to maintain the missile in a ready-to-launch condition. All activities at the LFs are monitored and controlled from remote, manned launch control centers. The 91SW performs its mission with 1,600 assigned personnel as a tenant unit of the 5th Bomb Wing at Minot. The wing exercises operational control over three groups: the 91st Operations Group (OG), the 91st Maintenance Group (MXG) and the 91st Security Forces Group (SFG) (activated at the end of 2002). The mission of the 91SW, whose members are known as the Rough Riders, is to defend the United States with safe, secure intercontinental ballistic missiles.



**GLCM and AAFM** - The GLCM Heritage Foundation recently transferred more than 50 members to our organization as they ceased operation. We welcome these new Lifetime AAFM members. We haven't covered GLCM recently - send in your articles, stories and humor and we will begin a series in the January issue. GLCM went away thirteen years ago - the years that the system was operational in Europe was a unique time for those of us who had the opportunity to serve in it.



## **For This, We Pull Alert** - by Dennis Brooke,

*MbrNo A2290, Auburn, WA*

When Hollywood uses the military for inspiration they turn to fighter pilots for movies like "Top Gun," infantry units for stories such as "Saving Private Ryan," and even Navy Lawyers for the TV series "JAG." But there are many critical military jobs that don't attract the attention of Tinsel Town or the public in general. The men and women in these jobs perform important duties, without the glory afforded their more public comrades in arms.

I served in one of those jobs as an Air Force missile officer. I knew that what I did was important and honorable, although glorious is never a term that I'd use. But several years after my last duty shift I had a unique opportunity to have a taste of that glory, due in part to the countless hours spent in launch control centers by missileers over the years.

From 1984 to 1988 I served a tour of duty as a Minuteman II missile officer with the 12SMS at Malmstrom AFB in the heart of Montana. During that time I "pulled" about 200 alerts in underground launch control centers scattered across central Montana. An alert started with an early morning predeparture briefing with the rest of the 20 crews scheduled for duty that morning. My crew partner and I then packed up our gear in a Chevy Suburban and, depending on our assigned site, drove from 30 minutes to three hours on paved and gravel roads to reach the site of the launch control center. Of course, those drive times assumed that the roads were clear and not covered with snow; not a good bet in the lengthy Montana winters.

After being cleared onto the site by the security cops we rode an elevator down about 60 feet to the entrance to the launch control center. The crew we were replacing gladly opened the eight ton blast door to admit us to our home for the next 24 hours. We crouched to pass through a small hallway in the thick, concrete wall of the underground capsule, and walked across a narrow bridge leading to our duty station. For twenty four hours, this was our world.

Imagine that you are in this launch control center in 1988. You're standing in a room about the size of a small Winnebago. This room is suspended by four tremendous shock absorbers from the ceiling of the concrete capsule. The walls are lined with equipment racks, a small military bed, and a stainless steel one-piece sink and toilet. The ceiling is open. If you look up you can see the inside curve of the concrete capsule. Underneath the Formica-tiled floor is a large motor generator that runs off commercial power, or in an emergency, a bank of batteries. The hum of the generator and other equipment is loud enough that crewmembers often wear earplugs, especially during their sleep shift.

The myriad of independent communications equipment in the capsule ranges from a WWII era High Frequency Radio to an advanced satellite-based system. Five separate printers are used to receive message traffic and report status of the weapons system. Messages coming across radios, loudspeakers, or the teletypes are copied in grease pencil and manually decoded. Often the same message comes across many different means to make sure it is received.

Each crew member sits in a chair, complete with seatbelts for higher states of alert, to keep them secure during a near miss. The chairs ride on rails to allow them to move back and forth to different equipment racks to complete their mission. Each command center is directly connected to ten nuclear tipped Minuteman II missiles and networked to 40 more.

Those 24 hours of crew duty ranged from boring to hectic. That was before cell phones. Maintenance crews working at any of the ten connected launch sites relied on the crew to play operator on the antiquated phone equipment so that they could call the base or other sites. Computer systems in the launch control center, the missile silos, and on the missiles themselves were decades old and less than state-of-the-art. Maintenance on the crotchety equipment was often required to keep it ready to go. Periodic lights and alarms would announce incoming messages, equipment failures or restarts, or even gophers setting up homes on distant missile launch sites. We used grease pencils to track status on Plexiglas sheets covering the system indicators. We learned to multi-task before that was even a buzzword.

On some alerts I had plenty of time to do homework for my MBA program, study technical orders and regulations, read, watch TV or even sleep while my crew partner took the shift. But some alerts were so busy that you felt like you were a rat in a lab experiment on stress,

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## **Alert** (Continued from Page 12)

running from alarm to printer to phone, with no cheese treat at the end.

While Hollywood could care less about what went on in missile operations, the Air Force leadership sure paid attention. This meant constant training, testing, and evaluation of our knowledge and proficiency. Because there is little margin for error when dealing with nuclear weapon delivery systems, we weren't evaluated so much on our test score average, but rather on how many consecutive months we had scored 100%. One wrong answer meant it was back to the end of the line in the pecking order for promotion into an instructor, evaluator, or flight commander job.

While we got plenty of feedback from our testing and evaluation, it was different from the real world experience of many military jobs. An aircraft technician sees the jet he's just put back together launch on-time. The pilot of that jet hits the target and sees it disintegrate. Even the cook that made them breakfast notices if people return for seconds, or leave their trays half full. They know if they've failed or succeeded in their mission. But in missile operations, the objective is endless deterrence. The motto of Strategic Air Command was "Peace is our Profession." We gave the Commander-in-Chief a military option so quick and so lethal, that even an enemy that outnumbered us in men, tanks, aircraft, and many other factors, knew that they could go so far, but no farther. From the Cuban Missile Crisis to the invasion of Iraq, the nuclear option has helped draw that line. If we ever had to turn the key and send our weapons skyward, it was in some respects, an indication that we had failed. Like many military jobs, it was an important mission, but hardly one filled with excitement or glory.

## **Malmstrom Today**

Fifteen years after I left Montana I had an opportunity to see how things have changed for the men



and women who still pull alert. Brian Creelman, a fellow missileer from my tour of duty, was now a LtCol and the operations officer for my former unit, the 12MS "Red Dawgs." Brian arranged for me to meet with crews and staff members so I could find out how things had changed in the decade and a half since I had pulled my last alert.

The Red Dawgs were commanded by LtCol Christopher Ayres. He had pulled his first tour of missile duty in a Belgium based Ground Launched Cruise Missile unit at the same time I had been on duty at Malmstrom. Instead of being buried underground, GLCM units deployed to the field where they hid in forested areas and dug in to protect their perimeter. After spending several days with him at Malmstrom, I expected that if he needed to dig a foxhole to protect one of his launch facilities, he would be out there wielding a shovel with his troops.

During my first meeting with him LtCol Ayres told me that, "The pride of the 12MS has to do with teamwork," and "The success of any unit is built on informal leaders." Teamwork, success, and leadership at many levels were all apparent during my visit. In fact, the unit had recently been named the top ICBM Squadron in AFSC. The people I met had a "hoo-ah" attitude that seemed to be born of being part of a military engaged in a righteous war to protect their country; even through they were half a world away from the front lines. LtCol Ayres was intensely proud of his Red Dawgs and the mission they now fulfilled.

During a discussion with Col Allen Kirkman, Jr., commander of the 341OG, I asked him about the role of the ICBM in the modern world. He replied, "We're top cover for all those other forces that are carrying out their mission." We talked about how September 11th woke up the crew force and showed them that there still was a purpose for them. Although many things had changed since my time on alert, the United States still had people unfriendly to our interests. The US military may not have been able to prevent the events of 9-11, but they were now carrying the fight to the enemy. Missile units still played a role in keeping them at bay.

Col Kirkman had started his crew duty only a few years before I had. We talked about how things had changed since he had pulled his first alert. Reorganizations had given commanders more control over critical resources. Women were now part of the crew force. The duty uniform was now standard issue flight suits rather than special blue fatigues. Many missiles had been de-

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## Alert *(Continued from Page 13)*

commissioned and their units closed.

What had not changed was the rigorous training, evaluation and attention to detail required on alert. In a world of heightened tensions and awareness of an unconventional enemy, perfection was still the goal. Another key thing that had not changed was the best part of crew duty. In response to my question about that Col Kirkman said, "The best thing was the camaraderie."

As LtCol Creelman and I drove out to one of the launch control centers for a visit, we talked about that sense of camaraderie. We discussed people that we had known and worked with and what had become of them. As two of a handful of University of Washington graduates stationed at Malmstrom, Brian and I had spent many Saturdays watching Husky games on TV. While stationed near each other in Germany, ten time zones away from Pasadena, we had even stayed up until the early morning hours to see our beloved Huskies win the Rose Bowl. Lasting friendships with other crewmembers was one of the best legacies of crew duty.

At Hotel LCC I saw a number of things that had changed since my time at Malmstrom. One of the more noticeable was extensive equipment and communications upgrades in the control centers themselves. Where we had spent a lot of time copying and decoding messages from different communications systems, orders were now processed by an upgraded computer system. This system also filtered out copies of previously received messages. We had practiced (and sweated) accurately copying and decoding transmissions. Now the process was automated.

For most of the history of Minutemen, that rat-in-a-lab-experiment feeling had been accentuated by the need to ping from one end of the capsule to another to reset alarms, read messages, and check system indicators. In the mid-90's that had mostly been replaced by a major system upgrade. The noisy "brrraaapp, brrraaapp" of the weapon system status printer and flashing of lights had been replaced by messages displayed on a monitor that could be browsed by the crew using a trackball and keyboard.

The toilet was now enclosed with thin walls that replaced the former vinyl curtain, in part due to the fact that crews could now be composed of men and women, rather than only men. Noise dampening headliners that had been installed in the command center shortly after I left were now showing their age. Carpets over the tile floor deadened the noise and took the chill off the air in the capsule. Myriad alarms had been silenced and replaced by the computer.



Less obvious was a new sense of cohesion between the different people that came together to make sure that the mission was carried out. When I pulled alert the security forces, cooks, and missileers were in different squadrons. Although we were all dedicated to the mission of deterrence, there was tension caused in part by loyalties to different units. In the 90's these units were all brought together under each missile squadron to ensure that commander had the people focused on the job at hand. I could sense that camaraderie and pride in the attitudes of the people that now made up the 12th. In fact, even though the security staff had recently been split back into their own unit several months before, many still stubbornly wore their 12MS patches.

During my site visit the security team showed me their complete ensemble. My security response teams had once responded to alarms at silos in pickup trucks armed with M-16s. These modern teams drove armored Humvees with gun turrets and carried grenade launchers. A terrorist would face some serious opposition if they thought a missile facility was a tempting target.

I was also reminded of the many other people that have to work in concert to keep the missiles on-line. Missile and communications maintenance crews keep complex equipment in operation. Civil Engineers keep the facilities needed to house missiles and people in working order, even during the harsh Montana winters. Cooks serve a hot meal after a hard days work. Everyone does their part to ensure that the ICBMs are ready if needed and that they serve their role as a deterrent to those who would harm us.

Equipment upgrades, reorganizations, and a renewed sense of purpose had made improvements in the life of missile crews and the people around them. As Col Kirkman said it is, "a noble cause" even if it is unsung.

## A Moment of Glory

My trip to Malmstrom allowed me to reflect back on the day when I was able to experience for myself the

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## **Alert** (Continued from Page 14)

results of those countless alerts. After completing my own tour of missile duty in 1988, I was assigned to Sembach AB in West Germany as the airfield manager. The Cold War was still our primary focus. Our training, exercises, and daily operations were focused on the Soviet forces to the east. In fact I even spent a day as a passenger flying on an electronic intelligence mission up and down the East German border. But the Communist edifice was even then beginning to crack.

While I pulled alert in the 80's, President Reagan not only maintained the policy of deterrence but he turned up the heat. He built up our military to ensure we had the capabilities to keep the Soviets on their side of the Iron Curtain. He deployed the GLCM in response to medium range missiles fielded by the Warsaw Pact. For decades the Soviets had made forays into Vietnam, Africa, Afghanistan, and other locations either directly or through surrogates. Reagan's policy of "Peace, Through Strength" made those forays risky, and expensive.

The USSR and other communist allies tried to force us out militarily and compete with us economically. But their corrupt and inefficient governments couldn't maintain the pace. And in 1989, their charade collapsed in dramatic fashion.

The Templehof AB (Berlin) Public Affairs officer put it this way: "The Eastern Europeans decided to go shopping." For generations they had been told that their way of life was superior. But Western TV, radio, and visitors continually exposed the lie. Those trapped behind the Iron Curtain clamored for more. And as Mikhail Gorbachev and his allies loosened their grip a people who hadn't tasted freedom for generations quickly developed an appetite for more. People came over the borders in numbers that couldn't be resisted. And the collapse finally came to the infamous wall in Berlin. Two and a half years after Ronald Reagan stood in front of the Berlin Wall and challenged Mikhail Gorbachev to, "...tear down this wall," it did come down.

I traveled to Berlin in the spring of 1990. The checkpoints were still in place and East and West Germany were still separate countries. But people traveled freely back and forth and the Berlin Wall was steadily disintegrating under a steady onslaught of hammers and chisels.

I joined the crowd at the wall and near Checkpoint Charlie and hammered away with my own tools. The concrete was so hard that I only got a small bag of chips before my chisel was dulled. I climbed up on top of the wall and walked along the narrow pathway. I came to

parts where I had to leap over gaps left by people with more efficient demolition equipment.

At one point I came upon a hole in the wall about two feet across. A man sat on a stool on the other side in "no man's land." If he had ventured to that spot six months prior, he would have been shot. He used a pair of wire cutters to clip sections of barbed wire and give them to passers by.

"You see this wire," he said. "It is many years old but looks new. But if I go to the store to get wire for my house, all I get is old, rusty wire." Then he paused and passed a length of barbed wire through the hole. "But to keep the people in...only the best!"

When I had pulled alert in Montana I had known in my head that missile duty was an important part of keeping our country free. But as I walked along the wall that day I knew it in my heart. I knew that years of men and women standing alert in bombers, submarines, guard posts, and yes, ICBM launch control centers, had led to that event. At that moment I knew that all the alerts and related hassles were worth it. I took a pen and wrote on a section next to the Checkpoint Charlie gate, "For this, I pulled alerts - Dennis Brooke 12SMS Red Dogs."

During my discussion with Col Kirkman at Malmstrom he remarked, "I wish this were a nuclear free world, but it's not." Even though there have been some positive trends in recent years, there are, unfortunately, nations and people who oppose us and the rest of the free world. There is still a role for men and women who stand alert.

Because strength is wielded by just and resolute nations, walls to contain citizens crumble, statues of tyrants topple in newly liberated countries, and people are freed from corrupt regimes. It is men and women who ride in tanks, pilot planes, stand watch on ships, stand alert in launch control centers, and those that stand shoulder to shoulder with them, that make this happen.

## **Air Force Times and Missileers**

The 30 August issue of Air Force Times had a superb article about missileers, featuring the 90th Space Wing at Warren. Titled "Unsung Warriors" on the cover page, and with the headline "Air Force Underground", the article covered the issue that missile operators, maintainers, security forces, facility managers and chefs are away from home up to 200 days per year, more than troops who deploy to combat areas, but don't get the recognition or the financial benefits of those serving in combat assignments. We have the text of the article available by e-mail.

## When You Hear It – Remeber!- by James Reynolds,

*MbrNo L156, Tucson, AZ*

Late December 1968, Lackland AFB, Texas, The “Casual” Barrack’s Area

I had graduated from Basic on 13 December 1968, and was assigned to the “Casual” Area to wait for orders assigning me to a Tech School. It was there I met up with six other individuals who were going to the same school that I was: 3ABR443X1E; Titan II Missile Engine Mechanic’s School at Sheppard AFB in “Beautiful” Wichita Falls, Texas.

After graduation in May of 69, three of us were assigned to the 308MIMS at Little Rock AFB, Arkansas, and the other four went to the 4392nd Aerospace Support Group at Vandenberg AFB.

After a personnel change in 1970, two of them were assigned to the 381MIMS at McConnell AFB and the other two came to the 308MIMS. A few of the “Vandeland Weenies” made E-4 way before the three of did who started out in a “Operational Wing” - Their first APR’s were straight 9’s (Painting grass green, required a great deal of skill, and training.) Our Supervisors would not give a Overall Rating of 9 to someone “JUST OUT OF TECH SCHOOL WITH LITTLE OR NO EXPERIENCE!”.

One of the ones who started out at the 4392ASG, and later transferred to the 308SMW had gone to college to study Music at North Texas State University in Denton, Texas (September 1967 thru May 1968). His full given name was Louis Charles Stevenson III (But he preferred to go by the name of “Chuck”).

Chuck was born on 5 October 1949 in Dallas, Texas and died on 28 April 1988 in Dallas after complications due to open heart surgery (He is “Resting” at Laurel Land Memorial Park in Dallas.)

Chuck was the type of person who would “Give you the SHIRT OFF HIS back!” (And the pants to match) if you needed it. He would help anyone who was in need. This was back when a E-3 was making \$128.50 a month, and a E-4 was making a little over \$350.00 a month. One of us from the Engine Shop would take him to the airport in Little Rock after work on Friday. There he would board a TTA (“Tinker Toy Airline” or “Tree Top Airline”) flight for Dallas. It was the night clubs there that he would pick up extra cash playing songs that he had written. He mostly played in the “Blues and Rock & Roll” clubs in Dallas. This continued until early in 1971 when he received a “Medical Discharge” from Active Duty. What the direct reason was, I don’t remember, but he did tell me that



*Left-to-Right - Chuck Stevenson, Jim Reed, David Hamilton, John Boussu & Bill Patton. Kneeling - S/SGT Kenneth Young (Instructor), Bill Czepiel, Ron Haach & Jim Reynolds*

he was drawing a check from the VA every month.

After his leaving the Air Force he moved to Austin to play in the clubs there. Austin was the place to be at the time. Chuck thought that he could promote his writing, and his style of playing there. In 1972 he recorded his first album titled “B.W. Stevenson” for RCA. This was followed by “Lead Free” in 1972 again for RCA. And “Calabasas” in 1974 again for RCA. He left RCA to record “Lost Feeling” in 1977 for Warners, and his last album “Lifeline” in 1980.

In 1973 I heard a song on the radio titled “My Maria” with a voice that sounded like Chuck’s on the radio here in Tucson. He co-wrote it with Daniel Moore, and played the guitar in it. The song rose to number 9 on the Billboard Chart as a 45 in the “Rock & Roll” chart. It did not crossover to the “Country” Chart until 1998, when the group “Brooks & Dunn” decided to re-make it. It shot up to Number 1, and it won a GRAMMY!

Again in 1973 he had a single hit the “Rock & Roll” chart titled Shambala for RCA Records as a single. This did okay on the small stations around the country, but when the group “Three Dog Night” recorded it, people started to see him for his talent as a song writer.

Chuck was always “Border Line” on the Air Force’s Weight Control Program, and this was probably a factor which contributed to his early death in April of 1988 from problems after “Heart Valve” Surgery in Dallas, Texas. They had to replace all four heart valves.

He was laid to rest in the city that he was born, raised, and started his career in music. So the next time you hear Brooks & Dunn sing “My Maria” or you hear the song “Shambala” on the “Oldie Station” – Think of a fellow Missileer who left a “BIG” piece of himself to bring a bit of his music into the world.