

Air Force Missileers

The Quarterly Newsletter of the Association of Air Force Missileers

Volume 30, Number 1

"Advocates for Missileers"

April 2022

Air Force Officially Designates GBSD as LGM-35A Sentinel



The Mission of the Association of Air Force Missileers -

Support today's Missileers, inform our membership and educate the general public on the enduring role Air Force nuclear missiles play while preserving the long and rich history of Air Force missile systems and the people involved with them.

The new year is in full swing, mask requirements are dropping all over the country, and registration for the 2022 AAFM national meeting in Salt Lake City is wide open. I'm hoping that with travel restrictions easing you will all find time to join us for a very educational event in Salt Lake City in addition to catching up with old friends. You can find registration information on our website or tear out the registration information in the back of this newsletter. **I am pleased to announce that Chris Sembroski, former Malmstrom EMTer and commercial astronaut on Inspiration4 will join us for dinner on Friday night, 7 October.** More news on other guest speakers will be provided in the monthly updates as they are confirmed.

I hope you are enjoying our monthly email news blast. Instead of waiting to get news to you every few months we are trying to push out information monthly via email and three times a year via the newsletter. **If you aren't getting our monthly emails, it's because we don't have a valid email for you in our system.**

Over the last few months, you each had an opportunity to vote to reelect or replace four members of our Board whose terms had expired. Congratulations to returning board members Bob Parker and Mike Kenderes and to our newest board members Linda Aldrich and Tony Bales. Thanks to outgoing board members Randy Tymofichuck and Jock Dodson for their service to AAFM.

In this edition, AAFM Board Member and former 20th Air Force Commander Maj Gen (Ret) Don Alston takes the stage to lay out the case for not only retaining the missile leg of the Triad but for the important mission of supporting the on-time deployment of the Minuteman III replacement - the Ground Based Strategic Deterrent (GBSD). It's a lengthy read but carries an important message.

Jim Warner, Executive Director

In this Issue -	Air Force Announces Name for GBSD, Risk, the Triad and the ICBM	1
	Air Force Missileers Hall of Fame	4
	First AAFM Scholarships Announced	5
	The 20th Air Force Page	8
	Large Pepperoni, But Hold the Nukes, Help Wanted	10
	Western Museum of Flight	11
	Warren Museum Update	12
	Q01 MAF State Historic Site	13
	Taps for Missileers, AAFM By-laws Updated	16
	Letters, New Members	15
	AAFM Heritage Store, AAFM Sponsors	17
	National Meeting Registration	Inside Back Cover
	Reunions and Meetings	Back Cover

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The LGM-35 A Sentinel - Northrop Grumman Graphic.

Air Force's new Intercontinental Ballistic Missile - Sentinel

Letter from the Commander and the Command Chief, Air Force Global Strike Command Strikers,

We are serving during an exciting time of transition as our major modernization programs move from concept to reality. Moments ago, Secretary Kendall announced the name of the weapon system that will replace the Minuteman III as our new ground-based strategic deterrent for our nation: Sentinel!

The name "Sentinel" perfectly captures the mission of this lethal deterrent, to stand and keep watch. Sentinel will be a highly resilient and capable system that will bring global stability to us and our Allies for decades. It is not just a new missile, but also a fully integrated launch, flight, and infrastructure system with modern command and control features.

For over 50 years, the Minuteman III missile has kept watch over our nation. We will continue to maintain and sustain this incredible system until the Sentinel fully replaces all missiles and infrastructure at our missile wings.

We still have work ahead of us, but thanks to all of you, the cornerstone of our national security will ensure America's strategic deterrence continues both now and into the 2070s.

We are proud of the work you do. Strike On!



Anthony J. Cotton

ANTHONY J. COTTON
General, USAF
Commander

Melvina A. Smith

MELVINA A. SMITH, CMSgt, USAF
Command Chief, AFGSC



Risk, the Triad and the ICBM - by Maj Gen (Ret) Don Alston, AAFM Board Member, Glendale, AZ.

In another decade or so, China will match the United States and Russia with a nuclear arsenal of over a thousand nuclear weapons. Russia and China will already be operating modernized nuclear "triads" – missiles, submarines, and bombers -- with modern weapons. The US, however, will still be years away from completing the deployment of new intercontinental ballistic missiles (ICBMs) and new nuclear ballistic missile submarines to replace the aging systems. This is the best-case scenario.

Acquisition programs are underway to replace aging US nuclear delivery systems. The new ICBM, "Sentinel," is the last nuclear weapon system to enter recapitalization joining the new Columbia-class submarine and the B-21 bomber, "Raider." Continued bipartisan support will ensure the ICBM force remains effective during transition from the fifty-plus-year-old Minuteman III to the full deployment of the Sentinel system in the mid-2030s.



Maj Gen (Ret.) C. Donald Alston served 34 years in the Air Force and was the first Assistant Chief of Staff for Nuclear Deterrence and Strategic Integration and a former commander of 20th Air Force and USSTRATCOM Task Force 214.

The US has relied on a mix of diverse capabilities for more than six decades to confront existential threats. Bombers provide a flexible capability. They can be deployed and recalled from their mission and uploaded with a range of bombs tailored to the mission. They can be used to send signals to adversaries with exercises and deployments to forward locations or with flights over a specific area. The ballistic missile submarine force, virtually invisible at sea, provides the US with the assured ability to retaliate after a nuclear attack. The ICBM, the most responsive capability, is distributed over tens of thousands of miles in hardened silos, constantly on alert, ready to launch in minutes. Together we call these three capabilities a triad. The US also has means to deliver nuclear weapons with fighter aircraft deployed to Europe in support of NATO.

Over the decades, US deterrence strategy drove substantial changes in the size of the force of bombers, missiles, submarines, and fighter aircraft, along with the stockpile of nuclear weapons. The force we have today is not only significantly smaller than it was decades ago, but the resiliency of the force is different. At the height of the Cold War confronting the USSR, the US deployed more than a thousand ICBMs ready to launch, hundreds of nuclear bombers on both ground and airborne alert, a robust ballistic missile submarine force at sea, all supported by an equally robust nuclear weapons complex that included our national laboratories and maintenance and fabrication facilities. Then as now, these capabilities represented an exceptionally resilient hardened, responsive, and flexible system that was – and still is -- near-impossible to defend against and near-impossible to defeat in a pre-emptive attack. As geopolitical risk with the USSR/Russia changed, nuclear forces were reduced, and the National Nuclear Security Administration (NNSA) that

manages the nuclear stockpile operated with reduced budgets. The Presidential Nuclear Initiatives of the early 1990s eliminated half the ICBM fleet, all the bombers came off nuclear alert, the Army no longer had nuclear weapons and the Navy nuclear responsibilities were confined to the nuclear ballistic missile submarine mission. Forward deployed nuclear weapons were removed from the Korean peninsula and the number of bombs in Europe was reduced. Stability could be maintained, and China deterred, with the force sized to meet the threat posed by Russia's capabilities. By 2008, the ICBM force was further reduced by one hundred with the retirement of the Peacekeeper missile system, with its fifty missiles armed with ten warheads each, along with an additional Minuteman III squadron of fifty missiles. Later, the Minuteman III force was reduced from having as many as three warheads down to a single warhead each. Finally, out of the New START treaty process and the 2010 Nuclear Posture Review, the US decided to reduce the ICBM force by an additional fifty missiles but retained those empty missile silos in a limited configuration for flexibility maintaining and sustaining the force, or, if necessary, to be reloaded with missiles.

These large-scale changes to US nuclear delivery systems over the years, in both size and readiness, have so far continued to manufacture sufficient deterrence that the US and its allies depend on for national survival. However, this smaller force size, combined with NNSA's limited capacity to react with agility to unplanned demands within the nuclear weapons stockpile, exposed just how much the US nuclear enterprise had become an interdependent system with less resiliency. Today, US Strategic Command (USSTRATCOM) manages the routine planned and unplanned missiles that come off alert status within the four hundred ICBMs on alert and submarine forces at sea. If a problem arose today with a specific aging delivery platform or an aging warhead that forced a large-scale or partial reassignment or re-prioritization of targeting responsibilities, that would be a very tall order indeed for USSTRATCOM and the nation's nuclear weapons complex. Though one "leg" of the "triad" could cover temporarily for an exceptional problem, the unique attribute of the deficient leg cannot be replicated. For example, if a problem was found in an aging warhead deployed in the ICBM fleet, neither the bomber nor submarine leg can satisfy the essential responsive character of the ICBM. We are more dependent on a balanced triad than ever before.

A critical planning factor to manage risk of an adversary "breakout" with unanticipated capabilities or a significant US system failure, is the built-in "hedge" we currently have in the ICBM force where additional warheads can be uploaded, if required. Tipping the balance of the triad with further reductions of the ICBM alert force assumes deterrence works in this configuration, reduces the critical hedge, and exacerbates the sensitive co-dependencies that exist across our diverse nuclear forces that the commander

of USSTRATCOM manages every day.

Could the non-alert bomber leg of the system be used to cover nuclear targeting? Yes, but it would require a significant political “lift” and increase operating costs. A substantial portion of the bomber force would no longer be available to conduct conventional operations, and no Allied long-range heavy bombers exist to help pick up the conventional mission slack. And generating the bomber force to assume a nuclear alert posture would require calling up the National Guard and Reserves to man the necessary tanker force and increase bomber crew ratios. Such actions would be highly visible and could obviously raise international tensions.

Continuing to move forward on Sentinel to match the current force structure will hopefully provide for a sufficiently robust and adaptable land-based leg in our deterrence system to meet the future challenges of the expanding nuclear arsenals and growing strategic capabilities of both Russia and China. And this says nothing about confronting the challenges of a stronger anti-US Russia/China alliance.

The hardened and survivable land-based alert force – the ICBM - brings broad deterrence value and stabilizing benefits every day to the nation and our allies. The national decisions to reduce Minuteman III force structure to current levels and to download each ICBM to a single warhead was part of a strategy to confront Russia’s nuclear force structure and its heavily MIRVed (Multiple Independently retargetable Reentry Vehicles) force by challenging it with a broadly dispersed and hardened ICBM force where each ICBM was of equal value, and all had to be targeted. Unlike the three US bomber bases where no bombers are on nuclear alert and our two ballistic missile submarine home ports, US ICBMs must be targeted with nuclear weapons. Without a robust US ICBM force the cost to hold the entire US nuclear-capable force at risk, except for submarines underway, becomes cheap indeed. By presenting an adversary with a near-insurmountable obstacle, the ICBM force safeguards stability day-to-day. This formidable nuclear alert force also plays a critical role discouraging escalation in crisis while enabling the bomber force and additional submarines to take all the required actions to become ready to perform nuclear duties.

The high visibility of ICBMs confirms US commitment to deterring adversaries and assuring allies. The argument that they are vulnerable to an all-out-large-scale Russian nuclear attack is a common tactic of ICBM critics, but this remote scenario is not an argument about the efficacy of deterrence or the ICBM; it is about the devastating consequence of deterrence failure. The force exists to deter attack, especially this level of attack.

ICBM opponents fail to concede the restraint imposed by the assured and immediate destruction offered by the most responsive leg of the triad, the only leg designed

to operate constantly at near-one-hundred-percent availability, with the preponderance of the day-to-day alert force weapons, rapidly retargetable and launchable within minutes of a presidential decision. And that constant readiness and responsiveness, unmatched by any other leg of the triad, serves an essential role in deterring a first strike, providing vital stability against existential threats.

The persistent charge of the possibility of accidental launch by the US, traceable to incidents 40 years ago, belies the facts on the ground. Nuclear alert force controls are constantly tested and verified, to include all the systems, procedures, and the people with critical responsibilities from the commander of USSTRATCOM, to the watch officers at the National Military Command Center to the launch officers at every launch control center. Moreover, future risk of accidental launch is mitigated by multiple, independent space-based infrared sensors and multiple, independent ground-based radars. The raw data from these two different sciences are evaluated by conferences of humans to assess threats and inform advisors and decision makers. The robustness of the warning system and the ability to either withhold a retaliation decision or respond immediately contributes to the credibility of the US deterrent force.

And in the extreme, if the US were to eliminate the ICBM and retreat to a single alert nuclear platform, how many decades will it take before the secure retaliatory force – our SSBNs (sea launched ballistic missile submarines) - is vulnerable to precise targeting if all Russia and China have to do is heavily invest in technology to reduce the opacity of the high seas, especially if they work together as would be in their common interests? Additionally, what would be the risks related to extending deterrence to our allies? The decision to retire the US Navy’s TLAM-N nuclear cruise missile impacted Japan’s confidence in our commitment to extended deterrence in the Pacific. Will this type of reduction of the visible alert force generate a similar concern among those we assure that they need not pursue their own domestic nuclear weapons programs?

There is a credible plan to sustain the Minuteman III through transition to Sentinel, but that aging current ICBM has no margin left to continue to face growing national security threats deep into the next decade and beyond. Besides, Minuteman’s deterrence efficacy will erode in the face of an adversaries’ future missile defense capabilities. The Sentinel program is on track with projected costs consistent with the previous recapitalization periods in the 1960s and the 1980s. Minuteman III, deployed in the 1970s, housed in launch facilities a decade older, was planned for a service life of ten years. The Air Force has extended missile life by replacing various elements, such as the solid rocket motors that were aging out and the missile guidance set (and not for accuracy improvements, but to improve reliability). The Air Force estimated that Sentinel would be less costly than continuing with patchwork fixes to Minuteman III over the next 50 years. Some critics dismiss the Air Force estimate

because they believe their improvised force structure ideas are inherently cheaper. Similar efforts during the 2010 NPR to give primacy to budget-driven solutions and relegating national security strategy to the back seat did not work at that time and should not find traction today, especially as the US and our allies face recurring nuclear attack threats from Russia. Some also suggest the Air Force methodology for estimating operational life of critical components is highly conservative, and that there may emerge in the future, a less costly alternative methodology. Given the expanding risks associated with preserving the Minuteman indefinitely, we may be depending on multiple not-yet-invented technologies to assure national leadership that the alert force will maintain its anchor role in the triad.

Critics of nuclear modernization costs fail to highlight the significant cost advantage of the land-based leg. The Sentinel program will modernize the ground leg of the triad at a cost that is lower than either the air-breathing leg or the sea-based leg. And the operating costs of the current ICBM force and its replacement are substantially lower than either of the other two legs. Some who endorse life-extending the Minuteman III weapon system are silent on the expected savings to be had, let alone taking on the special risks inherent in writing checks against an old strategic weapon system.

Credible deterrence, at its essence, is about capable systems and the will to use them. The bedrock of that capability is the competency of the people associated with this most vital mission. The people who are sustaining all aspects of the current ICBM system and setting the course for Sentinel are products of something of an Air Force nuclear enterprise renaissance over the past decade and a half. The quality of accessions into this mission area, changes in training and education, comprehensive career management, enforced accountability matching authority and responsibility and empowered individuals at all levels contribute daily to credible deterrence. And all those responsible to operate, maintain, secure, support, acquire and deliver US nuclear delivery platforms and our nuclear weapons know that effective nuclear deterrence is about how the sum of its parts. Size, diversity, responsiveness, survivability, flexibility, adaptability and the resiliency of the entire enterprise communicates to potential adversaries that we have the capability and will to impose the ultimate cost upon them and the belief of our allies that we are committed to our collective security.

Existential threats to the US and its allies are changing. A belligerent Russia and an aspiring regional hegemon China are expanding their strategic capabilities and modernizing their nuclear weapons. Detering two nuclear armed peers represents conditions different from our first seven decades of deterrence experience. North Korea

is expanding both the size of its arsenal and its range of capabilities. Iran continues to posture itself as the next nuclear armed state. US nuclear modernization signals adversaries and allies of a foundational commitment to deterrence and stability. A modernized triad that includes a land-based alert force of 400 – 450 Sentinel ICBMs, supported by a modernized nuclear weapons complex, with the same high caliber of people that we have in this mission area today, will provide the flexible and adaptable force the US will need to sustain effective deterrence for decades to come.

Air Force Missileers Hall of Fame Program

– Col (Ret) Linda Aldrich, Recognition Committee Chair and AAFM Board Member, Estes Park, CO

The Association of Air Force Missileers (AAFM) Board of Directors voted to establish an Air Force Missileers Hall of Fame (AFM HOF), recognizing individuals who have significantly contributed to success of this enduring mission in the areas of operations, maintenance, security, supply, engineering, services, and special duty assignments. The AAFM Board of Directors is publicly announcing a call for nominees for the inaugural class of AFM HOF.

To qualify for consideration, nominees must have:

1 - Made significant contributions towards the development, operations, maintenance, security, and support of the nation's missile force, including USAF nuclear missile weapons systems: Snark, Matador/Mace, Thor, Atlas, Titan, Minuteman, Ground Launched Cruise Missiles, small ICBM, Peacekeeper, Ground Based Strategic Deterrent, and others.

2 - Exhibited characteristics that prove them to be noteworthy in all areas of work, discipline, reliability, aptitude, achievement, responsibility, and motivation through a lifetime of support to the USAF missile enterprise or through a single event that warrants consideration for induction into the HOF.

Eligibility includes Air Force officers, noncommissioned officers, and civilians (Dept of Defense, contractors, political figures). Nominees need not be members of AAFM.

Applications for the AFM HOF will be scored using the following selection criteria: Career Missile Accomplishments, Contributions to the USAF Missile Mission, Missile Assignments, Leadership, Personal Character, and Community Service. Nominations should be submitted on a single page, single spaced, Times New Roman 10-point font in Microsoft Word or Adobe PDF format providing a summary of accomplishments. The nomination package should include the email, phone number, and postal address of the nominee or closest family member if the award is to be presented posthumously. The nomination package may include an 8x10 color (if available) photo (to be used for the exhibit). Submit nominations via email AFMHOF@afmissileers.org no later than 1 June 2022.

First AAFM Scholarships Awarded - by Monte Watts, AAFM Board Member, Monument, CO.

In the December issue, we announced the inaugural round of scholarships for Missileers, funded by member donations and named for two Association of Air Force Missileers (AAFM) pioneer members. The article included a brief review of the experience of the two members for whom the scholarships are named. The **Colonel Charles G. Simpson Founders Scholarship** is named for one of the founders AAFM and the Executive Director for the first 25 years (1993-2018) of AAFM's existence, and he continues to serve AAFM as Director Emeritus. The **Chief Master Sergeant Dick Hoccheiser Memorial Scholarship** is named for AAFM Life Member CMSgt "Hawk" Hochheiser, who combined an illustrious Air Force career with work as a defense contractor on missile systems.

AAFM's scholarship program helps Airmen bridge the costs of their academic pursuits for expenses not covered by Military Tuition Assistance, furthering the personal and professional growth of those dedicating their service to the ICBM mission through \$500 individual awards and a free 3-year membership in AAFM.

We will continue our support to them through this program with 2 annual award cycles per year and seek your ideas for naming future scholarship categories. Donations from members and corporate sponsors for the AAFM Scholarship Program are critical to keep this important award cycle continuing. Please contact director@afmissileers.org if you would like to earmark a personal donation, sponsor a new scholarship category or have an idea of how to improve our inaugural efforts.

On 18 Dec 2021, the Board of Directors voted to award 8 scholarships. We've included an excerpt from the applications to let our members know a little more about the outstanding Airmen serving in the nuclear deterrence mission.

TSgt John Beauchamp (90th Logistics Readiness Squadron, FE Warren Air Force Base (AFB), WY) - Simpson



TSgt Beauchamp

5
Founders Scholarship recipient. TSgt Beauchamp is missile maintainer serving as the Noncommissioned Officer in Charge (NCOIC) of Equipment Support. He is pursuing a Bachelor's degree in Supply Chain Management from American Military University.

I have been stationed at FE Warren AFB for 4.5 years now and have contributed to the ICBM (Intercontinental Ballistic Missile) mission in a variety of ways. I started off by honing my skills as a vehicle operator and providing transportation for personnel needing training as well as dispatching/operating wrecker equipment for towing broken down vehicles from the missile field back for maintenance. The last 2 years I worked as a Vehicle Control Officer (VCO) for the Security Forces Group where I managed their entire vehicle fleet to ensure serviceability and provide our Defenders reliable vehicles to carry out their security mission. I organized maintenance schedules, repairs/recalls and maintained accountability of the vehicle fleet. Additionally, with winter quickly approaching, we better equipped our Security Forces Defenders going into the field by providing upgraded winter survival kits for the vehicles that defend our ICBMs. The kits are better designed with the tools needed to dig a snowed in vehicle free. Also, if the team was stranded, the new kits have warmth kits including survival blankets, candles and signaling devices if a search and rescue operation was needed. I have enjoyed every aspect of supporting the ICBM mission and have great experiences working with the people I met while stationed at FE Warren. Every day brings a challenge and requires the right tools and planning to succeed. I attribute my success as a leader to the studies I pursue and the mentors I have on the job.

TSgt Rashan Moore (341st Maintenance Group, Malmstrom AFB, MT) - Hoccheiser Memorial Scholarship recipient. TSgt Moore serves as the Unit Training Manager and is working to complete his Bachelor's degree in Aeronautics from Embry-Riddle Aeronautical University in fall of 2022. *As a liaison to members of my squadron my job is to learn the unit's mission and how each work center contributes to mission accomplishment. After attending the AFGSC (Air Force Global Strike Command) Strategic Deterrence Basic Course, I developed an understanding of the bigger picture of the ICBM mission. My force support role determines if*



TSgt Moore

AAFM Newsletter

Volume 30, Number 1

April 2022

6

quality training programs are effective within all sections and manage policies and procedures as directed by higher headquarters and commanders. I coordinate with facilitators and instructors to teach the wing's nuclear surety and personal reliability program courses and ensure 100% compliance with members. Our recent nuclear surety and Inspector General inspection can attest to our zero-discrepancy record that we teach our missile members the most up-to-date material. In addition, our training section has piloted the wing team chief course utilized across the 20th Air Force to improve our mission readiness. Communication is vital within any organization, and that is something that needs to be stressed across AFGSC. There needs to be more members that are well trained to explain to their airmen what they do matters and what they can do better. The mission of AFGSC can be challenging due to the sheer importance of nuclear deterrence within the national security strategy. Enabling airmen to do DSDs, QA, FTD, etc., helps retention within the AFGSC community. The rotation of positions reduces burnout and eases Airmen's tension in this demanding mission.

TSgt Maricruz Gonzolas (891st Missile Security Forces Squadron, Minot AFB, ND) - Simpson Founders Scholarship recipient. TSgt Gonzolas is the NCOIC of the Commander's Support Staff, a first-generation college student, and mother who is pursuing a Bachelor's degree in Criminal Justice from the University of Texas El Paso.

I am currently assigned for the second time to the ICBM mission totaling 7 years out of my 15 of service. I have been very fortunate to witness first-hand the importance that the security mission is entrusted to as well as all of the training, trust and considerations that comes with it. Americans will never truly understand what it means to be a part of the ICBM mission. However, those of us who have the opportunity fully understand the importance of doing our job to perfection each and every single time. I am a first generation Mexican American and the first in my family pursuing a college degree. I understand the importance of self-improvement as well as working hard both academically and in my work center because my daughters are watching. I want them to understand that they are free to make decisions in life whether it means going to college, joining the military or learning a trade.

SSgt Anthony Lingsch (Air Force Nuclear Weapons Center – Technical Order Management Agency, Hill AFB, UT) - Hoccheiser Memorial Scholarship recipient. SSgt Lingsch is a 2MOX1 previously stationed at Minot AFB, ND and is pursuing a Bachelor's degree in Business from American Military University.

As a 2MOX1, I know about perseverance and what it takes to get the job done. From late summer nights trouble shooting the security system at a Launch Facility to bru-



SSgt Lingsch

tally cold and long winter days replacing a Motor Drive cabinet, my experiences have given me a great appreciation for how vital our ICBMs are in keeping our adversaries at bay. My career led me on a journey to do all kinds of amazing things, as an Electronics Maintenance Technician and learn as part of a maintenance team while being taught by great leaders. When I was ready I moved up from that to lead my own team as a Team Chief to go out to the missile field and execute the mission. After my time as a Team Chief, I was fortunate to remain in my shop to be a Supervisor of multiple maintenance teams in day-to-day actions fulfilling the ICBM mission. I now work with maintenance Technical Orders at Hill AFB and know that ICBMs will always be a part of my life. I am also a husband and father to 3 wonderful but crazy children. I started my journey to obtain a college degree back in 2012 when I graduated high school, but decided to join the Air Force and jumped back into school soon after I got to my first duty station, but something was still missing. Why was I going back to school? Why was it important to get my degree? Why did it matter to have a little piece of paper from a university if I was good at my current job and succeeding in that aspect? All that changed and those questions were answered when I met my wife. She is the smartest and most dedicated person I've ever met and she made me realize that what I do in the Air Force won't last forever and I need to better myself so that I can excel in the future and better provide for my family. Ever since that moment I have been working hard towards a degree.

SSgt Brock Pardue (90th Munitions Squadron, FE Warren AFB, WY) - Hoccheiser Memorial Scholarship recipient. SSgt Pardue is a Weapons Maintenance Team Chief who has completed a Masters Degree in Cyber Security and Information Assurance and is now working toward related technical certifications (Cybersecurity A+, Security+, Certified Ethical Hacking, and PenTest+) at Colorado State University.

Cybersecurity and information assurance are growing topics in today's world and can directly relate to the ICBM nuclear deterrence mission. While maintaining our nation's ICBM arsenal is extremely important, so is maintaining and securing our nation's information and technology assets. Being able to effectively identify vulnerabilities and



SSgt Pardue

flaws within a system can apply to not only cybersecurity but maintenance as well. Information assurance is expected in the day to day life of an ICBM professional. Whether it is maintaining classified technical orders or information, an ICBM professional should know how to disseminate and protect this information. Protecting information on computers or information about our nation's most critical assets will help keep the United States Air Force as the number one air power in the world. As I progress within my studies I will be able to more effectively protect information assets and decrease vulnerabilities found within our current policies and practices.

SSgt William "Tyler" Hamilton (532nd Training Squadron, Vandenberg Space Force Base (SFB), CA) - Hoccheiser Memorial Scholarship recipient. SSgt Hamilton is a 2M0X2 Missile Maintenance Instructor with teaching the next generation of maintainers. He is currently pursuing a Bachelor's degree in Project Management from American Military University.

My academic pursuits are providing me vital leadership skills to teach the next generation of ICBM professionals. I spent six years at FE Warren as a technician and Quality Assurance with 498 dispatches, including 150 convoys, one successful test launch at Vandenberg, four SELM (Simulated Electronic Launch Minuteman) tests, 3 (Hardness Surveillance Electromagnetic Pulse Program) HSEP tests, and multiple trips to Vandenberg for testing of the Payload Transporter Replacement, earning the 2017 AFGSC Best Missile Maintenance Team and Blackburn Trophy. I've



SSgt Hamilton



SrA Orozco-Villanueva

trained over 150 students and completed 12 classes towards my bachelors since moving to Vandenberg SFB in 2020 with a 4.0 GPA. I am passionate about bettering my ability to teach - finishing my instructor Community College of the Air Force Certified Instructor Certification with over 1400 hours of instruction.

SrA Marcela Orozco-Villanueva (90th Force Support Squadron, FE Warren AFB, WY) - Simpson Founders Scholarship recipient. SrA Orozco-Villanueva is Missile Field Food Specialist in alert facilities in the 90th Missile Wing while also pursuing a Bachelor's degree in Project Management from the University of Arizona.

People view my role in the ICBM mission as a small one. I say that providing support is the cornerstone for the mission. If I stopped for a day then the team and crew on site will not be able to focus on their jobs. I plan according to their rotations to perform and deliver in a timely manner. I run an active account and a daily inventory on supplies, planning ahead so I can support the mission without any incidents. As a child of immigrant parents, I make sure to take any opportunity I can so their sacrifices would not be in vain. I will be the first in my family with a BA. On top of the mission, I have been attending school and taking any chance I can get to be involved with the community on and off base. Due to this, I have recently been promoted to Senior Airman Below the Zone.

SrA Walter Kun (90th Force Support Squadron, FE Warren AFB, WY) - Simpson Founders Scholarship recipient. SrA Kun is also a Missile Field Food Specialist supporting the 90th Missile Wing mission, focusing on a Bachelor's degree in Animation from the Los Angeles Film School to be completed in the spring of 2022.

Throughout the nuclear deterrence mission there is a need for a lot of visuals, training and guidance for Airmen. (This degree will help)...to make those visuals possible in a highly detailed way to help the mission. I have three years within my job experience towards the ICBM mission and I provide meals for all the of personnel out here at the MAF's. I am currently taking accelerated courses - taking accelerated courses - taking multiple classes at a time to gain my degree.



The 20th Air Force Page



Slaying the Mythical Dragon

Sentinel Dragon 22-1: Defending the Homeland, Assuring Allies, and Accelerating Integration - *By Maj Gen Mike Lutton, Commander, 20 AF*

From mid-December 2021 until late February 2022, innovative leadership teams across 20th Air Force (20 AF) executed Sentinel Dragon 22-1 at FE Warren Air Force Base (AFB), WY; Kirtland AFB, NM; Malmstrom AFB, MT and Minot AFB, ND.

Sentinel Dragon is a Numbered Air Force-wide readiness event combining three inter-related lines of effort: innovation; tactics, techniques, and procedures; and large force exercises all designed to increase readiness and ensure mission assurance while developing integrated lethality. Sentinel Dragon 22-1 scenarios centered around utility and communication disruption designed to challenge readiness and combat force generation from the installations across 20 AF. Kirtland AFB and our three missile complexes, in total, equal to the combined size of the state of South Carolina - a landmass easily encompassing the distance from Kadena Air Base, Japan to Taipei, Taiwan or Ramstein Air Base, Germany to Warsaw, Poland.

Sentinel Dragon 22-1 contributed to meeting the objectives of Action Order C: Competition from Air Force Chief of Staff Gen Charles Q. Brown, Jr.'s Action Orders to Accelerate Change Across the Air Force.

This action order explains that Airmen need to understand their role in the long-term strategic power competitions between the United States, Russia and China. The Air Force must also improve its understanding of competitors' ambitions and ways of war to inform how it organizes, trains and equips Airmen.

Like forces assigned to the Indo-Pacific and European theaters of operation, exceptional leaders across

the 20 AF demonstrated agile combat employment concepts to sustain critical utilities and communication nodes necessary to generate combat power. When current concepts were not effective, innovative teams developed concepts to maintain force readiness and generate combat power.

Lessons learned remain critical to growth in innovation; tactics, techniques and procedures; and refining large force exercises. Sentinel Dragon 22-1 focused our team's thoughts on refining and focusing installation defense plans to account for early utility disruption: early disruption targeted at unit readiness and the ability to generate combat power. Physical security remains THE priority focus for all our nuclear units; however, installation defense plans must account for cyber resilience and defense across our installations.

Sentinel Dragon 22-1 provided an environment for Airmen to innovate, refine and develop tactics, techniques, and procedures to generate combat power critical to deterrence and mission assurance with the backdrop of long-term strategic power competition between the U.S., Russia and China. The Airmen of 20 AF remain critical to defending the homeland, assuring allies, and accelerating change with the sole purpose of deterring strategic power conflict.

Configuring the Next Generation of ICBM Weapons Officers - *By Dr. Jeremy Prichard, 20 AF historian*

Since its establishment as the Aircraft Gunnery School in 1949, the United States Air Force Weapons School (USAFWS) has undergone two conversions, numerous expansions, and multiple refinements of how it graduates weapons officers and enlisted specialists.

A recent conference hosted by Maj Gen Michael Lutton, 20 AF Commander, underlined that last point as the Air Force forecasts multiple nuclear modernization programs in the coming years.

In advance of changes to the intercontinental ballistic missile (ICBM) enterprise – notably with the replacement of Minuteman III (MMIII) with the Ground Based Strategic Deterrent (GBSD) – 20 AF hosted a two-day conference at FE Warren AFB to resolve how the 315th



GBSD Weapons Instructor Course Conference Attendees



Col Jared Nelson, 20 AF/A3/6 Director, Presenting the Final Proposed Course of Action to Maj Gen Michael Lutton

Weapons Squadron (WPS) – the USAFWS ICBM squadron – should begin incorporating GBSD into its curriculum and, relatedly, when to phase out MMIII academics.

Currently, in addition to academics on the nuclear enterprise, ICBM weapons officer graduates receive a combined 150 academic hours on their respective Minuteman III weapon system. Creating weapons officers on MMIII will remain critical for the lifespan of the weapon, projected to remain on alert into the 2030s; but with the anticipated operational capability of GBSD in 2029, many have begun considering alterations to the course’s curriculum that incorporates the new weapon system.

The timing is also ripe for change as the Air Force configures future budget plans and considers how many resources might be needed – to include the potential for more facility space and additional instructors assigned to the 315 WPS at Nellis AFB, NV – before the Air Force certifies GBSD on alert status.

Similarly, given that 2022 marks 10 years since the 315 WPS’s activation, the gathering provides an opportunity to seek feedback from recent graduates and incorporate updates to the syllabus. Though major changes to the curriculum have occurred during that period, participants considered this event the most consequential re-write to the curriculum since courses began more than a decade ago.

Parallels

The group invited to the GBSD Weapons Instructor Course (WIC) Conference in January were tasked with solving those key questions: What should those changes look like, and when should they be implemented?

Gen Lutton determined that the ideal attendees equipped to find answers to those questions were graduates from the ICBM WIC, the “keepers of the weapons school,” he acknowledged. Weapons officers assigned to HQ 20 AF’s A3 directorate organized the conference. The two-day conference shared parallels with the ICBM WIC’s origins begun in 2008.

At that time, then Lt Col Lutton, the Commander of the 328th Weapons School (Space), was charged with creating a separate ICBM WIC. The instructor who

volunteered to administer that standup initiative was then Maj Jared Nelson. Col Nelson was charged with organizing the January WIC conference. Also critical in hosting duties was Lt Col Katherine Mack, now 20 AF/A3T Chief of Training, Test, and Evaluations. Col Mack was a graduate of the first ICBM WIC class in 2010. (In 2012, ICBM curriculum transferred from the 328 WPS to the 315 WPS following activation of the latter squadron.)

In all, nearly two dozen ICBM WIC graduates converged at FE Warren AFB’s Trail’s End to attend the working conference, complemented by others with various connections to the 315 WPS.

Working Groups

Before breaking into groups, Gen Lutton addressed the entire group, stressing that the team’s final proposal “shouldn’t be perfect.” Instead, the intent of this gathering was to begin the process of building a plan, with the expectation that future weapons officers would revisit and revise it as major MMIII/GBSD transition milestones materialized.

The group also received background briefings from three individuals: Col Daniel Lehoski, Commandant of the USAF Weapons School, offering perspective on how other weapons squadrons have adjusted curricula in response to newer weapons systems; Lt Col Andrew Salloum, current 315 WPS Commander, providing a history of the ICBM WIC and its current academic objectives; and Lt Col Kevin Hummert, Air Force Global Strike Command/A5IG, with a classified overview of the MMIII/GBSD transition timeline. Following those briefings, each participant was placed in one of three working groups with a unique problem statement: 1) whether to begin incorporating GBSD instruction into the syllabus immediately; 2) whether to create a separate path for GBSD students, thereby creating two tracks (alongside one for MMIII students) under the 315 WPS; or 3) whether to integrate multiple mission sets beyond missile operators into the 315 WPS, such as maintainers, security forces, and helicopter pilots, as examples.

For nearly three-quarters of the conference, working group participants mulled over how their respective course of action could become feasible, and where gaps existed within it. Interspersed within these group gatherings, members presented their findings to the entire team and, afterward, incorporated feedback from those engagements upon returning to their respective groups.

On the final afternoon, Gen Lutton offered his preference following one last round of briefing proposals.

Conclusion

While the final product incorporated components from each group, the participants settled on an adaptable syllabus that begins incorporating GBSD into the curriculum immediately. Syllabus writers will attempt to glean as much GBSD information as they can, integrate that material into the current academic structure, and modify future syllabi as developments warrant. Ideally, once two missile wings had

converted to GBSB entirely, if not sooner, syllabus writers could begin removing MMIII technical data from the course. Ultimately, the goal for the 315 WPS will be graduation of ICBM weapons officers, not specifically MMIII or GBSB weapons officers.

Reflecting on the group's accomplishments – relaying both the historic nature of this event and the importance of their contributions – Col Nelson remarked that their efforts “will easily lay the foundation of the WIC for the next 30 years.”



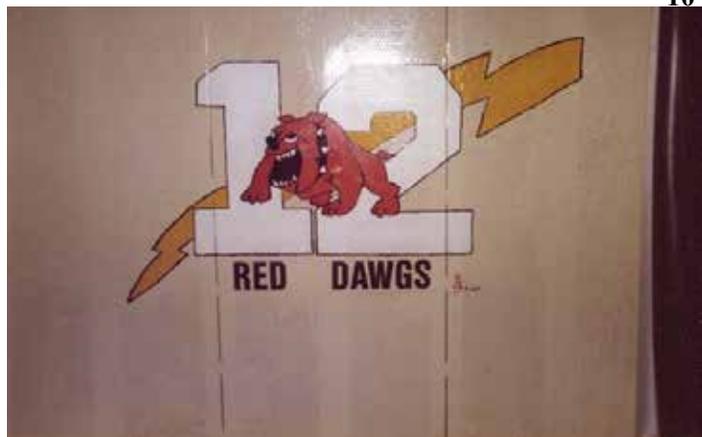
Entering Hotel-01 LCC

Large Pepperoni, But Hold the Nukes - by Dennis Brooke, AAFM Mbr No L799, Tacoma, WA.

Think about the oddest “wrong number” phone call you’ve received. I remember picking up a voice mail left by a panicked homeowner - who was looking for a plumber. I guess the “Dennis and Laurie can’t come to the phone...” didn’t make it clear we weren’t the local Roto Rooter. I hope they didn’t drown trying to bail out their basement before figuring out they had misdialed.

But the most persistent wrong number I received was when I was serving as a missile launch officer at Malmstrom Air Force Base (AFB) in Great Falls, MT. One of our Launch Control Centers, designated Hotel Zero One, happened to have the same four-digit extension as the downtown Pizza Hut. If a hungry person on base dialed the three-digit Malmstrom AFB base exchange but the four-digit number for Pizza Hut they reached a nuclear missile launch control center, forty feet under the soil of Montana.

You would think that my standard greeting, “Hotel Launch Control Center, Captain Brooke speaking,” would be their cue this was not a place that delivered pizza. But several times a month I would answer the phone and then have someone place an order for a delivery from Pizza Hut. During the first few months I patiently explained their error, but I have to confess, eventually I just repeated their order.



12 SMS Red Dawg Door Art

I then told them to expect their pizza in thirty minutes. I’d like to say that I was trying to do my part to create a more fit fighting force by depriving my fellow Airmen of grease laden pepperoni specials. In reality I was just annoyed.

The odd thing is nobody ever called back asking what was the hold up on their pizza delivery. I wonder how many got mad after an hour and called Pizza Hut versus those who just passed out on their sofa after their sixth Budweiser.

The award for the most unusual wrong number though has to go to my friend who was handling phone duty one day at the squadron ready room. The phone rang and when he picked it up, he said, “12th Strategic Missile Squadron, Lieutenant Trahan speaking.” (Note that usually at this stage in the story I would say, “Names have been changed to protect the innocent.” I haven’t done that because he is in fact, guilty.)

A befuddled woman, evidently hard of hearing, asked, “Do you have any flights to Calgary.” The astonished Lt Trahan said, “Ma’am, this is a missile squadron. We don’t have any flights to Calgary.” Then being a quick-thinking LSU grad, he added, “We could get you there, but it wouldn’t be any fun.”

It might not have been fun, but man, what a ride!

This story was first published in the Fall 2021 issue of the Friends Journal, the quarterly magazine of the Air Force Museum Foundation and is reprinted here with their approval.

Help Wanted:

Do you have financial management/auditing experience? Our Finance Committee is looking for a member who is interested in developing and monitoring our annual budget. If interested, please reach out to Bob Parker at bobanddayna@gmail.com

Have you ever edited a magazine or newsletter? We are looking for someone interested in developing and editing the AAFM newsletter. If interested, please contact Jim Warner at director@afmissileers.org



Western Museum of Flight

Western Museum of Flight - by CMSgt

(Ret) Bob Kelchner, AAFM Board Member, Torrance, CA.

The Western Museum of Flight (WMOF) was inspired by the then Northrop Company. It was established at the Hawthorne Municipal Airport in 1981, and relocated to its current location at the Torrance Municipal Airport – Zamperini Field, Torrance, California, in 2006.

The WMOF was established to capture the imagination and inspire achievement through memorable experiences that celebrate the rich Southern California aerospace industry legacy. From their earliest beginnings during Post World War II, US missile and intercontinental ballistic missile (ICBM) programs have been highly entrenched in the fabric of the Southern California aerospace history. In December 2020, the management of WMOF submitted a request to Association of Air Force Missileers (AAFM) for a grant of \$2,000. The project was to document the evolution of the fledging aerospace companies in the Southern California. The project was to document the ICBM story through, storyboards, photos and scale models videos. These companies included Ramo-Wooldridge, Northrop Corporation, North American Aviation, Convair and others. These companies started and nourished the technical development of what is now the USAF ICBM program. The grant of \$2,000



Bob Kelchner and Joe Provenzano, a docent for the WMOF. A Northrop Grumman veteran, he is the architect and builder of the exhibit.



*Storyboard of ICBM Development in Southern California
The timeline starts in 1946 with captured German V2 rockets and continues with Thor, Minuteman and the GBSD.*

was awarded by the AAFM Board of Directors in December 2020. The project was completed by December 2021.

Key Highlights of the project:

1 - The historical story of the evolution of Ramo-Wooldridge Corporation into Space Technology Labs and eventually TRW, Inc. as the architects of the USAF ICBM program.

2 - Historical photos of key innovators and events in the timeline.

3- Brief biographies of key individuals (Ramo, Wooldridge, Northrop, Martin, Schriever, etc.)

4 - A storyboard timeline/family tree diagram provides the diverse history of the missile programs from 1945 to present including the “family tree” branches for NASA, US Army and air defense systems.

5 - Models of the SM-62 Snark, the SM-65 Atlas I, and other early missiles are displayed, as well as the LGM-25 Titan I, SM-64 Navaho, MGM-1 Matador, PGM-17 Thor, PGM-11 Redstone and LGM-30 Minuteman.

I was invited to inspect and review the exhibit in December 2021. This exhibit is very detailed and gives an accurate timeline of ICBM development in Southern California. The Ballistic Missile Division (BMD) was established in 1954 in a schoolhouse in Hawthorne, CA, only a few



Scale ICBM Models



Video of ICBM History

miles from the museum at Torrance Airport. The WMOF describes this history in an entertaining way. The storyboards, photos and models of many early ICBMs are very impressive. The missile models were manufactured by digital printing and have all the operational colors applied. This an outstanding display and AAFM is proud to have funded its development. The results of the AAFM grant of \$2,000 to develop this display exceeded expectations.

The museum has plans for future expansion. The expansion would include a viewing room with large flat screen equipment. Presently, the museum is busting at the seams and has very limited room for new displays.

For additional information contact Cynthia Macha, Director, Western Museum of Flight, Torrance, CA 90505, (310) 326-9544. Email: cm@wmof.com, www.wmof.com.

Warren Museum Update - by Col (Ret) Matt Dillow, AAFM Mbr No L804, Cheyenne, WY.

Outside the main gate of FE Warren Air Force Base (AFB) in Cheyenne, WY, is a sign proclaiming the installation as the “Home of the Missileer.” This is a fitting characterization, as FE Warren was the nation’s first operational missile base and has supported alert operations for several variations of the Atlas, Minuteman, and Peacekeeper weapon systems since the late 1950s. The installation is an intriguing reflection of its 154-year history spanning the early days of the frontier to the impending deployment of America’s newest intercontinental ballistic missile (ICBM) weapon system (the Ground Based Strategic Deterrent) and is the longest continuously active base in the Air Force. Whether you are a devoted student of history or have a more casual level of interest in the history of ICBMs or the Old West, the Warren ICBM and Heritage Museum is the perfect jumping-off point for exploration.

The museum is housed in Building 31, built in 1887 as the post hospital. The early days of the 19th century United States Army at what was then known as Fort DA

Russell is brought to life with uniforms, weapons, and everyday gear of the soldiers and other inhabitants of the old fort. Of particular interest are the displays about the storied Buffalo Soldiers and the installation’s role in the Spanish American War. For those intrigued by this era of the Army in the Old West, a tour of the museum coupled with a trip 100 miles north to the Fort Laramie National Historic Site paints a vivid picture of the era. You can almost hear the ghosts of the soldiers of old Fort DA Russell in the museum, located in the heart of the historic district of the base.

A short trip to the base cemetery, where graves of the past inhabitants of the base can be found, helps to tell the story of the installation. The headstones chronicle the families, soldiers and Airmen who lived and worked at Fort DA Russell, Fort FE Warren, and FE Warren AFB. The cemetery is open to visitors and dates to December 1867 with the burial of Private John Saunders and Private Maurice Gorman, both with Company G of the 30th United States Infantry. The graves of German and Italian Prisoners of War from World War II offer an interesting glimpse into the role of the base in the 1940s.

The museum also documents the history of the fabled 90th Bomb Group (BG) (now the 90th Missile Wing (MW)) and its exploits in the Pacific Theater during World War II. Of particular interest is the original A-2 leather flying jacket of Colonel Art Rogers, the commanding officer of the Jolly Rogers. The B-24 squadrons of the 90 BG (the 319th, the 320th, the 321st, and the 400th Bomb Squadrons) were among the most decorated flying units of the war, and the current operational Minuteman squadrons of the 90 MW trace their distinguished heritage directly to these combat units. The famous Skull and Cross Bombs insignia of the 90 BG is worn by the combat mission ready missileers of the 90 MW to this day.

The museum does a fine job documenting the rich history of the ICBM mission at FE Warren. From the early days of the Atlas missile (to include the venerable 564th Strategic Missile Squadron), to Minuteman to Peacekeeper, the museum educates the public on the hardware, the people, and the vital mission of the ICBM force. For those with deeper experience and knowledge of the ICBM mission, the museum is a treasure trove of interesting artifacts - a



A2 Jacket from Col Art Rogers, 9 GC Commander

Q01 State Historic Site - *By former AF Captain and now Wyoming State Senator Brian Boner, AAFM Life Member and Christina Bird, District Manager for Wyoming State Parks*

The State of Wyoming was proud to bring Quebec-01 (Q01), formerly of the 400th Missile Squadron, back to life as a state historic site in the fall of 2019. This took years of concerted effort and cooperation between the state and the 90th Missile Wing (MW). I am proud of the work that went into getting this site open to the public and am excited about the future opportunities we have to tell the story of the 90 MW. These efforts represent the best of the strong cooperation between the Air Force and the State of Wyoming.'

The path from operational missile alert facility (MAF) to historic site can be traced back to when Q01 was taken off alert in 2005. After the site was mothballed, the airmen of the 90 MW spent over a decade maintaining the facility. This was no small task given the harsh environment in northern Laramie County, as well as the significant work it takes to ensure the prairie doesn't reclaim such sites. The effort to convert the MAF to a historic site began in earnest in 2015. The Wyoming legislature, working in concert with our federal delegation, began the work of jumping through the legal hoops needed to make such a transfer occur. This required 3 pieces of legislation in the state legislature and amendments in two National Defense Authorization Acts.

Even as our state and federal governments went through the legislative efforts required to transfer Department of Defense property to the state, the 90 MW worked hard to get the site back into its 2005 condition. Members of the 90 MW rehabilitated the infrastructure, restored furnishings and installed period specific equipment to the site. In conjunction with that process, Wyoming State Parks and Cultural Resources were working diligently to ensure that the site would be ready to open to the public as soon as the



Mark 12 Reentry Vehicle

Minuteman Command Data Buffer-B deputy's console, a Minuteman III shroud, guidance sets, and a reentry vehicle, among many other items. Younger visitors can try their hand at operating an ICBM console mockup or interact with historic kitchen equipment.

The museum is a great stage setter for a 30-minute trip down the road to the Quebec-01 Missile Alert Facility (MAF) State Historic Site managed by the state of Wyoming. It is the only accessible Peacekeeper MAF in the world and is configured exactly as it would have appeared when the Peacekeeper system was deactivated. The operationally configured launch control center will serve up a healthy dose of nostalgia for anyone involved in Minuteman or Peacekeeper operations (even the smell is authentic).

Daniek Long is the current Museum Director/Curator of the Warren ICBM and Heritage Museum, just the second person to hold the position in the last 30 years (the previous director was her mother, the legendary Paula Taylor). She is working to put her own touch on the museum and has updated rotating displays that show off just a fraction of the museum's extensive collection. For those who have artifacts they would like to donate, please reach out to Ms Long via email (daniek.long@us.af.mil) with photographs and descriptions. The museum plays a critical role in the preservation of our ICBM heritage as well as the history of the installation and the region; monetary donations are always welcomed and can be sent to the Warren Military Historical Association, 401 North Champagne Drive, FE Warren AFB WY 82005. Additionally, an overview of the museum and the history of the base is available at the museum's web site: www.warrenmuseum.com.



Q01 Launch Control Center



Q01 Blast Door Art

transfer took place. Staff worked with the military community to find donations, first person narratives and artifacts that pertained to the history of the site. These efforts were most appreciated and have helped staff to enrich the experience at Q01.

I had the honor of serving on a committee charged with creating the interpretative plan. This committee was comprised of a diverse group of people, from former 20th Air Force Commanders to activists who protested the Peacekeeper. The committee identified cultural and natural resources, defined themes for the exhibits and identified individuals in the Air Force community who might be able to assist with the project. Over the course of several months, the Interpretive Plan was developed and ready for the next phase Exhibit Plan, which included Phase I and II exhibits concepts as well as fabrication and installation of phase I exhibits. Within three months of Air Force property transfer, the site was ready to open to the public in August of 2019. Official dedication occurred in October 2019, with over 100 members of the Air Force community, Wyoming Legislators, the Boeing Corporation, volunteers and staff in attendance.

Wyoming is proud to share the history of ICBMs in our state. As geopolitical instability and competition from pacing threats increase, the need for updating the nuclear triad becomes increasingly clear. Even as we face an uncertain future, it is important to remember our history. As we all know, keeping the peace requires constant effort and vigilance. Given the success of strategic deterrence, the general public can easily take the activity in the missile field – and its stabilizing effects - for granted. While the exhibits at the site are very good at presenting the history of the site in an unbiased manner, a visitor will leave the site with a full understanding of the significant effort required to operate, maintain and secure our ICBM force.

Though the pandemic has deflated our hopes for initial visitation of the site, the state is committed to getting our newest historic site off on the right foot. The Wyoming legislature just approved a \$1.2 million budget earmark for advertising and interpretation of the site. This will allow

the site to expand its efforts in reaching visitors through the Wyoming Department of Tourism's efforts at the Welcome Centers in Wyoming. Wyoming State Parks and Cultural Resources is embarking upon Phase II exhibits, which allow expansion of the themes of the site through exhibits and interactive displays. As always, the site is eager to maintain and create new relationships with our Air Force community and those who served the mission of the 90 MW. The site is open 7 days a week May through September and by appointment October through April. For more information, check out the website at <https://wyoparks.wyo.gov>.

Taps for Missileers

MSgt Robert Burniston, an AAFM Life Member, served in Atlas E in the 548 SMS and Minuteman I and II in the 341 SMW and lived in Condon, OR.

Col (Ret) Albert "Rich" Greene, an AAFM Life Member, served in Minuteman in the 90 SMW, 91 SMW and 321 SMW, in Titan II in the 308 SMW, including as the last Commander, in the 381 SMW and 390 SMW, in Thor and Peacekeeper, at 1 STRAD and SAC, and lived in Warwick, RI.

Former Capt David M. Morrissey, an AAFM Member, served in Minuteman in the 44 SMW and the 4315 CCTC and lived in South Bend, IN.

SMSgt (Ret) Mike Moorman served in Minuteman in the 90 MW.

Lt Col (Ret) Howard Rice, an AAFM Life Member, served in Atlas in the 576 SMS, and in Minuteman 321 SMW and the 394 SMS and lived in Monument, CO.

Former SSgt Dan Vanecko, an AAFM member, served in Atlas in the 577 SMS and lived in Phoenix, AZ.

Major (Ret) Guy A. Navarro served in Minuteman and lived in Alexandria, LA.

Lt Col Jack Waterfield, an AAFM member, served in Atlas E in the 548 SMS, in Minuteman in the 341 SMW and 351 SMW, at SAC, and lived in Great Falls, MT.

AAFM By-Laws updated

At the March 2022 AAFM Board of Directors meeting the Board unanimously approved several changes to our by-laws. In addition to cleaning up outdated references and other administrative actions, the changes included several key actions:

1 - Updated the definition of a missileer member to include those who have operated, maintained, defended, acquired, sustained, or supported rather than just those who have worn the missile badge

2 - Limits Board of Directors to two consecutive terms of 12 years

3 - Added email and electronic polling to voting options

4 - As a result of our new electronic polling, reduced voting time from 45 to 30 days

5 - Added on line meetings as an option for Board Meetings

6 - Added the role of a nomination committee

Letters to AAFM

Address letters to AAFM, 17714 Cherokee St, Broomfield, CO 80023, or send by email to director@afmissileers.org. Letters may be edited, content/meaning will not be changed.

Deterrence and Arms Control - In a recent newsletter there was an excellent article on the need for a new land-based ICBM: Land-Based ICBM's Create a "Technical-Synergy-Energy." The newsletter expressed concern that the United States needs to modernize, including its ICBMs. As part of the article, AAFM wrote, it "... is committed to educating and informing the public on U.S. dependence on maintaining a credible nuclear deterrent. As an AAFM member we need you to reinforce our commitment to GBSB by emailing or writing to your Senators and Representatives. Your advocacy and missile field experience counts and is needed to negate the misinformation about the viability of US land-based ICBM nuclear forces."

I would strongly agree with AAFM's advocacy of a strong, modernized ICBM leg as part of GBSB force structure. It is always on alert and ready when ordered to launch. To me the benefits of the ICBM are clear. However, I would suggest that AAFM not overlook the role that nuclear arms control has played in the past and still plays as part of deterrence. Obviously with the ongoing Russian attack on Ukraine, nuclear arms control negotiations with Russia are not on anyone's agenda right now!

That said, however, there is currently in effect a US-Russian strategic nuclear arms control treaty: The Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms, also known as the New START Treaty. Both parties believe the Treaty enhances their national security by placing verifiable limits on all Russian and US deployed intercontinental-range nuclear weapons. The United States and the Russian Federation have agreed to extend the treaty through February 4, 2026.

My point is that AAFM, while correctly calling for the modernization of the US ICBM force, should also carefully consider the role a well negotiated and well verified strategic arms control treaty can play as we go into the future. AAFM has a strong and wise voice; let's be sure to look at all aspects of how future nuclear Land-Based ICBM's Create a "Technical-Synergy-Energy." *Col (Ret) Richard G. Toye, AAFM Mbr No , Ft Belvoir, VA.*

Hearing loss follow up - I'm responding to Dick Dewar's question in the December 2021 newsletter about hearing loss. I pulled alerts in the 570 SMS in Titan II at Davis Monthan from 1972-1975. I was diagnosed with an asymmetric hearing loss in 2000 with the right ear being significantly worse than the left. I have wondered, although there is no way to

prove it, whether the more significant hearing loss in the right ear had anything to do with the headsets we wore. My hearing has slowly declined since the original diagnosis and I began wearing hearing aids in 2012. I have heard anecdotally from some other former Titan II crew members over the years and some of them have complained about asymmetrical hearing loss as well. - *Former Lt Gary Funkhouser, AAFM Mbr No A1599, Rockville, MD.*

Check your DD-214 for a disability statement concerning hearing loss. I am 81 and just went through the DAV for possible benefits for those conditions. They used this to get an evaluation based on that statement in 1975, I received disability of 40% for hearing loss and tinnitus. As a result, I have gotten some super hearing aids prescribed, and an audiologist to monitor that condition. *Former Capt Robert Vann, AAFM Mbr No A3510, Huntsville, AL.*

After serving 4 ½ years on a Titan II crew, 2 years on a Minuteman crew, and 2 years flying on the SAC Airborne, I too wondered about hearing loss. I contacted the local VA and started the process to receive hearing aids. During the process, I was told to point out that I worked with radios, i.e HF, UHF, etc. After hearing tests and interviews, I was granted the hearing aids. One should also bear in mind the age has a place in the equation. *Col (Ret) James MacCracken, AAFM Mbr No A1264, Peoria, AZ.*

New Members

We continue to welcome new Members to our Association, as well as those longtime Members who have decided to convert from annual memberships to lifetime memberships. New Members can learn more about Member benefits by visiting the AAFM at www.afmissileers.org or by reviewing our Newsletter Archives that are part of the web page.

New Members since 31 December 2021 -

Daniel Altenes	Andrew Reed
Matthew Barker	Phil Rockwell,
Nathan Bischooping	David Rundell
Phillip Blansett	Scott Sherrick
Billy Burns	David Scanlan,
Blake Campbell	Russell Shaw
William Hamilton	Wayne Surratt,
James Harrison	Brittany Talbot
Steven Heizer,	Billy Whistler
David Henning,	Greg Wooldridge
Robert Hill	
Fred Hollinger.	
Rashan Moore	
David Mosey	
Scott Nowlin	
Gregory Oliver	
Greg Pluta	
John Raney	

Life Members

Jack Burns,
Nathan Case
Charles Gray
William Hasbrook
Aaron Wilkins

AAFM Missile Heritage Store

Send this form to AAFM, 17714 Cherokee St, Broomfield, CO 80023 or go online to <https://www.afmissileers.org> See pictures on our store site

Lapel Pins – any two pins \$10, any 6 \$25, and any 15 \$50

Missile badge: Silver 1 ¼ inch

Basic ___ Senior ___ Master ___

Missile badge with Ops Designator:

Basic ___ Senior ___ Master ___

AAFM: ___ Cuban Crisis: ___

Minuteman II Alerts: 100 ___ 200 ___

Space: Basic ___ Senior: ___ Master: ___

Challenge Coins: \$10 ea or 3 for \$25

AAFM ___ 3901 SMES ___ Cuban Crisis ___

AAFM 25th Anniversary ___

Missile Competition (Guardian and Global Strike)

Any 3 for \$15

2006 ___ 2008 ___ 2010 ___ 2011 ___ 2012 ___

2014 ___ 2019 ___

AAFM Logo:

Brief case: \$15 each ___

Ball cap: \$15 each ___

AAFM Patch (3" or 4") 2 for \$10 or 5 for \$25

Patches: \$10 each (Most are reproductions)

Subterranean Patch: ___

321 OSS instructor: ___

Cuban Missile Crisis: ___ w/ velcro ___

341st Missile Maintenance Squadron: ___

395th Strategic Missile Squadron: ___

Strategic Air Command patch, 4 inch with SAC Strip: ___

510 SMS: ___

341 SMW/SW/MW 50th Anniversary: ___

389/706 SMW Patch: ___

6555th Aerospace Test Wing: ___

Full Size Missile Badges: \$10 each

Missile badge:

Basic ___ Senior ___ Master ___

Missile badge with Ops Designator:

Basic ___ Senior ___ Master ___

Combat Crew Badge \$10 each ___

Books

A Cold War Legacy: Large, 700 page "Tribute to Strategic Air Command - 1946-1992" by Alwyn Lloyd. Many photos and histories of specific events, organizations, more \$30 ___

Air Force Fifty: An Air Force Association coffee table book commemorating the 50th anniversary of the Air Force. Lots of photos, unit histories, personal stories, but almost nothing on missiles. \$20 ___

LeMay: Warren Kozaks' "The Life and Wars of General Curtis LeMay." \$20 ___

Broken Arrow : Second Edition of Joel Dobson's book on the '61 B-52 crash \$20 ___

Nuclear Express: Former SecAF and AAFM Member Tom Reed's book covering nuclear weapons development in every country who had or has a program \$20 ___

AAFM's Missileers and the Cuban Missile Crisis \$15 ___

We Wear the Pocket Rocket - Collection of AAFM articles from 1993 to 2021 - Hard Copy \$20 E-Book - \$10 ___

Prints: \$15 each

Cuban Missile Crisis A06 on alert ___

Countdown 5,4,3,2 ___ ,1

The Guardians ___

AAFM CD and DVD Collections:

\$10 each set or \$25 for any 3

CD sets - AAFM and Historical Data ___ Early and Airlaunched Missiles ___ Atlas D, E, F ___

Titan I and II ___ Minuteman I, II and III ___ C

Competitions and Peacekeeper ___ GLCM ___

Matador and Mace ___

DVD Sets - AAFM and Historic Videos ___

Atlas D, E, F and Titan I and II ___ GLCM ___

Minuteman I, II, III and Peacekeeper ___

Early Airlaunched Missiles ___

Air Force Space Videos ___

SAC ___ Competitions ___

SAC Memorial DVD - Dedication at Dayton ___

AAFM 2012 National Meeting at Malmstrom ___

The Groobers Missile Music CD ___

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AAFM National Meeting - Salt Lake City 5-9 October 2022

Registration: On line at www.afmissileers.org or complete the form below. Closeout date is 5 Sept 2022.

Reservations: We will be using the Courtyard Marriott and the Hyatt House which are side by side in downtown. Hospitality Suite and all dinners and meetings will be in the Courtyard. Make your hotel reservations directly with the Courtyard or the Hyatt House (see links on our web site). Rate is \$139, including breakfast for two each morning. Rate is available days on either side of your visit. While there is no airport shuttle for the hotel, there is a train from the airport to downtown.

Not Staying at the Hotel? - If you are staying in a motor home, other hotel or with friends, or live in the area, you can attend any or all of the events. Complete the reservation form for the events you would like to attend. Check with the front desk for parking permits.

Hospitality Suite: - Open every day when no other activities are scheduled, with snacks and refreshments and some items from the AAFM store. Registration fee covers suite operation.

Attire: - Casual dress for all events except for the Banquet: business casual (open collar shirts, coats optional, no jeans)

Special Needs: - Let us know of any special diet needs, handicapped access, etc.

Schedule of Events –

Wednesday, 5 October 2022

1300 - Registration, Hospitality Suite open Early Bird \$30 until August 15th; then \$35.

1800 - Welcome Reception and pay as you go bar, \$25 per person.

Thursday, 6 October 2022

0700 - Breakfast (included in room rate)

0830 - Depart hotel for Tour of SLC area-bus and lunch \$48 per person

1800 - Dinner at the hotel pay with as you go bar - \$30 per person.

Friday, 7 October 2022

0700 - Breakfast (included in room rate)

0830 - Depart hotel for tour of Hill AFB - \$48 for bus lunch

1630 - Return to hotel

1800 - Dinner at the hotel pay as you go bar - \$35 per person

Saturday, 8 October 2022

0700 - Breakfast (included in room rate)

0730 - 0830 - AAFM Board of Directors Meeting

0900 - General Membership Meeting

1200 - Lunch \$20

1800 - AAFM Banquet w/ speaker - \$62 per person, choice of Steak, Chicken, or Vegetarian and pay as you go bar

Sunday, 9 October 2022

0700 - Breakfast (included in room rate)

1100 - Depart hotel

Registration Form - 2022 National Meeting

Online registration at AFMissileers.org or via Mail with check to AAFM, 6128 Highwood Park Lane, Naples, FL 34110

Name _____	Registration fee-\$30 each _____	Number _____	Amount _____
Address _____	Late registration (23 Jul) \$35 _____		
City, State, Zip _____	Wednesday Reception- \$25 each _____		
Phone _____ Number Attending _____	Thursday Tour \$48 each _____		
Spouse/Guest Name _____	Thursday Dinner \$30 each _____		
Arrive _____ Depart _____	Friday Tour \$48 each _____		
Special Requirements _____	Friday Dinner \$35 each _____		
(Enter names as preferred on name tags) _____	Saturday lunch \$20 each _____		
	Banquet \$62 each _____		
	Circle one per person: Steak Chicken Vegetarian		
	Total Amount _____		

For Base Tour for Active/Retired Military or spouse with ID card - Full name and SSN:

Member: _____ SSN _____

Guest: _____ SSN _____

For those without active/retired ID cards, Full Name, State Driver's License No and last four digits of SSN:

Member: _____ DL No: _____ State: _____ SSN Last four: _____

Guest: _____ DL No: _____ State: _____ SSN Last four: _____

Association of Air Force Missileers
17714 Cherokee St
Broomfield, CO 80023

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Reunions and Meetings

308 SMW, 5 August 2022, Little Rock AFB, AZ, Register at <https://www.afmissileers.org/Meetings-and-Reunions>.

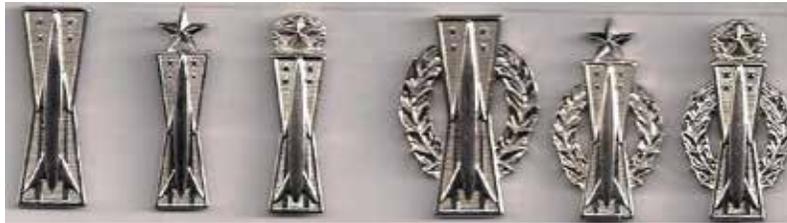
Contact Linda Aldrich, Isaletters@comcast.net, 303-551-3039

390 SMW Memorial Association, 4 May 2022, Tucson, AZ, Contact John Lasher (520) 886-3430, Dick Kampa (520)

747-7592, Joe Brown (520) 886-2379 or redsnooty@comcast.net

Association of Air Force Missileers 2022 National Meeting - 5-9 October 2022 in Salt Lake City, UT.

Plan your unit reunion in conjunction with our National Meetings and let AAFM take care of all the details. Get your reunion notices in early so we can help spread the word. Keep in mind that a significant number of our members do not use Facebook or email, so include a telephone contact number in your announcement.



Keep your mailing address, email address and dues current with AAFM. Email us at aafm@afmissileers.org, call 719-351-3962, or mail to AAFM, 17714 Cherokee St, Broomfield, CO 80023

AAFM is a non-profit, tax-exempt organization under section 501c(3) of the IRS Code.
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Board of Directors -

President - Gen (Ret) Lance Lord, Aurora, CO **Vice President - CMSgt (Ret) Mark Silliman, London, OH**
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Association of Air Force Missileers, 17714 Cherokee St Broomfield, CO 80023 719-351-3962

<https://www.afmissileers.org> Email - aafm@afmissileers.org or director@afmissileers.org