

ARCTIC OPS

Part II: Early Secret Military Cold War Arctic Operations

by Dave Stern

Coping with Arctic Weather

The officers and enlisted men comprising the Cold Weather Test Detachment (CWTD) at Ladd Field, Alaska, continued throughout WWII ground and flight testing USAAC combat aircraft, thus determining their suitability for combat in Arctic climatic conditions. They created new methods to level the critical sub-zero temperatures and their negative effects upon men and machinery enabling both to accomplish their combat missions and safely return to base.

Practical flight tests and research introduced battery inspection procedures when aircraft cold-soaked overnight. Maintenance personnel checked for specific electrolyte levels, used ground battery carts towed on a copy-cat dog sled and charged them prior to cranking cold-soaked engines.¹ The popular press reported that aircraft wet-cell storage batteries were being improved with thicker positive-negative plates, improved plate coatings, plus improved electrolyte quality and levels. Post-WWII they still required attention and recharging especially in sub-zero temperatures that reduced their designed power output.

As WWII erupted in Europe, Luftwaffe aircraft burned 87-octane avgas without antiknock additives. America's petroleum industry sold overseas buyers expensive 100-octane avgas with tetraethyl lead, thus greatly reducing the anti-knock problem. The British liquid cooled and radial engine performance was increased, and even resulted in reduced aircraft takeoff distances.² Unfortunately, the increased percentage of lead in the higher octane gasoline induced spark plug fouling especially in sub-zero temperatures. Cranking extremely cold, excessively-primed engines wetted or frosted spark plugs thus preventing ignition. New long-reach spark plugs with higher heat-ranges (the plug's electrode reaches further into the combustion area hence closer to the piston crown), were engineered, manufactured and sent to front-line squadrons, including those in Alaska.

This was highlighted when temperatures dropped to lows of -60 degrees F during the winter of 1943-1944, thus severely cold-soaking the Ladd Field detachment's aircraft.³ Military pilots also requested a quick method of cranking a totally cold-soaked engine. The application of 10 percent to 30 percent gasoline injected into the engine crankcase and oil tank by means of oil dilution systems reduced the hot oil's viscosity before engines were shut down, somewhat mixing the two liquids.⁴ Engine starts were somewhat easier with thinner oil and as it heated up, the gasoline simply evaporated and was discharged overboard through the engine's crankcase breather line.

Chemical Injections and O-rings

Early USAAC-USAAF research included studies of propane or a combination of expensive-to-produce, ship and store, pentane and butane chemicals injected into the engine cylinders. It was sensibly rejected by simply implementing oil dilution and wrapping engine cowlings with thick covers and pumping heat inside them.⁵ The *Jeep Heater* or ground heater units burned low grade fuel while fans pumped hot air through canvas ducts inside engine cowlings and cockpits. Mechanics called them all *Herman Nelsons* (many were manufactured by the Herman Nelson company) and they were greatly welcomed on flight lines while aiding maintenance crews in warming their feet and hands.⁶

The CWTD team tackled landing gear leg oleo strut packings (the contemporary name is O-ring), that shrank and cracked thus leaking fluid and nitrogen around the strut. Japanese and Russians solved this problem by using pure leather for packing material. This confusing surprise was discovered in Flight Petty Officer Toga's Zero fighter that attacked Dutch Harbor and flipped over upon landing on Akutan Island. The practice was further confirmed by grudging admissions from the Russians (possibly gleaned by Bell engineers visiting the Russian airbase at Markova), since they too applied the same materials to their aircraft landing gear. It did not work in tropical weather but a temporary engineering compromise was the combination of synthetic rubber alternating with leather packing although shrinkage and leaking problems continued



Typical Aleutian weather seen here blanketing then burying Lockheed PV-1 grounded on Amchitka Island during WWII. (USAAF photo from the author's collection)



Lend-lease Bell P-39L-1-BE, 42,4673, runup test performed outdoors also displays the very delicate nose landing gear. The Russians performed field-modifications to strengthen them after delivery to the front lines. (Photo from the author's collection)



Soon after the Alaska-Siberia Route began the CWTD unit was reportedly evicted from Hangar #1 enabling lend-lease P-39s and P-63s to be maintained prior to the stubborn Russians accepting aircraft with all "squawks" cleared of the logbooks. Mechanics are working on a P-63's wheels or brakes. (Photo from the author's collection)

well into the post-WWII era when jet aircraft were introduced to Alaska's Arctic weather.⁷

Chemical research led to a secret hydraulic fluid developed at Penn State College by Dr. M. R. Fenske. Today, mechanics simply call it "red aircraft hydraulic fluid" or "5606" (the specification is MIL-H-5606) referring to that maroon, or dark red if one is picky about colors, hydraulic fluid used in military and civil aircraft.⁸ Continued research yielded an upgraded sub-zero Polar climate oil called AN-05 (AN means Army-Navy Standards) Grade 1100-A series lubricant with improved grades being introduced later.⁹ After the 1942 Japanese attack on Dutch Harbor, and their subsequent occupation of Kiska and Attu Islands, the CWTD temporarily ceased operations; some personnel transferred to the Aleutians where they endured extreme weather conditions under combat conditions, maintaining 11th Air Force's Boeing B-17s, Consolidated B-24s, Martin B-26 bombers and such fighters as Curtiss P-36A Mohawks, P-40 Warhawks (Canadian RCAF and USAAC), Bell P-39s and Lockheed P-38s.

Snow and Williwaws

The atrocious Aleutian weather was often worse than Alaska's Golden Valley surrounding Fairbanks and was enemy number one, with the Japanese running a close second. The Japanese were neither progressing further up the Aleutians nor were the American military forces able to mount early combat missions - they had problems merely planning, executing, and navigating to their targets. And, they often never visually spotted the targets they bombed because in minutes or less the weather closed in over the Japanese Kiska and Attu garrisons.

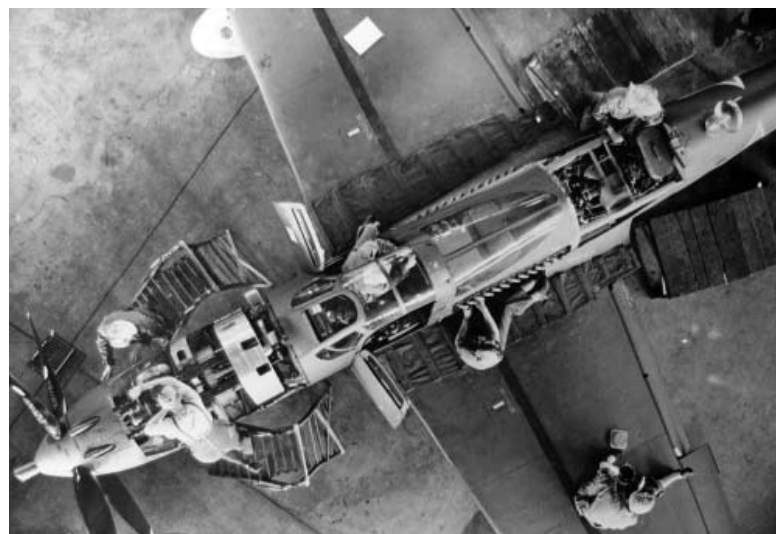
Both the Army Air Corps and Navy quickly learned the severity of Aleutian weather that could change in minutes from partly cloudy to total low cloud cover, freezing rain, sleet snow. Brutal Williwaws ranging from 50 mph to high gusts of 100 mph and sometimes lasting days, not mere minutes or hours often arrived without warning. Navy PBY Cats being flipped onto their backs and associated snowfall that literally buried

barracks entrances and vehicles were common occurrences. Such conditions remain the same even today.

When the CWTD was reactivated an immediate requirement was to solve a serious B-24 problem. Its 67-foot 2-inch long fuselage and 110-foot wing span suffered a dimensional change - steel control cables reportedly changed one-half inch less than the aluminum fuselage developing slack. Various metals connected together expanded at different rates and became a critical issue in Arctic conditions. The cable tensions changed if even when set in heated hangars, and changed yet again when aircraft were cold-soaked overnight on a ramp.

Innovative Solutions

The hydro-mechanical regulator maintaining constant cable tensions for all movable surfaces regardless of temperature was developed to address the problem of control cable tensions



An unusual overhead view of mechanics inside Ladd Field's Hangar #1 working on a P-63's guns and engine. Russian mission leaders refused to accept any aircraft unless worthless camera systems were removed, and all logbook squawks were corrected before a Soviet pilot could fly it to Russia. (Photo from the author's collection)



Lockheed P-38L with fabricated skis tested on several fighters assigned to the CWTD. (USAAF photo from the author's collection)



Bell P-39 suffers a nose-gear collapse at Nome, Alaska, the last fuel, maintenance stop before flying across the Bering Sea to Eastern Siberia. (USAAF photo from the author's collection)

in large aircraft subjected to extreme temperatures. Nine hydraulic-operated piston-activated regulators were required for B-24s; three for ailerons, two for rudder and four for the elevator, with the regulators constantly providing changes to all of the cable tensions. The B-24 also received a new cabin heat system installed in those coming down the production lines; it negated the use of heavy cumbersome electrically-heated flying suits.

Another innovation was the forcing of more warm air between the two windshield panes to prevent frost buildup.¹⁰ Improvements were tested during local missions north to the mighty Yukon and other rivers to bomb the backed up ice jams that occur during each spring breakup. This broke up the jammed ice floes thus preventing native villages along the Yukon from flooding.¹¹ Canvas "nose hangars" were another innovation that encompassed the nose and one or more engines thus allowing maintenance crews to perform required repairs or engine changes while *Jeep Heaters* pumped enough heat inside to work with bare fingers for short periods.

Another product the aviation industry developed were small electric oil tank heaters that warmed oil enough to prevent oil cooler seams from splitting open due to excess pressure from congealed oil when engines were started. Improvements in carburetor heat systems were developed to prevent carburetor icing in extreme-cold arctic conditions.

Ski-Fighters Bombers and Snakes

Two features added to aircraft tires were redesigned tread patterns (diamond shapes) and the precursor of auto studded tires...tires imbedded with miniature rectangular steel cleats or spring style inserts.¹³ Other CWTD experiments included fitting skis to the main landing gear and tail wheel of P-51A-1, 43-6005; a P-38 Lightning; a NAA AT-6 trainer (tested at the CWTD auxiliary facility at Gore Field, Montana);¹⁴ one unidentified P-40 Warhawk; and a P-38J called *Ice Cold Katie*. Others included a razor-back P-47, a P-51C, a P-61 Black Widow, B-25 Mitchell, several C-46 Commando transports, and lend-lease Bell P-39 and P-63 *Snake* series, flying the AL-SIB (Alaska Siberian) route through Ladd Field.¹⁵ Bell's lethal *Snakes* were much loved by their Russian pilots but during

transit into Canada and Alaska, they too suffered problems.

Starting Airacobra engines left outdoors overnight caused pressure of cold sluggish oil to increase so much that standard cooling radiators would literally split their seams dumping oil overboard.¹⁶ Additionally, the normal cold weather antifreeze mixture of 65 percent antifreeze and 35 percent water was changed to 93 percent antifreeze.¹⁷ More drain cocks were installed along various fuel and oil lines to quickly drain the liquids, including water condensed in the oil. Early on, Bell representatives created a temporary fix by making cardboard covers to fit the oil cooler inlets. This allowed the oil to heat up more rapidly rather than congealing and bursting the cooler's seams. This temporary solution forced Cobra pilots to stop on the active runway, set the brakes, leave the engine running, jump out, remove the cover, then proceed to takeoff. In Russia mechanics beefed up the very delicate nose landing gear due to cold-weather failures or the gear collapsing.

Spinning Wings and a Jet

On November 17, 1943, a fresh production Sikorsky



Douglas A-20 Havocs were the initial aircraft that flew the AL-SIB route to Ladd Field. This A-20 appears to have slid off the runway and nosed into deep snow at Nome, Alaska. (USAAF photo from the author's collection)



A representative photo displays a more permanent nose-hangar with canvas front cover having four engine cutouts capable of handling a C-54. (USAAF photo from the author's collection)



General "Hap" Arnold appointed Col. Dale V. Gaffney commander of the CWTD at Ladd Field. Gaffney steadily advanced and is seen here as a brigadier general. Meeting Col. N.S. Vasin commander of the Russian Detachment at Nome, Alaska, Gaffney's smirk suggests, "I've got this guy's number." (Photo from the National Archives)

YR-4B rag-covered helicopter, 42-107243, safely strapped down aboard an ATC C-46 Commando flew directly from the Bridgeport factory to Ladd Field.¹⁸ The YR-4B, after its arrival, sported the name *Arctic Jitterbug* just below the front windshield. It too needed winterization such as non-congealing greases, oils and closing off the front pylon cooling intake, before it successfully flew in sub-zero temperatures. The factory furnished waterproof blade covers that shrank and stiffened up; the women operating the CWTD's sewing shop cut and sewed a set of three-blade covers from waterproof mercerized cotton that didn't shrink or stiffen in sub-zero temperatures.¹⁹

A scoop-like opening on the rear fuselage was modified by removing and fairing it over. Several externally mounted open and canvas-enclosed litters built to carry one person were also tested in sub-zero weather.²⁰ *Arctic Jitterbug* earned its way by accomplishing a rescue mission on the frozen Chena River. CWTD stated that newer helicopters required further improvements to operate in the north.

In December 1944, a third WWII Bell production aircraft flying the AL-SIB Route to Ladd Field was a P-59A Airacomet, 44-22610, America's first jet fighter, bearing the Sunday Comic's character-Smokey Stover on the forward port fuselage side.²¹ Caches of kerosene Grade-X for the G.E. I-16 turbine engine were positioned along the AL-SIB Route to Ladd Field - specifically for this one unusual fighter plane. As a propeller-less aircraft it caused a sensation doing a flyby over the Watson Lake air base, before heading north, where it elicited numerous comments and more than the usual interest in a new aircraft.²²

Unfortunate Events

In 1944 a series of unfortunate events occurred that must have been known by America's highest ranking General Staff, and select politicians. During initial B-29 bombing missions from China during mid-1944 three damaged bombers effected forced landings in the Soviet Union while less than friendly Soviet fighters shot at them. The Soviets seized three airplanes; B-29A 42-6256, B-29A 6358 and B-29A 42-6365.²³ It is unsure if valuable parts from B-29A 42-93829 were salvaged where it crashed into the low hills of the Sikhote Alin Mountain range -

a death defying crew survival story that remained classified for decades.²⁴ Thus, in spite of Soviet demands for B-29 bombers officially refused by our government, the captured aircraft became prized non-returnable war-booty. Engineer Andrei N. Tupolev was ordered by Stalin to initiate a high priority program to reverse-engineer and mass-produce the B-29, resulting in the Tu-4 *Bull*, while Arkadii B Schvetsov copied the R-3350 engines and their G.E. turbochargers.

Rather sinister and unreported during WWII was espionage along the AL-SIB Route - unidentified Russians jumping from slow taxiing lend-lease C-47 transports and running off the airfield. High treason was discovered when Top Secret stamped Manhattan Project documents and radioactive materials samples were examined aboard Russian marked C-47s complete with machine-gun toting Russian guards. Also, the newest and most advanced electronic items unspecified to this day were discovered mounted in fresh production aircraft delivered to the Russians at Ladd Field.²⁵

The last and least known event was the U.S. Army's Top Secret WWII monitoring and recording project. Army specialists intercepted large quantities of Soviet communications traffic, revealing its espionage activity within the CONUS (Continental United States); only in recent times was the project declassified and published as the *Venona Secrets*.²⁶

It is postulated that such events heavily influenced the American General Staff to secretly conclude that with limited but valuable combat experience against Germans in the Polar region, plus the extreme Communist espionage activity within the U.S., future tensions and combat would probably occur in the far north after WWII. Any ground, sea and air combat in the Arctic regions would probably be initiated by the Soviet forces invading the Arctic regions via Alaska and Northern Canada. Polar defense required a potent well equipped and Arctic trained ground force backed by tactical and strategic bomber forces able to operate in sub-zero weather. Polar aerial reconnaissance missions would become a necessary adjunct to maintain vigilance in Alaska up to and around the North Pole. Thus our latest strategic bomber, the Boeing B-29, even as it



Maintenance crews with help from a Jeep Heater appear to be working on Klondike Kutey's nose landing gear. (USAAF photo from the author's collection)



B-29 Northern Star appears to be taxiing in near-whiteout or ice-fog conditions at Ladd Field during winter ground-flight tests from November 1944 to March 1945. (USAAF photo from the author's collection)

received its combat baptism overseas, was ordered north for CWTD flight tests before the war ended.

Big Birds at Ladd Field

In 1944 Army Air Force board project number E-4017 specified that the Boeing B-29A Superfortress fly to Ladd Field and endure sub-zero flight tests. The test flights spanned approximately 99 days from November 22, 1944, ending on February 28, 1945. Approximately 263 flight hours and 30 ground-running hours were accumulated. The report focuses upon one B-29A, 42-24768, chosen for the tests drawn from “modified” planes leaving the Boeing Wichita factory and the Birmingham Modification Center.²⁷ The modifications were reportedly “standard” (unspecified changes) made to all B-29 airframes.²⁸

In conflict with this is Pete Bowers' *History of Boeing Aircraft* stating that six B-29F bombers were modified by Boeing for cold weather tests in Alaska, and upon completion, they supposedly reverted back to B-29-BWs (Boeing Wichita).²⁹

No B-29 tested in Alaska is identified as an “F” model and no available information states that six B-29s were tested in Alaska - it might have been a strictly Boeing designation. However, accompanying B-29A-45, 42-24768, were two other known B-29s tested simultaneously. B-29A, 42-24768, was originally based at Watertown Army Air Field, S.D., an AAF proving ground command base. Stan Cohen, author of the four volume series *The Forgotten War*, published a photograph of three B-29s at Ladd Field. The available photos do not simultaneously display the tail number and nose art, thus making specific aircraft identification from the photos a bit of a guessing game.

It appears that 42-24768 may be *Amiable Amazon*, while another *Northern Star* bears tail number 45-21763 and the third B-29 bears tail number 42-24612, again, the nose art is unknown but probably is *Klondike Kutey*. A mimeographed news release dated February 2 (obviously 1945) stated that *Klondike Kutey* was one of three B-29 bombers that flew to Ladd Field for sub-zero flight tests. This news release also stated that both the B-17 and B-29 required no more than usual modifications to

operate in sub-zero temperatures down to -50 degrees F.

However, report E-4017 immediately issues the ambiguous statement that “the B-29 is not functionally suitable for extreme low-temperature operations” due to listed discrepancies... while not actually prohibiting flights that limited its functional suitability – sub-zero temperatures being unspecified in this paragraph. Furthermore, the B-29 type aircraft could be operated in sub-zero temperatures to -49 degrees F, and engines ground-run indefinitely without fear of overheating up to 1,500 rpm down to -20 degrees F.

The engine primer system was inadequate, and nacelle and cowlings required improvements to access the engines in sub-zero temperatures. Judicious use of external heat (*Herman Nelsons*) was necessary below -20 degrees F. Synthetic oils PPO-265 and grade 1100A were used in two engines on the same aircraft during sub-zero temperatures with no serious problems. Many write-ups were not major but necessary for easier maintenance and operation of B-29s in Arctic climates.

The internal heat system required modification for better heat distribution - especially the pressurized tail gunner's compartment, and improved snow-ice tires were suggested. Engine starts were difficult but accomplished without preheating at -5 degrees F. The report stated that they refused to start at this temperature and several restart attempts were made requiring extra priming. So much fuel pumped into the cold engine cylinders caused severe burning and explosions in the turbos and exhaust pipes once the engines fired-up. The starts were performed with the mixture control and not the engine priming system, because it would not function at these low temperatures.

No information on post-WWII B-29 operational flying in Alaska reveals how flight crews cranked B-29 engines in sub-zero weather, with or without the engine primer system, since many were based at Ladd and Elmendorf Fields well into the 1950s. One vacuum pump sheared its geared shaft during a start. At -49 degrees F, night start was accomplished, and at -55 degrees F one hour of ground heat per engine was required using *Herman Nelson* Type F-1 ground heaters with engine covers in a no-wind condition. The engines required preheating



B-29 Klondike Kutey's rear armament of two .50 caliber machine guns and one 20 mm cannon was operated by a tail gunner inside a pressurized tail gun station. The B-29 CWTD report does not mention whether the guns were tested in sub-zero temperatures or not. (USAAF photo from the author's collection)

below -20 degrees F, and ground power carts were necessary to boost on-board battery power in low temperatures. Number one engine failed after using PPO-265 oil for 178 hours. It was changed and sent to the Wright Field Laboratories for further examination.

The B-29's various systems were tested up to 35,000 feet at temperatures of -45 to -60 degrees F. The turbos were lubed with AN-VVO-366A hydraulic fluid throughout the tests. Airframe problems were limited to the fabric covered rudder flexing and cracking - the metal trailing edge also broke on each side of rib number six from the top; slits were also discovered and attributed to dope and fabric failure in sub-zero temperatures. The electrical system held up well, with the failures of one generator, one prop feathering pump, two landing-gear safety microswitches, three voltage regulators and a distributor drive oil seal, plus some fuses and lamps.

Spark plugs held up well and were reinstalled at 100-hour inspections since they appeared to be in new condition. Tires with "bottle cap" inserts or cleats were installed on the main



B-29 Amiable Amazon undergoes either maintenance or preflight check with a Jeep Heater off the nose. Large wing covers prevent frost buildup that takes hours to remove. A CWTD test B-17 and two P-38s are seen in front of the nose. (USAAF photo from the author's collection)

wheels prior to the flight to Ladd Field and after 243 hours and 62 landings were found to be in good condition with 50 percent life remaining, although it was suggested that better tires could be developed. The tests were completed the last day of February 1945. It is not known why B-29 42-24768, after the CWTD tests were completed, remained in Alaska and flew to Adak Island in the far Aleutians on May 1, 1945.³⁰ Nothing is known as to whether or not this particular bomber was modified to carry a single large and heavy bomb; the post-CWTD flights may have been for morale purposes or introducing the bomber to Aleutian weather conditions it would endure in the postwar era.

Again on May 11, 1945, 42-24768, a rarity in Alaska, provided quite a show upon landing at Shemya Army Air Force Base (known as "the Black Pearl of the Aleutians" or simply "the Rock"); it was supposed to touch down at 1032 hours but instead hit the tarmac at 1027 hours.³¹ The giant bomber buzzed the field from the east with six P-38s racing along as escorts after they completed a local air-patrol mission. It reportedly hit 310 mph during the low fly-past with the pilots greasing it onto the Shemya runway and stopped in less than 5,000 feet. The crew was listed as Capt. Joe E. Halm, aircraft commander; Lt. Edwin F. Sweeny, copilot; Lt. Edward A. Caldwell, radar officer; and M/Sgt Wilson E. Ogan, crew chief. Other crew members were T/Sgt Bert D. Hein, T/Sgt David Krupsew, Sgt Frank L. Henderson, Cpl James R. Bryon, Cpl Leo C. Thomas, Cpl Henry P. Tritschler and PFC Mewlvin A. Lawrence.³²

The pilot taxied the bomber to the air freight dock where it remained on display. On May 12, 1945, at 1311 hours, the bomber departed for Amchitka Island.³³ A rare photograph of 24768 was shot dated as August 1, 1945, perhaps after visiting other Aleutian bases, or dates may have been scrambled. Thus the stage was set for post-WWII operations when a number of B-29s would be modified to perform a wide range of classified missions operating from Ladd Field, Elmendorf, Shemya, Thule Greenland and Japan and briefly at Edmonton, Alberta, during initial postwar events that became the Cold War.



This B-29 was modified to use multiple racks of JATO units for "hot n' high" or short runway operations at maximum gross weights. Other B-29s were subjected to numerous modifications such as several different aerial tanker configurations among other classified missions worldwide both during late WWII and the postwar years. (USAAF photo from the author's collection)

Endnotes

- 1 King, Kerry, "60 Below," *Air Tech*, March 1945.
- 2 Glanzer, Phil. 100 Octane, *Science and Mechanics*, October 1945.
- 3 *Ibid.*
- 4 *Ibid.*
- 5 Gallico, Paul. "How Cold is Cold," *Saturday Evening Post*, October 16, 1943.
- 6 *Ibid.*
- 7 *Ibid.*
- 8 *Ibid.*
- 9 *Ibid.*
- 10 *Ibid.*
- 11 "Winterization," *Air Force*, January 1945.
- 12 Stern, Dave. "Flying the Route, the Alaska-Siberia Ferry Route," *Air Enthusiast*, January-February 2001.
- 13 "Arctic-Testing the Big Bombers," *Popular Mechanics*, January 1941.
- 14 Smith, Blake W. *Warplanes to Alaska*, Hancock House Publishers, Ltd, Surrey, B.C., 1998.
- 15 Cohen, Stan. *The Forgotten War, Vol. III. Pictorial Histories Publishing*, Missoula, Mont., 1992.
- 16 Stern, Dave. "Flying the Route, the Alaska-Siberia Ferry Route," *Air Enthusiast*, January-February 2002.
- 17 *Ibid.*
- 18 Headquarters, AAF Cold Weather Testing Detachment. APO 938 c/o Postmaster, Seattle, Wash., December 14, 1943, Cold Weather and Service Tests, YR-4B Aircraft.
- 19 *Ibid.*
- 20 *Ibid.*
- 21 Smith, Blake W. *Warplanes to Alaska*, Hancock House Publishers, Ltd, Surrey, B.C., p.998.
- 22 *Ibid.*
- 23 "The Billion Dollar Bomber, Part One," *Air Enthusiast*, July 1971.
- 24 Hayes, Otis H., Jr. "Lost in Siberia," *Russian Life*, March/April 2003.
- 25 Jordan, George Racey and Stokes, Richard L. "From Major Jordan's Diaries," The Americanist Library, Western Islands Publishing, Boston, 1965.
- 26 Hayes, John Earl and Klehr, Harvey. *Venona, Decoding Soviet Espionage in America*, Yale University, 1999.
- Romerstein, Herbert and Breindel, Eric. *The Venona Secrets, Exposing Soviet Espionage and America's Traitors*, Regency Publishing, Washington, D.C., 2001.
- 27 Army Air Forces Cold Weather Testing Detachment, APO 938, c/o Postmaster, Minneapolis, Minn., "Final Report on Cold Weather Test of B-29 Type Aircraft," Project Number E-4017, March 28, 1945.
- 28 *Ibid.*
- 29 Bowers, Peter M. *Boeing Aircraft since 1916*, (1966 Edition), p.286.
- 30 USAF AFSHRC Form 4. Historical paragraph mentioning B-29, 42-24768, visiting Adak Island in May 1945.
- 31 Mimeograph unofficial report; History of Shemya Air Base, Alaska, 1944-1945.
- 32 *Ibid.*
- 33 *Ibid.*

About the Author

David Stern spent part of his career working in Alaska and has contributed a number of *Journal* articles, some relating to this



region. He kindly shared this photo of a mechanic friend being attacked by the infamous Alaska state bird, the mosquito. They, combined with "no-see-um" bugs, help make life interesting for those who must work outdoors.

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