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Bombs Falling Like Water

BY: JOHN LITTLE, ASSISTANT CURATOR AND RESEARCH TEAM LEADER
AND LOUISA GAYLORD, DEVELOPMENT COMMUNICATIONS COORDINATOR

B-52 STRATOFORTRESS DROPPING BOMBS OVER VIETNAM./U.S. AIR FORCE

ON JANUARY 21, 1968, the North Vietnamese Army (NVA) launched an attack against the U.S. Marine Corps' Khe Sanh Combat Base (KSCB), with up to 40,000 men, two regiments of artillery, and even a few PT-76 tanks. Defending KSCB were three battalions of the 26th Marines, plus the 37th Ranger Battalion of the Army of the Republic of Vietnam. Fortunately for KSCB's 6,000 defenders, America's senior commander in Vietnam, U.S. Army Gen. William C. Westmoreland, had anticipated the NVA's attack and already had launched Operation *Niagara,* the aerial attacks that would save KSCB and inflict on the NVA its heaviest losses to that date.

While managing *Niagara,* however, Westmoreland also had to keep KSCB's defending Marines and ARVN Rangers supplied by air. Operating Lockheed C-130 Hercules, Fairchild C-123K Provider, and de Havilland of Canada C-7A Caribou transports, the steel-nerved pilots of the U.S. Air Force's 834th Airlift Wing had to run the NVA's well-laid gauntlet of antiaircraft artillery fire whenever approaching or departing KSCB. Remarkably, only one fixed-wing transport was shot down during the entire 77-day siege.

Weather permitting, American fighter-bombers flew flak-suppression sorties whenever transports were arriving or departing. But even that was not adequate protection. So, the 834th AW's air- and ground crews devised several ingenious methods for expediting the delivery of cargo. The first was "speed offloading," in which the cargo pallets were put on wheels, and two metal runners were attached to the open cargo doors of C-130s, which enabled the pallets to be pushed out the back of the C-130s. By eliminating the need for forklifts, the unloading time was reduced from ten minutes to as little as thirty seconds. When even that was not fast enough, the 834th employed the Low-altitude Parachute-extraction System, in which a C-130 would fly some 5 feet over the runway, at a speed of about 150 miles per hour before releasing a 28-foot diameter parachute, which was attached to the cargo pallets. This allowed the C-130 to fly out from under the pallets, which would skid to a halt on the western end of KSCB's 3,900-foot long runway.

An even smarter technique, the Ground-proximity Extraction System, stretched an arrestor cable across KSCB's runway. The C-130's cargo load had a large hook attacked to it, and the hook protruded from the C-130's open rear cargo door, dragging on the runway. As the C-130 rolled over the cable, at just below takeoff speed, the cable popped up and was snagged by the hook, which pulled the entire load out, just as the C-130 took off.

When KSCB's runway was too dangerous to use, cargo arrived by the so-called Container Delivery System, in which each one-ton pallet of cargo would be dropped, by parachute, into KSCB's 300-yard long drop zone from an altitude of about 400 feet. Any pallets that landed "outside the wire" would be destroyed, deliberately, by American artillery fire or bombs, to prevent the NVA from capturing the cargo.

A growing challenge was supplying the 1,200 Marines stationed atop the hills that surrounded KSCB to the north and the northwest. The hilltops were far too small to serve as drop zones, so the only option was to use the Marines' reliable Boeing-Vertol CH-46 Sea Knight helicopters. To protect the Sea Knights, the Marines devised yet another ingenious tactic, the "Super Gaggle," in which twelve Douglas A-4F Skyhawks would escort twelve to sixteen CH-46s and their Bell UH-1 gunship escorts. A two-seat McDonnell Douglas TA-4 Skyhawk led each Super Gaggle. Once the Super Gaggles began operating, in the last week of February, only two Sea Knights were lost.

With aerial supplies to KSCB's defenders ensured, Westmoreland could turn his attention to Operation *Niagara,* with a task of annihilating the NVA around KSCB. Every day, the U.S. Air Force, Navy, and Marine Corps flew approximately 300 fighter-bomber sorties in direct support of KSCB. But Westmoreland's "Big Stick" at Khe Sanh, as elsewhere in Southeast Asia, was Boeing's B-52D Stratofortress. Carrying a bomb load of up to 60,000 pounds, B-52s flew at least 48 sorties per day in support of KSCB, with two three-aircraft cells arriving over the area roughly every 3 hours.

Prior to Operation *Niagara,* B-52 strikes had been prohibited within 1.86 miles of any American or South Vietnamese installation. However, following a successful test on February 26, 1968, B-52s were allowed to practice "close-in" strikes, bringing their bombs to within 1,094 yards of KSCB. In fact, some B-52 strikes came as close as 500 yards from KSCB, and one strike came within 293 yards. Despite the earthquake-like concussions of the close-in strikes, no American or South Vietnamese personnel were killed or wounded by B-52s at Khe Sanh. In praising the B-52 crews following Operation *Niagara,* General Westmoreland remarked that he had chosen the operation's name, *Niagara,* "because I visualized your bombs falling like water over the famous falls in northern New York State, and that's exactly what happened."

Air power had saved the Khe Sanh Combat Base. In the words of U.S. Marine Corps Gen. Keith B. McCutcheon: "During the Khe Sanh campaign, the entire spectrum of tactical air support was called into play—not only Marine, but also Air Force, Navy, and Vietnamese Air Force."

The Museum of Flight is busy expanding our exhibit pieces around Vietnam, in the hopes that it will start an important conversation within our community about the Vietnam War and the veterans from all branches of the U.S. military who served between 1964 and 1975. The month of May will feature a variety of Vietnam-related public programs at the Museum, and new exhibit pieces will open in the T.A. Wilson Great Gallery over Memorial Day weekend. The Museum is also building a new Vietnam Veterans Commemorative Park that will open later this year. For more information, visit museumofflight.org/WelcomeHome.

POWER OF GIVING

PHILANTHROPY FROM THE INSIDE OUT

BY: LOUISA GAYLORD,
DEVELOPMENT COMMUNICATIONS COORDINATOR

THE MUSEUM IS MADE OF PEOPLE. Yes, it's a building filled with airplanes and artifacts, but it's also the people behind the admissions desk and the store cash register; the people who write Thank You letters and fix leaks in the roof; and, the people who organize the programs and events that our visitors love. The employees, docents and volunteers come to the Museum every day because they enjoy what they do and believe in the Museum's mission to become the foremost educational air and space museum in the world. But a few go even further by giving not only their time and efforts, but their philanthropic support as well.

Rick Hardin has been a project manager at the Museum for nearly five years. His innovative work on the Aviation Learning Center has led to its replication in other aerospace museums around the country. Rick's father flew bombers in World War II and worked as an engineer on the landing radar of NASA spacecraft, which has inspired Rick to go above and beyond to support the Museum. "From day one, this organization has impressed me," he says. "I want to give more than just the hours I spend here at my job—my father would have loved this place!"

And Rick isn't the only one. Christine Runte is part of the Collections department and directs the documentation of new artifacts being donated or loaned. "I've spent my entire career here as Registrar and it's been amazing to watch the Museum grow from the Red Barn in the 1980s into the incredible institution it is today," explains Christine. "I donate to GiveBIG every May in appreciation for the opportunities I've had over the 31 years that I've worked here. I know that every donation matters!"

Many others have contributed to Museum campaigns and appeals over the years as well. "I take our mission to heart, because every dream needs an educational plan to make it come true," says Mary Batterson, our Corporate Partnerships Officer. "I'm proud to do my part to ensure that we can continue to have a lasting impact on every guest who walks through out door." Some gifts are made in honor of a coworker for their hard work organizing a big event. Other employees, like Executive Assistant Sarah Jane Hoppe, sign up for Frequent Flyers and make an automatic monthly gift because they want to support a particular program. "The Museum's docent and volunteer corps is amazing," explains Sarah Jane. "They bridge the gap between the artifacts and their place in history and our lives. I am a Frequent Flyer because I want to stay connected to those stories in my own small way."

No one ends up spending time at The Museum of Flight by accident—everyone here is driven by the curiosity and exhilaration that aerospace embodies. "I'm not sure how one could work here and not be compelled to support our mission," says Mary.

CLOCKWISE FROM TOP LEFT: Rick Hardin, Christine Runte, Sarah Jane Hoppe, Mary Batterson

In Memoriam

Ginger Ackerley
Jack Bjerk
Leigh S. Davidson
Alvin H. Brown
Betty Jo Busch
Dorothy A. Cole
Juanita M. Dalrymple
Madge I. Dammann
Ronald R. Coirbell
Kenneth E. Cottingham
Charles R. Dennison
James E. Duffy
Fred L. Dungan
Billy G. Edens
David L. Enslow
Linda B. Fancey
James D. Fish
Patricia C. Fleishman
John R. Ghiglione
Joseph Goldberg
Roger G. Hanke
James C. Hunt
Lloyd T. Hunter
C. James Judson
John V. Knopp
Kenneth B. Lake
Herbert G. Leake
James E. Lessler
James F. Low
Ann F. Lynch
George P. Novotny
Harold M. Olden
Albert T. Olson
John F. Parks
Lawrence J. Powell
John S. Prigge, Jr.
John H. Pruatt
Dale D. Reid
Robert L. Richmond
Paul C. Rothfus
Patricia A. Rust
Katharine A. Shoemaker
Roy C. Sillence
Barbara J. Slaughter
Paul B. Smith
Milton A. Tiede
Richard K. Vallor
Walter S. Willanger
Joseph H. Wearn
Marlene Wirsing

Tribute Gifts

In Memory

In memory of Eric (Doc) Anders
Jim Compton

In memory of Eleanor C. Anderson
John and Ree Rickerson
Steve Rundstrom

In memory of James R. Anderson
Barbara Osborne

In memory of Richard M. Arnold
Scott Arnold

In memory of Barbara G. Ascanio
Tony Ascanio

In memory of Ubaldo A. Beato, Sr.
Drs. Ubaldo P. Beato, Jr. and Maria M. Beato

In memory of Richard C. Benny
John and Dixie Benny

In memory of Donald V. Birdsall
Dave and Carla Birdsall

In memory of Worden Bishop
David A. Johnson and Kimber Bishop

In memory of Jack Bjerk
Marilyn Gillespie

In memory of Bill and Helen Bunt
James H. Bunt, Jr.

In memory of Bert Butterworth
Roberta Butterworth

In memory of Benjamin B. Cassiday, Jr.
Paula Clark

In memory of William H. Cook
F. Wyatt Cook

In memory of Lisa W. Cresenzo
Robert and Phyllis Woodward

In memory of Franklyn J. Davenport
Yvonne Davenport

In memory of Melvin (Mel) R. Davis
Beverly Berg

In memory of James (Jim) E. Duffy
Barbara Evans
Bette Kalohi
Murphy, Murphy & Murphy, Inc.

In memory of Richard L. Durham
Betty Durham

In memory of Kenneth F. Emerson
Margaret Emerson

In memory of Dick Friel
Sharon L. Friel

In memory of Elsie and Harry Gambini
Rosemary and Larry Brester

In memory of Thomas R. Green
Tommy and Jill Green

In memory of Bernard C. Hainline
Elizabeth A. Thompson

In memory of Ben W. Hall
Dana Dilgard

In memory of Donald Hall
Jimmie and Elma Barber

In memory of Willis (Bill) E. Hardy
Gloria Clinton

In memory of William A. Helsell
Ed and Cheryl Waale

In memory of Robert L. Herschkowitz
Buck and Sofie Dissel
Catherine Hall

In memory of Sidney L. Hutchison
Judith Hutchison

In memory of Jesse P. Jacobs, Jr.
Dr. Richard P. Hallion

In memory of Arthur J. Kamm
John and Sandy Kamm

In memory of J. Alten Kearl
Cordelia Kearl

In memory of Ray O. Keehner
Lois Fairchild
Ross Latham and Nancy Penrose Latham
Roger Sletten
James C. Wilson

In memory of Richard B. Kimball, Sr.
Robert E. Kimball

In memory of Bill Kirkland
Linda F. Kirkland

In memory of William R. Knight
Ronald W. Knight M.D.

In memory of Tetsuya (Ted) Kunihiro
M. Carolyn Kunihiro

In memory of John A. LaVoo
Paul and Margi Harvey

In memory of Harold C. Lee
Kenneth and Janet Lee

In memory of Mary H. Lippi
Joseph Lippi

In memory of Charles (Chuck) A. Lyford
Bruce R. McCaw

In memory of Michael R. Manning
Melinda Faller

In memory of Richard S. Marshall
Christine Marshall

In memory of Suzuko Matsunaga
Robert Murakami

In memory of Edward E. Miller
Sydney A. Nunez

In memory of Craig A. Mueller
Marcia Mueller

In memory of C. Diane Neider
Karl and Tina Neiders

In memory of Richard (Dick) H. Nelson
Bill and Linda Beagles

In memory of Nat Penrose
Poo Penrose

In memory of Charles S. Rankin
Cordelia Kearl

In memory of Orval L. Rice
Carol Miskill

In memory of Earl Rodger
Bob and Joni Rodger

In memory of Bryan W. Royce
William and Lynda Royce

In memory of Grant J. Silvernale, Jr.
Jean Ogsbury
Joe and Alexis Silvernale

In memory of Bruce P. Sutherland
Lori and Timothy O'Brien

In memory of Richard W. Taylor
Richard and Margaret Wallace

In memory of John M. Tipping
Jack and Sharon Tipping

In memory of S.L. (Lew) Wallick
Sara Wallick

In memory of Edward B. & Robert C. Wilder
Mike and Amy Weisner

In memory of Robert F. Wilshusen
Pat Wilshusen

In memory of Richard A. Winkenwerder
G. William and Marjorie McCutcheon

In memory of Grant F. Wolfkill
Bruce R. McCaw

In memory of Glenn W. Woods
Virgy Lou Woods

In Honor

In honor of Makai Barut-del Fierro
Vanessa Barut-del Fierro

In honor of Bob Bogash
Christopher Johnson

In honor of Patrick DeRoberts
Ted and Donna Steudel

In honor of Ryan C. DeRoberts
Patrick J. DeRoberts

In honor of Jennifer Drake
Ethan Anderson

In honor of David Feagins
Gail Feagins

In honor of James N. Gabriel
Alan and Amanda Gabriel

In honor of Arnie & Pat Gaillard
Melissa and Thomas Peterson

In honor of Matt Hayes
Carrie Hayes

In honor of Joseph W. King
Benjamin and Lauren King

In honor of Bob Mucklestone & Megan Kruse
The Clarius Group, LLC

In honor of The Museum of Flight Staff
Patrick J. DeRoberts

In honor of Bill M. Staab
Ross and Julie Case

In honor of Clara and Emery
Larry and Kathleen Sunderland

In honor of Hannah & Joshua Sutker
Rita Sutker-Yucus

In honor of Carol Thomson
Dennis and Diane Hatfield

In honor of David I. Williams
Melinda and Martin Isaacson

In honor of Brien S. Wygle
William Smith