Mekong Express Mail

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The **T**hailand **L**aos **C**ambodia Brotherhood, Inc. www.TLC-Brotherhood.org

Putting Thailand, Laos and Cambodia On The Map

By Jim Henthorn

Project MapScan was an outgrowth of the fact that, flying out of Thailand, many of the places others mentioned in their stories were places that I did not know. Nor did I have any idea where they took place. The maps will cover the entire area of South East Asia including South Vietnam, Cambodia, Laos and North Vietnam and some portions of Eastern Thailand when complete.

That simple statement only begins to tell the story of Project MapScan and how it came about.

When I first started getting involved in electronic communications in 1989, I set up a bulletin board service. One area that was most heavily used was the Veterans Corner, a place for SEA veterans to post their stories. I read others stories and accounts of their actions and did not say much about my own service for the same reasons that most of you did not - I was not "in-country" like most of these guys. Did not feel that I would be accepted and that there was a "club" that I would never join. But they constantly talked about places that I had never heard of, "Hobo Woods", the A Shau, Con Thien, and many more. Maps of these places were hard to come by.

By 1995 I had moved to the Internet and began searching. In that search I found a group called the Vietnam Helicopter Flight Crew Network or VHFCN. As a member of the 21st SOS and having flown on helicopters in Southeast Asia but not stationed in South Vietnam, I was very cautious about approaching this group since I did not want to be rejected, again. When I explained where we flew and what we were doing I was welcomed into their group. It turned out that the membership was primarily US Army (should have expected that) with a few, very few, non-Army fliers thrown in. And they were talking about places they had been that meant nothing to me. I still had the problem of not being able to relate to the places they were talking about.

I started asking about where these places were. I asked about maps on the Internet - there were none at the time. I asked about maps that I could copy with my scanner. One of the members, Pete Harlem, mentioned that he had several maps of South Vietnam that he could send me. That was the start.

Each map in 1:250,000 scale measures approximately 20" by 30". My scanner will handle up to 8 ½" X 14" images so I had to do multiple scans to get each map into electronic format. The scanner I was using was the newest technology in 1995 and required 3 passes on each image to get the color data. So each piece of the map was scanned three times. Then I had to stitch the images back together to make a complete image. So one map requires 8 scans to get the whole map, with 3 passes per section. In the end, there were 18 image files per map. Each map needs an additional 3 html files to let users access the various levels of detail. One map took the best part of 8 hours to get done.

I could not keep these to myself. They were too valuable a resource for that. Now, in 1996, I had a web site that I had put up on a server run by a friend. Knowing that I was not the only one who could benefit from these maps, I began putting them up on my web site.

South Vietnam was first. When that was done, I realized that I still did not have the whole picture. First, NKP was not

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TLCB Helps Lao Schools With New Partner

WIG is the acronym for "Women's International Group," an organization of diplomat's wives that has a very active Welfare group within it, just as we have our Assistance Committee. In Vientiane, Laos, the Welfare Spokesperson is Maureen Yeats, and the head of the Lao branch of WIG is Marie Reed. Marie happens to be a neighbor of Jim Michener's, but the original contact with WIG was suggested by our secretary, Leigh Hotujec, who grew up in Vientiane and has a great respect for WIG and the good works they can accomplish.

Maureen reports to us that *all* money donated by WIG Welfare is spent on the targeted charity. And Laos provides a substantial opportunity to provide help where it is desperately needed. Says Maureen in a recent message to John Sweet, "As spouses in Vientiane, we are fortunate to have this opportunity to 'give a little back'."

Right after the Colorado Springs reunion, John led a small group on a personal visit to Thailand and, briefly, Laos. While there, John conveyed a donation of $1600 to WIG as a pilot

See **WIG** on page 7

A Day In Mukdahan's Operations Room

Jim Harrod was a radarscope operator at the Mukdahan radar site, across the Mekong River from Savannakhet in Laos in 1966-67. As we read in the last MEM, Jimmie Butler made an unscheduled stop at the radar site's field in bad weather. One of those who came out in the teeming rain to help him was our author, Jim. Here he describes for us a day in the Operations Room at Mukdahan.

The radar site at Mukdahan (Actually Mukdaharn), Thailand was set up in early 1966 by the 5th TAC boys from Clark AFB. It was located about 60 air miles south of Nakhon Phanom (NKP) or about 100 air miles north-northeast of Ubon. The small city of Mukdahan is located on the banks of the Mekong, directly across the river from a mysterious city known as Savannakhet, Laos. The activities of Savannakhet itself well deserve to be written for an issue of this publication. Mukdahan appeared to be a crossroads, and the ferry business between Mukdahan and Savannakhet appeared to flourish. In addition to the Thais, the population also consisted of Laotians, North and South Vietnamese, Chinese, Indians and an assortment of others. The site was located just to the west of the city, with a "Sod" runway or buffalo pasture separating the two. A small lake served as a barrier on the south end, the city on the north.

On any given day, an assortment of aircraft from helicopters such as PONY EXPRESS, PECOS, or fixed wing birds such as O-1s, Dornier, U-6s or other Utility aircraft could be found on the small ramp (Packed Sod) next to the site. Some came for lunch, some came to sit alert, some came to weather a storm.

The site was just slightly larger than a football field, and was completely surrounded by rolls of concertina wire except for a single checkpoint/gate on the northwest corner. During the period I was there, USAF strength was between 100-110 men. The Operation buildings, located on the north end of the site, were actually Quonset shaped fabric S-80 and S-48 shelters, the S-80 being the larger of the two, which served as the primary operations center. The Search and Height Finder radars, radios, and communications van all located in this area were segregated from the rest of the site. Security for the site was provided by a small group of USAF Security Police augmented by Thai Guards.

The remainder of the site, for the first six months, was a tent city which consisted of the Orderly Room, Mess Tents, Supply Tents, and tents for living quarters. A couple of tents were also set aside for clubs, one for the enlisted and one for the officers. A shaving tent complete with metal washbasins and a water trailer and a nearby boxed in area with a pipe for a shower provided all the comforts of home. Hot water was provided when the sun heated the trailers and the pipes. I believe the first two wooden structures on the site were the latrines, located on the extreme south end of the site. These structures soon became the most important buildings on the site. The location of these comfort stations proved to be a problem if you worked in the operations area and were overcome by the Singha Trots. During one period over half the site came down with food poisoning from turkey-ala-king. The hundred-yard dash took on a completely new meaning, and there were actually fistfights over how much time a man should be allowed "On Station".

The infamous wooden boardwalks soon connected the majority of the structures, and thanks to our own carpenter, SSgt Stone and his Thai helpers, the typical hootches and SEA style buildings began to rise out of the mud.

The official Callsign for the site was VIKING, and naturally, many of the buildings adopted Viking names. The enlisted club became Loki's Den and the fat dog that hung around the site became Thor. Many an aircraft and vehicle left the site with a red Viking helmet painted on the side.

The operations room, also known to some as the Tactical Operations Room (TOR) within the S-80 shelter is typical of operations rooms throughout SEA. A large Plotting Board and several Status Boards are stationed in the very front of the room.

DUES TIME

Notice: the bylaws of the TLC Brotherhood, Inc., specify dues be paid annually and no later than March 30th. The board has set dues at $25. This year, dues may be sent to Attn: Bill Tilton, TLCB; 7813 New London Drive; Springfield, VA 22153. You will receive your 2001 TLC Brotherhood card when your membership is renewed.

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on my maps, nor all the places we flew. So I began hunting down additional maps. Some came from Vietnam itself through people who went back to visit or on business. These maps were still floating around and could be had for a reasonable sum. Then I met Mac Thompson and Les Strouse through the TLCB. They turned out to have a treasure trove of maps. Their maps of Thailand and Laos were nearly complete and let me move forward on the project.

Others have sent me maps of North Vietnam, Cambodia and filled in the blanks in Thailand. Some I managed to purchase through e-Bay Auction House. I now have most of the maps but need more time to get them scanned and posted. Currently there are 60 maps complete and posted with another 15-20 to go.

I have heard from Veterans all over the world that have found these maps a valuable aid as they recall the places they went. That has been all the reward I need.

At the 1999 reunion in Washington DC I announced my decision to provide the fruits of my labors to the TLCB for distribution when the project is complete. It is my hope and belief that these maps should be available to all as they represent an invaluable resource both for veterans, their family, researchers, and historians for years to come.

Behind the boards are raised tiers to enable the Plotters to reach every section of the boards when plotting aircraft movement. The status boards provide everything from the Weather, the Base Altitude in effect, Code Words for reporting Battle Damage, Mig Activity or SAM Activity. The Tactical Mission Data Board outlines the scheduled air strikes for the day. On the front of the Plotting Board, a map of the sites area of radar coverage, landmarks, as well as range and angle markers are permanently painted in place. In our case, the range markers extend to just over 200 miles, which covers portions of Thailand, Laos, North and South Viet Nam and the Northern area of Cambodia. From the back of the Plotting and Status Boards, everything is written backwards, which is readable from the front to the remainder of people in the room.

On the floor of the room are located the radarscopes dedicated to the Surveillance Operators and the Height Finder Operator. Others are assigned to record all aircraft movements, or to pass critical data to adjacent radar sites. Aircraft movement is passed from the Surveillance Scope Operators to the Plotters and posted on the boards. Plots are made in several colors to denote the category of aircraft such as Friendly, Pending Identification, Unknown, Hostile, etc. In spite of the humor sanctioned among radar operators, night fighters are not plotted in black.

The remainder of the room is a series of raised daises, which are assigned to the Senior Director, Crew Chief, Surveillance Supervisor, and the Weapons or Weapons Control Section. Weapons Controllers and their assigned Technicians provide Intercept Control, Tactical Flight Following, Tanker Rendezvous, and in many instances are the only source of air traffic control in the area. VHF and UHF radios are available to the Weapons Section. A KWM-2A HF radio provides a net that links Viking to the other radar sites throughout the SEA theater of operations.

My description of a typical day in the Viking Operations Room begins at about 04:00 in the morning. Only one lone track within Thai airspace is being plotted across the board. SCATBACK, a T-39, is traveling across Thailand, Laos and then South Vietnam at forty-five thousand feet, well above the activity taking place near Tchepone. A truck park was discovered in that area, and throughout the night, radios have crackled with strange sounding names such as BLINDBAT, ALLEYCAT, LAMPLIGHTER, CANDLESTICK, CRICKET, and an assortment of strike aircraft shuttling in and out of the area. All are bent on insuring that the number of trucks that entered the park the night before is not the same number that drives away in the morning. The airways are alive with a flare-by-flare, bomb-by-bomb description of each strike.

From my Tactical Flight Follow position, I am talking a RED BARON flight, a Dornier 28 that had slipped discreetly out of Savannakhet and was flying a repetitious triangular flight path providing radio relay for ground teams on the Trail. Night by night we have conversed, making every attempt to communicate without making reference to his actual position or departure base. His "Home Plate" weather report will consist of my walking outside the operations shelter, climbing a bunker and peering across the river and straining my eyes to check weather conditions over Savannakhet.

Earlier in the evening, a single engine utility type aircraft had requested assistance in landing at our site. The original plan was for a Team to possibly parachute into our site, then cross the river for what ever reason those guys cross the river. Once the jump was ruled out, they asked if we could somehow light up the runway. The few vehicles and every man we could find with a flashlight headed for each side of the runway. Everything was going just great until the aircraft was about 100 feet from the ground and one of our best and brightest yells "Shine your lights on the aircraft". I'm sure this "Gentleman" went on to accomplish great things for the Air Force somewhere. Anyhow, the landing was aborted and the pilot, in so many words, advised us that he was heading for NKP and we could secure the runway lighting.

The lull in bombing in the north is evidently over. The Tactical Mission Data Board is full of strike activity fragged for the morning. Unique callsigns such as Detroit, Olds, or Elgin followed by the acronym RTAR (Rolling Thunder Armed Reconnaissance) crowd the board. Each unique callsign provides us the departure base and type of aircraft. Other terms such as Steel Tiger and Barrel Roll follow countless other callsigns. Still others are designated as MIG CAP and WILD WEASEL. Also listed are the Tanker Orbits that will be used to refuel this horde of aircraft enroute to their assigned targets. Red Anchor, White Anchor, Blue Anchor, each color denotes an assigned refueling

See **VIKING**, next page

DUES AND DONATIONS: A GREAT COMBINATION

It is very convenient to include a donation to Assistance with your annual dues payment. *Please be sure to designate that this is what you want done with money in excess of the dues amount.* It will be sent to our Assistance account.

(If you wish to include dues with your donation to Assistance, *be sure and tell John Sweet* this so he will know to send those funds to the main account. Our Assistance Fund receives donations at TLC Brotherhood, P.O. Box 2371, Seabrook, NH 03874.)

To see what those Assistance donations are going for these days, see some of the articles in this issue. Once you have, you might consider a regular monthly donation to Assistance instead of one of those large prosperous national charities you've been supporting all these years!

Next Issue: March, 2001. Don't Miss It!

Submit change of address ASAP.

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area or track. Viking will control the Blue Anchor activity. Today is going to be a busy day!

As dawn is approaching, other targets begin to appear on the scopes. From NKP, several NAIL FAC aircraft are crossing the fence to the east. Each is headed for an area so familiar to them they probably could fly it without a map. All are seeking a tell-tale sign that something on the ground is different today from the way it appeared yesterday. NIMROD is up, and requests a vector to the Tchepone area. A couple of SANDIES are now enroute from Udorn to NKP to stand alert. To the west and southwest, the Tankers are now entering our radar coverage, a signal that all hell will soon break loose. Some travel in pairs, some in single ship formations. All are loaded with that precious liquid that will nourish and sustain the chariots of fire scheduled for today's strikes. CROWN checks in and you can read the anticipation of a busy day in his voice. This same scenario is now being painted in Operations Rooms at radar sites and onboard Airborne Radar Aircraft throughout Southeast Asia.

From the floor the stern voice of the Surveillance Supervisor announces, for all to heed, "Here they come." A quick check to the west and southwest quadrants of my scope confirms that the world is now alive with hundreds of aircraft. From Ubon, Korat, Udorn, and Takhli they come, mostly in flights of four. Only the lead aircraft of each flight has his Selective Identification Features (SIF) turned on. This signal or "Squawk" makes a unique mark near the radar return for the flight and with the equipment attached to our scopes we can decode this signal and confirm the Callsign of the aircraft. Many of those scheduled for refueling are heavily laden with bombs and have taken off with only enough fuel to get to the refueling area, make a couple refueling attempts and if unsuccessful, return to base. They are keyed-up, they are thirsty, and they want a direct vector to the Tanker. Gremlins are at work! The UHF frequency assigned to the Controller handling Blue Anchor is unreadable. As the flights check in on my common frequency, I quickly advise them of the new frequency for refueling and in a flash I hear their Controller acknowledging their call and beginning their rendezvous with the Tanker.

To the north, many flights are now off Tanker and are headed for their destiny over North Vietnam. Soon the waiting period begins. Some Tankers head for home, some remain in their orbit areas for post strike refueling. Many flights are now beyond our radar coverage to the north. By now, radar operators in North Vietnam have detected this horde enroute to their homeland and soon the code words for SAMS and MIGS will fill the air. Adrenaline now surges through veins in the air and on the ground.

In the midst of this chaos, a flight of seven B-52s turns on the final leg of its strike on the Mu Gia pass. One of the Surveillance Operators slews the Height Finder Radar to the azimuth of the flight. By leaning over the rail of the upper dais I can actually see the radar paint the string of bombs falling from the bays of these giant Buffs. Someone on the ground will soon have an enormous headache. We hope the FAC that headed for that area earlier in the day remembered the Buffs scheduled time-over-target.

Suddenly, the dreaded sound of an Emergency Locator Beacon blasts from the speaker connected to Guard Channel. We hope the Aviator and the Guy In Back (depending on the type of aircraft) have successfully separated from the ship. Two chutes have been sighted. SANDIES and JOLLY GREENS soon depart NKP for the rescue attempt. Several of their companions are orbiting the area while others head for the nearest Tanker to buy some fuel and return. Everyone is trying to talk at once. CROWN soon enters the scene and order begins to overcome chaos. This rescue story will have to be provided by someone from the JOLLY GREEN or SANDY Association. It deserves to be written.

By this time, flight after flight is beginning to return from the north. Some still in flights of four, others scattered to hell and back. Some are streaming fuel. In spite of their condition, they calmly request tanker support. Many check in on the radio, pass the code words for their mission success and grow silent for the ride home. Tomorrow is another day.

The Operations Room has become unbelievably quiet. At long last men begin to stand and stretch. The last three cups of coffee now create tremendous discomfort and several people head for the nearest sandbag bunker. It's just too far to walk to the latrine on the other end of the site.

Behind the Status Boards someone begins to post the latest weather. Severe thunderstorms are expected in the afternoon. Heavy rain, high winds and severe lightning are called for. I wonder if this is the day I will meet Jimmie Butler?

MY SCHOOLDAYS IN THARE

By Surirat Frazier

My American friends call me Sue. I was born in Ban Chom Chaeng, Sakhon Nakhon Province, Thailand, shortly after the formal end of World War Two. (As a woman, I do not need to tell you my exact age, but I am about the same age as most of you in the TLC Brotherhood.) Dave MacDonald asked me to tell you something about growing up in that part of Thailand, and about Thare.

Sakhon Nakhon Province sits about mid-way between Nakhon Phanom (NKP) and Udorn Thani. The City of Sakhon Nakhon is the province capital, and sits on the south shore of a large lake called Nong Han. My home village, Ban Chom Chaeng, is across the lake to the east. As a little girl, Sakhon Nakhon seemed very far away. I was the fifth of seven children in our family. My first visit to Sakhon Nakhon took place when I was about seven years old. My mother took me to Sakhon Nakhon for a day of sight seeing and shopping. I tasted Thai coconut-milk ice cream for the first time on that trip. It was wonderful!

My father, Mr. Ma Lee Multhongsuk, was a hard working, successful farmer and businessman who became the Phuyai Ban – the leader of the village, similar to a mayor. But that was a ceremonial extra job, and there was no pay. His real work was to provide for his wife and family. He owned two small farms separated by a walk of about one hour between them. He owned a buffalo, and grew corn, rice, herbs, sweet watermelons, and

other produce. He hunted, and traded for the foods we did not grow or catch, including bananas and other fruit that grew wild in the area around the village. The village was very poor. It consisted in those days of 20-30 houses, many occupied by my cousins, uncles, and aunts. My mother, Ban, did much of the farm work while raising her children, doing most of the cooking, laundry, and child raising, but older children took over much of the care of younger siblings at an early age.

Ban Chom Chaeng had no running water, but we were next to a lake, and one of my chores as a little girl was to carry a metal bucket with one of my sisters or brothers to the lake and fill it with water for drinking and washing. We also had no electricity. After the sun went down, people went to bed, or talked by candlelight. On special occasions, someone would get a kerosene lamp, and later someone obtained a Coleman (or similar) camping lamp that emitted a very intense white light and a sputtering noise.

There was no road into Ban Chom Chaeng. There was a footpath that led around the north shore of the lake toward Thare...

There was no road into Ban Chom Chaeng. There was a footpath that led around the north shore of the lake toward Thare, but cars and trucks never visited the village. Travel was almost always by boat, a shallow-bottomed pirogue style boat made from a hollowed-out log. These boats were sometimes pushed along with a pole, but usually propelled by rowing. But, when I was older, motorboats became more common. The motorboats used a propeller at the end of a long drive shaft, and were sometimes called long-tail boats. A trip from Ban Chom Chaeng to Sakhon Nakhon took about four to five hours by rowboat, but only 45 minutes or so in a motorboat.

As you know, Thailand is officially a Buddhist country, but Catholic missionaries have been in Northeast Thailand for a long time. Thare was an early Catholic center in the northeast. Ban Chom Chaeng was distinctively a Catholic village because it was near Thare. Other nearby villages were mostly Buddhist, and my mother was raised Buddhist, but she became Catholic when she married my father.

When I was nine, it was decided that I would attend school at Thare. I had already learned to read and write in the four-year government school that served our village, and I was considered a good student. Although Thare seems near to Chom Chaeng on the map, it was a long walk. I moved to Thare full time to attend the Catholic school. I was very homesick, and seldom saw my family, but I valued my education, and understood that the sacrifice was worth it for the privilege of attending this fine school. Girls and boys at Thare both attended St Josephs School, but the schools were separate. The boys school was across the road from the girls school. My teachers were Priests, Nuns, and a few lay teachers from America, England, Australia, and France. There were also some Thai priests and nuns in our school. The students were mostly Thai from northeast Thailand, but there were also a few students from Vietnamese families living in Thailand.

I continued to attend school at Thare until I had completed the equivalent of American high school or maybe a bit more. This education would have been impossible if I had stayed in Ban Chom Chaeng. The village school was not free. The cost to attend, which seems small now, was more than my parents could afford, and the official level of required schooling in Thailand at the time was through the fourth grade. During those four years we learned basic arithmetic, Thai language, grammar, and spelling, how to read and how to write. Paper was expensive so we learned to write on a piece of slate, using a piece of charcoal. At Thare I received a lot more mathematics (more than my husband got at high school in Kentucky), languages including Latin, English and French, and history. Father Khai, who at the time was a young, fun-loving priest, taught English two days a week. Usually, he taught at the boys school.

Let me tell you about a typical school day at Thare. Students lived in a dormitory with one large room. There were beds for about half the students when I was there – the rest slept on the floor. We got up at 5:30AM, and went to church services at 6:00. Prayer and meditation lasted till 6:30 when Mass would begin. Chores followed Mass, and we finally went to breakfast at about 7:45. Class began at 8:30. Classes remained in one room throughout the school day, but different teachers came to class to teach different subjects. An average class had 35-40 students.

In addition to academic subjects, we participated in sports, and music also was very important. The boys of St. Josephs formed soccer, basketball, and track teams which competed against the boys who attended the Fatima seminary, nearby. Girls were permitted to attend the games, and to cheer the boy's teams, but the boys and girls were not permitted to mingle or talk with each other. We participated in choral music almost every day, as part of our worship, and an integral part of school. Often, special musical programs were prepared to greet visitors. These often required lots of practice, but were very enjoyable.

The school at Thare was interested in educating young Thai people to enter life-long church service. I decided the life of a nun was not for me, so I left Thare at the age of 20. I traveled to NKP, where I had visited previously, and knew some people, and after a short time, I found a job at the airbase, where I met my future husband.

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TALES FROM THE FLIGHT LINE

By David Cook

Crew Dog! That's what we were called. Some other specialties called us lesser names, but it didn't count. We called the weapons guys 'load toads,' 'gun plumbers' and 'B-B stackers'. Electricians were 'spark chasers,' sheet metal and machinists were 'tin benders' and 'scrap metal.' Hydraulics guys were called 'bubble chasers,' mechanical-environmental were an enigma, and the avionics troops were weird.

Crew Dogs were literally "chained" or personally responsible for our assigned "pig." Pig is what we called our jet. The "pig" was the F-4 Phantom II fighter-bomber. Air to air and air to mud were the missions they flew. Of course, all of the glory went to the Aces dedicated to air to air or MIG Cap missions. The real work of aerial warfare was the air to mud mission, stopping the invading North Vietnamese Army (NVA) by cutting off the supply chain or directly attacking their formations wherever they were found. Crew dogs can be found around their pigs anytime of day in all weather conditions. They are responsible for the condition of the aircraft. They are from all walks of life, trained in the operation and maintenance of all the systems on the jet.

We are not experts in avionics, but we know what is supposed to happen when the switch is pressed. We are not experts with weapons, but we know when they are safely loaded and how to recognize unsafe conditions. We have to work around and amongst the weapons hanging on our pig's bellies.

Navigating under an F-4 during launch takes a certain kind of perception of knowing where to go and when to twist to avoid being "bitten" by panel doors or missile fins. We called these injuries "Phantom Bites." I have many of them and some have been obliterated by "Eagle Bites" (the F-15). Crew chiefs have lots of bites.

In the fall of 1972 I was on swing shift at Udorn RTAFB. One night, when things were almost deathly quiet, a loud low "Bong" reverberated across the flight line. The hairs were standing up on our necks as the chills ran through us. Another BONG! The SP's radios went nuts! They were trying to find the source of the sounds. After 30 minutes of confusion, the word was passed that it was a Buddhist temple starting a festival. I had visions of the "55 Days at Peking" where the Marines were fighting the Boxers; I thought we were in for it. The routine of operations had become routine after the NVA invasion had been stopped. The guys were almost at ease with the unvarying routine. Usually we came in, had roll call, gathered some drop tanks, fixed some jets, and did lots of preflight, and launched nighttime missions.

I carried a Thai hammock in my jungle fatigues that I stretched out under my jet and caught some zzzz's. Working nights required liberal dose of insect repellent all over the exposed skin. The most potent repellent came in a small white can; it was the real good kind, the kind that removed the paint from the jets. I usually had green forearms.

One night everyone was buzzing around, there was graffiti on the bombs! Weapons crews were really excited and almost working in frenzy! I wondered what the hell? No one really gave a damn about this part of the war, as we all knew that the South Vietnamese were going to be abandoned by the US Congress, what was the deal? I asked: "What's the deal?" The flight chief replied: "Jane Fonda is in North Vietnam and has called the Air force liars and murders." "Jane who?" I asked. "You know, that bitch from 'Barbarella,' Henry Fonda's daughter." "He had a daughter? I vaguely know her; pretty sharp chick." "She's a traitor, and I hope one of these bombs finds her," hissed a 'load toad.' The guys wrote many vile comments and improbable sexual acts on the bombs, involving Jane and Uncle Ho.

At Ubon the primary mission was air to mud with laser-guided weapons. The laser designators were called "ZOTZ" after the aardvark in "B.C." The ZOTZ jets had a reticle and control handle on the left rear canopy. During launch the rear seater would cycle the handle in full travel and tell the pilot where the reticle was pointed in relation to an object on the flight line.

" My pipper is on the number 5 on the nose dock in full forward travel." "OK, I got it," said the pilot as he put a grease pencil mark on his canopy. The idea was to keep the target within the marks as they orbited the target.

Usually one or two bombs was all that was needed. Like a 500-pound laser guided bomb (LGB) laid on the back of a moving Honda in Cambodia or 2000-pound LGBs on the Paul Doumer bridge in North Vietnam.

Another device was called Target Identification System Electro-Optical or TISEO, which was a telescope coupled with a laser designator. There was a Sony TV in the rear cockpit in place of the radar scope. They could read truck serial numbers at 30 miles. Later models of F-4Es had them incorporated in the left inboard wing. Generally the pilots would tell us about the targets and pull out a map and describe what happened. The strangest target was a group of five orange earth-moving machines on a hilltop in Cambodia. Each F-4 carried 12 500lb Mk-82s. Twelve jets went in on the target. One bulldozer was still moving when the FAC called it off.

Secret Batcat Missions Over Laos

By Jim Roth

The 553rd Reconnaissance Wing, known as the Batcats, operated out of Korat RTAFB, Thailand. Their mission was providing reconnaissance, detecting trucks on the Ho Chi Minh Trail in Laos, and in South Vietnam, and to some degree in Cambodia.

This was a classified mission. It used the names Dump Truck and Mud River before it became operational. Then its name became Igloo White.

The EC-121R aircraft front-end crew consisted of a Pilot and Co-Pilot, two Navigators, two Flight Mechanics, a Radio Operator, and, on some missions, an Electronic Warfare Officer in high threat areas.

The back-end crew consisted of a Combat Information Center Officer (CICO), an Assistant CICO, up to eight Combat Information Monitors (CIMs), and two Electronic Technicians.

The CIMs monitored the sensors on the ground. There were two main types of sensors. The acoustic sensors monitored sounds. When a sound was loud enough the signal would be relayed to the aircraft and analyzed (normally trucks and aircraft). The seismic sensors reacted to vibrations of the ground (usually from trucks) and lit a lamp indicating the specific sensor on the panel at the CIM's position. The CIM could track trucks passing through the strings of sensors. When significant trucks were identified strikes would be called in by the CIM to destroy them. The strikes could be by fighters, gunships, artillery, and, on occasion, the battle ships.

Missions were flown in Northern and Southern Laos, and in several areas in Vietnam, in 1, 2, and 3 Corps.

During January, February, and March of 1970 the Batcats got credit for 50 percent of the destroyed trucks in Steel Tiger South (southern Laos). By knowing the distance between the sensors (to the meter) the speed of the truck could be accurately determined.

It was not unusual for a CIM to log over 1,000 activations of the seismic sensors in one hour. To do this, analyze the results, and call in the strikes required efficient and accurate work.

The seismic sensors could also track individuals. During the siege of Khe Sanh individual activations of sensors would be enough to call for an artillery round. The organization received the Air Force Outstanding Unit Award for their activities during that time.

During the mission the back-end crew also monitored the Guard Channel and assisted in a number of search and rescue missions that resulted in the recovery of downed aircrews.

The CICO, an intelligence officer (Lt through Major) supervised the CIMs and insured that targets were properly reported. The CICO was relieved by the Assistant CICO (SSgt through MSgt). The activity was so intense that a single individual could not function for more than two hours at a time before being relieved for rest.

The on-station mission lasted eight hours on orbit. During this time the EC-121R aircraft flew at 20,000 feet above ground level (AGL). This was above the listed maximum altitude for this aircraft. The altitude kept us above the 37MM anti-aircraft artillery that the Vietnamese used to try to shoot the aircraft down.

Training for the aircrews was performed at Otis AFB, MA. All members of the crew trained together.

All crewmembers finished the Air Force Survival School at Fairchild AFB, WA. All crewmembers also finished the Jungle Survival School at Clark AFB, in the Philippines.

Crewmembers were limited to 100 hours of flying time each month (about eight missions). Typical mission duration (from takeoff to landing) averaged 10.7 hours with a maximum duration of about 13 hours.

Some crewmembers flew over 100 combat missions during two tours.

***WIG**, continued from Page 1*

program the board has initiated to help Lao schools. We had heard that "$800 will start a school in Laos." As expected, things are not that simple, and certainly not that inexpensive. The modest amount we heard results from WIG's conservative and cautious approach to charity in Southeast Asia. They only donate what they can control and get adequate documentation for, which causes progress to move in a slow and deliberate way. (Perhaps Jim Michener would call it the Lao way.)

WIG is very grateful for our initial donation and Maureen recently reported to us how $1500 of it has been used so far. She says, "Once we have decided upon a project, we normally hand over money in instalments, request receipts and then give the next amount required This way it is easier to monitor. Sometimes, in the case of furniture, we organise the production and delivery of desks ourselves."

And so, in thanking TLCB for our initial donation, Maureen explains: "It has taken time for us to give this money, as we like to ensure that WIG money is well spent. Next week we will give $1500 to Ban Mai Phon Keo Primary school. They have requested $3658 to complete the building of three classrooms and add a fourth. At the moment the students have to cycle to another village. This payment should cover the cost of the new roof, concrete pillars for the fourth room and the concrete floor. We are more than happy to ensure that your plaque is on the building."

> ...the needs here are great. Last week we visited several schools. All of them in need of support and now we have to choose!

Where are we going with this? We *don't know exactly*, yet. There are so many ways to help! Here's what Maureen says: "… the needs here are great. Last week we visited several schools. All of them in need of support and now we have to choose!"

Here are some examples WIG has provided. These are projects they are seriously considering for their next initiatives. Our contributions can make a very big difference with respect to what projects they can take on.

1) Donkoi Primary School.

"The school has 5 classrooms and a teacher's room. There are now 250 students, Grade 1 enrolment is over 70 students and Grade 3 has 53 students. This second grade one class is held under a frame of very old metal roof sheets. There is a dirt floor, no walls or doors. The Grade 3 needs to be divided into two classes, when there is space. Estimate of amount required to build two classrooms US$2,294 ."

"This school also has an excellent after school project run voluntarily by an energetic Vietnamese/ American lady who works for an NGO [non-government organization] here. As you can imagine, after school projects are rare here."

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2) Don Nuone Lower Secondary.

"We saw this school by chance as we drove past to see another school. The buildings are on the verge of collapse. The wooden roof supporting beams eaten away by termites to the point where the roof must be unsafe, the roof is full of holes and the walls are very basic. (Where they exist at all). The whole school needs rebuilding. We will ask for a proposal on 2nd December, so are unsure of the exact cost at the moment. However, even if the village people build their own school, thus providing free labour, it can't cost less than $12,000. WIG can't afford this and we will be looking for funding elsewhere."

3) Don Nuone Upper Secondary School.

"[This school has] 694 students and 3 teachers; they requested school desks. However on inspection we found that there is a greater need for a new roof. Termites…have eaten the roof supports and the roof sheets are full of holes. We should now receive a new proposal from them soon. We expect they will ask for around $2000 (or a little less)."

4) Udom Pon Primary School.

"[This school] has requested $5,068 to complete three buildings. We need to visit the school again to discuss the proposal we have received and clarify exactly what they expect to achieve. However, two of the buildings have dirt floors and no walls. The partially completed building has one room at the end without walls and a dirt floor."

5) Very few schools have toilets, so students have to go out to the fields around the school.

"The last one alone is alarming. Can you imagine the health problems that must be caused by this lack of basic sanitation? If someone could just fund sanitary toilets for each Lao school the effect would be dramatic!"

WIG knows of many other needs in Laos that are just as critical and in which they can furnish help that is just as responsibly administered. The Assistance Committee is carefully moving into this work so that we know what is going on every step of the way. John Sweet will be keeping members informed as we learn more.

Laos Is A Minefield of Unexploded Ordnance

by Bill Tilton

FAC: "OK, Buzz flight, you're cleared in hot. Try and hit the straight section of road just West of my smoke."
Buzz Lead: "Rodge, Nail; Buzz rolling in from the East."

A Navy F-4 performs a steady, steep delivery and the Air Force forward air controller observes two bombs release. The black torpedo-shaped 750 pounders fall together without tumbling, and seem to strike the soft earth on or near the road he was hoping to crater.

FAC: "Sorry, Buzz; it looked like a good delivery, but I didn't see any explosions!"
Buzz Lead, grunting through the g-forces of a steep pull-up: "Roger, FAC; must be duds again."

The object was to disrupt use of an important section of the Ho Chi Minh Trail, and thus to accomplish two objectives: to reduce or even eliminate the flow of supplies to Communist forces opposing us in SEA, and to tie down as much enemy manpower and other resources as possible. Other consequences could not be our concern, nor that of the enemy, at the time. In nearby areas other battles were being fought, with similar disregard for the long-range consequences of tossing lethal material all over the landscape. More than a quarter century later those consequences are one of the biggest concerns remaining.

Sources of UXO

I didn't verify this, but the UXO organizations claim that in nine years of our involvement, Laos absorbed over 580,000 bomb sorties, or approximately one every 8 minutes around the clock, making it by far the most-bombed country ever. Dud rate estimates run from 10 to 30 percent or even higher. In 1968 and '69 over 230,000 tons were expended on Northern Laos alone! We had a large delivery force and our leaders had decreed a bombing hiatus over Vietnam, so the interdiction effort and counter-Pathet Lao action were increased. If dud rates were accurate, this would leave over 70,000 tons of unexploded ordnance.

Dud bombs were a political hot potato at various times during the war. DoD denied it was significant (and also claimed there was no bomb shortage), but the crews and armorers knew better. At one time in 1966 I guessed that at least half the Navy's bombs were duds, and many of those delivered by the Air Force also failed to explode.

In an earlier era, Earth's most fought-over territory was in France. There are little-known groups of EOD (explosive ordnance disposal) experts who are still clearing French farmland of unexploded artillery shells from World War I, and still have a very long way to go before the land is usable once again. There has been a certain loss rate among these experts, perhaps accelerated as the shells get older and less stable. New UXO efforts are worldwide and are mostly concerned with landmines, which represent a vicious hazard to civilians.

A particularly important UXO danger in Laos is the "bombie." Recently seven related Lao children in a little village were all killed by the explosion of one bombie they were playing with one sunny morning when school was out. When they heard the explosion most villagers knew what it was, as the horrified parents and neighbors ran to see what had happened. Experts suspect the children were trying to open the munition.

What is a bombie? 285 million BLU-26 bomblet

submunitions were procured by DoD for Southeast Asia, and 30% of these were expended in Laos. Based on this, UXO organizations estimate over 8½ million BLU-26 "bombie" are waiting to harm people and animals. (A single "bombie" is said to have a lethal range of 80 to 800 feet). BLU-26 (called CBU-24) were delivered in canisters of 640 to 670 bomblets. According to the JTF/FA (the Joint Task Force that is seeking to account for each MIA), they "seem to be everywhere."

I will illustrate how bombies got there. The most effective use I ever saw made of CBU-24 occurred about ten kilometers south of Mu Gia Pass, in a large flat area near "Flak Mountain." A fighter pilot had ejected from his battle-damaged F-105 after it lost all hydraulic fluid and started an uncontrolled roll. He crossed the road near his landing point, where he saw, but did not disturb, field telephone wires on the ground. Then he came upon a still-warm campfire area, and moved quickly into dense cover awaiting rescue. When I arrived to orbit safely over a karst in case they needed a FAC, Sandies (A-1E rescue cover fighters) had already dropped a 100 lb white phosphorous marking bomb and were dueling with very active guns that were firing from well-protected pits nearby.

The WP was smoldering as an unintentional point of reference for all of us on the scene (apparently it was a dud, but the case had split open and combustion was spontaneous). Jollies (HH-3 rescue helicopters) were nearby, but could not approach the downed pilot because of heavy fire from the guns the Sandies were trying to suppress. Then a single jet fighter carrying CBU-24 made one pass across that position. He dropped down very low, coming fast from the northeast and crossing to the southeast of the valley floor. The field of dusty explosions started hundreds of yards before the guns and was laid perfectly across them, extending several hundred yards beyond. It looked unsurvivable in that dense region of bright flashes, resembling a string of Chinese firecrackers. The attack fighter pulled off and went home, and Jollies then performed an unopposed rescue. The gun position was silent.

This was war; what happened to the unexploded CBU from that pass was the least concern we had that day. Some now blame us for the evil that has remained. One must be cautious about UXO claims: certain organizations report UXO with distinctly anti-US bias. The US role is emphasized and articles contain accusatory comments and inflated, unsupported claims of US culpability. Indeed, not all UXO in Laos is even from "our" war. Today they still find French munitions left from the colonial era. They even find Japanese munitions left from World War II. In fact, munitions made in USA certainly account for the largest amount, estimated at 76%, and no doubt, we *delivered* the majority of those weapons. Others were manufactured in the old USSR, in Vietnam, China, France, and the United Kingdom.

Besides bombs and CBU, there are many other kinds of lethal UXO in Laos. In the rest of the world, UXO usually refers to land mines (and these are present in Laos, too). One of the most prominent UXO organizations is the British "MAG," which stands for Mines Advisory Group. MAG reports over 100 types of ordnance in Laos, including mortar and artillery shells, landmines, grenades of all kinds, machine gun ammunition, rockets, etc. In fact, UXO is defined by DoD as: "A munition or delivery system containing explosives, propellants, and chemical agents. They are armed, placed, launched or released for action, and remain unexploded by malfunction or design."

One load of bombs that fell in Thailand in early 1970 has been a source of information on how dud bombs behave. As told by Brother Don Thompson (Zoomie), in an October 8th message on the TLC Mission server, a B-52 load of 108 general purpose bombs, both 500 lb and 750 lb, was expended near Roi Et from 30,000 feet by some system malfunction. These were unarmed, of course, but many exploded anyway. In the lateritic Thai soil bombs that entered vertically went as deep as 60 feet, where detonation left a cavity but little or no surface disturbance. Bombs that struck at shallower angles tended to bounce off the water table and start back to the surface. Each of these weapons was located or accounted for, as we shall see later.

The Awesome Power of CBU-24s BLU-26

Larry Hughes, chairman of the History Committee and our resident armament consultant, provided me with this off-the-cuff information:

CBU 24 was a clam shell Cluster Bomb Unit with a bulbous nose containing the fuse. The Unit itself had the appearance of a pregnant M-117 (750 pound general purpose bomb).

The bomblets dispensed were the BLU (Bomb Live Unit) 26B. They were round with concentric striations which caused them to spin when released from the dispenser and provided fragmentation upon detonation. The spinning action caused arming to take place. The BLU-26 itself is about 2.5 inches in diameter. The explosive, he believes, is Tritonal. The bomblet case is packed with ball bearings which, along with the case fragmentation, was very effective against gun emplacements, troops in the open, and vehicles.

The CBU 24 was loaded with bomblets with varying fuse delays from zero delay on impact, to 4 to 6 hour time delays. The destructive force of the individual bomblet was probably close to that of two frag grenades.

Delivery was from fast movers with the dispersal pattern a function of release altitude and angle of attack. The major drawback to the CBU-24 was the drag. They were even less aerodynamic than the 750's.

The Hazards of UXO

I have mentioned the recent, widely publicized death of seven Lao children from one "bombie," assumed to be a single CBU-24 bomblet submunition they found near their little village. It has been estimated that UXO in Laos harms someone every two days. In more than half the incidents a victim dies almost in-

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stantly. In an article in "Child Newsline," about that incident, author Leyla Alyanak reports that much ordnance is attractive to children, often having bright colors and interesting shapes. UXO is said to be particularly irresistible to Lao children, who have few playthings. In Laos about 1/3 of the victims are children.

Economic effects are also very harmful in Laos, where the population continues to grow while many land areas remain denied for agriculture or development because of UXO. Lao per-capita income is $150 per year or less, and in this land that clings to its Communist-style planned economy, some villages are only able to maintain a few months rice supply, forcing people to forage in contaminated forests when the rice runs out. When this happens, UXO incidents are inevitable. Where only 7% of the land is suitable for agriculture in the first place, further restriction on scarce farmland use is almost as deadly, though much slower, as the accidents. Farmers are the principle sufferers, but hunger is another major problem in Laos.

Did you ever think you might like to visit the old combat areas? Are you hoping that some day the Ho Chi Minh Trail will be open to tourists? I first learned of the UXO problem in Laos when I asked somebody about visiting the Trail areas a few years ago. Not feasible, I was told: UXO makes it too dangerous. According to recent news releases, the Vietnamese are now building a new north/south road that, they say, follows the alignment of the Trail. True or not (the road is *only* in Vietnam), UXO was their first concern. In an article in "The Washington Post" on November 15th, there was a report stating that since March, the road builder's disposal teams had found 5,000 CBU, 10,000 mortar shells, and "65 devices weighing more than 250 pounds." Of these, 600 unexploded bombs and mines were found in one location.

An acquaintance on the Joint Task Force/Full Accounting (JTF/FA) tells me that for them, UXO is always a problem. At each crash site they must start with a visual and metal detector sweep (more on detection later on). The most common problem is CBU-24, the BLU-26 submunition, which is everywhere. But the most dangerous for them are the BLU-44 "dragon teeth." These are non-metallic, making reliable detection nearly impossible. They are found mostly at A-26 sites: if BLU-44 are present the site is put on the "safety list" and not excavated. Surprising to me, iron bombs (MK 81, 82, 83) are hard to move but do not cause the teams much trouble.

Is UXO All Bad? —*Uses for UXO*

One of the ironies of UXO is that its usefulness is one of the reasons it represents such a danger. In Southeast Asia scrap metal has been a major source of scarce revenue during the recent period of economic depression. The economic pressure to gather metallic UXO and recover the metal has been great. Farmers and villagers also find many uses for shell and bomb casings that have been carefully emptied of their contents. Water vessels and various urns made from these may be seen in many villages. But these uses have led to tragedy in two ways. First, retrieving and disarming the objects often is unsuccessful, resulting usually in death. More insidious, children observe these objects and come to accept them as everyday items that they need not fear.

The JTF/FA also finds UXO to have some limited usefulness. Sometimes it is the only way of correlating aircraft to incidents. For example, a crash site found just south of Mu Gia Pass contained bits of flight suit and other life support material, but no part numbers could be found to ID the aircraft, and thus the incident. Ordnance typical of Navy A-1H loads was found in the area, consisting of 2 MK 81 bombs, 20mm ammunition, and rockets. Only one unfound A-1H carrying MK 81s and rockets remained on their list, making the site a very high probability for an early Navy A-1H loss.

Organizations Concerned with UXO

Laos was my focus for this article. It is hardly the only area in the world where UXO is a major national concern. In most other UXO countries, however, the main problem is land mines. This is particularly true in Cambodia, Afghanistan, and Angola. In Cambodia 5.4% of the accidents result in death, mostly from small blast landmines. Maiming of bodies and psychological trauma in these countries, particularly for children, is appalling and has become the subject of intense international pressure to clear existing mines and particularly to outlaw them in future conflicts. Unfortunately, as noted below, some of these organizations have hidden political agendas.

In Laos the concerns seem focused on getting rid of the UXO that is already in place, and several very active organizations are on the scene for this purpose. Let's look briefly at some of these.

In Laos the most important organization is known as UXO LAO, the official government agency. Also active there is Handicap International Consortium and, particularly, the British MAG I mentioned earlier. Several U.S. ambassadors have been very active in helping Laos solve its UXO problem, too. Funding for UXO LAO is international, currently standing at $15.8 million, U.S. Of this, the United States has provided $3 million. A company in Alexandria, Virginia, has a large UXO contract in Laos (BAHR, International). One of the biggest problems BAHR has had to work around is a Lao restriction on the number of U.S. contract personnel who may be in that country at any one time. The political sensitivities in Laos and Vietnam, and probably in Cambodia as well, continue to interfere with this work and the work of JTF/FA.

UXO LAO reports that surface UXO accounts for more than half of the accidents. They have organized teams that roam the countryside, explaining the dangers of UXO to villagers and blowing up surface UXO. They are also setting up a national bomb disposal center.

The Mennonite church was probably the earliest large organization to take an interest in UXO clearing and prevention. The Mennonite Central Committee provided the early MAG funding, which started in the United Kingdom and Laos. MAG was started in 1994 and was the first non-government UXO organization in Laos, where their roving teams gather data and promote community awareness of UXO hazards. Since U.S. Army EOD (explosive ordnance disposal) trainers arrived in 1996, MAG clearance teams have been clearing UXO (but no

U.S. military are performing live ordnance clearing in Laos).

MAG and the Mennonite Central Committee receive funding from UNDP, the United Nations Development Program, a UN trust fund set up to solicit bomb-clearing funds from member governments. Funding and technical assistance is not only provided by UNDP, but also UNICEF, donor countries, and the Lao Peoples Democratic Republic (PDR). The United States provides funds, training, and trauma care in Laos, and U.S. ambassadors have been involved and concerned.

The Joint UXO Coordination Office, at Fort Belvoir in Northern Virginia (known as JUXOCO), is primarily concerned with UXO on active military, formerly used defense (FUD), and base realignment and closure (BRAC) sites. But JUXOCO is an important UXO research coordination center (and will conduct a Countermines Forum in New Orleans on April 9 through 12, next spring; see www.denix.osd.mil/denix/Public/News).

In 1928 an ammunition depot at Lake Denmark, New Jersey, was destroyed in a huge accidental explosion that also heavily damaged nearby Picatinny Arsenal and the surrounding areas, killed 21 people, injured 51, and caused a loss of over $46 million then-year dollars. This tragic disaster was, like all accidents, the result of human error. In reaction, the 70th Congress established the Armed Forces (now DoD) Explosive Safety Board, or DOESB. The board's program is to visit each DoD installation at least once each five years, to fulfill its oversight of "development, manufacture, testing, maintenance, demilitarizing, handling, transport, and storage of explosives." Some of the information in this article came from their most recent report, "Unexploded Ordnance (UXO): An Overview." (Report may be downloaded from the above site.)

Other organizations are interested in landmines. Some of these are mainly political and have embraced UXO as an issue for their own purposes. Many politicians around the world have become very active in pressing for the clearing of UXO, particularly mines, and for the agreement of international military powers to eschew the future use of landmines. To date the United States has taken the position that we cannot restrict our military forces from the use of critically important area-denial weapons (i.e., landmines) in the future unless we are confident that potential adversaries will do the same.

Location and Remediation of UXO

When the B-52 dropped all those unarmed bombs near Roi Et, Don Thompson tells us, EOD recovery teams used long steel probes to account for all 108 bombs. They excavated each penetration hole, probing ahead every few feet to find either the bomb, its route of travel, or the cavity it created when it detonated. It was relatively easy for these teams because they were on-site very soon after the bombs struck. Finding ordnance that has been in the elements and the soil for thirty years or more is much more difficult!

Most gathered UXO is destroyed by detonation if possible. JTF/FA reports that the Lao PDR will not permit them to import explosives to destroy the UXO they gather. This caused them to pile it in small off-site holding areas. Since these were regularly pilfered during the night (see "Uses for UXO," above), JTF is reduced to burying and marking the UXO they clear from crash sites before they dig.

While the figures for clearing UXO are pathetically small in comparison to the unfound objects believed to lie waiting out there, MAG reports recently that they have cleared 23,456 bomblets, 16 mines, 34 large bombs, 4760 mortars rounds, 5155 rockets, and 13,000 shells, as well as 23,000 others (102 types

*see **UXO**, next Page*

Why Not Give Monthly To TLC Brotherhood Assistance?

Many people send a regular donation to some particular charity. If you have decided you would like to know that all of your contribution is going to direct help of desperately poor or needy persons, *consider changing that regular donation to TLC Brotherhood Assistance*. All such donations are fully deductible, since we are recognized by the IRS as a tax-exempt charitable organization.

Some huge national groups say they are helping children in third world countries and then spend over 20 percent of your donations for administration, raising questions of what all that "administrative" money is paying for.

Who are the these needy people we have helped? As most members know, it started with Thai orphans in Tha Rae (or Thare), along the road between Nakhon Phanom and Udorn. But we have also helped blind students and Thai people who need crutches and wheelchairs they can't afford. In each case the aid has gone *directly* to providing something those people need. And now the Assistance Committee is starting some exciting new initiatives that promise to spread our help to many others, and finally into Laos and possibly even Cambodia.

By the way, do *not* claim fees paid for TLCB reunions as tax deductions. The relationship with our charitable purposes is too loose to assume these are tax-exempt. On the other hand, items purchased from the Brotherhood BX include a donation to Assistance in their price. The coins auctioned and sold from the BX paid, first, for the plaque at the Air Force Academy, honouring those who did not return, and all remaining profits have gone to Assistance. (TLCB's tax number is 54-1932649)

TLC Brotherhood Reunion 2001
Fort Walton Beach, Florida, September 28-29-30
DETAILS IN MARCH, 2001 ISSUE!

David Cloud Goes On Ahead

Brother David Cloud ran out of time in his long wait for a compatible lung replacement. Many of us met David for the first time at the 1999 reunion in Washington, D.C. But he stayed home from Colorado Springs this year because he was at the top of the list and wanted to be ready for his operation. Jane Cloud told us that David passed away on November 18, 2000.

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altogether). Unfortunately, buried CBUs tend to leach up. Frequently CBU areas cleared only on the surface are re-contaminated within six months.

There are several methods in use for locating UXO. These include magnetometers and gradiometers, ground penetrating radar (GPR), electromagnetic induction (EM), infrared (IR), and even biological sensors (dogs). None of these can detect the deeper bombs, but in many areas that risk is acceptable so long as the shallower ordnance can be cleared. DoD publishes guidelines for clearing depth, depending on intended use of the land.

Magnetometers and gradiometers (pairs of magnetometers for detecting rates of change) measure changes in Earth's natural magnetic forces caused by the presence of ferrous (iron-based) materials, which exist in the majority of UXO. These devices are very effective if carried near the ground—airborne magnetometers have little or no ability to detect UXO. Combined with GPS locators and computers they are powerful UXO-finding tools, detecting 50 to 83% of test items, with a false alarm rate of only 4 to 10 per unit of UXO found. This may not sound so good, but it is downhill from there on!

EM works on both ferrous and non-ferrous metallic UXO by transmitting a current into the soil and measuring the current effects, which UXO will alter or influence. In DoD tests, EM found 11 to 85% of the objects, with false alarm rates up to 13 per item found.

GPR works best in dry soil, because water absorbs radar energy. In DoD tests, GPR detected only 1 to 5% of the ordnance, with false alarms of 3 to 28 per unit found.

IR is subject to many intervening factors and shows minimal utility in UXO detection. Dogs actually are pretty efficient, but their limitations are important: dogs cannot detect ordnance over 16 months after exposure to the elements, nor more than 6 inches below the surface of the ground. (But they do make good companions).

Excavation of detected ordnance is accomplished in three ways: manual labor, direct mechanical digging, and remotely. Manual removal in the U.S. in 1985 cost $140 to $315 per item cleared. Direct mechanical excavation is done primarily with the backhoe. More sophisticated operations use vacuum excavators with high speed air to penetrate and dislodge the soil ahead and conveyor belts to carry it away. Robotic means are like other mechanical methods, except that they protect UXO locating operators from the nearly inevitable accidents.

UXO From Future Combat: *Worse or Not as Bad?*

Largely as a result of intense international political pressure, DoD is now searching for ways to make some ordnance less likely to create future UXO. In a recent article in McGraw Hill's "Aviation Week and Space Technology" (November 27, 2000 issue, page 37, "Criticism Forces Bomb Upgrade"), Robert Wall reports on efforts currently being investigated. Wall quotes Navy Captain Robert Wirt, who is program manager for conventional strike weapons: "Obviously, in recent times, we have become sensitized to the unexploded ordnance issue. Events in the last year, in particular out of Kosovo, is really what has caused us to sit back and readdress what we want to do here."

The main focus is on CBUs you and I never heard of: 87 and 103, used by the Air Force, and the BLU-97 that is used for the Joint Standoff Weapon (JSOW) and the Navy's Tomahawk cruise missile. The BLU-97's "stab-sensitive" detonator is considered very dangerous even for experts. If it fails to detonate on initial deployment it becomes, in effect, a "very powerful anti-personnel mine with an additional incendiary capacity." (From a statement of the Nobel Peace Prize-winning International Campaign to Ban Land Mines.)

The cost to achieve higher initial detonation rates (now at 96%) is probably going to be very high, but the Navy is hoping to field weapons in the 99% to 99.9% range by 2005, or perhaps even as early as 2003. One promising method is in adding a battery to each submunition, which would induce an explosion within a certain time after hitting the ground. Some U.S. antiarmor weapons are already fitted with self-destruction mechanisms. The BLU-108 Sensor Fuzed Weapon submunition is one example. Fortunately JSOW already demonstrates higher effectiveness than required by the procurement contract, which may give the designers space to add self-destruction capability without degrading its effectiveness unacceptably.

It Started With Suninat

The Assistance Committee's assistant chairman in Southeast Asia is Tommy Thompson, who continues to recover very slowly from a massive stroke. Meanwhile, John Sweet has appointed Vichit Mingrachata to help us in TLC. Vichit is Thai, and has worked closely with Tommy for many years to help needy people in his homeland. For instance it was Vichit who saved us so much money on the band instruments that were provided to Tha Rae last year.

During the Sweets' 2000 visit to Thailand, Vichit's wife told John about a poor little girl she teaches, who could not afford to buy the lunches that contractors supply at her school. For about 50 cents per day, this girl could have a balanced daily meal. Her family is very poor, so their rice at home is probably not accompanied by much else, and this diet can lead to many health problems. It is particularly critical for a growing child.

John got board approval to give Vichit's wife $50 to provide lunches for this one girl, whose name is Suninat Chanamarn. Suninat soon told us about a friend she has who is also from a poor family. Next Vichit received a list of 9 students who need help.

The Assistance Committee has asked Vichit to investigate these requests. He is working on a census of students who need help through provision of school lunches, which will be verified by their teachers. As the committee gets more information they will develop a program and tell us all how we can help, and how we can know that our help is being directed properly. This can be a very important way to help growing children receive proper nutrition, which their families cannot afford.