Considering himself very lucky and backed by a lot of prayer and a guardian angel, Clayton Kelly Gross stands in front of his P-51 Mustang which he flew with the 354th Fighter Group—the Pioneer Mustang Group. During his two tours of duty in the ETO—flying 105 combat missions with 6 air victories, a 1/2 probable and 2 destroyed on the ground—Kelly was assigned the P-51A, B, C and D models.
NAAR BULLETIN, an affiliate of the Bald Eagles, Inc., is an independent non-profit organization created and operated by volunteer retirees of NAA/Rockwell/Boeing.

The NAAR Bulletin can be contacted at The Boeing Company, Seal Beach facility. Send mail to:

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Dear NAA Retiree Bulletin Subscriber

We begin the new year with an apology. We were overwhelmed in our last issue with too much material and several news items got left out, much to the disappointment of some of our readers. However, we hope to make amends in this issue with belated inclusion of these items. As is our custom, we looked over our list of subscribers and, although we gained some new readers, some of you old and dear friends and colleagues have taken flight and slipped away.

It is almost too much to fathom. How could a company that shot up like a brilliant comet streaking across the sky to become the leader of an expanding industry so quickly fade and die away, all in a period of fifty years? For old North American Aviation, we are the final memory, the last “Hurrah”!

In this issue we take a double look at the Hound Dog. In the dark days after the cancellation of the Navaho, the Space folks in Downey got a reprieve with a request to propose on what became the Hound Dog missile. Ellis Katz gives us an insight on the proposal team. Ben Boykin participated on the test team aboard the B-52 carrier aircraft evaluation of the Hound Dog attached to the bomber wing.

A new author has joined our burgeoning group of contributing writers. David Stern takes a look at the 1950s when the Space Race began and NAA, with its massive technical advantages, became a major contributor to getting America ahead and keeping our nation there.

Our final article resulted from a chance meeting by one of our readers with the author at the Gathering of Mustangs and Legends conclave in Ohio. He has written a fantastic book about his experiences during World War II and this is how he responded when we asked him if he would write an article for us:

“We must never let the name North American Aviation die! I would be happy to write for your publication. After all, I trained in the BT-14 and the AT-6 and flew the P-51 in two combat tours. I even had a few co-pilot hours in the B-25. North American never built a lemon! I give it credit for my survival.”

Blue Skies,
Kelly (a.k.a. Dr. Clayton Kelly Gross)

I believe that this is one of the best product endorsements ever written. After you read his article, give a thought to ordering his book “Live Bait”. That is the name he gave each of his P-51s. For a personal touch, ask him to dedicate the book to yourself or to someone as a gift.

The 46th Bald Eagles Reunion will be held on Saturday, April 12, 2008 at the Proud Bird Restaurant 11022 Aviation Blvd. (at 111th Street)

The Speaker will be:
Shep Hill – President of Boeing International
Doors Open for Social at 10:00 AM
Seating for Lunch at 12:00 Noon

Send your check for $22.00 payable to Bald Eagles Inc. to:
A. M. “Amby” Baccaro (310) 831-0945
3818 Stargazer Ave.
San Pedro, CA 90732-4529

Include with your check the name you wish on your badge and the name of each guest included in your payment. Tickets and badges will be issued as you register at the door. Tickets sold at the door will be $25.00.

Sorry, no refunds after April 7, 2008.

Order your tickets NOW and order early if you want preferred seating.

There are no service requirements to attend – just the love for Airplanes and Spaceships
Meet old friends—Make new one! Parking is limited—Carpool and Come Early!
I joined the Missile Division of North American Aviation in Downey in May 1955 and was assigned to the Preliminary Design Section headed by Bill Parker. Reporting to Bill were Bob Wilson for Design and Bernie Chew for Operational Analysis. My background at the time was aerodynamics and missile design. I was identified as a Responsible Engineer under Gordon Olson and George Jeffs. As an RE, I was to lead teams on projects to which I was assigned.

On July 13, 1957, the North American Navaho program was abruptly canceled. The cancellation was a result of the successes of the Atlas ballistic missile program. The Navaho, a 3,000-mile ramjet cruise missile, was deemed as not competitive for the prescribed mission. Ironically, much of the success of the Atlas could be directly traced to the technology developed for the Navaho.

Only weeks after the cancellation, the Assistant Secretary of the Air Force invited North American to come up with a design for a “lightweight air-to-surface missile”. It was to be carried by the B-52 bomber with a weight of not more than 12,500 lb fully fueled and armed. We were told it was a “hurry-up” project and that the concept had to be back in Washington within a week.

I was assigned the project under George Jeffs and recall working the weekend with a team which included Lou Walkover – best layout designer ever, Norm Ryker for structures – later President of Rocketdyne, “Bobby” Crawford (later Johnson) for aerodynamics – female member of our team and first-rate aerodynamicist, Fred Ethridge for propulsion – what Fred didn’t know about propulsion wasn’t worth knowing, and several others to evolve a design that might be acceptable. We based the configuration on the X-10/G-38 canard type to carry over as much data as had been compiled on the Navaho program.

As I recall, Bob Wilson and Bill Parker carried the concept back to the Pentagon and later returned with smiles.

By that time, we came to know that we were in competition with Chance Vought who had an air-to-surface adaptation of their Regulus Navy shipboard launched missile. Of course, we didn’t know then that the “dice were loaded” for us as consolation for the impending loss of the Navaho program. However, this view was later shared by many of us but not officially noted!

Although the general configuration of the first design was pretty much a scaled-down X-10, there were some significant configuration issues. Lou Walkover resolved the first issue: how to arrange the internal components (guidance & control, APU, etc.) of the bird so that they could be readily maintained while mounted under the B-52 wing. Lou immediately came up with the design that used a cantilevered “I-beam” projected from a forward bulkhead—all components would be mounted on both sides of the beam and easily accessible once the nose “cowling” was removed. Although there was some issue about the guidance system (pure inertial vs. a star-tracker system), we had no trouble settling on the Autonetics inertial autonavigational guidance system.

The major issue was the choice of the turbojet engine. General Electric had come up with the small J85 non-afterburning engine (I think it had been developed to power small commercial jets), which, in a two-engine configuration would be just sufficient to drive the bird to Mach 2.0 with the engines placed on either side of the after-body. GE had the test data to prove its case and we quickly (too quickly as it turned out) focused on that configuration. In fact, we had models made for publicity, which featured that configuration.

However, Pratt & Whitney came to us proposing that we use their recently developed J52 engine. The “advertised” advantage of the non-afterburning J52 was that a single engine might do the job, but the test data did not prove it would be adequate. So we sent P&W back to the showers. They came back with more data but still we were unconvinced. By late September, the competition was nearing a close and, as the project leader, I (and others) did not want any “changes” made at that time. How naive I was—P&W went to the Air Force and the Air Force came to us and with test data still wet on the paper, the J52 became the power plant of choice. Of course, as it turns out, that was the right choice.

In August 1957, Secretary of the Air Force James H. Douglas telephoned “Dutch” Kindelberger and told him that NAA had won the development contract.

I recall that Joe Beerer, the President of the Missile Division at the time, returning from Inglewood where he had met with “Dutch” Kindelberger and Lee Atwood regarding the contract award and telling us that it had been decided to name the GAM-77 as “Hound Dog”. At the time Elvis was “King” and his musical fame carried over to our bird.

On October 16, 1958, Headquarters USAF awarded a Hound Dog production contract to North American Aviation. With the award of the contract and the beginning of the production program, Martin Boe was named Chief Engineer and Sandy Falbaum Assistant Chief Engineer. I think that Dale Myers may have been named Program Manager. Being an advanced concept/preliminary-design type, I returned to Preliminary Design.

The design requirements called for a 350-mile range and Mach 2 speed at over 35,000 feet. The Hound Dog carried a 1,742-pound warhead—four megatons, approximately 500 nautical miles from its launch point at high altitude and supersonic speed, or approximately 200 nautical miles from its launch point at low altitude and subsonic speed. A B-52 could carry two of these lethal missiles.

Hound Dog was a highly successful program and an important revenue source for North American in the post-Navaho period. Most importantly, it kept a very talented cadre of engineers together for the eventual competition and development of the Apollo/Saturn programs.

About the Author: After graduating from Georgia Tech in 1943, Ellis joined Bell Aircraft in Marietta, Georgia as a liaison engineer on the B-29 production line. In 1945, he joined NACA at Langley Field as an aerodynamicist in the Pilotless Aircraft Research Division. By 1951, he moved to Fairchild Guided Missiles as a project engineer on the Lark and Petrel Missiles. His service with NAA began in 1955 at Downey and came to an end in 1987 when he retired from Seal Beach as Director of Systems Engineering, Saturn II. Ellis currently resides in Encino, California.
I joined the North American Aviation WS-131B “Hound Dog” Program in January 1958, having transferred from Data Engineering under Jack Grimes on the cancelled Navaho Program. Dale Myers was the WS-131B Program Manager, Sandy Falbaum was also in Program Management and a later Program Manager. Gary Osbon was the Chief Engineer. Bob Coburn was an Assistant Chief Engineer to Gary Osbon. As a personal note: I thought of Gary Osbon, at that time and still do today, as a classic and very technically proficient Chief Engineer—as good as they come.

Initially, I was in the Flight Test Plans and Operations unit under Nick Carter who worked under L. A. Williamson. I recall my first assignment was working with Mark Morris developing the test requirements for the Hound Dog House Missile. This was a dedicated Hound Dog vehicle that would be used to run all individual system tests and end-to-end systems integrated tests to verify hardware integrity and operational success prior to any flight. Bill Dunham subsequently became the Supervisor of the Hound Dog House Missile.

Parallel to the House Missile operations were two Staging Test Operations where the actual test vehicles would be processed. These two test areas were supervised by Jim Michaels and John Hayes.

As the program progressed, and since I was a recent former active duty Air Force fighter pilot, I was asked if I would be interested in being the Flight Test Engineer on the WS-131B Dummy Missile Program to be run at the Boeing Airplane Company Seattle plant. This program was to determine the flight characteristics of the B-52 with one or two “Dummy” Hound Dog missiles attached to the left and right wing, inboard of the B-52’s inboard engines.

Chuck McKim was the NAA Instrumentation Engineer that was in Seattle for this Dummy Missile Test Program. Wendell Garton and “Hetz” Hetzel were the NAA test pilots that flew the B-52F with the Boeing test pilots. All the other participants were Boeing personnel. This is where I met Bill Blair who, at that time, was a Boeing copilot on the B-52 in this Dummy Missile Test Program. Bill later joined North American and became supervisor at the Johnson Space Center for the North American systems group that supported/backed up the NASA Mission Operations Flight Directors.

The Dummy Missile test operations involved many B-52F test flights with many different configurations of varying fuel loads and off-limit flight conditions with one and/or two Hound Dogs installed. There, also, were many extreme yaw and shudder tests conducted with different gross weights as well as slow speed and fast speed stall sequences to see how the B-52F responded with the one and/or two Hound Dog dummy missiles installed. An example of these extreme tests were intentional yaw induced tests performed by kicking hard right rudder and then hard left rudder several times to get the B-52F in an exaggerated yaw condition and then to get off the rudder and let the B-52F dampen out, all the time recording aerodynamic and structural load data on both the B-52F and the
Dummy Hound Dog(s). The Dummy Hound Dogs were also instrumented to measure the aerodynamic and environmental conditions encountered and how the Hound Dog responded to the effects of the B-52F.

I recall one maximum fuel load take-off test flight of some 452,000 pounds where the only objective was a maximum weight takeoff to see how the B-52F performed. Completing takeoff, we had to fly for some four hours at low altitude with landing gear down and flaps hanging out at high throttle settings to burn off the excess fuel to get down to the safe maximum load for landing. We flew up and down the coast of Washington State and around Mt. Olympia numerous times and the views were spectacular at about 2,000 feet.

The flight plan for one test flight required an above 50,000 feet altitude, so the entire crew was outfitted with the high altitude pressure suit (the Poopy Suit). We only wore it once and it was not the most comfortable flight garb.

Since my duties as Missile Operator had no real in-flight duties, i.e., only a dummy missile, Boeing trained me to perform their in-flight fuel management and fuel transfer schedule. They had a specially designed fuel management "slide rule" and I was assigned the task of maintaining the B-52F center of gravity (CG) during flight as the fuel was burned from the wing and main body tanks. Once I got the hang of it, I became proficient at keeping the CG exactly where the flight plan requirements specified with continual fuel tank monitoring and transferring of fuel between the various tanks as the fuel level decreased.

Between October 1958 and January 1959, I logged almost 60 hours in the B-52F during this test operations period.

The last flight of this series, after flying from Seattle to Eglin AFB, Florida in early January 1959, was to successfully launch Dummy Missile D-2 over Eglin Range 70 to assure proper and safe separation of the Hound Dog missile from the right in-board wing of the B-52F and to evaluate any effects of the separation on the B-52F.

All flight tests of these configurations were successful and that ushered in the actual flight test program with operable test Hound Dogs and the eventual production program for the Air Force.

I had an opportunity to go to Eglin AFB as a Missile Operator and finish the Dummy Test Program and go on to the active flight test program but declined that offer and became the supervisor of the Test Requirements and Planning (TR&P) group working under Bob Coburn, and later, Bob Weaver. As it turned out, Ted Clauss accepted the Eglin AFB assignment and finished that phase of the program.

In the Test Requirements and Planning (TR&P) group, we were responsible for coordinating and preparing the tests requirements for all the development test vehicle flights and monitoring the test operations for Program Management at Downey in coordination with Eglin AFB. Test Operations were staged out of Eglin AFB to Cape Canaveral, Florida, and to the White Sands Missile Range in New Mexico. TR&P issued a one page Daily Quick Look Report to management, reporting on the previous day's test operations. We also operated a "real time" Mission Operations Room, monitoring test operations in Florida. I guess you could say it was the precursor to the Apollo/Shuttle Mission Support Room (MSR) operation. Some of the personnel in the TR&P group were Bill Beckner, Ernie Everett, Vern Dobbs, Gene Dryer, Ted Clauss, and Jim Blevins, and others that were very senior in experience with the old NAA “gray badges”.

The WS-131B “Hound Dog” operational vehicle, launched from the B-52 aircraft had had several trajectories available. It could launch at high altitude, with a dogleg turn; it could launch at high altitude with a maneuver to a lower altitude; it could launch at a low altitude with a maneuver to a higher altitude, with or without a dogleg turn. The computer system was the Autonetics VERDAN computer system, the precursor to today’s GPS systems. It should be also noted that the two Hound Dog engines could be used as additional power for the B-52.

As the Apollo Program began to come up to speed, the Hound Dog Program personnel were transferred to the Ferguson Facility off Atlantic Blvd. and down I-5 in East L.A. and eventually were transferred to the NAA Tulsa facility in Tulsa, Oklahoma. I transferred to the Apollo Program in Ray Pyle’s Project Engineering office in January 1964.

About the Author: Ben is an old friend of the Retirees Bulletin, always ready to provide helpful suggestions and encouragement. In 1957, he joined the NAA Space Division where he held key assignments on Navaho, Hound Dog, Apollo, Skylab, Apollo/Soyuz, Space Shuttle and STSOC in Downey and in Houston. In 1994, he joined AlliedSignal as Program Manager at the NASA White Sands Test Facility in New Mexico. He is retired now and resides with his charming wife, Janis, in Las Cruces, New Mexico.
INTRODUCTION

During the 1950s’ Cold War, space and space travel was laughingly derided as sci-fi Buck Rogers and Flash Gordon comic-strip and Saturday Matinee material, rather than everyday reality. Nonetheless, sporadic rocket, space travel, and lunar project articles were published after details of captured V-2 rockets were released to the public, and while they were being launched at White Sands, NM after WWII.

Very few within the USAF cum the USAF officer corps publicly verbalized the term space, satellloid (a term boldly suggested in 1955 by ex-German Peenemunde engineer Krafft A. Ehricke), satellite and orbiting space planes called skip-gliders and rocket-gliders.

Officers were admonished to refrain from using such terminology and/or encouraging plans for U.S. manned spaceflight (a warning ignored by a small cadre of open-minded USAF officers who worked behind the scenes on rocket and missile projects).

Our bold German rocket scientist Dr. Werner von Braun, popularized space stations, lunar exploration and lunar bases, plus rocket powered canard space planes as Martian Expedition vehicles, through a series of Colliers magazine articles around 1953 that, at the very least, challenged the imagination of the American public.

A few years later, the Soviets publicly announced intentions of launching a satellite into orbit in cooperation with the IGY (International Geophysical Year spanning the period July 1, 1957 to December 31, 1958).

Their announcement either slithered through the U.S. intelligence community’s awareness level or was ignored because it was believed to have originated within the KGB’s Department of Active Measures—the infamous “Service A” or dezinformatsiya (disinformation) bureau.

Indeed, as late as 1957 (obviously prior to the Sputnik launch), Pentagon officials literally rebuked General Bernard A. Schriever for suggesting that USAF missiles would be capable of launching men into space. He too, was warned to refrain from applying the word space in any of his speeches.

To this day, the American public still remains unaware of how psychologically traumatized were the egos, nervous systems and minds of our government and military hierarchy, when little Sputnik was successfully inserted into orbit on October 4, 1957. Service chiefs, politicians, government civil servants and scientists, correctly voiced prophetic fears that Soviet satellites would become photoreconnaissance platforms, nuclear weapon launchers and—GASP!—eventually lead to putting Russians in orbit!

The greatest and still hidden government fear was that the Soviets would secretly orbit psychotronic satellite platforms. While Sputnik orbited Earth, the once prohibited terms such as space, satellites and spacecraft projects became immediate priorities that also expanded into an “aerospace” lexicon of new terms and acronyms. The level of American paranoia and panic was reflected in the plethora of good, bad, ugly, and dangerous piloted spacecraft proposals being created by the engineering teams of many American aircraft corporations.

They even suggested initial one-way lunar exploration missions to establish bases on the Moon before the Russians completed their one-way trip to the lunar surface, landed and drove Cyrillic inscribed stakes into the soil and died there. The political egocentrics in both nations justified one-way piloted lunar missions to get their first; ours was the Cord-Seale One Way Manned Space Mission (neither man volunteered to make this one-way trip), placing a man on the Moon to claim and explore it, with no immediate means of returning to earth.

Meanwhile, a supply vehicle would hopefully land nearby with food, water, and oxygen for the astronaut to survive until rescue ships were built (the actual word used was “built”), to retrieve him, while he waited and prayed!

Should the rescue vehicle fail just above the launch site or while approaching the moon, our man would be provided with a WWII OSS-style “L” pill or an updated version, thereof, to use after being hailed as a true hero.

Some proposals were sound, but others generated literal accusations that certain engineers had graduated from the RGI—the “Rube Goldberg Institute of Technology”. Numerous Air Force project and Civil Service officers with aeronautical engineering degrees read and filed these proposals; many never became part of the public domain.

Although Bell Aircraft’s Model D-171 rocket plane lost to the North American X-15 project, their engineers under the direction of Dr. Walter Dornberger, were secretly engaged since 1951, in researching and designing hypersonic orbital boost-glider projects—winged extensions of the supersonic airplane.

Mission descriptions were orbital photoreconnaissance, launching nuclear weapons from orbit, supplying and servicing orbital bombardment stations or military space stations and, hopefully, survive reentry to glide-land without barbequing the crew.

Bell’s exotic winged orbital vehicles were the forerunners of our current STS or Space Shuttle. They bore such unique acronyms as BoMi (Bomber Missile), RoBo (Rocket Bomber), RS-459L Brass Bell, System-118P (QUEST History of Spaceflight Volumes 13 Number 2 and 4, Secret Boost-Glider Projects of the Cold War). In 1957, they were combined into the Abbreviated Development Plan designated RS-464 or Dyna Soar I. Even before the USAF issued the RFP (Request for Proposals) letters for RS-464L Dyna Soar I, NAA engineers were studying a way to achieve earth orbit with available hardware. North American engineers obviously were given permission or decided to perform engineering studies to orbit an American airman.

Despite the fact that the North American Aviation X-15 initiated gliding flights on June 8, 1959, the Engineering Department on June 8, 1957, created a proposal to rapidly modify and boost several X-15 research and reconnaissance vehicles, into sub and low earth orbit tracks, and submitted it to the USAF.

THE NAA ORBITAL X-15 SPACE PLANE

The secret technical summary describing an Advanced X-15 Research Vehicle is dated 27 November 1957, and was approved by F. A. Payne, Chief, Preliminary Analysis Section, and H. A. Evans, Manager of the Weapon System Advance Design within the Engineering Department.

NAA qualified this proposal by referencing the expertise gained through the Navaho booster program, the advanced design fea-
tures of the X-15 research aircraft, the development of the large rocket engine and the advanced guidance systems experience.

The Engineering Department proposed a three-step program: Step I utilized a generic X-15 (31,250 lb gross) strengthened to mount directly atop a Navaho G-26 sandwiched between two parallel mounted G-26 boosters to achieve research flights reaching 10,850 fps and a 1,115-mile range.

Step II was an X-15A (34,850 lb gross) with the standard X-15 exterior dimensions, the XLR-99-RMI engine and fuel system but alternate structural materials to survive blistering skin temperatures up to 1,600° F for short periods, and a reinforced aft fuselage to mate atop a parallel strapped together G-38 booster. The two-stage beast would ram the X-15A at 16,570 fps down range 1,741 nautical miles with photoreconnaissance equipment.

Most ambitious was Step III, a modified X-15B (40,200 lb gross) with advanced propulsion and airframe systems, but nearly identical to the basic external X-15 design. The very heavy X-15B far exceeded the weight of any Dyna Soar I proposal from the Martin-Bell and the Boeing-Vought teams.

A 60,000 lb sea level thrust (75,000 lb at operating altitude) single-chamber variable thrust Rocketdyne S-4 engine burned fluorine and hydrogen—a combination that promised higher specific impulse ratings than LOX and alcohol or kerosene.

Two G-38 boosters comprised the first-stage and one single G-38 sandwiched between them, became the second-stage booster with the X-15B perched on its nose. In order to achieve the necessary orbital insertion speed, several Navaho booster combinations were designed to thrust an advanced X-15 to 25,000+ fps.

### THE THREE PLANS


The Basic and Plan I called for one X-15B propelled skywards from Cape Canaveral, by three parallel attached G-38 boosters weighing 595,000 lb, generating 830,000 lb of thrust.

Plan II offered a modified 31,250 lb X-15 atop three parallel-attached G-26 Navaho boosters weighing 341,500 lb that rocketed to orbit on 720,000 lb of thrust. The Navaho booster thrusting the XLR-99-RM-1 powered X-15 would burn liquid oxygen and RP or a fuel called Hidyne, in Stage I and FLOX and RP in the Second stage with re-gimbaled engines utilizing a different nozzle design.

The X-15B pilot's aerodynamic control authority was transmitted through irreversible hydraulic controls but while in orbit, Bell Aircraft's miniature hydrogen peroxide attitude control engines maneuvered the vehicle, via controls mounted on the port side-console. Two solid-rocket engines would be mounted in the X-15B fuselage, their axis passing upward through the aircraft's CG point.

The pilot fired them to move the X-15B from its circular orbital path into an elliptical orbit just prior to initiating re-entry. Upon successfully negotiating the critical re-entry phase of glide flight, the pilot, protected within a full-pressure suit with integrated restraint harness, anti-g protection and ventilation, exited the X-15.
Pilot egress was accomplished via a rocket-catapulted ejection seat, equipped with a shock wave generator, stabilization fins, head and limb restraint, and an automatically timed separation and parachute deployment system. After the wild exotic ride around mother Earth, and successfully negotiating a potentially lethal re-entry, the pilot was expected to eject and land on solid ground, near or well within the Eglin Field Range.

To cool the X-15 airplanes during the re-entry phase, NAA engineers chose the simple radiation method of heat transfer and cooling. It would hopefully allow the X-15B fuselage, its 5-percent wing with 2.5 aspect ratio and tail section, to sustain short-period temperatures to 3,500º F, in stagnation areas by means of exotic metals and ceramic materials derived from ICBM nose-cone research. This was approximately 1,000º F higher than Bell Aircraft engineers projected for their piloted rocket-gliders during reentry.

An alternative metal to protect the airplane to 1,500º F was to apply nickel-based Rene 41 (created by General Electric for turbine engines), throughout the primary fuselage structure, and a black finish to achieve maximum heat radiation from the overall aircraft. Other metal candidates mentioned were molybdenum and Haines-Stellite Hastelloy R235, although Rene 41 appeared to be the metal of choice to replace the primary aluminum and titanium structures and critical heat-bearing skin areas.

The wing leading edges, nose, and tail surfaces would be coated with ceramic material to withstand projected temperatures up to 3,400º F during reentry.

The cockpit and instruments would be insulated and refrigerated with liquid nitrogen that also pressurized the cockpit to 3.5 psi, and doubled as a defroster and defogger for the transparent ports or windshield.

NAA engineers included a full instrument suite, portions being removable and replaced with high-resolution reconnaissance cameras in the X-15A and B models. This reconnaissance suite would comprise one high-speed and one standard motion picture camera, a Tri-metrogon installation with one T-11 camera, and a K-40 aerial camera.

Although Martin-Bell and Boeing-Vought were slugging it out over the Dyna Soar I contract, all three NAA X-15s were unofficially competing as well, even during North American’s complicity in studying rocket powered and air-breathing mother ship air-launchers for Boeing’s Dyna Soar I gliders. However, the X-15A and B models were far heavier than all of the Martin-Bell and Boeing-Vought Dyna Soar I glider proposals, by roughly 18,000+ lb. One exception was the heavy enlarged Martin-Bell Dyna Soar I nuclear reentry missile carrying orbital bombardment proposal, which was roughly similar in weight to the X-15B proposal.

Piloted orbital flight required that all three X-15 vehicles and the G-26 and G-38 boosters be “man-rated”. This procedure demanded that pilot safety be paramount and that systems and components had to exhibit extremely high degrees of reliability.

The time and expense to achieve this rating would have rendered the X-15A and B proposals a moot engineering exercise.

**X-15**

**SPACE TRAJECTORY**

**PERIGEE** 250,000 FT

**VERNIER VELOCITY CONTROL**
- XLR-99 THRUST CUT OFF
- XLR-99 THROTTLE
- ATTITUDE CONTROL

**BURNOUT** ALT. 360,000 FT
**SPEED** 25,760 FPS

**APOGEE** 400,000 FT

*Flight Plot from the David Stern File*

**NAA proposed to launch an X-15B from Cape Canaveral into Orbital Trajectory for single orbit with egress and recovery of pilot at Eglin Proving Grounds.**
Also, the center G-26 and G-38 boosters required structural modifications to support the weight of the heavy X-15A and B, mounted directly on top of the center booster.

A standard launch would induce great compression loads upon the X-15, thus demanding increases in certain load-bearing areas of the fuselage. As to the G-26 boosters, the first stage lifted slowly thus imposing no severe aerodynamic loads upon it.

However, the second stage necessitated modifications to the backbone and additional beefing up with longerons in the upper portion of the booster that would in turn, attach to the three engine mounting longerons of the X-15.

The aluminum alloy G-26 and G-38 structures were also calculated to absorb around 520º F during a one-cycle booster life.

However, only the Delta-wing X-15 may have qualified for orbital flight with another booster, due to the extreme aerodynamic, acoustical pressures and prolonged heat of reentry into the Earth's gaseous envelope that boost-gliders or Lifting Body dynamic, acoustical pressures and prolonged heat of reentry into orbital flight with another booster, due to the extreme aerodynamic, acoustical pressures and prolonged heat of reentry into the Earth's gaseous envelope that boost-gliders or Lifting Body

reentry and would last for several missions, before airframe fatigue and failure consigned it to the scrap pile.

In 1960, Bell Aerosystems engineers proposed an engineering plan to graft a portion of their double-wall hot-structure solid insulation cooling system. It held promise of actually insulating and cooling an aluminum airframe boost-glider through reentry and would last for several missions, before airframe fatigue and failure consigned it to the scrap pile.

About the Author: A prolific writer for the AAHS Journal and a published author of aviation/aerospace history, Dave delved into the National Archives to research material for this article. A licensed helicopter pilot in the Alaskan bush, he has done extensive work within the USAF NORAD Space Surveillance program and for RCA and ITT. He is currently completing a book on the Bell Aircraft-designed secret boost-glider projects of the 1950s. Dave now resides in Renton, Washington.

Death of the Dyna Soar

The X-20 Dynamic Soaring or “Dyna Soar” vehicle was one of the earliest American proposed space programs. A purely military vehicle, it was inspired by the World War II Sanger-Bredt Silverbird intercontinental skip-glide rocket bomber that Nazi Germany envisioned for the Luftwaffe. German scientists who had worked on this project came to Bell Aircraft after the war and pitched the idea to the Pentagon. Naturally, the Pentagon put out a request for bids on the project and awarded it not to Bell, but to Boeing.

As with the International Space Station decades later, the X-20 went through many changes in mission and configuration. In 1962, the Air Force selected the men to fly the X-20 including later X-15 pilots William J. “Pete” Knight and Milton O. “Milt” Thompson.

Then-Secretary of Defense Robert S. McNamara was never a big fan of the X-20. He wanted the Manned Orbiting Laboratory (MOL) program instead, and so he subjected the X-20 to what became known as “paralysis by analysis”—a common tactic of his, wherein a popular program he didn’t like would be subjected to endless requests and inquiries and other such nonsense. When members of Congress got wind of the resulting delays and cost overruns, they would launch their own investigations, cry foul over the budget and bury the program in its own paperwork until they had no choice but to cancel it. Then McNamara would have an excuse to champion his own program, which would seem cheaper by comparison.

Accordingly, one year after the X-20 pilots were named, McNamara announced the cancellation of the X-20 Dyna Soar project at a news briefing on December 10, 1963 at the Pentagon.

And, that’s how the X-20 Dyna Soar became extinct.

Editor’s Note: This account of governmental direction provided for the Dyna Soar program has all the elements of the constipational results achieved by the current Congress in its race to accomplish nothing.
I guess you could say North American Aviation and I go back a long way. I flew my first NAA aircraft, a BT-14 on May 4, 1942 at Randolph Field, Texas. How did a young cadet from Spokane, Washington get to this S.W. Training Center? It so happened that I was a very good bowler and Gen. John B. Brooks, commander of the 2nd Air Force at Geiger Field in Spokane, loved game watching me and asking for instructions. When I told him that I had passed the entry requirements for the Army Air Corps, he said I must go through Randolph Field where he once commanded. “It is the West Point of the Air”, he said. “I’ll fix it”, and he did. That which defined my life forevermore began there.

I can think of one thousand lucky things that happened to me in life and who knows how many happened that I didn’t recognize or even know.

I did recognize the government program that made Civil Pilot Training (CPT) a reality and gave me a chance to fly. I was an impressionable teen who had thrilled to the movie “I Wanted Wings”. I figured all pilots would get a girl like Veronica Lake. Actually, I got a prettier one!

I announced that I wanted to fly. Mother said flying was too dangerous and my father, who had experienced the Great Depression along with the rest of the country, said, “No way. It cost too much!” Civil Pilot Training changed that. Through Gonzaga University, I enrolled and was accepted.

It began with ground school in night classes which I tolerated because their successful conclusion led to flying! First, in a Porterfield, which I soloed in January 1941 and in which I earned a Private Pilot License after 40 hours. With that much experience, I took my little brother for a ride and managed to make him air sick. That didn’t deter him since he had over 5,000 hours in a 20-year Air Force career.

After the Primary phase of CPT, I graduated to the Second phase and into flying a Waco UPF7 biplane with helmet and goggles like a real pilot. So it was that I had 80 hours flight time before my military career began.

I consider myself lucky in my next choice. Both the Army and Navy brought flight training programs through Spokane and I took and passed both. I was told to make up my mind. Now I faced another choice. The world was at war, although we weren’t. I reasoned that if we entered combat and I was in the Navy, my landing area might not be there when I returned. In the Army, I reasoned the field might have holes in it, but it would still be there.

I chose the Army Air Corps and was put on a waiting list. I was lucky, in a way, that I had those 80 hours in the air when the Japanese attack at Pearl Harbor brought America into the war. I got an immediate order to report for flight training. I said “in a way” because I may have been a little overconfident and found an instructor or two who found it necessary to bring me “down to earth”.

Flight school training was really not a problem for me. I breezed through Primary Flight School in a Fairchild PT-19A and that got me to Randolph Field, which did impress me.

Seventy hours in the BT-14 and I moved on to Kelly Field and another North American Beauty—the Classic AT-6!

The real luck came at the end of the Advanced Phase and graduation!

A few weeks before that great day, we were called into convolution and issued a paper to print our name and serial number and four lines on which we were to list our first through fourth choices of aircraft to fly after graduation. There was also an admonition... “If you are 5 feet, 11 inches tall or over, you may not request fighters”!

Damn! I was 5 feet, 11-1/2 inches tall! Well, another really lucky thing was about to happen to me. The prettiest girl in the whole wide world had agreed to marry me on graduation day and I would hate to leave her immediately to fight the war.
So, I listed:
1. Instructor
2. Light Bombardment
3. Medium Bombardment
4. Heavy Bombardment

With graduation and marriage came my orders. “Report to the 328th Fighter Group at Hamilton Field, California.” Wow! Was I the luckiest guy in the world or what?

I began to be a fighter pilot in earnest with the 328th F.G., a replacement training unit. Incidentally, my first Flight Leader was Harry May, a 6 foot-7 inch tall former Stanford basketball player. What happened to the 5 foot-11 inch rule? I guess that was luck; to discover not to believe everything the Army Air Corps said – as gospel.

The 328th was equipped with the beautiful little Bell P-39. It certainly impressed this new graduate. I would find with other survivors, that it might not be an adequate machine to fight first-line German or Japanese fighter.

We lost a lot of pilots in training because the P-39 Airacobra had very different flight characteristics with the engine located behind the pilot instead of in front.

I personally had no problem with the airplane. I found in time that I could whip anything the Navy had in the San Francisco area, primarily F4Us and F4Fs.

Months into training in the replacement group, an opportunity came to move along. It was common knowledge among the pilots that the beautiful little Airacobra was not good enough to use against our enemies’ top planes. The Government couldn’t let the public know that and so one of our top three fighters, the Lockheed P-38, the Bell P-39 and the Curtiss P-40, was selected for a giant propaganda effort. “The P-38”, the public was told, “Is a fantastic airplane!” The pilots believed it along with the rest of the country. Why would the Government say that if it wasn’t gospel? A few weeks later, the 328th pilots were called to a meeting.

“Half of you will be relieved here and assigned to a P-38 fighter group.” I was on my feet, along with most, hollering, “Take me! Take me!”

Probably the luckiest break of the war happened to me, although I didn’t recognize it at the moment. I wasn’t one of the chosen.

A few weeks later I would be one of the first twelve pilots assigned to a new Operational Fighter Group, the 354th which would in time become famous as the first group to fly the Mustang into combat and to shoot down more enemy aircraft from the air than any other group in WWII. My luck had definitely held true. A year later I met some of the 328th group that were in the P-38s on the streets of London and I would console them – maybe, buy them a drink!

In September 1943, the 354th was finally on orders. When we arrived in the U.K. after a two-week voyage in a huge convoy, we still had no idea what we would fly. Three pilots from the Group were given a Jeep and a map with orders to go to an RAF base to check out a new fighter. I was one of them along with Jack Bradley and Bob Stephens. Upon arrival we found the planes were the P-51A or Apache as the British called them. My first flight, actually, was in an A-36, the dive bomber version of the wonderful P-51.

We had several flights in the “A” model before returning to our English base to check out the other pilots. True to USAAC procedures, we found that most had already been checked out at another base.

We soon left our temporary first home in the war zone for Boxted near Colchester where we would begin our part of the war against the Axis.

I had considered the “A” model a very good fighter, but as our planes were delivered, we found we had the “B” model with the Rolls Royce engine! Now we were talking GREAT fighter! Was I lucky or what?

Before the war ended, I would fly 105 combat missions in the “B”, “C”, and “D” models. Over 400 combat hours in two tours without a bodily scratch, although many of my planes, all named “LIVE BAIT”, experienced numerous perforations from enemy action.

On one mission to the Berlin area, I was in a gigantic air battle and I found myself alone. I was on the “tail” of a Messerschmitt Me 109, but smart enough to “check six” before I started to fire. I found two red nosed P-47s coming in behind me. “Great!” I said, “I got help.” I opened fire and observed multiple hits on the Me 109 before the world exploded. I felt as if I had had a baseball bat across the back of my neck. A good part of my canopy had disappeared. “LIVE BAIT” did an involuntary snap roll and went into a spin. A few thousand feet lower, I discovered I was still alive and made a spin recovery. The P-47s came in for the kill but I vigorously rocked my wings and, luckily, they finally recognized me. I had hundreds of holes in my P-51 but the engine still worked and I did get home.

I did lose one of those gorgeous machines – a “C” model that had become one of my favorites for its better visibility with the
Malcolm Hood. Strafing at a low altitude, I was hit by rifle fire through the engine and liquid-cooled engines don’t work without coolant. I had to bail out. The “Controller” told me I had “40 miles to our lines – can you make it?”

“Forty yards is about it”, I replied. But guess what? Patton was 40 miles ahead of where they thought he was and I came down in the middle of a battle zone. I didn’t get hit and was picked up by two GIs in a captured German half-track. I spent the night with the Third Army before being flown back to my base in an observation plane the next day. Am I lucky or what?

Let me interject a little discussion of the P-51 vs. the P-47. I continue to get letters asking which was the better fighter. Many of us in the 354th knew—we had flown both.

We initiated the P-51 into combat in December 1943. In late 1944 they took away the Mustang and outfitted us with the P-47. We flew that monster in combat until March 1945.

There is good to be said about the P-47. Its eight .50-caliber machine guns had tremendous power. I actually tipped a boxcar over strafing from 90 degrees. I also experienced that power when the P-47s mistook me for an enemy plane. It would absorb great punishment and continue to fly. I took a 20 mm hit in my engine while dive bombing at Bastogne. I didn’t even know that I had been hit until I landed. On the other hand, a single rifle shot through the engine of my P-51C brought me down.

Now ask me which aircraft I would rather fly in combat! The Mustang, without question, and I never met a pilot who flew both to say any different!

When we got our P-51s back in early 1945, the cheer was probably heard in Berlin.

I finished my second tour just as the War in Europe ended. The 354th Fighter Group—the “PIONEER MUSTANG GROUP”—had over 700 confirmed aerial victories to lead all fighter units in that category.

I had personal success in the confirmed destruction of six enemy fighters from the air and two more confirmed ground victories. One of my air victories was an Me 262 German Jet. I got him with my little old P-51. He was at 2,000 feet and he didn’t see me coming! I met the pilot, who was wounded but ejected safely, at a German Fighter Pilot meeting in 1995. He thanked me—because he didn’t have to fly anymore and so he survived.

Our group did not reach that leading total without cost. Reaching the War Zone in 1943 with about 90 pilots, we lost 187 killed or captured—more than a 200 per cent loss! Still, we felt we were lucky—especially me!

EPILOGUE

When I returned home after the war in Europe ended, I fully expected to go to the Pacific where the war still raged. Imagine my surprise when a 2-1/2 ton truck brought a group of returning combat veterans to Ft. Lewis, Washington. A corporal with two clipboards stopped me as I started to jump down from the truck. “You all have enough points to be separated. I need to know if you will get out or stay in.”

This was after four years of flying with the U.S.A.A.C.—never ever thinking about the end of it all. I hesitated. “I will call my wife and let you know”, I replied. “No sir”, he replied. “I need to know before you leave the truck”. I turned to the pilot behind me and said, “If this is what the Air Corps is going to be like in peace time—I’m outa here” and told that to the corporal!

My wife was equally surprised when I told her the news. In due time, we went to Spokane where I bought some new civilian clothes and settled down. I bought a beer tavern and restaurant with my poker winnings. However, my time away from my beloved “Mustangs” didn’t last long. A month later I received a call. The Washington National Guard was flying P-51s. Would I be interested? That decision took no time to consider. YES!

I had to resign my Reserve Commission and accept a Guard Commission to get back into P-51s. My little brother who had spent his Air Corps time in the Air Transport Command, joined as well. Peacetime flying in the P-51 was fine but it lacked the thrill of combat—no one to shoot at. I tried to teach my brother the nuances of “dog fighting” without killing him, but that became boring as well.

At the end of a year of this, I talked my wife into moving to Southern California where the competition in bowling was better. Thus it was, when Korea exploded and we were back in it. I wanted to go where I was needed! I contacted the 4th Air Force Headquarters at Hamilton Field to volunteer. They couldn’t find my records. I drove around every part of California that housed a fighter group, looking for a spot. Finally, 4th Air Force told me they had located my records.

I was told, “You are in the Washington National Guard”.

“No. I resigned that.” I fought for months to be part of the action, with no luck. I went back to college and became a doctor of the oral cavity for the next 40 years.

Editor’s Note: Wow! Did you get the feeling you just finished reading an inspirational essay on the power of prayer and positive thinking? Kelly was discharged from the USAAF in September 1945 with the rank of captain, returned to school and graduated from the University of Oregon as a dentist. He combined his successful 40-year dental practice with a 28-year career in the travel industry. Among his combat decorations are the Silver Star and the Distinguished Flying Cross with Oak Leaf Clusters. He was also elected President of the American Fighter Ace Association. Kelly currently resides with his charming wife, Ramona, in Vancouver, Washington.
BOOK REVIEW

LIVE BAIT
by Clayton Kelly Gross

This is a story of a young man that came out of the Great Depression to achieve his boyhood dream of becoming a fighter pilot. He entered service as an Aviation Cadet in 1942, graduating from Kelly Field. He learned to fly in NAA airplanes, perfected his skills in NAA airplanes and went overseas to fight in NAA airplanes. He completed two tours of duty, flew 105 combat missions and became an Ace with the 354th Fighter Group, the first all P-51 fighter group.

He considers himself to be very lucky but he attributes his luck to his prayers. This is the kind of book you must read in one sitting because it reads like an adventure story and you are in the cockpit with “Kelly” on every mission.

Order from Amazon or from the author direct. Ask him to dedicate the copy to yourself or as a gift to another aviation buff.

Send a check for $29.95 + $4.50 shipping & handling = $34.45 to:

Dr. Clayton Kelly Gross
2306 SE Spyglass Dr.
Vancouver, WA 98683-5102
The Fourth B-1 Reunion was held on September 22, 2007 at the Golden Sails Hotel in Long Beach with more than 200 in attendance. It was a splendid mix of current employees working on the program and retirees from California, Nevada, Arizona, Oregon, Washington, Utah, Idaho, Missouri, Ohio, and Florida.

The speaker, Captain Scott “Disco” Higginbotham began flying the B-1 in 2000. He has four combat deployments, 58 combat sorties, 3 missions during Operation Anaconda, the 2005 General Curtis E. LeMay Combat Crew Award and many other awards and accomplishments. He is currently assigned the 31st Test and Evaluation Squadron at Edwards AFB. He is the only B-1 Pilot whose father also flew the B-1. He kept the audience captivated with his presentation and received a rousing response of appreciation at the conclusion of his talk.

It was another great effort by Lynn Isomoto, Karen Fraser and Lee French.
When the Florida NAA/Rockwell retirees met in December for their monthly luncheon in Cocoa Beach, they found three former Florida Vice Presidents/General Managers from the Apollo and Shuttle programs present. These three men led Florida Operations through some of the most difficult and important space events of our time.

Tom (TJ) O’Malley, 92, was the Atlas test conductor who launched John Glenn on his Mercury flight in 1962. He joined NAA in 1967 after the Apollo 1 fire. Tom was Director of Launch Operations through Apollo 11 and VP/GM for the remaining Apollo flights, Skylab, ASTP and the first Shuttle flight before retiring in 1981.

Al Martin, 83, joined NAA in 1951 and was a test conductor on the Navaho in Florida, returning to Downey in 1960 as the Director of S-II Test Operations. He came back to Florida in 1965 as Director of S-II Launch Operations. After Apollo, Al returned to Downey as Chief Engineer, Space Shuttle Integration and then as Chief Engineer, Orbiter. He again returned to Florida in 1982 and became Site Director and VP/GM for Launch Support Services, retiring in 1990.

Lee Solid, 71, started with NAA/Rocketdyne in 1959 and was assigned to Florida on the Atlas program in 1960. He served as Base Manager during the Mercury, Gemini and Apollo programs. In 1979, he became the Rocketdyne Site Director for Shuttle, Atlas and Delta programs. He replaced Al Martin as the VP/GM for Rockwell Florida Operations in 1990, retiring in 1998.

The Three Wise Men Appeared

by John Tribe

Congratulations and Best Wishes to

R. Max and Margaret Boyd of Las Vegas, Nevada celebrating their 65th Wedding Anniversary

Virgil and June Crawford of Gold Hill, Oregon celebrating their 59th Wedding Anniversary

Raymond and Jean Peterson of Los Angeles, California celebrating their 58th Wedding Anniversary

Douglas and Daisy Alkire of Monterey Park, California celebrating their 56th Wedding Anniversary

Pio and Frances Nieto of Fullerton, California celebrating their 53rd Wedding Anniversary

Jack and Marie Ashby of Huntington Beach, California celebrating their 50th Wedding Anniversary

Walter and Donna Thoennes of Murrieta, California celebrating their 50th Wedding Anniversary
Dear Ed,

We are making a concerted effort here at the Santa Maria Museum of Flight in Santa Maria, CA to establish an NAA section. We have a significant amount of NAA artifacts, reference material, pictures and models. I am a 30-year retiree from NAA and I am very excited about what we are accomplishing here. We have dedicated our area to John Henderson, NAA’s F-86 field rep in Korea. We have a large amount of his files, many of Ed Horkey’s papers and other information.

I took several photos of the area with John and myself to show the area as it stands currently. The museum is open Friday, Saturday and Sunday from 10:00 AM to 4:00 PM. However, we are here during the week and welcome anyone wanting to visit. The museum phone number is (805) 922-8758.

—Marvin Bailey, Nipomo, CA

Ed’s Ans.: Thank you, John, for your kind gesture. However, since we lost our office cubicle at Boeing, we have no place to meet and drink coffee. Thanks to the magnificent skills of our mini staff, we manage to publish the Retirees Bulletin from our homes. However, your donation will not be wasted. We are already making plans to establish a future North American Aviation Scholarship Fund to perpetuate the name North American Aviation long after we are gone. Your donation will be part of the seed money for this endeavor.

Dear Ed,

Although I am a Silver Eagle, I know you could always use a little more cash, even if only for coffee and donuts. I sincerely appreciate all your efforts toward publishing the Bulletin. I especially enjoy the articles associated with the Columbus Division where I was hired in May 1953 as an electrical tech on the FJ-2. I worked in EFT on the FJ-3, T2J, T-2B, A3J and the RA-5C. Great years! Still my favorite programs were the B-1 and GPS Launch Operations.

—John Andres, Seymour, TN

Ed’s Ans.: Well, God Bless you, Marv! You and John still have that NAA spirit to drive for excellence in whatever you do. It is only through individuals like you that the name North American Aviation remains alive and vibrant.

Dear Ed,

As I was thanking God this Christmas for all my blessings, I was especially thankful for my 40 years with NAA and RI. I received from it: a wife, friends, two college degrees, income, a pension, prescriptions and PRIDE! Thank God and thank you NAA.

—Richard Acton, Richmond, VA

Ed’s Ans.: It is a rare person who rejoices over his good fortune and doesn’t dwell on lost dreams. Dick, thank you for your renewal check and your great letter. Both were a lift up.

Ed’s Ans. Never apologize when you are sending someone money! We thank you. Your brother should enjoy this issue!!

We Apologize to Peter Merlin!

In our rush to go to press with the Winter 2007 Issue, we assumed that the story “The Battle of Palmdale” was written by the person that sent it to us, Dr. Raymond Puffer, our guest historian. The story was actually written by another aerospace historian that is closely affiliated with Edwards Air Force Base, Peter Merlin. Upon learning of our error, we apologized to the author and he graciously accepted our “humble pie”. Peter is a founding member of the X-Hunters Aerospace Archeology Team and has recovered aircraft artifacts from dozens of crash sites from the deserts around Edwards and Area 51. We are hopeful that he will favor us with some articles in the near future, this time assuring him of full credit as the author.
Dear Ed,

After Rockwell took over NAA, management instituted some drastic measures to “improve” the profit margin. I had a brilliant mechanical engineer working for me, Mark Killian by name. He had a superb personality and a great disposition. One day he informed me that he had a better chance for advancement in another department. I told him, “Take it, these opportunities do not come often.”

In the interim, the Rockwell cost accountants dictated that expenses had to be curtailed. So they redistributed the floor space and all related normal facility expenses. With this action, they cleared out the entire 2nd floor of the huge main engineering building at LAD with the exception of the small group to which Mark was assigned.

Since it had been several months since I had been in that area, I decided to pay Mark a visit. On the 2nd floor, all the ceiling lights had been turned off except for the ones over his small group. It was bordered by a small three-foot high partition encircling the group. The desks were placed side-by-side in rows with about three feet between each row. To get to your desk you had to squeeze between the other person’s chair and the desk behind, or walk over the top. It was one of the most dismal sights I had ever seen! Thousands of empty spaces going unused and these people crammed into a tiny space!

When I came over, I was wearing the normal attire of the day, a suit and tie. Mark was leaning over another engineer’s desk and obviously discussing some technical issue. Being good friends, I yelled out from the shadows, “Mark! Why aren’t you at your desk working?” I meant it as a joke; but, instantly, all 100+ engineers looked straight down at their desks and all voices went silent. Mark, without looking up, said, “Yes sir! Sorry.” He then jumped on top of the desk he was at and skipped over to his own some five rows away and buried his head in a book.

This made things even worse than they were. You could hear a pin drop and, apparently all hearts were pounding with fear! I felt so very sad that the simple carelessness of my actions could make these great engineers feel so threatened of being fired, that I cried in anguish later for what I had done. This was the level to which Rockwell reduced the magnificent NAA technical staff!

As we all know, the ability of the company to engage in any major technical effort was basically exhausted within a few years and all of the company’s greatness vanished.

—Clev Kimmel, Billings, MT

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**General Giap and the American Press**

Much of the defeat of South Viet Nam can be attributed to the brilliant and ruthless skills of the North Vietnamese General Vo Nguyen Giap. A recent visit to Hanoi revealed his memoirs in the Vietnam War Memorial. These included the following quote:

“What we still do not understand is why you Americans stopped the bombing of Hanoi. You had us on the ropes. If you had pressed us a little harder, just for another day or two, we were ready to surrender! It was the same at the battles of Tet. You defeated us! We knew it, and we thought you knew it. But, we were elated to notice your media was definitely helping us. They were causing more disruption in America than we could in the battlefield. We were ready to surrender. You had won!”

General Giap’s published memoirs confirm what most Americans already knew. The Vietnam War was not lost in Viet Nam—it was lost here in America. The same conditions exist today with regard to Iraq. With the whining politicians joined by a biased media constantly attempting to cut out the very heart and will of the American people, this Nation will again slip into a defeat. Only this time it will not involve the loss of one small country, but the loss of the entire free world.

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**Speeding Ticket!**

Two British traffic patrol officers from North Berwick were involved in an unusual incident while checking for speeding motorists on the A-1 Great North Road. One of the officers used a hand-held radar device to check the speed of a vehicle approaching over the crest of a hill, and was surprised when the speed recorded was over 300 mph. The device then stopped working and the officers were not able to reset it.

The radar had, in fact, latched onto a NATO Tornado fighter jet over the North Sea which was engaged in a low-flying exercise over the Border district.

Back in police headquarters, the chief constable fired off a stiff complaint to the RAF Liaison Office.

The reply came back in true laconic RAF style: “Thank you for your message, which allows us to complete the file on this incident. You may be interested to know that the tactical computer in the Tornado had automatically locked on to your ‘hostile radar equipment’ and sent a jamming signal back to it.

Furthermore, the Sidewinder Air-to-Ground missiles aboard the fully armed aircraft had also locked onto the target. Fortunately, the Dutch pilot flying the Tornado responded to the missile status alert intelligently and was able to override the automatic protection system before a missile was launched.”
ARTHUR, DOROTHY W., 89 – passed away following an illness on November 29, 2007. She had been a winning athlete in track and field events, softball and volleyball in her hometown of Chicago, IL. She moved to Buena Park, CA with her family in 1956 and went to work at Autonetics as an inspector and lead person for 30 years before her retirement.

BAUER, BAIRD T., 89 – of Irvine, CA died on November 6, 2007 of undisclosed causes. He had served as an engineer at NAA/RI.

BEAVERS, WILLIAM “BILL”, 76 – a resident of Corona, CA, passed away on December 6, 2007. He was an electronics engineer with 41 years of service when he retired from NAA/RI.

BONINI, DOROTHY A., 80 – of San Juan, Capistrano, CA died December 31, 2007 of undisclosed causes. She had been an employee of NAA/RI for 28 years.

BROWN, RICHARD W., – died on January 29, 2008 at the St. Rose Dominican Hospital in Henderson, Nevada. He was the Manager of Material Preparation and Kitting at the time of his retirement from Space Division. He served with distinction through many of the major space programs. He was respected for his caring management style and his never-ending support of his team. Richard is survived by his loving wife Esther.

BUCK, EARL A., – passed away on November 2, 2007 from lung cancer in Medford, OR. Earl worked at the Space Division on the Apollo Project in the Quality Control section. He retired in 1995 and is survived by his wife Shirley who is also an NAA/RI retiree.

CASSIDY, PETER M., 71 – died of cancer on October 28, 2007 in Rancho Cordova, CA. Peter’s family lived just outside of Hickam Field and Pearl Harbor on December 7, 1941. Peter retired from Rockwell after 35 years of service as a field rep. He is survived by his wife of 45 years, Betty.

DAM, WERNER K., 90 – of Huntsville, AL passed away on January 17, 2008. He was the last of the original team of German rocket scientists to retire from NASA at 89. Werner served as chief of the Aerophysics Division at the Marshall Space Flight Center and later as chief aerodynamicist. His work as a rocket pioneer provided a valuable contribution to this nation’s ballistic missile programs and manned space flight.

DE BARRO, HENRY J., 86 – of Marina Del Rey, CA succumbed to a long and painful illness on December 10, 2007. He was an accomplished engineer and participated in such programs as the Concorde, the Space Shuttle, and the B-1B prior to his retirement at the age of 80. He is survived by his devoted wife Erna.

FARRELL, LAURA R., 88 – died on July 12, 2007 in Hesperia, CA. Laura served as a labor relations representative at North American/Rockwell. She was a member of the Hesperia Art Club and the Leisure League.

FLOWERS, EMMA “LUCILLE”, 88 – of Quail Valley and Canyon Lake, CA died in Murrieta, CA on January 15, 2008 of congestive heart failure. Lucille retired from Space Division in 1972 to care for her ailing husband, Neely. She provided loving care for the next 13 years until his death in 1985. She is survived by her daughter Sonnie K. Robertson, son-in-law Lou Tiberio, and sister G. Maxine Preston, all three retirees of NAA/RI.

FUNK, FRANK E., JR., 84 – passed away on November 14, 2007. His career included stints with other companies before he joined NAR/RI. He worked on the Minuteman, Apollo projects, and his favorite, the B-1 Bomber. During this period he also managed to earn a MBA in Electrical Engineering from USC.

GASPER, RICHARD “PARKER”, SR., 80 – passed away in 2007 from complications related to diabetes. In 1952, with a degree in Mechanical Engineering, he went to work at NAA and then transferred to Autonetics where he had a distinguished career.

GEHRING, RICHARD W. “DICK”, 80 – of Upper Arlington, OH died on December 3, 2007. A graduate of Tri-State University in Angola, IN, Dick served at the Columbus Division for 35 years, retiring in 1990. During his career, he authored and presented numerous papers related to aerospace structural research. He is survived by his loving wife of 59 years, Ellen.

GRAVES, WILLIAM E. “TED”, 86 – passed away on December 1, 2007 of complications related to surgery for an intestinal blockage. Ted joined NAA in 1946 as an engineer in the Flutter Group at LAD until his retirement in 1983 after 37 years of service. He worked on the X-15, B-70, and Space Shuttle programs and during that period he also earned a MBA from USC. Ted is survived by his wife of 60 years, Marcia.

HALBLIE, GEORGE, 78 – died on November 9, 2007 of kidney failure, two months before his 79th birthday. George joined NAA at LAD in 1955. While in Circuit Design engineering, he worked on the B-70, the X-15, C-17, B-1, and Apollo programs, and, on loan to Boeing, on the 757 program in 1979. George retired from NAA/RI in 1990.

HUNLEY, LAMAR C. “MARK”, 80 – of Bexley, OH died on November 27, 2007. Mark joined NAA at the Columbus Division after graduating from Ohio State University and later retired in 1985. He is survived by his wife of 56 years, Nancy.

HUNT, RICHARD J., 73 – passed away on November 15, 2007 from undisclosed causes. With a BS in Engineering he spent 30 years in the aerospace industry before retiring from NAA/RI/Boeing. His beloved wife Deanna survives him.

JEPSON, ARTHUR C., 87 – passed away on May 3, 2007 in Laguna Beach, CA. He joined LAD as an Environmental Control Systems engineer and retired from the ECS group in Downey in 1981 after 32 years of service.

LARSON, W. HAL, – the Fall Issue of the Bulletin returned marked “Deceased”. No further information available.

LINDSDAY, THOMAS H. “TOM”, 73 – died on February 4, 2008 in Colorado Springs, CO from complications following emergency surgery. Tom was manager of Space Shuttle Logistics Engineering when he retired in 1989 after 30 years of service. He is survived by his wife of 51 years, Jan.

MARTIN, ENID P., 86 – passed away peacefully on August 13, 2007. Enid was the 1939 Rocky Mountain Region’s Typing and Stenography Champion. She was the Executive Secretary to the President of the NAA Autonetics Division. She retired in 1983 after 33 years of service. Enid’s husband Norman preceded her in death.

McWILLIAMS, DONALD R., 82 – former resident of Placentia, CA died on January 10, 2008 in Athens, Georgia from undisclosed causes. He retired from NAA/RI Autonetics Marine Group in 1989 after 35 years of service.
NORDSTEN, RALPH W., 90 – died of congestive heart failure in Westchester, CA on February 18, 2008. Ralph retired as supervisor on the Sabreliner flight line in 1978 after 32 years of service. He is survived by his loving wife Florence.

PINKERTON, DALE K., 73 – passed away on December 24, 2007 in Riverside, CA. Dale served as an engineer at Autonetics for over 30 years before retiring in 1991. Burial was at the Riverside National Cemetery. He was preceded in death by his wife, Bette.

ROBERTSON, JAMES A. “ROBBIE”, 81 – passed away in Culver City, CA on December 25, 2007 from complications of a long illness. Robbie joined NAA/LAD in the Tool and Die Department in 1946 and retired in 1976 as a senior design engineer in Armaments. An accomplished entomologist, he was known around the facility as the “bug man”. In this capacity, he was affiliated with the LA Museum of Natural History and the Smithsonian Institution. He is survived by his loving wife of 61 years, Donna.

ROSSI, NORM, 83 – passed away from undisclosed causes in Minden, NV in March 2007. He retired from LAD after serving many years in the B-1 Purchasing Department. His loving wife of 63 years, Myra survives him.

SAUNDERS, ROMAINE “SANDY”, JR., 87 – died peacefully in Riverside, CA on November 17, 2007. Sandy served at Rockwell for 26 years as an electronics engineer. He is survived by his wife of 62 years, Roberta.

SCHULZ, HERB – of Torrance, CA, passed away on July 8, 2007. Herb retired from the Experimental Department in 1959 after 18 years of service. He is survived by his wife Mildred.

SUGAMURA, TOM M., 78 – of Los Angeles, CA passed away on September 29, 2007 after a long and heroic battle with thyroid cancer. Tom retired from the Los Angeles Division in 1990 after 37 years of service as an electrical engineer. He enjoyed his retirement playing golf and meeting with other retirees for breakfast periodically in Long Beach. He is survived by his loving wife Terry.


TERRY, PAUL A., 81 – of Hemet, CA passed away on December 26, 2007. Paul served in the Army in WWII and retired from NAA/RI in 1986 after many years of service. He is survived by his longtime companion Nita Dona.

THRESH, JAMES L., 87 – passed away on November 14, 2006 at his home in Long Beach, CA. Jim’s career spanned 34 years with NAA/RI beginning in 1941 at LAD. He worked in various locations in Southern California and for 12 years was the manager of Quality/Reliability Assurance at the Autonetics Navigation Systems Division. Prior to his retirement in 1975 he was the Corporate Manager for Quality Assurance Western Region.

TRIAY, ALLEN C., 90 – passed away on December 8, 2007 of natural causes. Allen was employed at the Autonetics Division for 20 years. He worked on a variety of projects including the Minuteman missile and NASA space programs. Allen is survived by his wife of 60 years Paulette.

TUMA, CHARLES A., 96 – of Anaheim, CA passed away on November 14, 2007 from undisclosed causes. Chuck worked at NAA/RI until his retirement. He was inducted into the Orange County Bowling Hall of Fame in 1991, a most happy moment for him. He is survived by his wife Marian.


WOLFENSTEIN, BARTLEY “BOB”, 78 – of Buena Park, CA passed away on November 27, 2007. Bob served in Downey in Reliability Engineering for 38 years before retiring in 1985. Bob was very severely wounded during the Korean War but he never let his injuries detract him from a full life. He was a good friend. He is survived by his loving wife Blancha.
A WS-131B Hound Dog, released from a B-52F over the White Sands Missile Range, performs a High-Low Altitude Profile mission using the physical features of the terrain to avoid radar detection.