Arctic Ops, Part III
Early Secret Military Cold War Arctic Operations
by Dave Stern

WWII AFTERMATH

The sequence of events occurring from 1945 to 1948 that lead into the "Cold War" are of greater import than is reflected in the history books; to newer generations they now seem like mysterious times. War-weary European-Pacific theatre troops were demobilized (period slang term was DEMOB), leaving tons of weaponry too costly to ship home. The Chiefs of Staff realized its weaponry was obsolete in light of the amazing German advanced technology, American Intel-agents seized during cut-throat competition against other desperate Allied teams. Meanwhile, cancelled stateside military contracts resulted in fresh "zero" time aircraft flying directly from factories to storage-reclamation sites in Arizona for preservation or recycling.

DEMOB included Alaska where assorted fighters and older bombers were scrapped and light utility and transport aircraft were sold as surplus at Elmendorf Field, Anchorage. Fighters were heaped or bulldozed into graves, while five-year-old bases in Alaska were abandoned or reverted to care-taker status and deteriorated. Squadrons were deactivated while small numbers of reciprocating-engine aircraft remained to defend Alaska. Others served stateside Air Guard units during the late 1940s while new jet fighters, bombers, transports, helicopters and missiles were under limited construction on reduced military budgets.

The Joint Chiefs of Staff (JCS) realized that the USSR had not demobilized -- instead it retained veterans and equipment but continued producing updated weapons, while the U.S. endured severe military reductions. In retrospect one might conclude that the Air Staff and other service chiefs were re-adjusting to a peacetime state but this is erroneous. Reports concerning the Russian seizure and internment of three combat-damaged B-29s while allowing the crews to "escape" did not bode well for the future. Their ugly belligerent activities in Berlin plus occupation of nations bordering Germany shattered American naiveté where atomic-age politics were concerned and provided the impetus to engage in postwar studies and plans to access the Polar Regions.

Gutted carcasses of B-29s, many with low airframe hours, lay heaped upon each other at a dump in the Marianas Islands as WWII ended. (Photo: John Meskel collection)

POSTWAR PLANS

Behind Pentagon closed doors numerous officers initiated post-WWII plans for a radically different war that included long-range B-29s for new and dangerous missions into the Arctic. The ranking military hierarchy concluded that a surprise attack upon North America over the top of the world via the Arctic, could easily reach (at the time), North America, either through the Territory of Alaska or central northern Canada - perhaps simultaneously.[1]

The JCS and air staff formulated military and research projects to both occupy and use the northern regions — those directly involved called it the *Polar Concept*.[2] Polar Concept hypothesized that various weapons like supersonic military aircraft, "rocket ships" and airlines could navigate along the shorter transpolar routes, to reach their destinations. The experiences of U.S. and German combat in the Arctic, *Operation Bolero* (ferrying aircraft across the North Atlantic) operations in Greenland, Alaska, Labrador, Newfoundland, and the little known German air reconnaissance and U-Boat combat around Iceland and further north,[3] naturally influenced the Joint Chiefs' postwar Arctic military planning sessions.

Factored into *Polar Concept* was the well armed and combat hardened Russian army. Brave and tenacious they operated winterized equipment that allowed mobility in sub-zero combat operations.[4] Alaska explorer Father Bernard Hubbard traveled Alaska's Bush to deliberately allay Alaskan's fears of a possible Polar invasion, to counter numerous postwar magazine articles referencing an invasion by the Russians. He wrote a feature article refuting a Russian invasion by claiming they would grind to a

"Flying over the icy wastelands, the frozen hull of the lads' strange craft suddenly cracked open. 'We're doomed!' cried Tom, going to pieces."

(Adapted from 1892 science fiction)

Well, Tom and his crew probably survived to build more "flying ships"—craft that could, of course, take flight only on the pages of 19th century science fiction. Because even if their design had been right, materials with the necessary properties, including high strength, toughness and resistance to temperature extremes to make them airworthy just didn't exist.

Today, aircraft designers and engineers can find materials to cope with almost any condition of temperature or stress. And many of these alloys owe their properties largely to nickel.

There are nickel-containing alloys offering high strength and toughness at temperatures as low as −423° F or as high as 1800° F. Also alloys providing yield strengths up to 270,000 psi with excellent ductility: up to 50% reduction in area. And there are the extraordinary maraging steels, the strongest of which provides strength-to-weight ratios of over 1,000,000 to 1; available at three nominal strength levels—200, 250, and 300 ksi.

Nickel-containing alloys, offering excellent combinations of physical and mechanical properties have helped solve a wide range of aerospace design problems—from thin-walled rocket cases to turbine wheels. And they may be the answer to your design problem, too.

For information and assistance, write to Inco, outlining your requirements. We'll be happy to help you select the best materials for specific aerospace applications.

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This International Nickel Co. ad evokes memories for those of us who maintained and flew aircraft and helicopters in the northern regions. Aircraft and ships used in Arctic-Antarctic explorations are buried at sea or cocooned within massive ice fields as future archaeological artifacts to be exhumed and examined. (Photo: Dave Stern)

A drawing of the Antonov An-40 glider-tank vehicle actually built and flight-tested since the concept was born during the 1930s. "Tugged" by Soviet transports the tanks would be moved to forward sites, leap-frog over mountains, water and other obstructing landscapes; flying tanks could also be inserted into another geographical landmass during planned invasions: for example, northern Alaska or Canada. (Photo: Avico Press)

halt in Alaska's wilderness without firing their weapons (see author's footnote).[5]

The military, believing otherwise, concluded that a Russian combined Arctic winter air, sea and land invasion could establish a foothold into North America.[6] Military intelligence knew of a Soviet crash project to reverse-engineer and manufacture three seized Boeing B-29 bombers during WWII and create a parallel strategic bomber force (1,296 TupolevTU-4 bombers were eventually built).[7] Further, Intel revealed a top secret super priority nuclear weapons program in above and underground facilities blending into the eastern edge of the Urals, code named *Operation Borodino*.[8] A Russian nuclear armed bomber force thus posed a viable threat to Canadian and American cities, bases, industries including Western Europe.

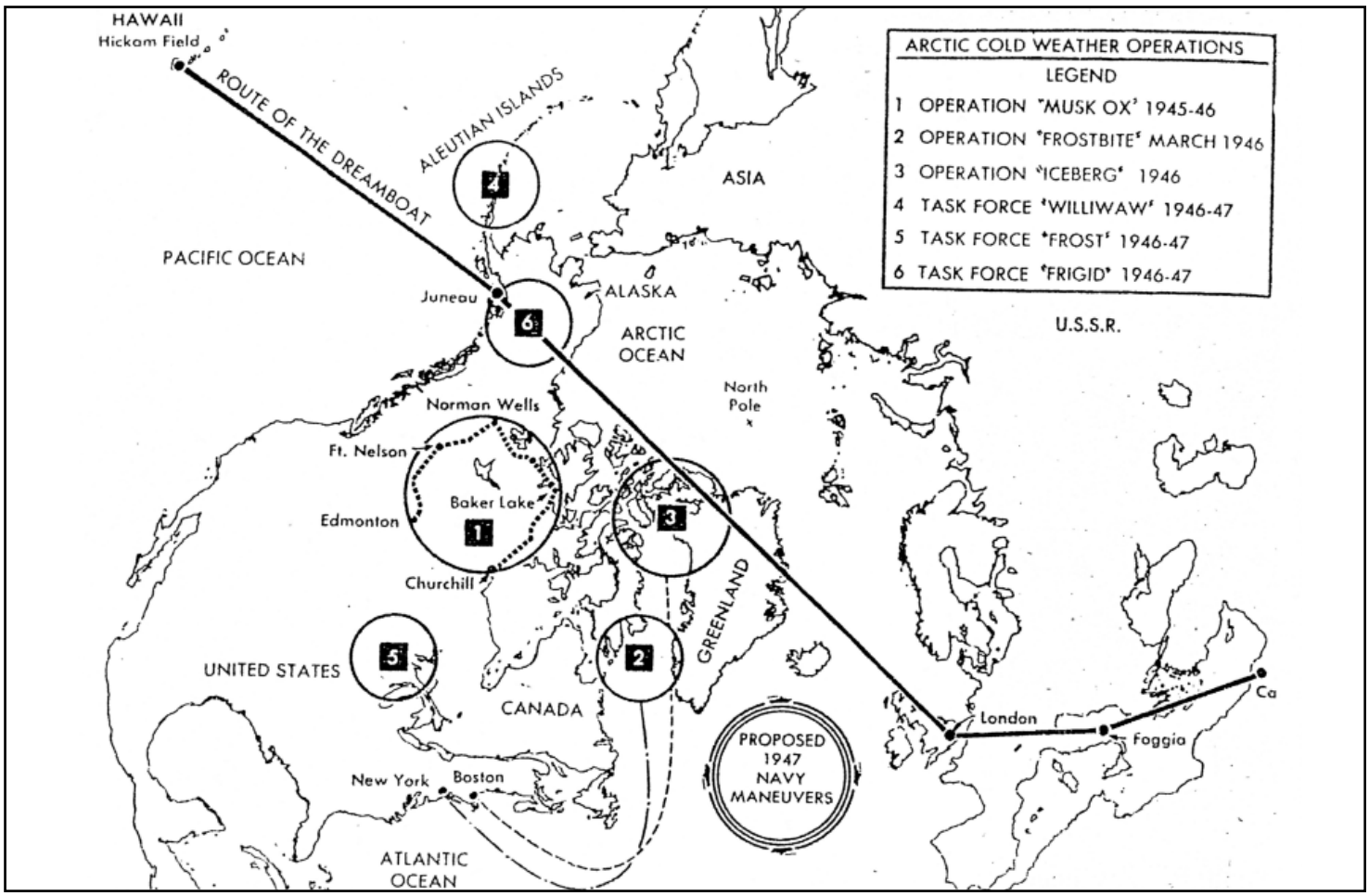
Increased belligerence occurred when indigenous northwest Alaska Eskimos regularly crossed the Bering Straits past the Little Diomede and Big Diomede Islands, to visit brethren on the eastern shore of Siberia (Cukotskij region). After 1946 Soviet security forces began intercepting these peaceful natives -- they arrested, detained and questioned them, sometimes for days. Foreigners visiting the USSR were heavily restricted from traveling just anywhere and were placed under constant surveillance.[9] It was a state crime for foreigners to even possess Soviet maps and they were so secret Soviet officials actually removed the Top Secret city of Sarov from all maps.[10]

Meanwhile, members of the Soviet Purchasing Mission in Washington, D.C., grabbed American industrial and city maps and other technical information as fast as they were printed.[11] The Soviets also initiated *Enormoz* -- nuclear espionage Intel activity against our Nuclear Weapons Program,[12] while the parallel American effort against the Soviets was code named *Azuza* cum *Ramona*.

The JCS formulated plans to continue with, but add more jointly operated, Arctic weather stations that had included Russian manned and robotic stations still transmitting weather data en-clear,[13] and create strategies to defend northern Canada and Alaska. Annual Alaska winter exercises centered upon defense against air-attack, amphibious landings and parachute invasion while classified missions were laid on to explore Arctic waters, locate and map ship-submarine routes, conduct aerial reconnaissance and locate and claim undiscovered Arctic lands. Additionally, the postwar USAAF reorganized its Air Weather Service in preparation for global post-WWII operations.

Other USAAF classified projects, while still married to the Army, included depot level modifications of B-29s into Elint, Sigint and Photint (Photo-Intelligence) reconnaissance aircraft, to record Soviet military activity in northern and eastern Siberia, the Bering Sea, Kamchatka Peninsula and the Polar Regions. Another creation was *PARPRO* (Peacetime Aerial Reconnaissance Program) charged with collecting Soviet nuclear intelligence, monitoring Soviet nuclear weapons tests, locating and photo-mapping secret Soviet nuclear material processing and locate to photograph if possible, bomb production plants for the AEC and newly formed SAC.[14]

A ski-equipped Lisunov Li-2 (early designation was PS-84) license-built DC-3/C-47 is being warmed up by what appears to be a kerosene or gasoline burning stove. The Russians greatly respected and fully used the 710 plus C-47s received through Lend-Lease and Bell's Cobra series fighters. The Li-2 used the 1,000-hp Shvetsov Ash-621R radial, probably a copy of America's P&W Twin Wasp engine. The Polar Bear insignia represents a separate Soviet organization known as "Polar Aviation," usually displayed on various aircraft assigned to the Polar Research unit that flew re-supply missions to numerous NP or PS (North Pole or Polar Stations) during post-WWII. Polar Aviation Units were operated with Aeroflot, the State Airline, in conjunction with the Arctic & Antarctic State Research Institute of St. Petersburg. Some startling revelations concerning this unit will be revealed later in this story. (Photo: Avico Press)



A post-WWII map displays the prime North American Polar exercises accomplished by sea, land and air during and after WWII. (Drawing: Dave Stern)

In late 1945 the Russians re-initiated Arctic research expeditions (terminated when Germany invaded the Soviet Union) in the Polar Regions with their first postwar "High Latitude" Air Expedition. In October 1945, Arctic pilot and Hero of the Soviet Union M.A. Titlov flew a modified Douglas C-47A, N-368, nonstop from Cape Chelyuskin to the North Pole then to the New Siberian Islands. His ice-reconnaissance mission included testing new instruments, to accurately navigate the Polar Regions; his crew flew 4,500 miles during the 15.5 hour flight.[15] Since the 1920s Russia laid claim to all territory from "hard land" to the North Pole, and financed early research expeditions to explore it by sea and air.

From 1945 increasing Soviet Polar explorations coupled with their menacing political actions and highly active espionage activities generated further reasons to perform aerial reconnaissance in the far north in keeping with the Polar Concept plan. An example occurred on September 5, 1945, when Igor Gouzenko, a cipher clerk (communications specialist who encrypts and decrypts classified message traffic), exited the Soviet Embassy in Toronto, Canada, with a clutch of Top Secret documents and defected.

His revelations plus the documents exposed a large and well organized Communist espionage mission inside Canada and the USA. The vengeful Russians dispatched an assassination team to terminate Gouzenko in Canada thus providing a rude awakening for many Canadians and Americans. These and other forthcoming events culminated in what historians describe as the Cold War; the Latin phrase *Mars gravior sub pace latet* (a severe war lies hidden under peace), rather eloquently describes this lengthy undeclared war that terminated many lives.

ACCESSING THE ARCTIC

Pentagon planners naturally chose the Territory of Alaska to ingress the Polar Regions by staging classified operations from Ladd Field, Elmendorf and Shemya AFB, the latter advantageously situated close to the Soviet Kamchatka Peninsula.

Operating as consort, the Navy initiated its own reconnaissance operations from Adak and Kodiak Island using various patrol aircraft.[16] The U.S. Government accepted the turn-of-the-century Canadian proposal known as the "Sector Principal,"[17] legally granting nations bordering the Arctic regions claim to any land in the Polar Regions. The Soviets gained 159 degrees of area while Canada secured 81 degrees. Alaska allowed the U.S. to claim a mere 28 degrees of Arctic area, however, clever American lawyers thinking in terms of the Monroe Doctrine, insisted that the Arctic be considered *terra nullius,* a legalistic term for no man's land, thus up for grabs should American reconnaissance activity discover land.[18]

BOSS BEAR

A number of classified Arctic projects were created for the Army, USAAF and Navy within the overall project title *Nanook,* the Inuit mythological name meaning Boss Bear or Master of Bears. Nanook was initiated in 1945 as a top secret project to photomap the Arctic, survey and map Soviet borders in addition to previously mentioned missions. However, this project name was used to cover numerous covert Arctic missions throughout the late 1940s. Meanwhile, in August 1945, a classified mission was initiated with two modified but unidentified B-29s flying out of Site W-47 in Utah to Alaska. They carried early air sampling devices mounted atop their rear fuselages -- the flights would hopefully trap the Hiroshima bomb's nuclear particulates moving through the atmosphere on prevailing winds -- the same that carried numerous armed Japanese Fi-Go balloons towards Alaska and western America.[19]

ARCTIC GROUND PENETRATIONS

During 1945 the Canadian Army initiated three Arctic exercises penetrating upper northern Canada - they were exercises *Polar Bear*, *Eskimo* and *Lemming*, but were neither fully detailed, nor were their specific missions defined. On February 15, 1946, though, a joint Canadian-U.S. military exercise called *Musk Ox* left the Fort Churchill staging area to penetrate Northern Canada.[20]

The mobile ground force consisting of tracked *Penguin* (Canadian-designed armored Snowmobile Mk-Is), *Muskrat* and *Mudcat* snow vehicles, two-man armored reconnaissance machines pulling three types of supply sleds and several U.S. M-29 Weasel tracked vehicles, were supported by aircraft that traversed 3,130 miles of the Canadian Arctic in 81 days. Overall Musk Ox commander was Canadian Army Lt. Col. Patrick D. Baird of Montreal; others included Navy, Army, USAAF (Lt. Col. Edward Butler, observer) and several civilian scientists who slowly penetrated the deep Arctic (temps were -35F to -50F below) with incomplete maps aiming to reach Arctic Sea ice.[21]

Canadian and British reports give dissimilar numbers for aircraft and identify them all as RCAF, and two reports reflect anxiety and bias against the American participants.[22] RCAF participation included C-47s and several Norduyn Norseman bush planes of RCAF No.1 ASU (Air Supply Unit) commanded by RCAF Wing Cmdr. Jack Showley. They supplied extra quantities of gas for the fuel guzzling snow machines and dropped emergency parts when they broke down, while guiding the ground unit by LORAN through uncharted territory.

The USAAF also provided seven Waco CG-4As carrying supplies and several M-29 Weasels, plus one Waco CG-15A glider that simulated a glider rescue mission landing on Barren Island on March 13.[23] The three B-29s based at Edmonton, Alberta, supported Musk Ox and were modified with electric gyros, electric gyro-stabilized fluxgate compasses plus the standard aircraft magnetic compass for arctic flying. No other mission details were published, but they covered 1,500 to 2,000 miles near or past the magnetic pole.[24]

All-American Quarterback "Buzz" Borries Navy Air Officer aboard the carrier Midway wrote an article describing the late 1945-1946 *Operation Frostbite.* This Navy Task Force included the carriers Midway, Currituck and other ships, during early 1946 sailed into the Davis Straits along Greenland's southwest coast, as Operation Musk Ox was slowly entering Northern Canada.[25] He simply stated that they were "looking for trouble" without further expounding on that statement.[26] The aircraft complement included Martin PBM Mariners, 27

This Musk Ox medical vehicle flies red cross and skull and bones flags, although no relatives of Knights Templar who reportedly displayed it aboard their fighting vessels after their demise in the early 1300s, are known to have been members of this expedition. Left to right is Medical Officer Canadian Army Captain R.R.M. Croone and medical sergeant Sgt. Ed Williams of Toronto. (Photo: AINA Image 10023)

Aerial view of a USAAF Waco CG-4A cargo glider landing on frozen sea-ice near Coppermine in northern Canada. The assigned Wacos represent the first application of gliders to Arctic exploration. They were also used operationally by the USAAF 10th Rescue Service established in Alaska in 1946, and commanded by the famous Polar navigator-pilot and WWII Carpetbagger pilot Col. Bernt Belchen. (Photo: AINA Image 10039)

Waco CG-4A USAAF glider number one, crash landed on a small lake near the Petitot River. Injured pilot lies on cushioned ground with severe back injuries. The cargo is an M-29 Weasel that appears to have shifted forward during the hard contact with the lake ice. Men atop the wrecked forward fuselage are prying the upper hinge loose to remove the nose unit and extract the Weasel. (Photo: AINA Image 20080-4)

Forward fuselage of Waco CG-4A has been removed to extract the Weasel while medics attend to the injured pilot. (Photo: AINA Image 20080-1)

USAAF Waco glider number two successfully lands near Petitot River to disgorge the expedition's cargo. This Arctic Op proved the usefulness of the WWII cargo-troop carrier glider and extended their life during the post-WWII era. (Photo: AINA Image 20085-1)

Engineers have constructed a log raft for snow machines to cross the Fort Nelson River. The vehicle's roof is loaded with necessary equipment lashed down to prevent shifting while traversing rough terrain. (Photo: AINA Image 20104)

The Musk Ox enclosed snow machines are seen here moving onto the frozen sea-ice near the mouth of Churchill River. (Photo: AINA Image 10012)

F4U Corsairs, 25 SB2C Helldivers, four F8F Bearcats, two TBM Avengers, one Ryan FR-1 Fireball and one Sikorsky R-4 helicopter.[27]

Strangely, Borries twice described Midway's newer and deadly five-inch anti-aircraft weapons plus their standard armament as though these were vitally important. It is possible that the mission included engaging German U-Boats or aerial vehicles still operating long after the German surrender. Approximately 40 U-Boat captains refused to surrender their boats to the Allies, nor were they among the 203 deliberately scuttled by the crews to prevent the Allies seizing them.[28] Russian Admiral Nikolai Kuzntesov's memoirs states that "fanatic" German U-Boat crews continued operating in the Barents Sea long after the German surrender and well into late 1945. Russian Northern Fleet vessels still engaged them whenever they were detected.[29] Since U-Boats and Luftwaffe operated in Greenland waters throughout WWII perhaps the U.S. Naval Task Force received a dual mission, conduct carrier and aircraft operations in Arctic waters with an added search and engage mission (this is strictly the author's supposition).

MODS FOR MISSIONS

Of the 3,900 B-29s built in WWII at $639,188 per aircraft many were stripped and scrapped on Pacific Islands. In late 1945 and early 1946 the USAAF selected a number of B-29s for modifications to perform Top Secret postwar missions. Approximately 112 B-29s were modified (Oklahoma City Depot) into F-13 and F-13A photo reconnaissance platforms. Other airframes were reworked into RB-29 and WB-29As for strategic weather reconnaissance that included air sampling missions. Small numbers of each type were assigned to the top secret Project Nanook based at Ladd Field, Fairbanks, Alaska.

They were being readied to accomplish Arctic navigation, photograph anomalous activity and photo map the Polar Regions while others collected air samples and Arctic weather data in concert with the existing network of joint Allied ground weather stations. In February 1946, President Truman signed a bill to expand weather observation facilities in the Arctic, with operational costs of $200,000 per site.[30] Other Top Secret missions included ferret and photo missions along the periphery of the Soviet Union.

The now distinctly unfriendly Russians forced the Canadian Government and military staff to realize that their turn-of-century "Sector Principle" extension into the Arctic now required protecting approximately 3,800,000 plus square miles of sovereign Canadian land. Being geographically joined to the USA they became a partner deeply involved in the defense of North America.

The Boeing B-29 Superfortress had been rushed into production and quickly injected into the Pacific theatre, with such haste that it did not reveal the B-29s true strategic

Boeing B-29 Block 40, 44-27334, nicknamed Noah's Arc*, their electrical research platform running up in its revetment at Boeing Field. The B-29 both U.S.-built and some Soviet TU-4 copies served in numerous categories from bombardment, photo-Elint-Sigint reconnaissance, weather recon, missile launcher, airborne cosmic ray lab and AWACS test bed, among others. Boeing's B-29, B-50, C-97, B-47 and KC-135 tanker series also underwent new applications and were highly modified for numerous roles during the Cold War. (Photo: Mike Lombardi-Boeing Archives)*

A pretty Boeing employee places a completed mission decal upon the port side of Noah's Arc. The disposition of Noah's Arc *upon completion of its research flights is unknown. (Photo: Mike Lombardi-Boeing Archives)*

capabilities. B-29 pilots were not familiar enough to judiciously harmonize its operating parameters for maximum performance and range. Additionally, serious engine, propeller and electrical component reliability problems continued during the rush into combat that were gradually resolved. Naturally the Russians inherited the exact same problems with their rivet-for-rivet copied TU-4 bombers. Another serious issue was sustained high-altitude flight between 35,000 and 40,000-plus feet necessary for post-WWII classified missions.

SPARKS AND ARCS

In 1945, the Boeing Company initiated a high altitude research project by modifying B-29-MO 44-27334 and named *Noah's Arc*, further expanding on TWA's "overweather laboratory," a supercharged Northrop Gamma that explored high altitude flights to 37,000 feet in 1936.[31] *Noah's Arc* flew numerous electrical research flights between 30,000 to 40,000-plus feet.[32] Between October 1945 and early 1946 *Noah's Arc* flew above and parallel to the Cascade Range and Mt. Rainier south of Seattle. It also flew into Denver, Colo., and Muroc Field on the high desert.

Flights spanned one hour with altitude durations of between nine minutes and three hours at 30,000 feet; other flights gradually explored the bomber's reliability up to 40,000 feet initially for 30-52 minutes with increasing durations thereafter.[33] James A. Fraser, a Boeing engineering test pilot, flew the missions and was interviewed by *Collier's Magazine*. In Collier's *Wing-Talk* column, Noah's Arc attained altitudes above 40,000 feet (max duration was 3 hours, 44 minutes) on 50 occasions.[34]

Noah's Arc carried two of every electrical component, normally installed in a standard B-29A. The flights recorded electrical arcing within components due to the thin cold and dry air at high altitudes, including aircraft shrinkage, well known to the CWTD staff at Ladd Field during and after WWII.[35] Temperatures over or near Mt. Rainier were recorded at six-plus degrees below zero. Engine cylinder head temperatures stabilized to 35,000 feet but rapidly increased to redline as the aircraft climbed higher, where the cold thin air failed to carry away the engine's cylinder heat.[36] The wiring insulation of electrical accessories heated up causing failures due to thin cold air providing no insulation, since B-29 electrics were mounted throughout the unpressurized areas of the fuselage and wings. Westinghouse Corp. addressed this problem by creating a high-voltage alternating-current system for the B-29.[37]

OPTIMUM B-29 PERFORMANCE

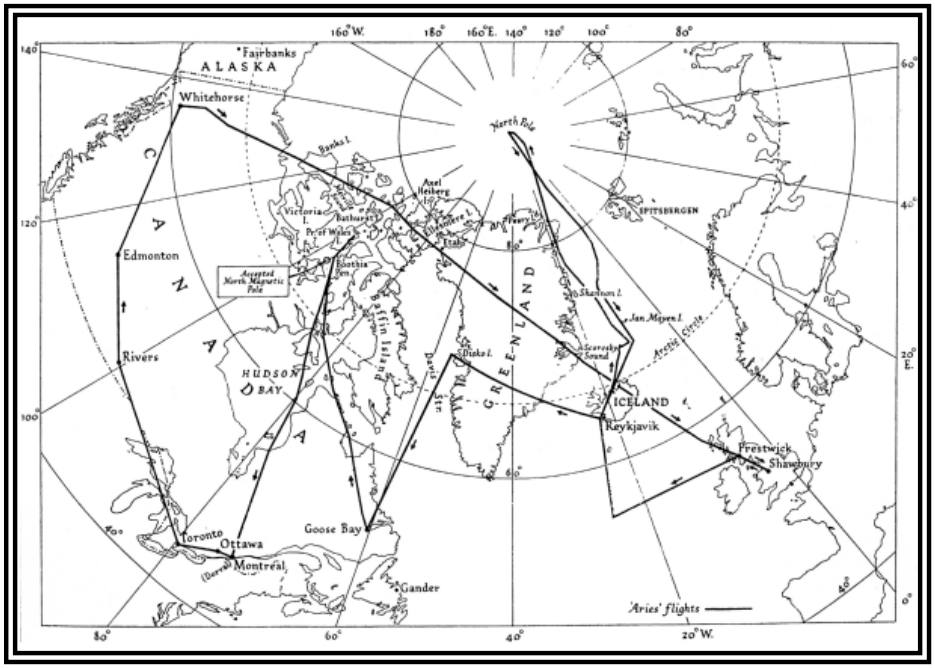
When SAC was created in 1946 an operational order yielded valuable data that allowed optimum performance from B-29s flying postwar missions. Some or all SAC B-29s now included bomb-bay tanks carrying more Av-gas with the remaining space housing the bomb load. Every three months B-29 crews were ordered to fly 4,000 mile nonstop missions with a fuel load for only 3,000 miles, including the following caveat…nobody landed a B-29 on empty tanks![38] Each B-29 was expected to land with 500 or 600 gallons remaining in their fuel tanks and would reflect upon the proficiency of the crews.

Use of inefficient WWII B-29 procedures caused some crews to return to base with very little or no Av-gas remaining. Post-WWII SAC B-29 missions were flown to accumulate flight experience and create new performance calculation graphs replacing outdated WWII composite cruising charts. It yielded new optimum flight parameters by experimenting and applying correct mixture control values, power settings coupled with outside air temperatures when flying with various combinations of gross weights, altitudes, airspeeds and flying with one or two dead engines (engine failures).

Flight engineers learned effective fuel conservation and that cold gasoline yielded a range increase over a bomber fueled with warm gas while sitting in hot weather. This was exactly how Paul Mantz won several cross-country air races by cold-soaking the wings of his early P-51 Mustang with dry-ice, then filling the tanks to the brim and covering them with dry ice overnight. They learned that B-29 engine power increased in dry weather as opposed to high humidity with the same power settings. The aircrews increased their range simply by shutting down one inboard engine and cruising on three engines, thus with updated cruise-control charts crews gained a range increase of approximately 1,000 miles, however, lean engine mixture settings at gross weights (also for long durations) generated an expensive negative side…lower engine TBOs (Time Before Overhaul). Crew chiefs were also reported cutting approximately three inches off the B-29's engine cowl flaps just to reduce drag when open.

1945 RAF POLAR FLIGHT

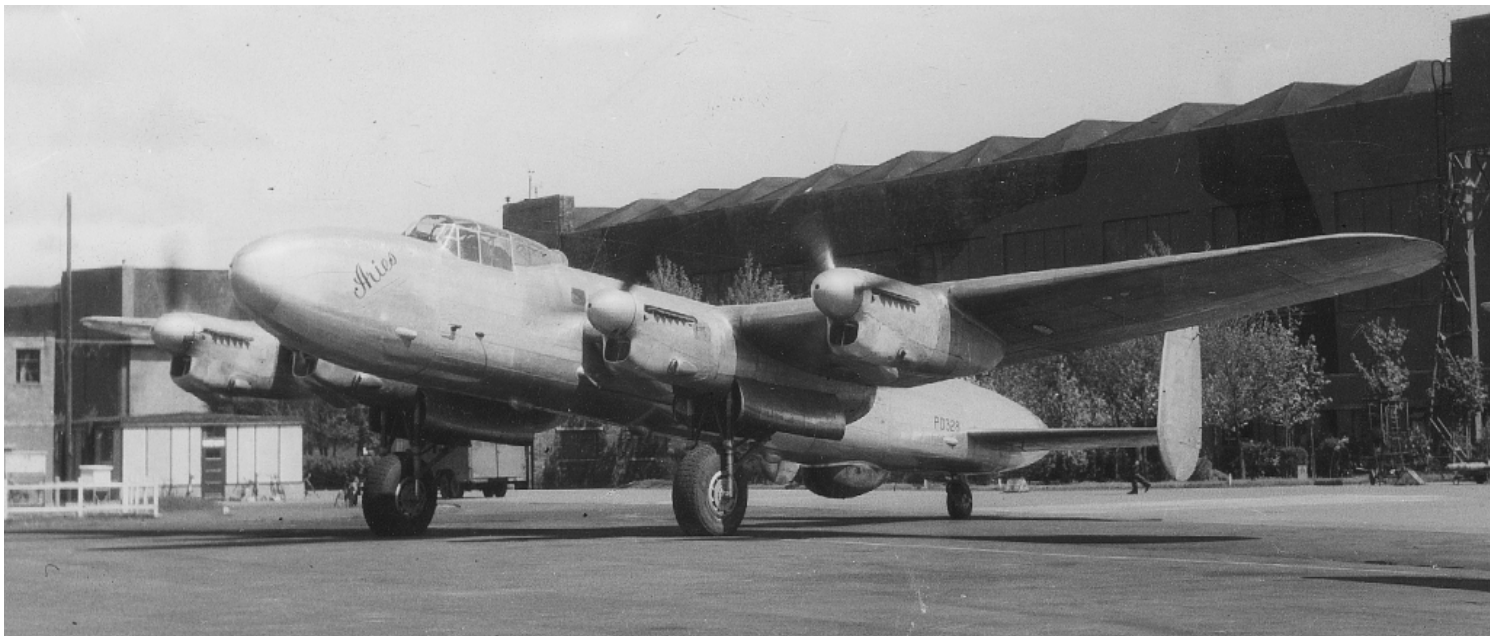
During WWII (1942) RCAF Wing Commander Maclure wrote a "high-latitude" (Polar) navigation and orientation paper while stationed at the Central Navigation School in Cranage, England. Despite the British being totally broke at war's end and not entitled to seek lands in the Arctic Regions, a proposal to fly one Avro Lancaster to the North Pole was approved by the Air Ministry, with the Empire Air Navigation School organizing the flights. In 1944 an RAF Lancaster named *Aries*



The modified RAF Lancaster bomber named Aries *flew multiple missions into the Polar Regions from England in 1945 immediately after WWII ended in Europe. This map records the various missions flown. The strangest is the initial dog-leg style flight into the middle of the Arctic Sea then its non-linear flight path up the eastern side of Greenland, then to the North Pole. (Photo drawing: AINA)*

RAF Plane Captain Wing Cmdr. McKinley at the controls of PD338. PD338 was powered by four Rolls Royce. Merlin 24 V-12 liquid-cooled engines generating approximately 1,600 hp and was described as a reliable engine. (Photo: AINA)

Aries *crew, left to right; Sgt. E Wiggins, rigger-airframe, Sgt. H.B. Dean-electrician, RCAF Wing Cmdr. K.C. MacLure-research observer, Wing Cmdr. D.C. McKinley-plane captain, Wing Cmdr. R.H. Winfield-medical observer, Wing Cmdr. E.W. Anderson-1st navigator, Flt. Lt. S.T. Underwood-2nd navigator, Flt. Officer S. Blakely-1st wireless operator, Sgt. W.S. Gardiner-fitter, aero-engine, and Warrant Officer A.F. Smith, 2nd wireless operator. (Photo: AINA)*



RAF Lancaster Aries*, PD338, photographed in its modified form possibly in England prior to its departure. The term "Aries" is Latin for ram and is the 1st Zodiacal sign in Astrology, and of the zodiacal constellation so-named in honor of the ram of the GOLDEN FLEECE. (Photo: AINA)*

having flown around the world was chosen for modifications to accomplish what they described as Polar research flights. In spring 1945, *Aries* was modified by stripping off the paint, armor and armament but retained minimum de-icing equipment. The standard nose and tail were replaced with streamlined segments along with increased fuel tanks that stretched its range to 5,000 miles.[39]

Mission preparation included time in a celestial link trainer simulating Polar navigation flights to reveal any unforeseen problems. Wing Commander Winfield worked hard to provide applicable cold weather clothing, survival equipment and dehydrated food. The 11 man crew then spent two days as captives within an "ice chamber" dressed in operational clothing while consuming dehydrated food. The navigators applied a Greenwich grid-system of orientation and navigation for their flights, but also tested automatic dead-reckoning equipment, compass and navigation instruments, while a medical officer observed and recorded crew behavior.[40]

On May 10, 1945, *Aries* departed Shawbury for Iceland to photograph the Polar Regions and collect weather data. On May 16, the first flight departed Iceland for the Magnetic North Pole area and the eastern coast of Greenland. Nine hours into the flight the Lancaster iced up and returned to Meeks Field (Reykjavik), Iceland. On May 17 *Aries* returned to the vicinity of the North Pole at 14,000 feet and circled it. In celebration one crewman ate a banana and another tossed a bottle of beer overboard with a Union Jack flag. One mechanical problem occurred when an engine driven electrical generator bearing seized forcing the crew to land at the Goose Bay, Labrador, on May 18 where it was repaired.[41]

On May 19 *Aries* again flew near the Boothia Peninsula to survey the magnetic north pole, returning instead, to Montreal. On May 21 the crew flew to Whitehorse, Yukon Territory, then departed for the U.K. via the Polar Regions by flying over Axel Heiberg land, the Greenland icecap, past Scorseby Sound along the northern edge of Iceland to land at Shawbury, U.K.[42] The *Aries* mission flew immediately following the German surrender but whether a classified mission or not, it ranged over geographical areas where suspected or known German military activity had occurred or might still be ongoing. In either case, post-WWII operations by the U.S. and Canada would require the important grid-navigation method being applied by RAF, RCAF, USAAF and Navy aircraft operating in the northern latitudes.

[To be continued]

ACKNOWLEDGEMENTS

The Author wishes to thank Melanie and fellow workers at the Arctic Institute of North America (AINA) for processing the historical images of exercise *Musk Ox* - they are a rare historical insight to the immediate postwar period.

Endnotes

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Author's Note. The Russians were quite experienced at moving an army and aviation assets during sub-zero winters; including their aviation experience gained from exploring

the Arctic Regions. During the WWII Alaska-Siberia Project (AL-SIB), the Russians flew Lend-Lease aircraft from Fairbanks to Nome - this must include constant flights of personnel shuttling back and forth in C-47s and C-54s flying the route into Eastern Siberia. It is reported that they made notes and rough maps of central and northern Alaska. Father Hubbard wrote an informative article opposed the East Coast's well publicized warning about possible Arctic invasions in the March 31, 1951, issue of *Collier's Magazine*, titling it "Russia can't take Alaska." The Russian Divisions of combat troops, veteran paratroopers and at least 700 C-47s plus their indigenous copy, the Li-2, and substantial numbers of bombers and fighters and assault gliders would have been applied to such an invasion.

Geographically, and during the mid-late 1940s and considering the poor state of Alaska's defenses, an aggressor could have easily penetrated Alaska via relatively unprotected Nome and Barrow or farther east of it, occupied the Nome and Barrow airfields, then springboarded over the east-west situated Brooks Range and into the Tanana Valley…if, but only if their "Uncle Joe Stalin" was that desperate and mad enough to regain its previously owned and now mineral rich colony.

Between 1945 and 1951 such a combat expedition into northern Alaska and even northern Canada might have gained a temporary footing but eventually they would endure joint Canadian-U.S. ground forces, aerial bombing and parachute assaults. It would have become a foolish exercise and sacrifice of lives that would eventually would have been stopped or surrounded; it would, however, have made quite the historical lead into the Cold War history.

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NOTE: The two reports immediately above reflect bias in not mentioning the exact participation and number of aircraft and gliders, yet identify them as RCAF aircraft of RCAF No, 1 ASU, while downplaying the American participation and aerial support. Both authors express anxiety that indicated fears of U.S. Government or military forces encroaching upon their northern territory. One may easily discern this dual-nervousness where the U.S. is concerned, and unless there was unpublished meetings behind closed doors between the American and Canadian politicians concerning U.S. military forces operating in Canada -- certainly the B-29s did elicit nervousness among the Canadian population of Edmonton where they were temporarily based, there should have been no reason for such concerns, unless American "hawks" were actually suggesting such ideas at the time. It may also be possible that more than one expedition co-named Musk Ox occurred and the two above reports detail one, but not another, while the USAAF magazine *Air Force* reported on only one of these expeditions. However, all the reports seem to describe the same expedition.

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31 A 1940s Northrop color advertisement describes this experiment.

32 Neely, Frederick R. "Sky Limit," *Wing Talk Department, Colliers*, July 14, 1947.

33 Flight test dates, times, and other Information are extracted from the initial pages of Boeing B-29-mo 44-27334 Flight Log, courtesy of the Boeing Co. Archives.

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