Chapter XV

Logistics

Long before the first combat aircraft deployed to Southeast Asia, personnel of the Air Force Logistics Command (AFLC) and other airmen were hard at work readying planes for training and combat. For example, beginning in 1961 maintenance crews began removing from "mothballs" many of the aircraft initially sent to South Vietnam. In many instances, the aircraft required modifications before being flown to the war zone. They included T-28's, SC-47's, and B-26's of the Farm Gate detachment which deployed to South Vietnam beginning in November 1961 and the C-123 Ranch Hand aircraft that followed early in 1962.

Upon reaching South Vietnam, the first USAF personnel to arrive found little in the way of adequate maintenance facilities. At several bases, lean-to or other temporary structures constituted the only roofed work areas. At other bases, buildings which had been built through the Military Assistance Program or those used by the French Air Force were available. One of the first challenges facing the Farm Gate crews was to set up a flightline supply and maintenance capability. To support them in this area, AFLC successfully developed, equipped, and shipped to Vietnam 24 mobile maintenance vans.

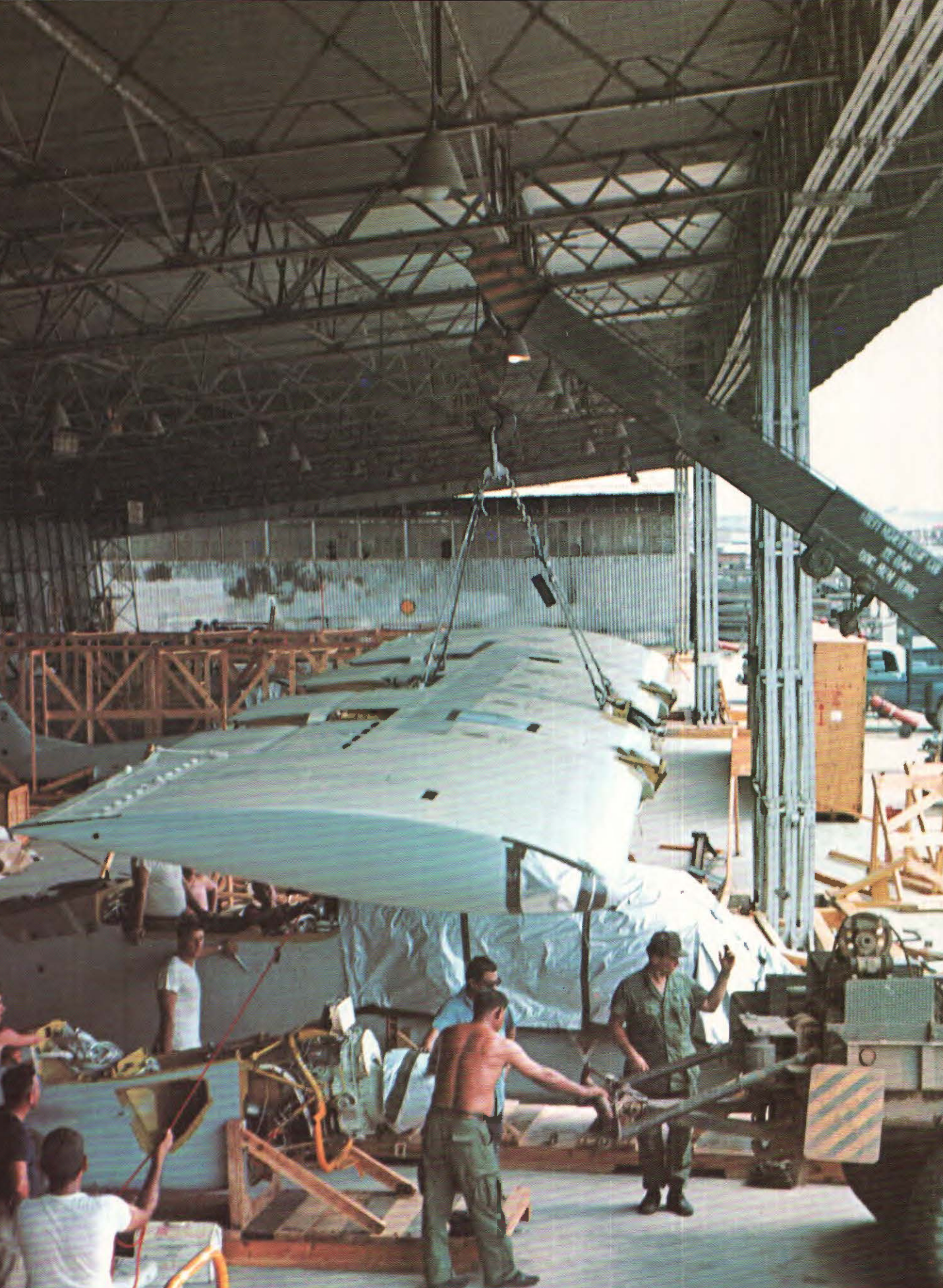
Aircraft deploying to Southeast Asia in the early 1960's carried within them 30-day mission support kits, which the Air Force periodically replenished from the United States. Initially, all other support came from USAF resources at Clark AB in the Philippines. This was not completely satisfactory because of the time required to fly in spare parts from Clark to the bases in South Vietnam and Thailand. Whereupon, in December 1962 the Air Force established Tan Son Nhut as a main logistic base. A few months thereafter the Air Force ordered a return to normal supply procedures for its SEA units in lieu of the special aerial resupply system being used. Supply shortages, however, soon appeared with the result that NORS (Not Operationally Ready, Supply) rates climbed. On 13 August 1963 the Air Force reinstated a modified aerial resupply system and aircraft NORS rates improved.

A1C William G. Simpson (l.) and A1C James H. Chester (r.) line up a C-47 engine on its mount as TSgt William C. Kearnes tightens a belt at Pleiku AB, South Vietnam.

Base Materiel

The beginning of air operations against North Vietnam in 1965 was followed by the deployment of thousands of additional men and planes to Southeast Asia. To house and support them, the Air Force established four new major air bases and expanded four others. To provide essential materiel for these bases, a major logistical effort—designated Project Bitterwine—got under way in mid-July 1965 under the aegis of a Logistics Activation Task Force established by AFLC. A few weeks later, however, the Secretary of Defense authorized still another sizable force buildup in the theater along with a further expansion of air facilities to include, overall, construction of 11 main bases and enlargement of 8 others. As a consequence, Project Bitterwine became the focus of one of the largest single Air Force logistic efforts undertaken since the Korean conflict.

Under Project Bitterwine, AFLC was responsible for determining, procuring, packing, and shipping all required materials for various bases in special packages—to be accomplished without resorting to the normal practice of



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(1) The assembling of an Air Force OV-10 aircraft at Bien Hoa AB, August 1968. (2) Gen. John D. Ryan, PACAF commander-in-chief, discusses engine maintenance with Chief Master Sgt William F. Hair, noncommissioned officer in charge of the Tuy Hoa AB propulsion branch. (3) High priority cargo being loaded for dispatch to Southeast Asia. (4) Air Force Sgt Donald F. Clements (l.) and A1C Greg E. Sniegowski load a SUU-23/A gun pod at Phu Cat AB, Vietnam. (5) F-105 mechanics position a mobile console and power unit while munitions men watch.


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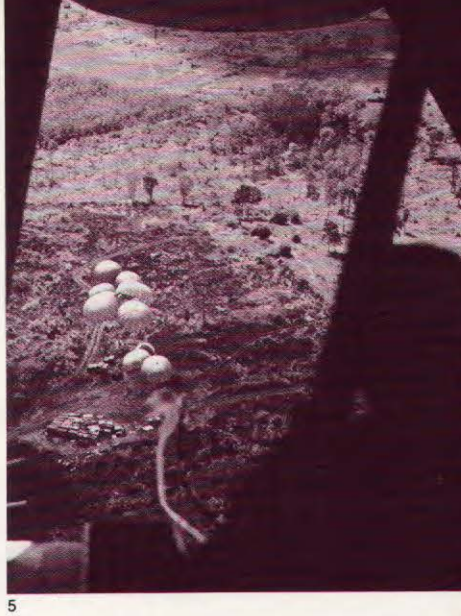

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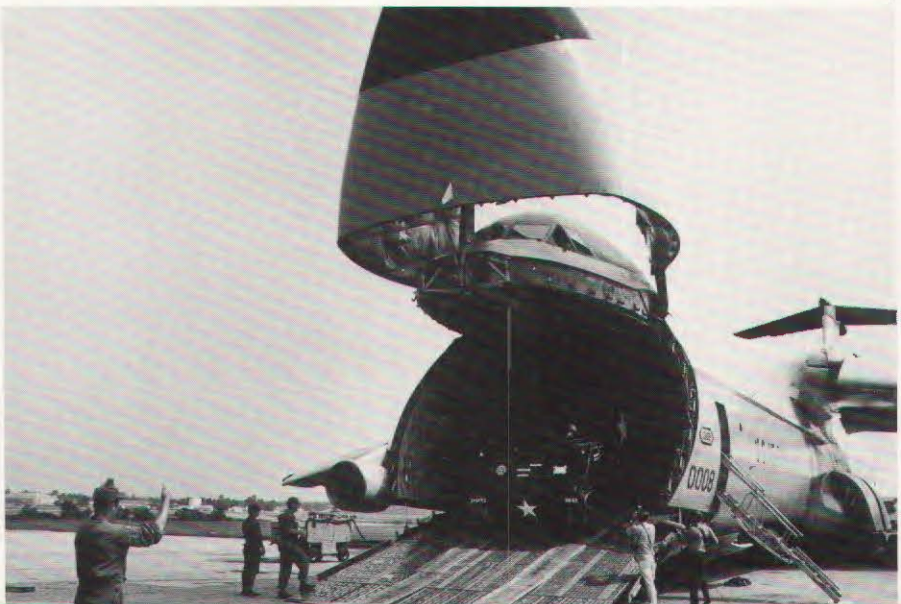

(1) A C-123 transport downed by enemy ground fire in April 1969 is lifted by an Army CH-54 helicopter at Ben Tre, Vietnam. (2) A C-123 unloads aviation fuel at the An Khe airfield in South Vietnam. (3) Airmen prepare a missile for loading on an F-4 Phantom. They are (l. to r.): A1C Garry P. Mincer; Sgt Vernon E. Kisinger; A1C Lonnie J. Hartfield, and Sgt Phineas T. Berry. (4) Army armored vehicle exiting a kneeled C-5. It was among a number of tanks and armored cars sent to South Vietnam during the enemy's 1972 spring offensive. (5) An Air Force flight mechanic is silhouetted in the rear cargo doorway of a C-7A following an aerial resupply mission. (6) An airman loads napalm bombs prior to a combat mission.

preparing and processing the usual supply requisition forms. Each functional package was to contain equipment and supplies to support a particular base operation. A food service package, for example, contained all equipment needed to outfit and operate a base mess hall. The Bitterwine concept called for the base buildup to proceed in three distinct phases. First, so-called "Gray Eagle" kits containing housekeeping equipment to support 4,400 people in tent facilities were delivered to a new base. Next, temporary structures such as inflatable shelters and prefab buildings replaced the Gray Eagle installation. Finally, in the third phase, civilian contractors completed runway construction and built operational and support facilities and housing for a permanent base.

During the course of Project Bitterwine – which ran from mid-July 1965 to early 1967--the Air Force put together and shipped more than 1,500 functional packages. In toto, they contained 346,000 different items. Purchased and shipped at a cost of about $82 million, they permitted early air operations from four new bases in Vietnam—Cam Ranh Bay, Phan Rang, Tuy Hoa, and Phu Cat–and two in Thailand, Nakhon Phanom and U Tapao. They also were used to upgrade 13 others in those countries, Taiwan, and the Philippines.

The amount of supplies required in Southeast Asia increased tremendously as combat operations expanded. During the first 6 months of 1965, more than 56,000 tons of materiel was delivered by ship to South Vietnam and Thailand. Deliveries amounted to 592,554 tons in fiscal year 1966, to 1,155,719 tons in fiscal year 1967, and reached a high of 1,697,315 tons in fiscal year 1969. Air cargo deliveries grew commensurately--from 5,929 tons during the first 6 months in 1965 to more than four times that amount in fiscal year 1966. In fiscal year 1969 more than 48,000 tons of cargo were flown into the war zone.

The sheer volume of supply shipments to Southeast Asia--plus the total lack or general inadequacy of port, storage and handling facilities and accounting or sorting procedures, particularly at the forward bases—created immense problems and seriously complicated the operations of base and combat units. Many logistic organizations in the war zone simply were unable to cope with the vast amount of incoming materiel. Substantial portions of it were often unaccounted for, lost, or misplaced. In an attempt to overcome these problems, the Air Force recruited Rapid Area Supply Support (RASS) teams from among its military and civilian supply experts. These teams deployed to SEA for periods of 60 to 120 days and helped establish viable accounting, inventory, storage, and issue procedures and practices.

The first RASS team--consisting of 22 military personnel--departed for Clark AB on 23 June 1965 and returned to the United States 90 days later. Between January 1965 and the end of 1969, 138 teams (a total of 3,207 people, 2,271 of them civilians) visited 20 bases in the Fifth, Seventh, and Thirteenth Air Force areas and provided 293,063 man-days of expert assistance. Fifteen of the 20 bases were in South Vietnam and Thailand. The other five were in the Philippines, Taiwan, Okinawa, Guam, and Korea.

The Air Force also deployed special maintenance units—Rapid Area Maintenance (RAM) teams—to the theater to repair crash- and battle-damaged aircraft. A team normally consisted of 18 military or civilian personnel highly skilled in repairing aircraft. The first RAM team deployed in April 1965 to repair two crash-damaged F-105 aircraft. The teams subsequently repaired 885 aircraft which were returned to operational units, prepared another 88 for one-time flights to repair shops, disassembled and crated 126 for shipment to repair centers, and declared 29 irreparable and salvaged them for parts.

The value of these aircraft totalled more than 1.7 billion dollars. During the course of these activities, four RAM civilians were killed in South Vietnam and one seriously wounded as a result of enemy action.

Still another specialized logistic force dispatched to Southeast Asia by the Air Force was known as Rapid Area Transportation (RATS) teams. They helped to process backlogged priority cargo and trained Vietnamese civilians to do the work. Without their help, vital materials for isolated bases, outposts, and units would have been delayed or perhaps never received.

A fourth specialized unit, the Installation and Checkout (I&C) team, assisted with the installation and checkout of equipment in base maintenance shops, precision measurement laboratories (PMEL's), and computer facilities. Between 1966 and 1969, for example, the Air Force installed UNIVAC 1050-II computers at 17 bases. They enabled base supply and maintenance personnel to process requisitions in hours instead of days, and to control assets and forecast future requirements. The availability of these computers also allowed USAF personnel to employ normal Air Force supply or "pull" system practices.

Prime Beef and Red Horse

The Air Force resorted to other kinds of special organizations—one temporary and one permanent—to undertake minor construction, improvement, and repair of base facilities. Prime Beef (Base Engineering Emergency Force), the first of these, consisted of teams of about 25 men sent on TDY to Southeast Asia. In August 1965 the first three Prime Beef teams left for South Vietnam, where they erected dirt-filled steel-ribbed revetments to protect aircraft from enemy mortar and automatic weapons fire. By 15 February 1968, more than 40 teams—totalling more than 1,900 engineers—had put in 120 days TDY in the combat area, performing urgent and emergency tasks of a base civil engineering nature. The Air Force eventually formalized the Prime Beef concept, forming teams and placing them on a stand-by basis for rapid deployment where they might be needed around the world.

The more permanent units were known as Red Horse (Rapid Engineer Deployable, Heavy Operations Repair Squadrons, Engineer) squadrons or, more precisely, civil engineering squadrons. The first two 400-man squadrons, activated late in 1965, deployed to Southeast Asia early in 1966 and initially engaged in construction of interim facilities such as combat centers, wing headquarters, and shops. Within a year, the Air Force had established, trained, and deployed a total of six Red Horse units to the war zone—five to South Vietnam and one to Thailand. At the peak of their activity, their total strength included 2,400 military men and more than 6,000 local nationals. Their work included digging wells to obtain potable water, quarrying and crushing stones for roads and runways, repairing damage caused by enemy standoff mortar attacks, constructing and upgrading operational facilities and housing, and doing a host of other jobs for which contract assistance was not readily available.

The rapid surge in requirements beginning in late 1964 and early 1965 led the Air Force to improve the flow of munitions to Southeast Asia. At the time, the supply line stretched from California through the Philippines to Southeast Asian depots. Commercial transport vessels under contract to the Military Sea Transportation Service (MSTS) carried the munitions destined for South Vietnam and Thailand to Subic Bay in the Philippines, where they were unloaded and hauled by truck to storage sites at Clark. The munitions were then hauled back to Subic Bay and loaded onto ships as requisitions came in from South Viet-

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(1) Transport ships carrying construction materials and equipment to South Vietnam lay at anchor offshore while awaiting offloading at Tuy Hoa AB. (2) A bomb storage area at Da Nang AB, January 1966. (3) An A-1E Skyraider detachment operated out of Qui Nhon, South Vietnam in 1964-1965. (4) Saigon harbor served as a major port for the receipt of U.S. military equipment. (5) Offloading an OV-10 FAC aircraft at Saigon. (6) Bombs unloaded from a ship at Guam for use by B-52 bombers. (7) Using a fork lift, a loading crew places a cargo pallet aboard a C-130 transport at Tan Son Nhut. (8) 750-lb bombs are loaded on a B-52 at Andersen AFB, Guam.

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nam and Thailand. Thus, the system consumed about 150 days in getting munitions from California to the forward bases in Southeast Asia.

To shorten the delivery cycle, Air Force logisticians again turned to special procedures, setting up Project Special Express. As originally established the project called for full-time assignment of MSTS vessels. These were loaded on the West Coast at scheduled intervals, moved to the Philippines to take on fresh water and provision, and then sailed to the coast of South Vietnam where they served as "floating warehouses." Then, as needed, munitions were unloaded onto U.S. Navy LCM (landing craft, medium) transports—manned by Air Force personnel—and taken to shore. Special Express reduced transit time by some 80 percent, from 150 to 30 days. The first Special Express vessel departed Concord Naval Weapons Station, Calif., on 25 April 1965 and arrived at Nha Be, South Vietnam, in mid-May. The number of ships involved in Special Express grew to 15 by May 1966.

Improved munitions, including 250- and 500-pound bombs, also were procured by the Air Force Logistics Command for the fighting units. It purchased in quantity a new fuze and warhead for the 2.75-inch rocket, an air-to-air weapon that was redesigned for air-to-ground strikes. Another item purchased was an aerial gun which fired at a rate of 6,000 rounds per minute, carried more ammunition than the gun it replaced, and was one-fourth the weight.

In 1967-1968 two new fuzes were added to the USAF munitions inventory, the FMU-26 for general purpose bombs, and the FMU-54—used with the Mau-91 retarding fin—which improved the low-level delivery of 750-pound bombs. In 1969 the 10,000-pound M-121 bomb, a veteran piece of ordnance developed during World War II, made its debut in Southeast Asia. Employed primarily to create instant helicopter landing zones in dense jungle areas of Southeast Asia, it was dropped by C-130 transports or helicopters. Also, in the last year of the war, the Air Force began using newly developed "guided bombs" with great effect. They enabled strike aircraft to destroy a number of key North Vietnamese bridges which had withstood repeated attacks by conventional gravity bombs.

The Air Force Logistics Command initiated a "Special Express" system of ocean going vessels to carry numerous types of munitions to Southeast Asia.

Modification of aircraft either at Air Force depots or contractor plants was another support function of importance to Air Force logisticians. Throughout the war, as operating shortcomings were found or appeal-

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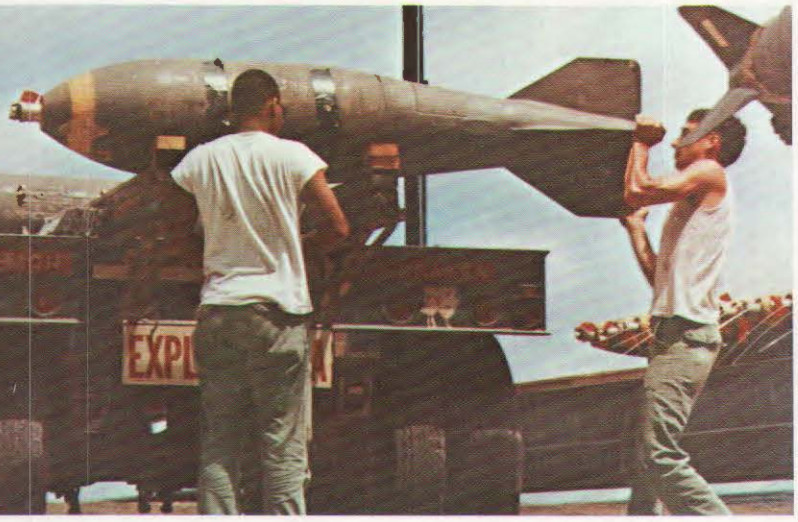

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(1) War munitions and supplies delivered to Andersen AFB, Guam. (2) Handling ordnance at Guam.

ing technical innovations appeared, the Air Force would undertake modification of its aircraft.

For example, in 1963 the Air Force initiated an evaluation of the B-52 as a conventional bomb carrier. During the following year, the Air Force and the Boeing Aircraft Company conducted a series of tests to determine the feasibility and desirability of so modifying the B-52. Test results were encouraging and modification of the first 30 B-52F's began early in October 1964. These aircraft subsequently deployed to Andersen AFB, Guam, in February 1965 and, as noted earlier, flew the first B-52 strikes on 18 June. Two months later, faced with a long-term requirement to employ its huge bomber in a conventional bombing mode, the Air Force directed modification of other B-52's to permit them to carry 108 bombs at one time.

Modification and conversion of the aged C-47 into a gunship with three 7.62-mm miniguns on the port side of its fuselage provided added substance to the belief that this pre-World War II airplane was destined never to leave the skies. The first SEA missions in its new operational role were flown on 15 December 1964. Its successes thereafter led to the conversion of C-119 and C-130 aircraft into even more sophisticated gunships. They proved indispensable in defending isolated outposts and camps under enemy siege, in escorting truck convoys, and providing close air support to friendly forces.

How well the Air Force fared in fulfilling the materiel requirements of its operational units in a pipeline more than 10,000 miles in length can be illustrated in part by examining a statistical criterion used by the logisticians to evaluate performance. For example, there was the Not Operational Ready, Supply, or NORS rate data, maintained for each kind of operational aircraft. In the case of Arc Light B-52's, aircraft out of commission for lack of parts exceeded the Department of Defense standard of 5 percent during less than one-fifth of the period between October 1965 and the end of 1969. Of even greater significance, perhaps, was the fact that the Arc Light NORS rates were below the worldwide rates for more than half of the same period—some 29 months out of 51. The Air Force achieved a similar NORS rate success with the F-100.

The USAF logistical effort which got under way in 1961 and grew so tremendously after 1965 enabled the Air Force not only to support its combat forces at the end of a 10,000-mile pipeline but also America's allies in Southeast Asia.

Chapter XVI

Base Defense

In the Republic of Vietnam, the Air Force for the first time found itself flying combat missions from air bases which were repeatedly attacked by enemy ground forces. During previous conflicts, the Air Force had operated from relatively secure bases and had been free to concentrate exclusively on waging aerial warfare. But in the war without fronts that was fought in South Vietnam, U.S. and Vietnamese airmen found their bases and cantonments subjected to sudden enemy attacks, requiring a vigilant defense at all times.

When the first USAF crews arrived in South Vietnam in 1961, the VNAF installations where they became tenants did not appear to be in any danger. Indeed, during the first 3 years of Air Force operations, the Viet Cong ignored the bases. In the early 1960's, USAF officials also operated on the premise that any threat to men and planes would be of a clandestine nature. Thus, they gave their attention to traditional internal base security, e.g., requiring all personnel entering the facility to have identification badges and limiting them to their own work areas.

Lack of a clear understanding of the base defense responsibilities of ARVN and U.S. forces in Vietnam eventually became a problem. The job was tacitly acknowledged to be the Vietnamese Army's responsibility. ARVN troops were expected to provide area and local defense, while the Vietnamese Air Force handled internal airfield security. These arrangements were satisfactory up to the summer of 1964, when the first U.S. retaliatory air strikes were launched against North Vietnam following the Gulf of Tonkin incident. The latter apparently triggered the first enemy attack on Vietnamese bases where large American units were located.

Thus at 0025 hours on 1 November 1964, the Viet Cong launched a standoff mortar attack against Bien Hoa, a major USAF operating location northeast of Saigon. Using six 81-mm mortars emplaced less than 440 yards outside the northern perimeter of the base, Communist gunners fired between 60 and 80 rounds into the base and swiftly departed, undetected and unmolested. The damage inflicted was out of all proportion to the effort expended. Four American personnel were killed and 72 wounded. Five B-57 jet bombers were totally destroyed, eight sustained major damage, and seven others minor damage. Four USAF H-43 helicopters and three VNAF A-1H fighter bombers also were damaged. Only departure of one B-57 squadron from Bien Hoa the week before prevented even more extensive losses. This attack proved to be but the first of many launched against USAF facilities during the next 8 years.

The Enemy Threat

For the most part, the enemy planned, organized, rehearsed, and executed air base attacks in a highly professional manner. Initially, the Viet Cong conducted the raids. However, after suffering heavy casualties during the 1968 Tet offensive, they were increasingly supplanted by NVA personnel, who were better trained, equipped, and motivated. Both forces, however, responded to a single control, employed the same tactics, and used the same type of weapons and equipment.

In planning an attack, the enemy's first task was to collect maximum in-

A1C David B. Shark and his sentry dog stand guard at Cam Ranh AB, South Vietnam, 1970.

telligence about a base. Special attention was given to allied defense forces, their organization, operation, equipment and morale, safeguards, fortifications, the attitude of the local population, and routes to and from the facility. Much of this intelligence was obtained from local sympathizers or agents living near or employed on the base. One of the more sensational examples of this type of espionage occurred at Tan Son Nhut where the enemy successfully recruited a lieutenant of the South Vietnamese Regional Forces, who worked in the Joint Operations Center at Tan Son Nhut and had access to the entire allied order of battle.

Specially trained military reconnaissance teams also were used to obtain additional information about a target. Under exceptional circumstances, personnel from such units were infiltrated into the base to gather vital information not otherwise obtainable. Several such incursions were thwarted at Bien Hoa and Phu Cat when security police detected and captured the infiltrators. Occasionally, the enemy would try to intercept radio and telephone communications seeking base defense intelligence. To locate and identify the type of allied weapons available and reaction time of artillery, the Communists would engage base defenders with sniper or harassing fires or small unit probes to provoke a response. Intelligence gathered in this fashion, combined with information on enemy manpower and materiel resources, became the basis for the plan of operation and organization of the attack force. Normally the proposed attack was extensively rehearsed beforehand. To preserve secrecy, participating troops were rarely told the identity of the target until the final approach march was under way.

The Communists conducted four types of operations against allied air bases: standoff attacks, sapper raids, mass attacks, and sabotage. The standoff attack, lasting from 1 to 20 minutes, was the most common, cost effective, and simple of the four operations, and allowed the attack force to evade defensive fire from the base. Through 1966 enemy standoff weapons consisted of 60-mm, 82-mm and 120-mm mortars plus 57-mm, 75-mm and 82-mm recoilless rifles. In February 1967 an attack on Da Nang AB marked introduction of 107-mm, 122-mm, and 140-mm rockets as the principal Communist standoff weapons, which gave the enemy additional flexibility and greater firepower.

Sapper raids against allied bases were initiated on 1 July 1965, also at Da Nang. The intent of these operations was to use small numbers of men to produce extensive materiel damage rather than casualties. Stealth, not firepower or numbers, was relied upon to penetrate perimeter defenses, reach the objectives, and place the explosive charges that were the basic sapper weapon. If all went well, the operation lasted no longer than 30 minutes. The mission was to hit and run, not to engage the enemy. The enemy sapper was not a guerrilla but a carefully selected, well trained, and highly disciplined combat engineer. The sapper standard of performance was illustrated by a February 1969 incident at Phu Cat. A wounded sapper captured by security police related that during the rehearsal for the attack, his company commander warned that anyone who jeopardized the success of the mission would be shot. Accordingly, when the prisoner detonated a trip flare, the commander shot him.

Mass attacks by multi-battalion forces with the goal of seizing and holding allied air bases were mounted on only one occasion against Tan Son Nhut and Bien Hoa as part of the Communist 1968 Tet offensive. It was one of the enemy's rare failures to achieve tactical surprise (see discussion below, pp. 265-269).

Sabotage, the technique most commonly associated with insurgent

activity and originally considered the principal threat by American officials, was seldom employed against air bases. Indeed, the only truly noteworthy case of sabotage occurred on 8 February 1967 when the napalm bomb stockpile at Bien Hoa was exploded by devices of Soviet manufacture. How they were brought into the munitions storage area was never established. The previous day, however, when the devices were most likely emplaced, only 9 of 27 Vietnamese workers reported for duty, a circumstance which suggests that most had prior knowledge of the plan to destroy the stockpile. However, enemy activity of this nature was a minimal threat to base security. For example, during 1968—a year of intensive Communist operations—not a single incidence of actual or attempted sabotage was reported by a USAF installation.

Allied Defenses

Almost all USAF resources in South Vietnam were located on 10 major air bases. Six of them—Da Nang, Pleiku, Nha Trang, Bien Hoa, Tan Son Nhut, and Binh Thuy—were joint-use installations with the Air Force a tenant of the Vietnamese Air Force. The other four—Phu Cat, Tuy Hoa, Cam Ranh Bay, and Phan Rang—were constructed between 1965 and 1967 for use by the U.S. Air Force alone. The older bases were situated in urban areas where dense population provided ideal cover for enemy operations and prohibited or severely restricted defensive fire. These same bases usually were saturated with personnel and aircraft and thus presented attractive targets.

New bases, though less congested, were sited without much regard for defense considerations. Phu Cat, for example, overlapped three districts, thereby necessitating triple coordination of security operations with local officials. A universal and unending problem was the control of the dense vegetation which concealed enemy movements and obscured fields of fire. Physical safeguards were either lacking or inadequate. A POL pipeline laid from the coast to Phu Cat couldn't be used because of sabotage and theft. Only at Da Nang, where the U.S. Marines installed perimeter barriers and lighting systems, was a satisfactory defense posture established. One feature of the Da Nang defense complex was unique. To detect and intercept enemy sapper and standoff forces, the Marines joined with ARVN troops to construct and man a 28-mile anti-infiltration barrier which enclosed the air base on the landward side.

The Air Force interpreted its base defense responsibilities in accordance with guidelines laid down by the Joint Chiefs of Staff. These provided that local air base defense was the responsibility of the local Air Force commander. On this basis, the Air Force took the position that its responsibility ended at the base boundary and that outside that line, the area ground commander was responsible for defense operations. But in the absence of a combined command structure, genuine coordination of area and local defense always was problematical. Again the notable exception was at Da Nang, where the dual responsibility of the Marine commander for both area and local defense resulted in the only truly unified base defense operation within South Vietnam. Thus, when the JCS rejected a proposal that U.S. ground forces be assigned to defend USAF bases in Vietnam, the Air Force in late 1965 began creating an organic base defense force, which ultimately grew to a strength of 5,000 personnel.

As this defense force accumulated combat experience and knowledge of enemy tactics, USAF officials came up with a three-zone base defense concept tailored to counter the Communist threat. Under this concept, static and mobile elements were deployed in

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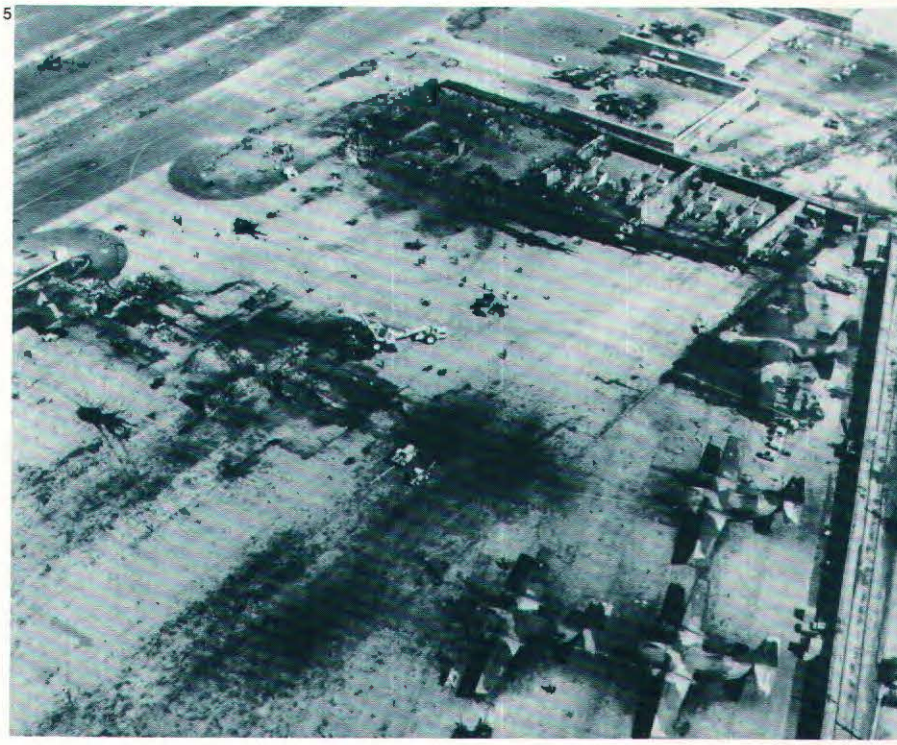

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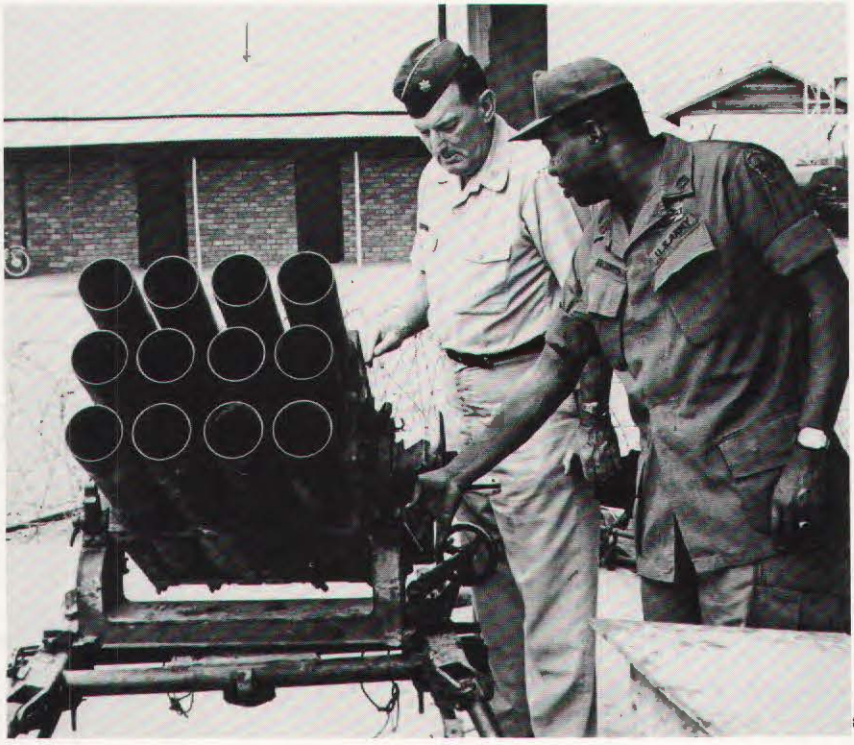

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(1) Sgt David T. Hanson sets a trip flare along the perimeter of Hill 151 overlooking Phu Cat AB, South Vietnam, 1970. (2) A2C Bruce L. Hoffman examines the body of a Viet Cong infiltrator he had killed during an attempted attack at Tan Son Nhut AB, 1966. (3) Capt. D. Wise, chief of an explosive ordnance disposal team, disarms a Viet Cong Claymore land mine found during a perimeter sweep of the Tan Son Nhut AB. (4) U.S. and Vietnamese security troops stand on alert at Tan Son Nhut behind a sandbag bunker on the base perimeter. The Americans are (l. to r.): A1C Major Wingfield and A1C Douglas M. Terry, both members of the 6250th Air Police Squadron, 1966. (5) In July 1967 the Viet Cong attacked Da Nang AB with rockets. This aerial view of the parking ramp shows damage done to aircraft located there. (6) Members of the 377th Security Police Squadron at Tan Son Nhut take up positions to repulse Viet Cong infiltration of the base. (7) Despite direct hits by enemy rockets launched during the enemy 1968 Tet offensive, this Bien Hoa AB bunker—completely surrounded during a 7-hour attack—remained in allied hands. (8) Air Force Lt. Col. Eugene J. Kelly (l.) and Army Sgt Lorenzo Beckwith inspect a captured Soviet rocket launcher, part of a Communist cache found near Bien Hoa AB. (9) An enemy mortar attack on Tan Son Nhut in April 1966 demolished this Vietnamese Air Force C-47. (10) This USAF sentry dog, Nemo, returned to the United States from Vietnam in July 1967 to a hero's welcome. The previous December, while on patrol at Tan Son Nhut, he detected four Viet Cong infiltrators, who opened fire and hit both the dog and his handler, A1C Robert A. Throneburg. Throneburg commanded Nemo to charge. The powerful German shepherd, despite a head wound, killed two of the intruders. (11) An enemy mortar and rocket attack in February 1968 destroyed a C-47 transport at Tan Son Nhut.

a sectorized defense in depth, which was designed to contain and destroy any enemy forces that penetrated the base. The outermost zone consisted of a complex of barriers, mines, lights, flares, and observation points. The intermediate zone contained bunkers manned by armed USAF security police and was patrolled by mobile security alert teams and sentry dogs. A final protective line—including barriers, lights, bunkers, and foot and mobile patrols—was maintained at the boundaries of areas containing essential combat resources, e.g., aircraft, munitions, fuel. Heavily armed and mobile quick reaction teams were kept on standby alert to reinforce any part of the system.

The key to USAF base defenses was the individual security policeman, uniformly young, inexperienced and untrained in the weapons and skills of ground combat, but also alert, enthusiastic, and completely reliable. The valor with which he responded to the enemy challenge and the stoicism with which he endured the mind-numbing daily routine of his unglamorous calling quite properly evoked commendations from the highest quarters. His efforts more than any others accounted for success of the USAF base defense mission.

The organization of the 10 security police squadrons deployed to South Vietnam differed little from that of their counterparts at home. It consisted of three flights, each permanently assigned to one of the three 8-hour shifts. By January 1966 it was customary to employ 50 percent or more of the security force on the 2000-0400 hour shift, the high threat period. To offset the loss of continuity resulting from the 1-year tour and to promote detection of indicators that might precede an enemy attack, most security policemen were retained in stabilized duty assignments in a single sector. The closest approximation to a tactical element to emerge from this nontactical organization was the 13-man quick reaction team, an ad hoc reserve formation analogous to an infantry squad. Available as auxiliary U.S. defense forces were select personnel drawn from other combat support group units and from tenant U.S. Army organizations. At Da Nang this arrangement was essentially reversed: USAF security policemen augmented U.S. Marine base defense forces.

Beginning in 1966 these ground elements were increasingly supplemented by aerial components of all U.S. forces and VNAF which flew reconnaissance, illumination, and fire support missions in a base defense role. Among the most successful applications of air power to base defense was the Rocket Watch which between 1968-1970 was largely responsible for deterring, detecting, or suppressing standoff attacks in the Saigon-Tan Son Nhut-Bien Hoa area.

Even as the Air Force began building up its air base security police squadrons, the enemy continued their successful standoff attacks. Thus, on 13 April 1966 Tan Son Nhut was hit by one of the most intensive and destructive assaults of the war. Late the preceding day, a Communist attack force numbering about 90 men moved undetected to preselected firing positions located about half a mile outside the base perimeter. There they placed at least three 75-mm recoilless rifles and ten 81/82-mm mortars at three sites. Then, within a span of 13 minutes beginning at 0027 hours they fired no less than 245 rounds into the base. Its mission accomplished, the force withdrew without sustaining a single casualty.

Seven Americans and two South Vietnamese died that night and 184 U.S. personnel were wounded. One USAF C-123 and 2 VNAF C-47 aircraft were destroyed; 29 USAF aircraft of various types were damaged; a fuel storage tank containing 420,000 gallons of gasoline was set ablaze and destroyed; and 34 USAF vehicles were destroyed or damaged.

There was no reliable tactical warning. Vietnamese and U.S. forces alike showed their incapacity to cope with enemy standoff attacks even on the doorstep of the capital. Fragmented ARVN external defense elements never made contact with the enemy. U.S. reaction forces failed to place ordnance on the enemy mortar positions, hence the battery of ARVN 105-mm howitzers it supported never went into action. Also, the need to obtain prior South Vietnamese clearance for ground and air units to engage enemy forces actively assaulting allied installations contributed to the failure to engage the attackers.

Remedial actions subsequently focused on Tan Son Nhut. Prodded by USMACV, the Vietnamese Joint General Staff reorganized its external defense forces to centralize control in the VNAF wing commander, who was designated the commander of Tan Son Nhut "sensitive area." In this latter capacity, he also was vested with authority to approve fire missions. The sensitive area concept became a standard pattern for air base defense. But only at Tan Son Nhut was the commander authorized to clear fires on his own authority. Elsewhere, detailed coordination with frequently unresponsive district and province chiefs remained the rule.

After the 13 April attack, a USAF AC-47 gunship began flying nightly airborne alerts in the Bien Hoa-Tan Son Nhut area. Also, U.S. Army gunships on ground alert were assigned revetted parking space away from the heliport. All American and Vietnamese defense forces were directed to integrate their activities by the publication of a single combined plan. However, the guiding principle was not allied unity of command but coordination and cooperation.

These actions did not prevent Tan Son Nhut from being hit again during the early morning hours of 4 December 1966 by the largest sapper raid to date and the first since the 1 July 1965 sapper attack on Da Nang described above. The first indication the base was under attack came at 0110 hours when a USAF sentry dog handler reported unidentified personnel on his post in the interior of the base. Subsequent investigation and prisoner interrogation disclosed that the sapper raiding party consisted of 2 support platoons totalling 58 men and 1 assault platoon with a strength of 34. All belonged to parent main force battalions operating from a Communist stronghold about 11 miles southwest of Tan Son Nhut. Two days earlier members of this force had been told of the attack and briefed on the target with the aid of "sandtable studies." Their objective was the destruction of Allied aircraft "to prove the Viet Cong were winning and to heighten the morale of VC soldiers and cadres."

Departing their base in the early evening of 2 December 1966, the platoons arrived at a friendly village some 6 miles west of the base early the next morning. There they remained unreported for 15 hours, then departed for Tan Son Nhut which they reached at midnight. The assault platoon cut through three barbed wire fences undetected by a nearby Vietnamese guard post and entered the base followed by an unknown number of men from the support platoons. While advancing southward toward the aircraft parking ramp on the far side of the main runway, they were fired on by the USAF security police who had responded to the alarm of the sentry dog handler. At this point the assault platoon split into two groups which continued toward the ramp by different routes. Thirteen sappers were killed when they came within range of a security police machinegun position at the close-in boundary of the parking area.

The other group of sappers was not detected until it had reached the ramp. Supported by mortar fire they inflicted minor damage before they were driven off by security police,

close-in sentries, and patrols. Leaving behind one dead, the sappers withdrew along their entry route. Thirty minutes had elapsed since they were first detected. By 0210 reaction forces of security police and tenant U.S. Army troops had been deployed in accordance with contingency plans. A security blocking force was across the enemy withdrawal route near the opening cut in the perimeter fence. To reopen the escape route for their comrades, elements of the support platoons engaged the security police with automatic weapons, rocket propelled grenades, and hand grenades. With support from Army gunships, the security police maintained their position and returned intensive fire. Failing in their effort, the enemy support elements withdrew, abandoning the remnants of the sappers trapped inside the base.

The U.S. Army countermortar radar located the off-base mortar sites and directed counterfire by ARVN artillery and USA gunships. Illumination was furnished by USAF AC-47 gunships which expended 490 flares between 0120 and 0650 hours. At no time did South Vietnamese internal security forces engage the enemy. At daybreak four more enemy troops were sighted and taken prisoner; no other survivors were found. Thereafter, the base returned to normal operation until 2021 hours 4 December 1966 when security police killed nine more enemy sappers who had concealed themselves in the dense vegetation.

In this action 3 USAF security police were killed and 15 wounded. ARVN forces lost three killed and four wounded. Twenty U.S. aircraft sustained minor damage estimated to total $64,230. Five security police vehicles were destroyed. Communist casualties were 28 killed. Four prisoners and a sizable quantity of enemy weapons and munitions were taken. In the words of the USMACV Combat Operations Log, the 4-5 December 1966 engagement was one in which "the brunt of a highly successful ground operation [was] borne by the U.S. Air Force with close air support furnished by the U.S. Army."

In the early spring of 1967 the Communists began using a new weapon which substantially increased the problems of air base defense. It was unveiled at 0310 hours 27 February when Da Nang was subjected to another standoff strike. In this attack fifty-six 140-mm rockets hit the base proper while eight others fell in an adjacent village. The operation, lasting less than 60 seconds, killed 11 U.S. personnel and wounded 125. Thirteen aircraft and various facilities were damaged. In the Da Nang village 35 people were killed and 50 wounded.

This was the first Communist use of rockets in South Vietnam. A detailed account of the organization and execution of the attack was obtained from captured prisoners. The firing positions, located nearly 9,000 yards southwest of the base, were selected by a skilled and well-trained team on the afternoon of 26 February. Concurrently, the rockets were brought in by porters and rivercraft to the launch site, arriving at 2300 hours. Some 4 hours later, upon completion of final site preparation and weapon assembly, the rockets were fired. The rounds were fuzed at the super-quick setting which provided maximum shrapnel effect and the greatest damage to aircraft. Although more than 500 enemy troops were involved in this attack, the operation was not compromised.

This use of rockets, which during 1967 came to include 107-mm and 122-mm varieties, gave the Communists more firepower and flexibility since these weapons had a greater range and could be fired remotely and simultaneously in large numbers from crude improvised launchers. In response to this threat, the Air Force increased its AC-47 gunship fleet by 50 percent—from 22 to 33 aircraft—and expanded and accelerated con-

struction of aircraft revetments and personnel shelters.

The 1968 Tet Offensive

The most sensational of all enemy operations mounted against U.S. bases during the war were the multi-battalion attacks on Tan Son Nhut and Bien Hoa during the 1968 Tet offensive. By launching this major offensive during the festivities celebrating the Vietnamese lunar new year, the enemy clearly hoped to achieve maximum tactical surprise. In this he was disappointed. A variety of sources—captured documents, prisoners, and defectors—all indicated the Communist intention to attack population centers and military installations. Accordingly, the Americans and Vietnamese concentrated maneuver battalions around Saigon in expectation of a Tet attack. In a message released the morning of 30 January 1968, USMACV cancelled the Tet truce, ordered resumption of full-scale military operations, and directed all installations and air bases to assume a maximum security posture. However, the allies did not anticipate the true magnitude of the impending offensive. At Bien Hoa the enemy committed two infantry battalions and one reinforced infantry company; at Tan Son Nhut, one sapper and four infantry battalions. In each case, North Vietnamese troops were a sizable percentage of the attacking force.

The enemy infiltration into the area surrounding Saigon and the two air bases was facilitated by the increased number of holiday travelers and by the jungle terrain. Except for the few radial roads emanating from Saigon, the city is bounded on the north, west, and east by a combination of paddies, jungles and swamps interlaced by waterways. These waterways provided excellent avenues for clandestine approach to the capital and its environs. In crossing this terrain, Communist units that engaged Bien Hoa, Tan Son Nhut, and other targets in the Saigon area made normal tactical marches over established routes, through established base camps and known base areas. These troops were held in assembly areas 9 to 12 hours marching distance from their targets for the coordinated assault. Apart from avoiding detection on approach, enemy units attacked their targets overtly, preceded or accompanied by supporting fires and supplementary attacks.

Thus, at approximately 0300 hours 31 January 1968 Bien Hoa was hit by 35 rounds of 122-mm rocket and 10 rounds of 82-mm mortar fire. Almost simultaneously a sentry dog handler near the southeast perimeter reported the base was being penetrated. Approaching from the southeast an enemy force estimated at eight companies breached the perimeter at four points but was thwarted in a fifth attempt by fire from U.S. Army gunships. A concrete pillbox located directly in the path of the main penetration force became a center of resistance. Unable to capture this bunker, which remained in security police hands throughout, the attackers were caught in a crossfire when they bypassed it in an effort to reach the flight line without delay. By 0400 hours the enemy penetration was halted just east of the flight line complex by security police and augmentee blocking forces vigorously supported by Army gunships. Consequently, the enemy force never reached the aircraft parking area, its prime objective.

At dawn on 31 January 1968 there were only three centers of enemy resistance: a revetted engine test stand, the dearming pad, both east of the flight line complex, and an estimated reinforced squad located near a penetration point on the eastern perimeter. A counterattack by security police and other security personnel cleared the test stand and, supported by 57-mm recoilless rifle fire, subsequently regained control of the dearming pad.

(1) An Air Force sentry and his German shepherd watch an Air Force F-4C Phantom jet land at Cam Ranh Bay. (2) An Air Force security alert team checks a sentry dog post for possible enemy activity. Shown (l. to r.): Airmen First Class Freeman Tilden, Francis A. Jasinski, Joseph A. LeBlanc. On far right is A1C Leon E. Senecal, with his sentry dog, Rex. (3) An enemy attack on Qui Nhon AB destroyed a number of U.S. aircraft including this A-1E Skyraider. (4) Remains of the hulk of what was an Air Force C-130A aircraft destroyed by enemy rockets at Da Nang, 1967. (5) An Air Force sentry, silhouetted in the light from a search beacon, mans a perimeter post on the outskirts of Da Nang AB. (6) An Air Force security policeman and his sentry dog silhouetted against the setting sun at Phan Rang AB.

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Supported by Army gunships, a final sweep of the field to the eastern perimeter terminated all enemy resistance on base at 1640 hours. Damage from enemy standoff weapons included 2 USAF aircraft destroyed and 20 damaged. Air Force casualties totalled 4 killed, 26 wounded. Enemy losses inside the air base were 139 killed and 25 taken prisoner. In the Bien Hoa area enemy losses were 1,164 killed and 98 captured.

That same day, one of the most significant air base battles of the war was fought at Tan Son Nhut. The strength of the enemy force, his tactics, and post-battle investigations indicated the Communists intended to overrun and occupy the base. The capture of Tan Son Nhut along with Headquarters MACV, Seventh Air Force, VNAF, and the adjoining South Vietnamese Joint General Staff compound could well have been the key to Communist seizure of Saigon.

The attack on Tan Son Nhut, coordinated with other strikes into Saigon and its environs, commenced at 0320 hours 31 January 1968 when enemy forces initiated probes at various points around the entire perimeter. The main assault was concentrated against the southwest perimeter midway between Gate No. 051 and a concrete pillbox, Bunker 051, the latter manned by USAF security police. Following a barrage of grenades and mortar rounds, sappers who had approached the perimeter along National Highway No. 1 in a Mabretta taxi, detonated a Bangalore torpedo to breach the fence line. This opening became the entry port for Communist troops into Tan Son Nhut. A last transmission was received from Bunker 051 at 0344 hours. Shortly thereafter, all defenders having been killed, the position was overrun and converted to an enemy strongpoint.

At approximately 0600 hours the attack reached its high water mark, enemy forces having penetrated eastward 650 yards into the base where they established a north-south line about 330 yards in length. At that point the attackers were halted and contained by a blocking force of USAF security police and personnel from tenant Army units supported by fire from helicopter gunships. After some delay due to unsatisfactory radio communications, friendly artillery and mortars were cleared to engage the enemy on the western perimeter. When three VNAF-controlled light tanks were committed in an effort to dislodge the enemy from Bunker 051, two were immediately destroyed by rocket-propelled grenades and the third forced to retire. In time the U.S. blocking force was augmented by two ARVN airborne companies.

Between 0630 and 0800 hours two troops of U.S. cavalry and one battery of U.S. 105-mm artillery arrived on the scene after fighting their way along Highway No. 1 from their base camp at Cu Chi, 18 miles northwest of Tan Son Nhut. All friendly forces launched a coordinated counterattack forcing the enemy to fall back from the base. Much of the fire cover for this withdrawal came from Bunker 051 which remained in enemy hands until it was successfully assaulted and taken by USAF security police elements at 1210 hours. At 1217 hours the breach in the western perimeter was closed and secured. Fighting on the east and southeast perimeter continued until 1300 hours when those areas also were declared secure, bringing the engagement to a successful conclusion. The performance of ARVN air base defense forces showed little improvement. A Combat After Action Report noted that a number of the South Vietnamese personnel assigned to static perimeter defense positions in the vicinity of the enemy penetration deserted their posts.

Friendly casualties included 4 USAF security police, 19 U.S. Army, and 32 South Vietnamese troops killed. Eleven Air Force security police, 75 U.S. Army troops, and 79 Vietnamese

An Air Force sentry and his dog.

were wounded. Thirteen U.S. aircraft received minor damage from standoff weapons. Enemy forces lost 962 personnel killed and 9 taken prisoner.

The successful defense of Bien Hoa and Tan Son Nhut was attributed chiefly to the advanced tactical warning which triggered the mobilization and deployment of U.S. air base defense forces. Even so, the allied failure to estimate accurately the true scale of the Communist effort meant that these anticipatory countermeasures did not provide any margin for safety. To avert a repetition of this predicament, security police units were directed by PACAF to monitor all information on enemy activities within an 18-mile radius of each air base. This procedure reduced but did not eliminate the problem of timely and well defined tactical warning.

The USAF concept of close-in internal security was sufficiently discredited to be replaced in South Vietnam by a PACAF concept of local base defense applicable to the type of threat encountered in an insurgent environment. Since air base defense training conducted in the United States and South Vietnam appeared to be inadequate, Seventh Air Force undertook to provide its own instruction at a Heavy Weapons and Small Unit Tactics School. In the materiel area, armored cars, armored personnel carriers, heavier weapons (81-mm mortars, 90-mm recoilless rifles, .50-cal. machineguns), and a four-channel, non-tactical radio net were added to the security police equipment inventory.

The 1968 Tet offensive also pointed to the need for a mobile, in-country base defense contingency force that could be deployed quickly to any facility where the threat was particularly grave or where security force effectiveness was critically reduced by prolonged duty in advanced alert status. At the urgent request of Seventh Air Force, Headquarters USAF accelerated activation of security forces to provide the desired defenses. Three combat security police squadrons were formed and rotated this duty in South Vietnam between April 1968 and March 1971 when, due to force withdrawals and related defense budget reduction, the program was scrapped. During the 2 years that followed, the bulk of USAF units departed the area. As for Air Force base defense forces, they had reached peak strength and effectiveness in 1969. Repeatedly proven in combat, the 10 security police squadrons that were the core of the defense effort had earned a memorable and distinguished place in USAF annals.


MILITARY AIRLIFT COMM

Chapter XVII

Medical Support

The first Air Force medical officer sent to South Vietnam arrived on 4 December 1961, several weeks after the first Farm Gate aircraft reached that country. He was Maj. George Haworth, brought in from the Air Force Academy and initially detailed to the American Dispensary in Saigon. This facility was operated by the U.S. Military Assistance Advisory Group and manned by doctors from the U.S. Army, Navy, Air Force, and State Department. Early in 1962 Major Haworth was reassigned to the MAAG's Air Force Section and later to 2d ADVON and its successor, 2d Air Division.

In May 1962 Haworth became commander of the first USAF medical facility in South Vietnam. Located at Tan Son Nhut, it consisted of a tactical hospital of 14 tents and 36 beds flown in from Thailand. An interim facility, it was subsequently replaced by a 10-bed Class A dispensary and, in October 1962, designated the 6220th USAF Dispensary. Its staff consisted of five doctors, one dentist, and one veterinarian under the command of Haworth. A sixth USAF doctor was assigned to the Saigon dispensary. The Air Force also had deployed to Bien Hoa and Da Nang medical teams consisting of one USAF officer and three enlisted men to provide medical support to Air Force personnel there.

Soon after the first USAF C-123's arrived at Tan Son Nhut, the Air Force opened an aeromedical evacuation control center on the base manned by two technicians from the Japan-based 9th Aeromedical Evacuation Squadron. One C-123 was kept on 24-hour alert to respond to emergency requests for evacuation, while others stowed two unrigged litters aboard for emergency use. Beginning in November 1962, the center scheduled weekly C-123 aeromedical evacuation missions between the U.S. Army's 8th Field Hospital at Nha Trang and Tan Son Nhut. Other C-123's flying resupply missions to South Vietnamese outposts frequently evacuated the sick and wounded to Saigon. In March 1962 C-130's began evacuating patients from South Vietnam to Clark AB in the Philippines, and in May they began weekly flights between Clark and Tan Son Nhut. Subsequently, the Air Force also established a C-130 route into Thailand, using an aeromedical evacuation control center at Don Muang. During the next 2 years, as U.S. units became more deeply involved in combat, the number of American casualties and evacuation flights from the theater rose.

Following the August 1964 Gulf of Tonkin incident, PACAF's 1st Medical Service Wing at Clark AB ordered several squadron medical elements from Japan and Okinawa to Southeast Asia. Element 1, Detachment 1—consisting of a captain, sergeant, and two airmen—departed Yokota AB, Japan, on 7 August for Bien Hoa to support B-57 squadrons which had arrived there the previous day. Medical Element 1 remained at Bien Hoa 15 months and won commendation for its conduct and care of casualties suffered during the devastating 1 November 1964 Viet Cong standoff mortar attack on the base. It was replaced in November 1965 by another element of Detachment 4, 1st Medical Service Wing, based at Kadena AB, Okinawa.

On 7 August 1964 Squadron Element 2 also departed Yokota for Korat, Thailand, to support an F-105 squadron deployed there. The same day, the 1st Medical Service Wing dispatched a third element from Naha AB, Okinawa, to Bien Hoa. Because of

Wounded serviceman is carried down a ramp at an Air Force base where he will be hospitalized until he recovers from his wounds.

the lack of office space, this element was forced to operate out of a South Vietnamese dispensary. During its brief tour ending on 27 October 1964, the unit treated 226 patients. It also instituted a program of malaria prophylaxis whereby all USAF personnel were required to take 0.5 grams of chloroquine each week. Medical personnel dispensed the tablets in dining halls and crew briefing rooms.

In 1965 malaria was the major medical problem facing American forces in Vietnam, its incidence rising to the point where it was a significant military problem as well. Prior to 1965, malaria attack rates among Americans were negligible. But as large numbers of newly-arrived U.S. Army and Marine troops began moving into the countryside for combat, the rates rose to 8 and 16 per 1000 a year—with a sharp increase to 73 per 1000 in September, 98 in October, and a further increase to more than 100 in November.

On the other hand, the Air Force did not have a serious malaria problem. In 1963 there were no cases among Air Force personnel in Vietnam; in 1965 there were less than 15. The likeliest explanations, aside from the fact that there were fewer USAF personnel in South Vietnam compared to Army and Marine troops, were that the former were on duty at fixed bases in relatively secure areas where mosquito and other malaria control measures were easier to implement than in the field and jungle areas. Also, most airfields were located in the flat lowlands or coastal areas of South Vietnam where there was much less malaria than in the foothills and plateau areas where ground troops operated.

But Air Force personnel did begin to suffer from an upsurge of chronic sinusitis and other common respiratory diseases, attributable in part to the extremely wet and extremely dry seasons. During the monsoon season, humidity was very high; personnel could be drenched several times daily from the frequent showers and/or through excessive perspiration. In the dry season, heavy wind-blown dust resulted in irritation of mucous membranes. The nature of military operations also required personnel to be in almost constant motion—by air and, increasingly, by surface travel. Thus, changes from wet to dry seasons could be experienced in a single day by personnel travelling from north to south or vice versa. In air travel, there was the added factor of rapid cooling as the perspiring individual took off from a super-heated runway and rose to altitude. Dysentery and parasitic infections also were fairly common in the early years of USAF operations.

In the post-1965 period of rapid growth of U.S. forces in Southeast Asia, the Air Force opened up two Class "A" dispensaries and three Class "B" dispensaries, bringing the latter total to eight. Where more substantial inpatient care was required, Air Force physicians transferred their patients to U.S. Army hospitals at Saigon, Nha Trang, and Korat; the U.S. Navy station hospital in Saigon; the naval hospital supporting U.S. Marine Corps operations near Da Nang; the USAF hospital at Clark; and to others as needed. Specialist consultation in internal medicine was available at the 33d USAF Dispensary at Tan Son Nhut. The U.S. Navy hospital in Saigon provided surgical and neuro-psychiatric consultation. A U.S. Army neurosurgeon served at the Cong Hoa military hospital, Saigon. An additional neuropsychiatrist, an orthopedic surgeon, a pathologist, and a radiologist were available at the U.S. Army 8th Field Hospital, Nha Trang.

Recognizing the importance of preventive medicine, the 2d Air Division Surgeon's Office inspected base water supplies to insure adequate chlorination. Initially, insect and rodent control was inadequate because of shortages of equipment and supplies. During the 1965 force buildup nearly

all installations in Vietnam and Thailand found it difficult to obtain insecticides and rodenticides through supply channels. The surge in new personnel overtaxed troop quarters, while construction of additional facilities lagged behind requirements. At one point the 2d Air Division Veterinary Service warned that the inflow of troops was overtaxing existing dining halls. The quality of food served, although not comparable to that prevailing in the United States, was satisfactory. Because of lack of refrigeration, one of the Air Force's biggest food problems in 1965 was the delivery of perishable items to remote sites fast enough to keep them from spoiling.

In both Vietnam and Thailand the Dental Service provided routine examination, emergency treatment, including fillings and limited prosthetic maintenance and repair, and established an oral health program. At Tan Son Nhut, the Air Force dental facility initially consisted of two small dental operating rooms. One contained a wall-mounted X-ray, and the other a small bench for prosthetic work and repair. At Da Nang, where Air Force personnel numbered more than 2,000 by the end of June 1965, one dental officer and two technicians provided care in a dental van.

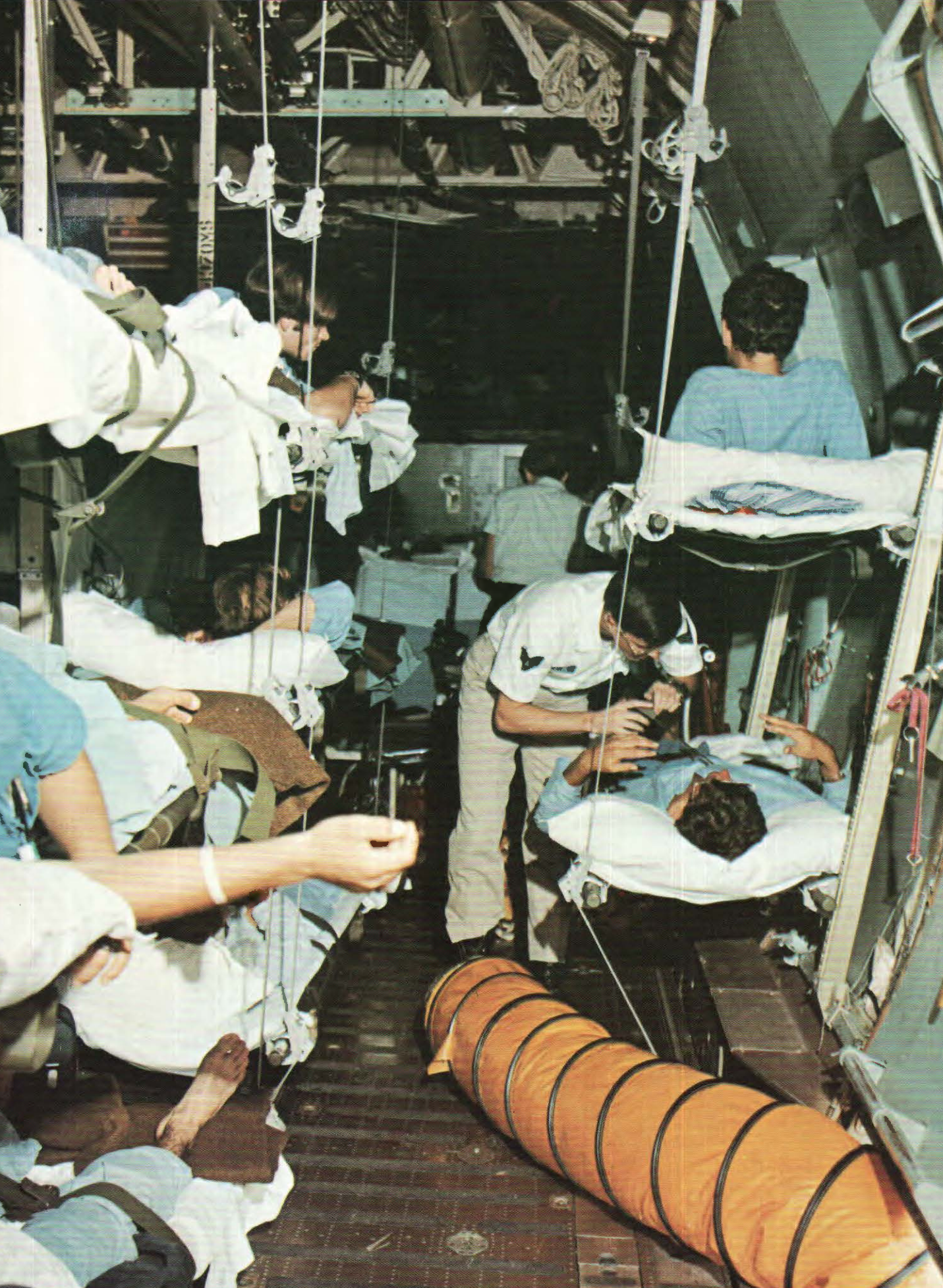
Facilities and Supplies

In 1965—as the combat casualties increased—USAF medical personnel realized they needed additional dispensaries, casualty staging units, and hospitals in the theater. Because there was a shortage of construction materials in South Vietnam and existing building methods were too slow, the Air Force in April 1966 decided to procure prefabricated, modular type buildings for use as medical facilities at Da Nang (100-bed casualty staging facility) and Takhli, Thailand (10-bed dispensary). The destination of the latter was subsequently changed to U-Tapao, Thailand. A contract for the manufacture of these two modular medical facilities was awarded to an Idaho firm. They were designed and engineered at the Mobile Air Materiel Area, Brookley AFB, Ala., based upon concepts provided by the Surgeon General, Headquarters USAF. Both facilities were completed in 59 days.

The first facility package arrived at the port of Da Nang in mid-August 1966, the U-Tapao package at Sattahip, Thailand, in early September. Both were in operation by late November 1966. This represented 8 and 10 months, respectively, from the start of the initial design effort. By mid-1969, the Air Force had assembled and put into use 19 prefabricated module medical facilities.

The standard prefab unit was 10 feet wide by 40 feet long, with several modules joined together side-to-side to form the medical facility. These buildings contained electrical systems, water supplies, waste plumbing, air conditioning, heat, finished interiors, vinyl tile floors, conductive floors where necessary, and adequate lighting. Casework, sinks, lavatories, toilets, tubs, and showers were installed. Full utility support, such as steam and electric generators, hot water heaters, fuel storage tanks, and electrical switching gear came with the package, plus a utility building to put them in. The completed facility included waiting rooms, nurses' stations, diet kitchens, dining areas in larger facilities, treatment rooms, laboratories, pharmacy, administration and supply area, operating rooms, X-ray rooms, wards, ancillary service areas, and corridors.

The modular-erected facility enabled the Medical Service to expand fast enough to handle the growing patient load. Starting with its eight Class "B" dispensaries for outpatient care only and two Class "A" dispensaries with 16 beds, the Air Force by June 1969 added one 200-bed hospital at Cam Ranh Bay and five more Class "A" dispensaries with 62 beds.



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(1) Medical evacuation. Interior of a C-141 transport. (2) SSgt Billy E. Nealey prepares an intravenous bottle for a U.S. serviceman aboard a C-141 carrying wounded personnel to the United States. (3) Army Sgt Charles Bickenheuser checks medical supplies in the operating room at the Duc Lap camp's underground dispensary. His supplies were delivered by an Air Force C-7 transport from the 433d Tactical Airlift Wing. (4) A wounded trooper is unloaded from a HH-43 Huskie after landing on the helo pad of the 12th USAF Hospital at Cam Ranh Bay. (5) Air Force medical personnel from Da Nang move a Marine casualty from the Khe Sanh aid station to a waiting C-130 for a flight to medical facilities at Da Nang. (6) 1st Lt. Frances P. Jones, 57th Aeromedical Evacuation Squadron, gives medicine to a wounded serviceman aboard a C-141 evacuating patients from Vietnam to Japan, 1968.

Offshore medical facilities at Clark and Tachikawa Air Base, Japan, also were expanded by 100 beds. During 1967-1968 the number of inpatient facilities in the war zone rose substantially. And by 30 June 1969 the Air Force was operating a medical complex in Southeast Asia which consisted of 3 hospitals, 12 Class "A" dispensaries, 2 Class "B" dispensaries, and 5 aeromedical staging facilities. At the time of the 1965 buildup, the medical supply account at Clark had the responsibility for medical materiel support for all USAF medical units in the Philippines, Taiwan, and Southeast Asia. As the war escalated and the medical establishment began expanding rapidly, the demands placed upon the Clark medical supply account exceeded the manning, inventory and facility capabilities available. Consequently, shortages of medical supplies somewhat hampered medical operations in the war zone.

Two nurses, one of them from the American Red Cross, attend wounded servicemen enroute to the United States.

Under the impact of the additional workload, warehousemen, key punch operators, and officers handling the Clark Air Base medical supply account soon found themselves working overtime to get supplies in and out as fast as possible. But there were significant delays in obtaining supplies from the continental United States. It was not unusual for a shipment of medical supplies destined for Clark to remain in the hold of a cargo ship lying for weeks at anchor off each of several Vietnamese ports before war materiel was partially unloaded so the vessel could proceed to Manila. This logistical problem increased pipeline time for medical materiel to get to Clark by an additional 60 days in October 1965 and as much as 75 days in November. Due to stringent limitations on air shipments, only the most essential items were airlifted to Clark. Anything less than an emergency shipment was usually sent by sea.

Distribution of medical supplies from Clark to South Vietnam and Thailand, on the other hand, was not a major problem. It was accomplished by a large fleet of USAF transports, whose routes and frequency of flights normally insured that supplies arrived at intended destinations within several days to 2 weeks. To speed sea deliveries of medical supplies to South Vietnam, a priority effort was made to install improved port-handling equipment to help reduce pipeline time. The initiation of port-to-port cargo hauls also helped. For example, a ship destined for Cam Ranh Bay was loaded in the United States with cargo solely destined for that port.

In 1966, the Air Force relieved the Clark medical supply account of responsibility for the entire area and set up separate medical supply accounts in South Vietnam, Thailand, and Taiwan for support of medical units in those countries. In July 1966, the medical supply account at Cam Ranh Bay took over the job of resupplying all USAF medical units in South Vietnam. In January 1967 two other accounts were established at U-Tapao airfield, Thailand, and Ching Chuan Kang AB,

Patients await loading aboard a C-130 Hercules transport at Qui Nhon.

Taiwan. The addition of these accounts essentially eliminated most of the medical support problems encountered in 1965.

The significance and tempo of the medical supply operation in Southeast Asia and vicinity is best illustrated by the chart on page 279.

The volume of medical supplies issued during 1968 by the account at Cam Ranh Bay alone exceeded the total issued by bases in most major commands. In addition to medical supplies, the accounts at Cam Ranh Bay and U-Tapao issued very large amounts of equipment in 1967 and 1968. They also were involved in handling of approximately $1.2 million of supplies and equipment shipped direct from the United States to Vietnam and Thailand.

Aeromedical Evacuation

During the war only 1 percent of all U.S. personnel wounded in Southeast Asia died after reaching a medical facility. This was a substantial improvement over the survival rate during the Korean War and World War II, and was primarily attributed to speedy aeromedical evacuation. In Korea, where fewer than 15 percent of the wounded were evacuated by helicopter, the death rate was 2.5 percent. During World War II, when no tactical aircraft were made available to fly casualties from the battlefield, the rate was 4.5 percent.

The key to saving lives was to get the patient to an adequate medical facility as quickly as possible. Once there, other medical innovations—such as the use of frozen whole blood, artificial kidney and blood volume machines, and an ultrasonic device that locates shell fragments deep within the body by sonar—helped lower the death rate. For example, almost immediately after the early morning Viet Cong attack on Pleiku airfield on 7 February 1965, local aircraft began evacuating the wounded to the Army's field hospital at Nha Trang. Some 4 hours later, Detachment 4, 9th Aeromedical Evacuation Squadron at Clark, received a request for service. At 0800 hours a C-130 departed the Philippines for Nha Trang, where it was met by a medical flight crew of one nurse and one aeromedical evacuation technician from Detachment 6, 9th Aeromedical Evacuation Squadron, Saigon. At 1300 hours this medical flight crew left Nha Trang for Clark with 21 patients, all casualties.

The next day another C-130 flew from Clark to Vietnam to evacuate another 31 litter patients from Saigon and Nha Trang. All but 4 of the 31 were victims of the enemy attack of the previous morning. The medical flight crew—one nurse and two aeromedical evacuation technicians—provided extensive inflight care to 12 who were in serious condition. The crew administered chest and abdominal suction and intravenous fluids. With the medical personnel checking each patient

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(1) 1st Lt. Billy G. Priddy, a male flight nurse with the 9th Aeromedical Evacuation Squadron, keeps a watchful eye on the condition of wounded Marines during a flight from a Vietnam battlefield to Da Nang, 1966. (2) A wounded trooper is queried aboard an Air Force evacuation aircraft at Da Nang. (3) The large container rolling into the open tail and ramp doors of a C-130 provides a complete operating room and X-ray facility. This unit, a doctor, and a staff of corpsmen were moved to Quang Tri airfield from its previous location at Lai Khe. (4) Air Force Sergeants Daniel Beste and Garry Bolyard handle medical stock at a Thai base.

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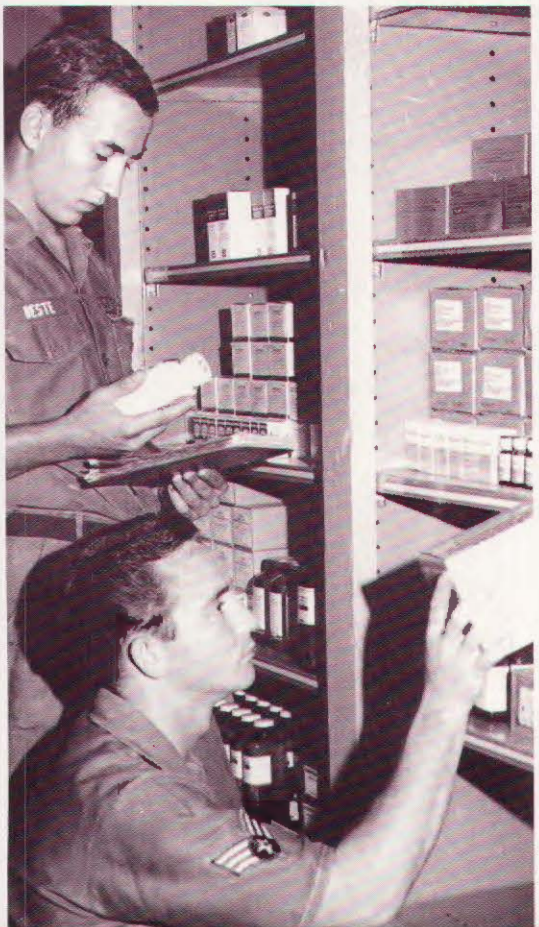
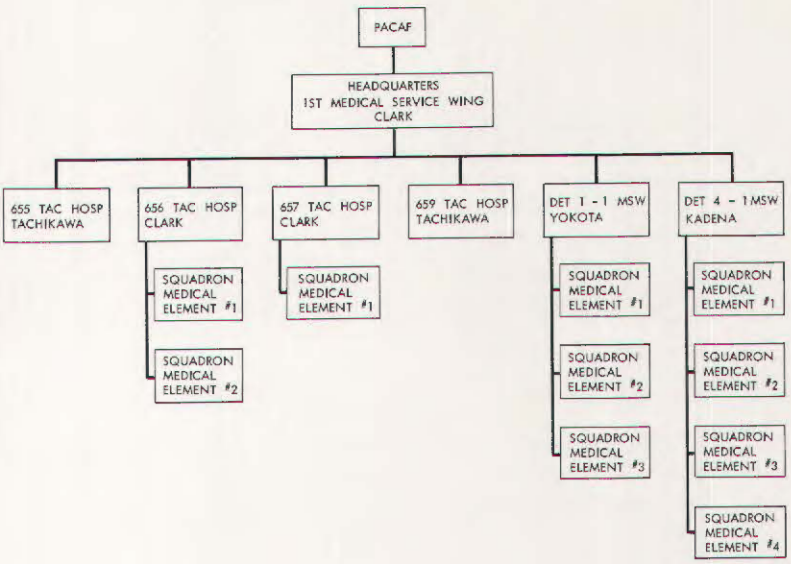


1ST MEDICAL SERVICE WING

CLARK AIR BASE, PHILIPPINES

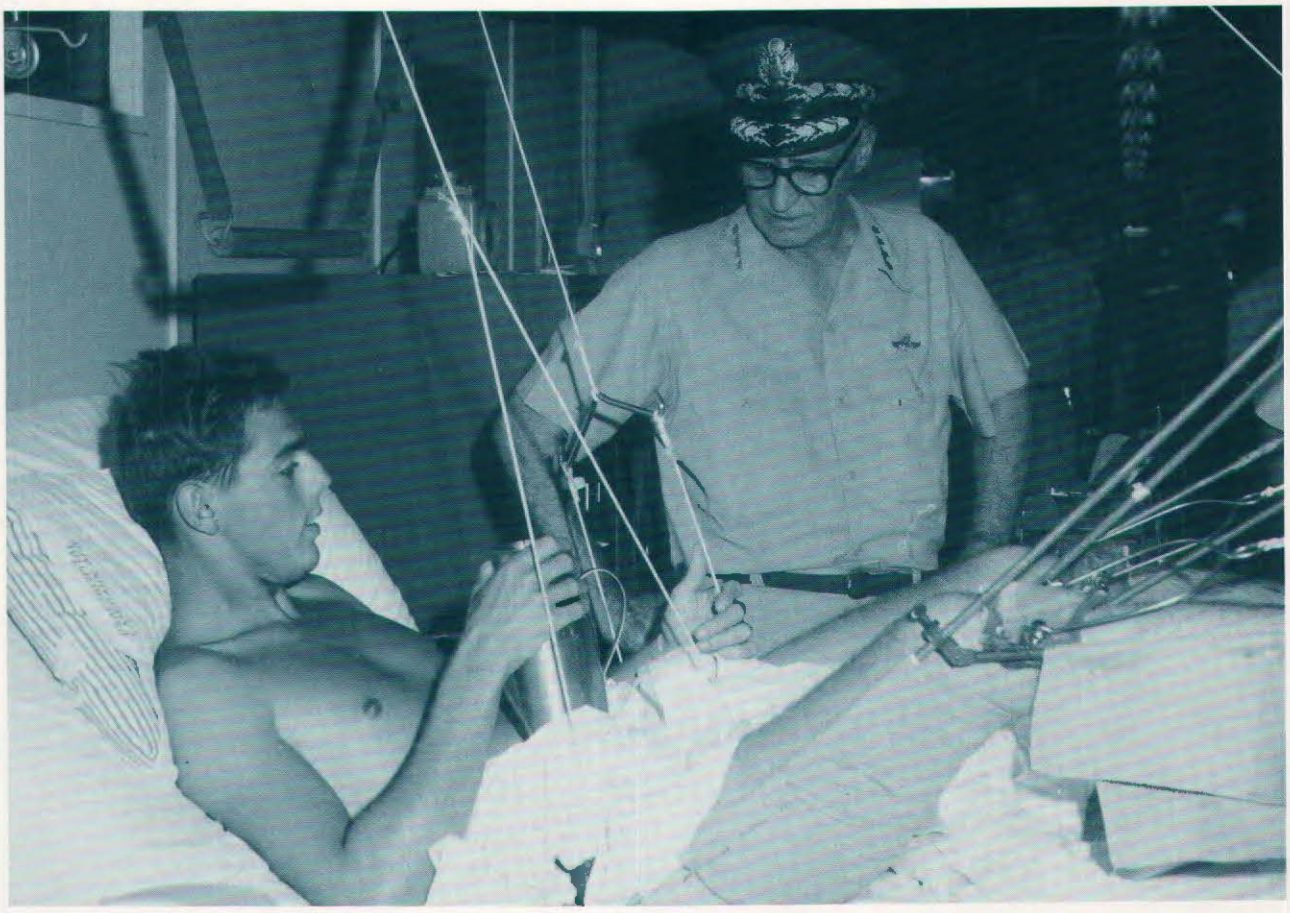


throughout the flight, all arrived at Clark without serious deterioration of their condition. By 14 February the squadron had completed the evacuation of all casualties of the Pleiku attack.

The demand for aeromedical evacuations rose steadily with the increase of combat casualties. To handle the increased patient load, the Air Force deployed TDY personnel to the theater to augment the 9th Aeromedical Evacuation Squadron and authorized an increase in Clark's bed capacity from 40 to 250 beds. Patient movements within Southeast Asia and from there to offshore hospitals rose from 3,719 in December 1965 to 21,474 in May 1968. Evacuation of patients from the theater to the United States by the Military Airlift Command increased from 1,085 in December 1965 to 5,401 in May 1968.

In South Vietnam nearly all battlefield casualties were evacuated to rear areas by U.S. Army UH-1 helicopter ambulances, each able to carry six litter patients. At the peak of combat operations in 1968, the Army operated 116 of the air ambulances. Air Force helicopters occasionally assisted in battlefield evacuations, the H-43 air rescue helicopter being particularly useful in bringing out casualties from deep jungle areas. Otherwise, thousands of casualties were moved in-country by a variety of USAF transports—including C-130's, C-123's, and C-7's. In January 1968, C-118's of the 6485th Operations Squadron were assigned to fly in-country aeromedical evacuation missions, freeing the C-130's to carry combat cargo missions during the Communist Tet offensive. Based at Cam Ranh Bay, the C-118's flew scheduled aeromedical evacua-

Members of an Air Force C-123 aircrew and a medic rush a wounded airman to a hospital in Saigon. He is SSgt Richard G. Benton, shot through the arm during a paradrop mission north of Saigon. Others shown (l. to r.): A1C Carl W. Larson, Capt. Donald J. Haney, unidentified Vietnamese soldier, and A1C Donald E. Delahunt, February 1966.

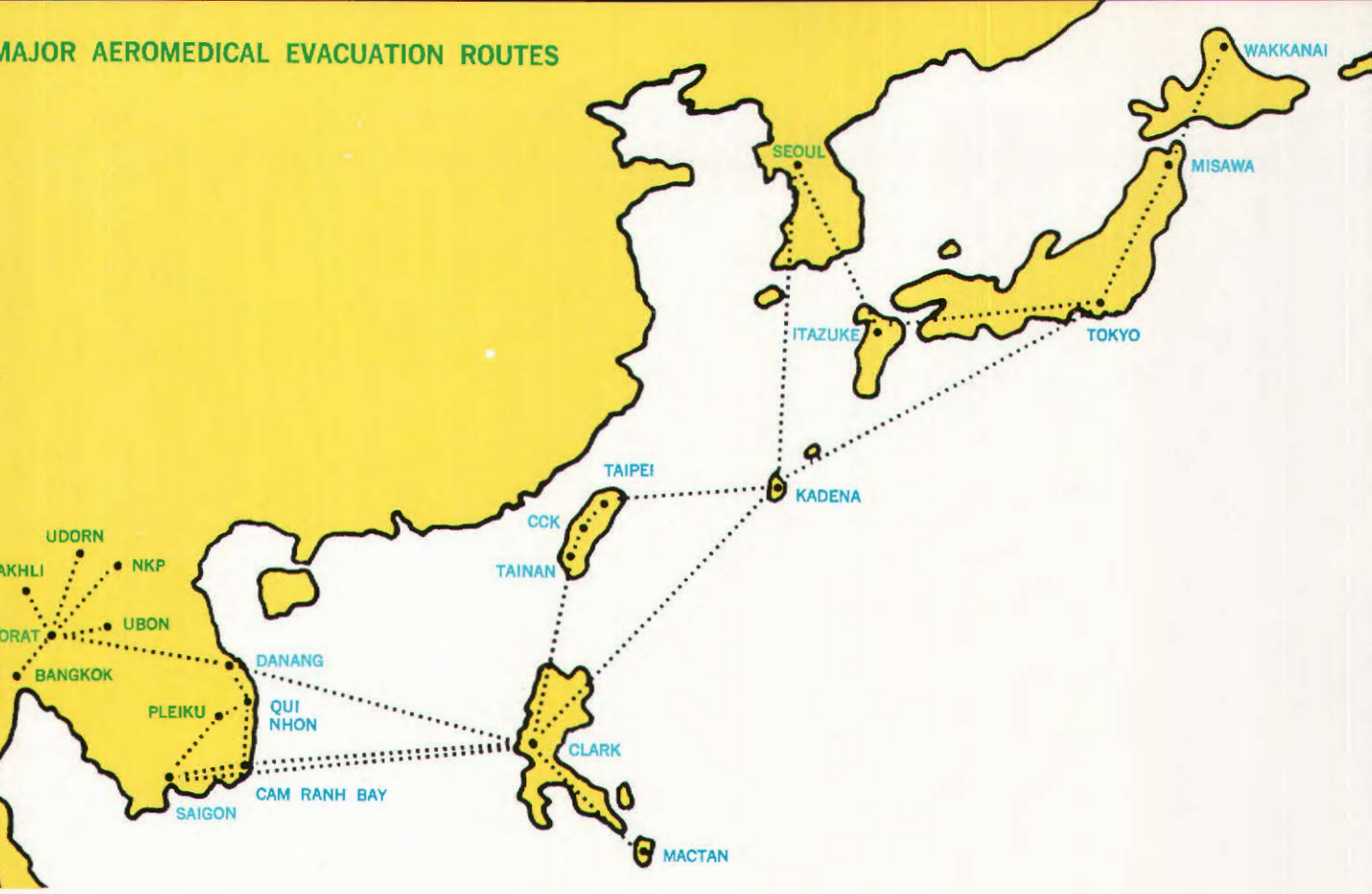


Gen. John P. McConnell, USAF Chief of Staff, visits with Army Private First Class Gary L. Kaesser, during a tour of the 12th USAF hospital at Cam Ranh Bay.

tion missions four times a week, serving Pleiku, Qui Nhon, Nha Trang, Tuy Hoa, Phu Cat, and Phan Rang. One C-118 at Clark flew four missions a week to Chu Lai, Da Nang, Qui Nhon, and Nha Trang and terminating at Cam Ranh Bay.

Committing aircraft specifically for aeromedical evacuation became one of the main features of medical support in South Vietnam. Working with medical agencies and the 834th Air Division, the 903d Aeromedical Evacuation Squadron provided scheduled service throughout the country. From July 1967 through January 1968, patient movements averaged 5,813 per month; from February through June the average was 9,098 per month. Almost 11 times each day requirements were called in, missions set up, medical crews picked up, cargo offloaded, planes reconfigured, and patients evacuated—almost always on a short notice or no notice basis. Equally important, about 11 times each day aeromedical evacuation requirements disrupted the programmed cargo and passenger commitments of the airlift agencies.

The 1968 Communist Tet offensive produced large numbers of military and civilian casualties and required four to five unscheduled aeromedical evacuation flights each day and occasionally eight. To keep up with the demand, a C-130 assault aircraft operated a daily round-robin shuttle from 0900 to 1700 hours. This aircraft averaged from 125 to 158 patients per day, most of them recent Marine and Army battle casualties. To handle patients during late afternoons and evenings, another C-130 operated a regular nightly round-robin. This aircraft averaged 40 to 60 patients per flight. Both


MAJOR AEROMEDICAL EVACUATION ROUTES
WAKKANAI
SEOUL
MISAWA
ITAZUKE
TOKYO
TAIPEI
KADENA
CCK
TAINAN
UDORN
AKHLI
NKP
ORAT
UBON
DANANG
BANGKOK
PLEIKU
QUI
NHON
CLARK
CAM RANH BAY
SAIGON
MACTAN


U.S. ARMY

aircraft operated into forward sites such as Dong Ha, Quang Tri, and Hue/Phu Bai, and evacuated patients to Da Nang. Occasionally, after its second round-robin the aircraft further evacuated the patients to Qui Nhon, Phu Hiep, Nha Trang, or Cam Ranh Bay when Da Nang was saturated. An average of 2.4 aircraft per day were used in I Corps to support aeromedical evacuation requirements. In February 1968 more than 10,770 patients were evacuated on 330 flights.

The heavy and continuous fighting in the provinces around Saigon during the early months of 1968 also produced many casualties requiring evacuation. To handle these patients, an aircraft began flying 7 days a week from Tan Son Nhut servicing Cu Chi, Bien Hoa, Vung Tau, Binh Thuy, and terminating at Cam Ranh Bay. Following the 1968 surge of casualties, the Air Force increased the number of flight nurses in the Far East from 314 to 409. In February the Air Force transferred 20 nurses from a MAC C-141 evacuation unit at McGuire AFB, N.J., to Yokota, Japan, increasing the number there to 62. Twenty MAC nurses also were sent to Yokota on 90 days TDY. When their time expired, they were replaced by another 30 stateside nurses. Twenty of the latter were members of an Air Force Reserve Unit, the 34th Aeromedical Evacuation Squadron, Kelly AFB, Tex., activated in May 1968. The other 10 were transferred from other USAF hospitals. After its recall to active duty, the 34th deployed to Yokota and flew more than 1,200 aeromedical evacuations from Southeast Asia to the United States plus about 1,000 others from Japan to stateside hospitals.

Throughout the war the Military Airlift Command played a vital role in evacuating thousands of casualties from the theater to the United States. From a small force of one squadron and a detachment which it operated in mid-1964, MAC expanded the system by 1968 to one aeromedical evacuation group, three squadrons, and five detachments. The monthly average of evacuated patients rose from 342 in August 1964 to 8,956 in 1968. As indicated, the principal evacuation redistribution centers in the Pacific were Clark and Yokota. Mid-Pacific flights transited Guam, Wake, or Hawaii or went directly from Yokota to Travis AFB, Calif. In August 1966 MAC also inaugurated evacuation flights from Vietnam to the eastern part of the United States via Yokota and Elmendorf.

The introduction of C-135, C-141, and C-9 aircraft made MAC's aeromedical airlift more responsive than in previous wars. In 1965 the C-141 replaced the C-135 as the principal intertheater evacuation aircraft. On 15 July it flew its first long distance air evacuation mission in the Pacific area. The C-141's advantages included high speed, long range, and a larger cabin capacity able to handle 60 litter patients, 100 ambulatory patients, or a combination of both. Approximately 6,000 C-141 air evacuation missions were flown within the Pacific and from the Pacific area to the United States between July 1965 and December 1972. The C-9, the Air Force's newest theater aeromedical evacuation aircraft, flew its first operational mission in Southeast Asia on 15 March 1972. Overall, the Military Airlift Command evacuated a total of 406,022 patients, including 168,832 battle casualties between 1965 and 1973. The airlift was accomplished with a perfect flying safety record.

President Johnson (l.) and General Westmoreland greet a wounded Vietnamese soldier hospitalized at Cam Ranh Bay.

Chapter XVIII

Military Civic Action

The Air Force not only fought a tenacious enemy in Southeast Asia but also participated in a program of civic action to assist friendly governments in the theater to gain the support of their rural populations. This civic mission had its origins in a Defense Department task force report to President Kennedy, dated 27 April 1961, which proposed a number of military and economic steps the United States might take to help counter North Vietnam's drive to overthrow the government of South Vietnam. Two days later the President approved the task force recommendations, one of which called for setting up civilian and military civic action teams to help the peoples of Southeast Asia to raise their standards of living.

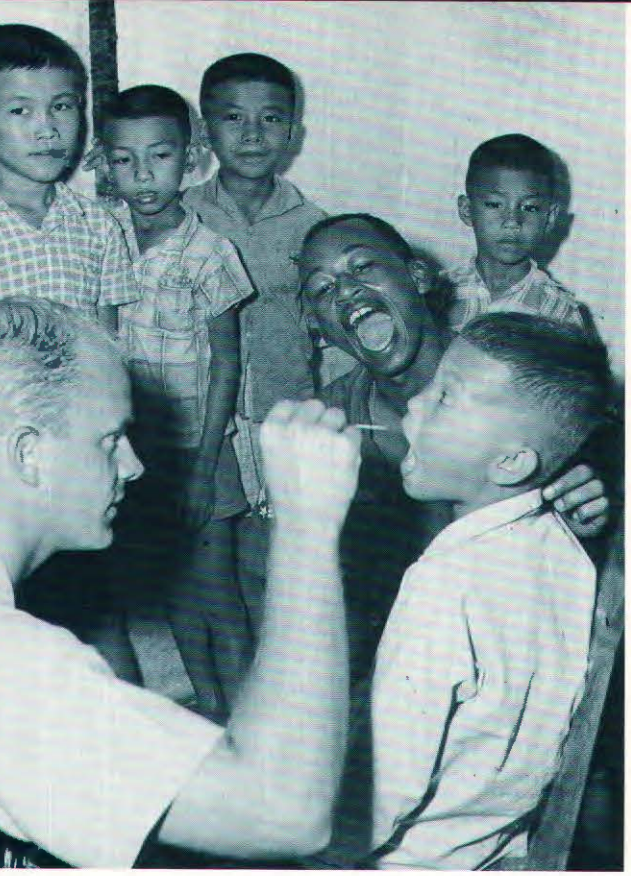
Although the Air Force did not form civic action teams in South Vietnam in the early 1960's as had the U.S. Army, its Farm Gate crews began providing direct aid to the Vietnamese within days of their arrival in the country. Beginning in January 1962, Air Force C-123's began delivering relief supplies and other necessities to Vietnamese communities cut off by monsoon floods or Communist insurgents. The role of the C-123's was graphically described by Col. Benjamin S. Preston, the Air Force commander at Da Nang. In his 1964 end-of-tour report, he wrote:

> . . .I came to realize how much these little people looked forward to the stops by our C-123 aircraft. Our airlift system has revolutionized the way of life of these people; particularly the outpost people who depended upon us for resupply. The daily shuttle run between Da Nang and Tan Son Nhut. . .has become famous to Vietnamese and us alike as the only way most of them can travel north or south. Sometimes it breaks down enroute to Nha Trang, Qui Nhon, Quang Ngai, or Hue Fue Bai, and it becomes a community project to load, unload, handle block and tackle, etc., and try to get it going again. I guess it comes closer to the old Western Overland Stage than anything else I can think of . . . .
>
> I watched our crews at work, and the way they handled themselves in helping people, reassuring children and ancient old peasant couples, laughing and joking, sweating and cursing, but acknowledging the human dignity of the individual all the while made me realize that they were some of Mr. Lodge's best possible ambassadorial representatives.

The use of Air Force transports contributed greatly to Saigon's administrative control of its territory. Flying in and out of some 100 airfields throughout Vietnam, the C-123's provided a vital line of communication which helped maintain the nation's viability in times of extreme distress.

Beginning in the early 1960's, Air Force officers and enlisted men also became personally involved in a variety of assistance projects. For example, since there was an acute shortage of trained physicians in Vietnam (in 1970 there were only 1,300 doctors for more than 17 million people), Air Force medical officers and dentists volunteered their talents and days off to orphanages and leprosariums in the vicinity of their bases. USAF veterinarians also assisted nearby villagers to set up disease-prevention programs including purification of their water supplies. Many enlisted men contributed their time and personal funds to help the many orphans in Vietnam, and during New Years holidays, joined with the Vietnamese Air Force personnel to distribute toys to the children. At Bien Hoa AB, USAF crews contributed $1,500.00 in personal funds for distribution to needy Vietnamese.

Assisted by a Vietnamese woman, Air Force Sgt. Craig E. Wenzel inspects a drinking well at a village near Phan Rang AB, South Vietnam, 1971.



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(1) Capt. Drew D. Whiteside (l.) looks for cavities in a young Vietnamese patient's mouth. A1C Ivory Herbert, Jr., a dental technician urges the boy to open wide. (2) A medical corpsman of the 466th USAF Dispensary, Da Nang, attends to the needs of a local Vietnamese child. (3) 2d Lt. Kathleen M. Sullivan treats a Vietnamese child during Operations Med Cap, a U.S. Air Force civic action program. (4) Capt. Robert Robinson, general dental officer, 388th Tactical Dispensary, Korat Royal Thai Air Base, examines the teeth of a young boy from a nearby village. (5) The leg of this Vietnamese child became infected after he had be scalded by hot water. A1C Arthur D. Krull (l.) and a fellow Air Force Reserve medic remove bandage in preparation for more extensive treatment. (6) Capt. Thomas K. Carlton, Jr., a general medical doctor with the 388th Tactical Dispensary, Korat, examines a child from a nearby village. (7) Maj. Jack D. Bashaw, an Air Force doctor at the Cam Ranh Bay Air Base hospital, examines a patient from a nearby village, June 1966.

Funding the Program

Most of these humanitarian activities were undertaken on an ad hoc basis, and it was not until President Johnson put the full weight of the U.S. government behind civic action in 1966 that the program picked up substantial momentum. In a message to Congress, he said he would "give new stress to civic actions programs through which local troops would build schools and roads and provide literacy training and health service." Substantially, a special fund was set up for the use of U.S. civilian and military agencies in Southeast Asia to support such projects.

In the last half of 1966 planning for the program went into high gear, after MACV issued a directive establishing procedures for U.S. and free world military units in Vietnam to obtain working funds. Initially Seventh Air Force was allotted 200,000$VN to finance projects by bases or units too small to qualify for their own funds. The first such project for which funds were allotted helped repair and rebuild a road between the hamlet of Trang Sup and the provincial capital of Tay Ninh. It was begun as a joint venture of the United States Agency for International Development (USAID) and the U.S. Army Special Forces, which contributed 50,000$VN out of a total 75,000$VN cost. USAID asked the Air Force unit in Tay Ninh province—the 617th Tactical Control Squadron—to finance the remaining 25,000$VN. Seventh Air Force headquarters authorized the expenditure and transferred the money to the squadron. Bases allotting their own civic action funds (100,000$VN each) were Bien Hoa, Cam Ranh Bay, Da Nang, and Nha Trang. Tan Son Nhut was allotted 200,000$VN.

In July 1966 General McConnell emphasized the importance of the Vietnamese pacification program and the "tremendous potential for civic action and assistance" that could be provided by "indigenous air forces." He suggested establishment of a civic action assistance council in Southeast Asia to advise Air Force commanders and to coordinate and expand their civic action activities. Second to combat operations, he said, "our efforts in this area are the most valuable contributions we can make to the defeat of the Communist insurgency. . . ."

Responding to McConnell's guidance, Seventh Air Force during the summer of 1966 organized a civic action coordinating group within its headquarters. On 6 October it published a regulation requiring the establishment of "Civic Action Councils" within both Headquarters Seventh Air Force and all USAF bases in Vietnam. On 8 October it issued a second regulation defining the responsibility of each base commander and outlining objectives and reporting procedures which would govern civic action projects. The same day, all base commanders were directed to use the capabilities and energies of USAF units to implement "a positive civic action program" geared to the ongoing Vietnamese revolutionary development program.

Immediately, personnel requisitions were made to obtain full-time civic action officers and noncommissioned officers at each base in Vietnam. Funds to finance their various projects were allotted to base commanders. In October information about the program was provided in a civic action "Notebook." Subsequently, Seventh Air Force published a *Civic Action Newsletter* which provided information on projects under way at various bases, their successes, and problem areas. On 10 November 1966 the Seventh Air Force Civic Action Council was convened for its first meeting by the Chief of Staff, Brig. Gen. Franklin A. Nichols. Council members discussed funding problems, ways to further encourage VNAF participation in the programs, and the use of the

command's "civic action airlift."

On at least one occasion, the civic action program enabled USAF and VNAF officials to thwart a planned Viet Cong mortar attack on Binh Thuy AB in the fall of 1966. Some months before, USAF/VNAF civic action personnel had gone into several hamlets on the southern perimeter of the base to offer their help in various ways. Among the projects they supported were construction of community washhouses, schools, and latrines. One USAF and two VNAF doctors and four VNAF and two USAF medical assistants also made weekly visits to the villages to treat the sick and distribute food supplements and clothing to poor inhabitants. These civic actions won over several hamlet residents, as the following Seventh Air Force report to PACAF makes clear:

> In early October the VC moved into one of the perimeter hamlets in preparation for a mortar attack against the air base planned for 12 October. At great risk to their own lives, several residents of the hamlet involved reported the attack plans to the VNAF and USAF security police at the base. With sufficient warning the security police moved into the hamlet a couple of days prior to the planned attack capturing mortars and ammunition, thus preventing the. . .attack. The security police attributed this "save" to the excellent rapport established with the local populace and the newly won support of the local people to the GVN and to the continuous fine efforts of the military civic action program at Binh Thuy.

This incident, however, apparently energized the Viet Cong, who began to shell Binh Thuy on a regular basis. Thus, the Viet Cong did manage to hit the base with several mortar rounds, but the damage was minor due to the fact they had been forced to set up their positions 7 kilometers away, well beyond the perimeter hamlets. Although intelligence reports about Viet Cong activities in the base environs also progressively improved, the enemy managed to hit Binh Thuy at least once a month during the first half of 1965.

On the other hand, relations with South Vietnamese villagers were occasionally exacerbated by accidents of war. For example, on 1 July 1966 a 3d Tactical Fighter Wing aircraft accidentally bombed the village of Tan Uyen, about 10 miles north of Bien Hoa AB, killing 8 Vietnamese and injuring 40 and substantially destroying the village marketplace. Base medical personnel immediately sped to the scene along with U.S. Army advisers and Vietnamese province officials to help evacuate the wounded. However, the villagers were openly hostile to the first Americans who appeared, even shouting at one officer. In the weeks that followed, Viet Cong agents used the incident to stir up the peasants against the government and the United States.

However, the early and continuing massive effort to ease the villagers' plight by volunteers from the 3d Tactical Fighter Wing was able to partly offset the Communist effort. Within 24 hours they began to repair the damaged village structures. Emergency supplies were distributed through Vietnamese province officials and, with the help of U.S. Army advisers and Vietnamese officials, the Wing legal officer compiled a list of the injured and dead for solatium payments. Within 2 weeks market stalls and several houses were rebuilt, roofs were repaired, and other assistance provided. As a climax to the successful rehabilitation of the village and its inhabitants, a "Country Fair" was staged there in August.

Medical Services

One of the most effective of all American civic action projects during the war was the medical and dental care provided to the people. For example, in November 1966 local South Vietnamese militia requested the aid of USAF medical and dental personnel to accompany them in a "clear and

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(1) Students are taught English at the 20th Street School and Protestant Orphanage at Can Tho City. This class was instructed by Col. Delbert J. Light, Chief of the Air Force Advisory Team Seven based at Binh Thuy AB. (2) Maj. Thurman Dabbs, a National Guard flight surgeon, examines a Vietnamese youngster brought from a refugee camp to the Tuy Hoa AB hospital, 1968. (3) Youngsters from the Tan Mai Orphanage in the village of Tan Hiep exercise their lungs as they receive their weekly baths from three Air Force sergeants of the 1877th Communications Squadron, Bien Hoa, AB. They are (l. to r.): SSgts Anthony R. Scarlett, Walter S. Hornat, and Sgt Ben E. Shipwash. (4) The Air Force airlifted two anaesthetized elephants from Ban Dou to Chu Lai, Vietnam, where they were put to work assisting South Vietnamese workers in the logging industry. (5) An Air Force plane drops rice and medical supplies to residents of a small Thai village isolated by rising flood waters on the Nam Bae Wang river. Some 300 bags of rice were delivered to the village. (6) Medics of the 366th USAF Dispensary prepare to depart for a village, accessible only by boat, to provide medical care and treatment to the Vietnamese. (7) USAF Chaplain (Capt.) Donald J. Sheeband, and Father Joseph Hien, leader of the village complex of Dai An-Thai Hung, look on as a villager uses a tractor donated by Americans to the farmers, 1968.

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hold" operation in the Nhon Trach area of Bien Hoa province, which had been under enemy control for many years. After the local military moved in and cleared out the Viet Cong, they secured the hamlets, and then escorted the USAF medical teams into the area where they set up a clinic in a local home. Many of the people had not seen a doctor in several years and some had not seen a dentist in their entire lifetimes, so that the impact of the visit was great. The hamlet chiefs made the doctors promise to return again to treat their people. When news of the "painless" dentist spread through the sector being cleared, people from distant hamlets infiltrated through Viet Cong-held areas for treatment.

Between 1966-1968 the medical civic action program expanded steadily into all hamlets, villages, and autonomous city areas contiguous to Seventh Air Force bases. From an occasional trip into the countryside in 1966, Seventh Air Force medical and dental personnel expanded their volunteer assistance to the Vietnamese to the extent that more than 60,000 medical, dental, and immunization treatments had been provided by the fall of 1968. Whenever possible, they were accompanied by VNAF medical personnel. On these visits, dental personnel distributed soap, toothbrushes, and toothpaste.

In Thailand, the Air Force also fielded mobile medical teams in seven politically sensitive areas in the northeast part of that country, which faced the potential subversive threat from Communist terrorists. In 1966, with the deployment to Thailand of the 606th Air Commando Squadron, the unit organized a Civic Action Branch to serve as part of the country team headed by the U.S. ambassador. This branch later was redesignated a Civic Actions Section and finally a Civic Actions Center. In 1967 it was manned by 84 officers and enlisted personnel—most of them physicians, medical technicians and dentists—who were assisted by 12 Thai interpreters. They worked closely with Thai officials at all levels of government, from the Ministry of Health down to remote village medical centers, treating some 10,000 patients each month.

In 1967 they initiated a unique Floating Mekong Medical Clinic in an effort to reach tens of thousands of people in remote villages who were completely isolated from the outside world during the rainy season. Conceived by civic action personnel, the waterborne clinic was coordinated and approved by the Royal Thai government. A commercial river boat was leased by the government and renovated into a medical facility. The boat was staffed by one physician (on a rotational American-Thai basis), one dental technician, one U.S. medical technician, and three Thai "sanitarians." Areas and specific villages to be visited were selected by Thai provincial health officers. The floating clinic proved a great success, was the pride and joy of Air Force personnel and Thai government officials, and greatly benefited the rural people along its route.

USAF physicians and dentists also lived and worked in a number of medical centers where they held daily sick call in the mornings and went out in the afternoons—with the help of Thai military and public health officials—to visit surrounding villages on a scheduled basis. Approximately 350 villagers were treated during these visits. On some visits to remote villages, the Americans were acompanied by a Thai sanitarian and midwife, a Royal Thai Army doctor, and occasionally a small armed escort. In the countryside USAF dental technicians also undertook to promote a preventive dental program. For example, during the first 3 months of 1968 they distributed 18,000 toothbrushes and toothpaste to school children in northeast Thailand and instructed them in the proper use. The only problem was how to provide a continuing supply of toothpaste.

When the latter ran out, the brushes were discarded.

Air Force veterinarians gave a great deal of attention to rabies, a prevalent disease among thousands of stray dogs in Thailand, which caused 300 reported human deaths each year and an estimated unreported death toll ranging as high as 1,200. Although rabid dogs were greatly feared by the Thais, proposals to destroy them were opposed by the government because of Buddhist sensitivity to killing man or beast. An abbot at one of the monasteries offered an alternative solution, which was adopted. He advised the Americans to set out both poisoned and unpoisoned meat for the dogs. Thus, according to the abbot, the decision of life or death would not be the responsibility of the government. If Buddha decided a dog should die, he would lead it to the poisoned meat. If he determined the animal should live, he would direct it to the unpoisoned bait. By the end of 1968 this approach eliminated some 3,000 strays. More than 30,000 other dogs were immunized against rabies.

Tet Recovery Activities

The Communist Tet offensive of January-February 1968 was the crucible for the civic action program in South Vietnam. The widespread damage and destruction and large refugee problem it caused galvanized both Vietnamese and Americans to combine their efforts to promote a rapid recovery. Seventh Air Force civic action units constituted an available resource to coordinate the USAF effort, which was marked by a further outpouring of voluntary contributions of money, goods, and thousands of man-hours of precious free time. The Vietnamese Air Force played an important role during these recovery operations.

Before the emergency recovery program ended, Seventh Air Force civic action personnel had provided assistance to about 60,000 refugees, 3,400 of whom were airlifted to new locations. They also delivered 132 tons of commodities and other supplies to needy people, rebuilt or repaired more than 6,000 homes, provided medical care to 23,741 Vietnamese, immunized 23,021, provided dental care to 4,287, and contributed $24,-798.00 to local relief projects. In addition, they expended $85,481.00 in appropriated funds for the recovery program.

By late summer and the early fall of 1968 the Air Force was able to resume its normal civic action projects, including agricultural development and improved education and social welfare. In the agricultural area, Da Nang AB civic action personnel in September 1968 provided the farmers of Con Dau hamlet a mechanical rice threshing machine. The device consisted of a drum with attached wire spokes. Driven by a large foot pedal, it was both simple to operate and maintain. This machine threshed rice twice as fast as the traditional hand flailing method, was approximately 99 percent effective in removing all rice grains from the stalks without damage (as opposed to 80 percent by the flailing method), and partially separated the rice grains from the chaff, reducing this portion of the operation considerably. The rice thresher was owned and maintained by the hamlet. Individual farmers were authorized to use it one-half day during the harvesting period.

The thresher arrived just in time for the harvest season and a semi-emergency condition resulting from a recent monsoon, which knocked the tops of the stalks into the flooded paddies. The only way to save the rice was to cut it quickly (and slightly prematurely), dry it and thresh it. The hamlet did this on a cooperative basis. The rice thresher enabled the farmers to thresh their crops in approximately

one-half the normal time. USAF civic action personnel later arranged to purchase additional threshers for other hamlets in the Da Nang area.

In Bien Hoa province, in the summer of 1968, base personnel enlisted the aid of the Air Force chaplain and his congregation to assist a recently formed "Farmers Cooperative" in the hamlets of Dai An and Xa Thai Hung. A 9-horsepower Kobota garden plow, with four interchangeable attachments, was purchased from the church collections and formally presented to the cooperative. Father Joseph Hien accepted the tractor on behalf of all the residents. Selected farmers of the two hamlets were provided basic instruction in the operation of the plow.

Air Force personnel at Pleiku AB, working with local Montagnard village officials, initiated several farm instruction programs. Using surplus lumber obtained from the base dump, they taught the Montagnards how to build animal shelters, chicken coops, and grain storage bins. After obtaining vegetable seeds from the United States, they helped in the planting of more than eight acres of vegetables by Montagnard villagers. They also assisted the people to build dams, spillways, irrigation systems, wells, and rice-drying platforms.

Throughout the war Air Force personnel contributed funds, labor and materials to Vietnamese schools and orphanages. For example, in the summer of 1966 the need for school furniture in Bien Hoa elementary schools came to the attention of the local AID officials and members of the 3rd Tactical Fighter Wing. Since lumber for furniture was in short supply, the Wing donated used bomb fin crates from its dump, delivering them to the schools with the help of the Vietnamese Air Force. USAF technicians showed AID representatives and school carpenters how to disassemble the crates and reassemble them to make suitable and attractive (when painted) desks and benches. News of the Bien Hoa school furniture program quickly spread to outlying districts, which requested "bomb fin crate" furniture to equip 14 classrooms. Again, VNAF and USAF personnel delivered the crates and local school carpenters were taught how to make the furniture.

In the fall of 1968 USAF personnel furnished wire, electrical fixtures, and other materials to build Do Vinh elementary school in Phong Dinh province, a library at Cong Thanh high school in Bien Hoa province and three blackboards for the Tay Do School in Phong Dinh. They also furnished lumber, nails, paint, and wire screen to build five dormitories at the II Corps National Police Academy and a library and visitors lounge at the Highland Junior Military Academy in Pleiku province. In addition, they contributed 60,000$VN to the Phu Yen public administration library to purchase books.

One of the interesting civic action projects supported by the Air Force was known as "Dollars for Scholars." Financed by funds donated by organizations and individuals in the United States as well as USAF personnel in Southeast Asia, it provided needy and deserving youth, money for school tuition. Local school principals and teachers, assisted by area officials, determined student eligibility and made the selections. By the end of 1967 more than 700 students were being helped by the "Dollars for Scholars" project. In the view of one Vietnamese school principal, these scholarships had hampered Viet Cong efforts to recruit teenagers.

Throughout the war and against the background of natural disasters and the ravage of war, Americans at home generously donated food, clothing, money, toys, and other materials to orphanages, religious institutions, schools, and villages. For example, between April and September 1967, Seventh Air Force civic action person-

An Air Force dentist on a medical visit to To Cau village examines the teeth of a Vietnamese woman.

nel distributed 32,650 pounds of food, 21,000 pounds of clothing, 83 cartons of toys and playground equipment for orphanages, more than 3,000 cots, 2,365 pounds of soap, and cash totalling $34,000.00 and 1.4 million Vietnamese piasters.

In October 1968 President Thieu announced the start of an accelerated military pacification campaign to extend his government's control throughout South Vietnam. As part of this campaign, he emphasized civic action "as a means to win the people." In gearing its activities to this new pacification program, Seventh Air Force doubled the civic action funds provided to air base commanders who were authorized to approve projects costing up to $1,000 to respond faster to Vietnamese needs. Planning and managing the various civic action projects was done by Vietnamese officials, with Air Force personnel and equipment being used only when there was no alternative available.

Thus, during 1969 the Vietnamese supplied 72 percent of the labor on USAF-supported civic action projects. That figure increased to 80 percent in 1970 and 96 percent in 1971. Similarly, the percentage of Vietnamese-supplied material rose from 20 percent in 1969 to 48 percent in 1971. Vietnamese man-days and expenditures on agricultural, public works, and refugee rehabilitation projects also rose accordingly. This situation in part reflected the steady withdrawal of U.S. forces from South Vietnam which was initiated by President Nixon in the summer of 1969.

During these latter years, however, USAF personnel continued to play a significant civic action role. One project they became involved in was the resettlement of Truong Long village in Phong Dinh province in 1970. Four years earlier, all residents of the village fled to more secure areas when the Viet Cong moved in. As enemy-occupied territory, the Truong Long area became a free fire zone. In 1970, Saigon decided to restore Truong Long and station a military post there for security. Former residents were located in refugee centers and agreed to return with the help of the government. USAF civic action personnel provided the construction materials that enabled the villagers to rebuild their houses and to reestablish a market place, two hamlet offices, a school, and other buildings.

In 1970 Seventh Air Force civic action medical teams also expanded their services into 22 districts and 3 provinces which had not previously been supported, despite the danger of possible enemy ambushes. The effectiveness of the Air Force medical teams was noted in a captured Viet Cong document:

> The enemy [Americans] behaved kindly to the people to win their heart. They carried the people's children in their arms, washed and changed their clothes. . .those who were wounded were given thorough medical treatment. . .although the people knew the enemy was dishonest, they seemed to appreciate the treatment and compared them with those performed by our civil health teams.

Chapter XIX

Training and Manning the Combat Force

During the first few years of combat support operations in South Vietnam, the Air Force manned its small contingent of fighting units in that country without difficulty. Following the Gulf of Tonkin incident of August 1964 and the start of Rolling Thunder operations in March 1965, however, the Air Force found itself facing a demand for substantially larger combat forces in the theater. Until units could be deployed on a permanent basis, the Air Force turned to extensive use of temporary duty personnel, drawn mostly from Pacific Air Forces resources, who served up to 179 days (most averaged 120). By July 1965, approximately 42 percent of the 17,900 USAF personnel in South Vietnam were there on TDY. Between November 1965 and February 1966, the Tactical Air Command, one of the primary sources for expansion, sent 14,000 men and 23 fighter, 4 reconnaissance, and 8 C-130 squadrons to Southeast Asia or the western Pacific. During that same period the Air Force also reassigned another 18,000 officers and airmen from other commands to the war zone.

The Pilot Deficit

Even as the 1965-1966 force buildup got under way, the Air Force found itself short of flying personnel. The problem surfaced at an awkward time, as large numbers of World War II-trained pilots were nearing the end of their military careers (more than 13,000 left the service between July 1964 and July 1967) and new pilot production was at a low ebb as a result of actions taken in 1957 to reduce the number of pilots trained. Under a Congressional mandate to cut back its pilot force in light of the changing USAF force structure—that is, the introduction of intercontinental ballistic missile squadrons—the Air Force reduced undergraduate pilot training from a post-Korean War high of 5,726 graduates in fiscal year 1957 to 1,300 in fiscal year 1962. Ironically, in that year the first combat units were dispatched to South Vietnam.

The shortage quickly became apparent. Headquarters USAF initially required all deploying squadrons to have a minimum of 1½ aircrews per tactical aircraft, but lack of enough rated personnel soon caused the Chief of Staff to cut the requirement to 1.25 aircrews. The lack of pilots was further compounded by two other decisions made by the Chief of Staff in November 1965 and February 1966. He directed that combat tours in Southeast Asia be limited to 1 year or a specified number of mission sorties, and that USAF members not be required to serve an involuntary second SEA tour until other similarly qualified members had served a tour. These decisions in the long term enabled many more officer and enlisted personnel to acquire combat experience. They also produced extensive manpower turbulence and turnover within combat units throughout the war.

As one of its first steps to increase the number of rated officers, Headquarters USAF late in 1965 directed TAC and the Air Training Command to expand pilot and crew training. At the time, TAC conducted combat crew fighter and reconnaissance replace-

An Air Reserve technician, 705th Tactical Air Training School, instructs a student in a simulated C-130 cockpit.

ment training at five bases. To meet the new requirements, TAC converted combat-ready wings into replacement training units (RTU's) and combat crew training wings (CCTW's). Within a short time, all operational wings were deeply involved in a massive training effort conducted at nine bases. By 31 December 1966, this TAC training program had produced 1,842 fighter and reconnaissance aircrewmen, 1,017 troop carrier flying personnel, and 1,486 airmen assigned to special air warfare units.

During the same period Air Training Command also felt the heavy burden of the war. Responsible for undergraduate pilot training, ATC had a special problem in that it took a great deal of time to obtain trainee candidates for the flight course, which itself lasted 53 weeks. In 1965 ATC's pilot production capability also was limited by the capacity of eight training bases. On the other hand, ATC got a significant boost in July 1965 when it acquired the first of 171 T-41's (Cessna 172F) for primary pilot training. Civilian contractors provided 30 hours of T-41 flight training at civilian airfields near ATC bases, which eased runway and airspace problems and increased pilot production at each base.

After completing primary training, each student received 90 hours of flight training in the T-37 (instead of the usual 132 hours) and 120 hours in the supersonic T-38 (reduced from 130 hours). Despite the reduced flight training time, it was soon apparent that ATC's eight bases were insufficient to handle the growing pilot training load. Consequently, Headquarters USAF authorized ATC to institute USAF pilot training at two other bases —Randolph AFB, Tex., and Columbus AFB, Miss. Meanwhile, during the fall of 1967 ATC introduced a new method for controlling T-37 and T-38 takeoffs, thereby relieving runway and air traffic congestion at some bases. At those equipped with Category VI radar, ATC permitted simultaneous use of three parallel runways, with aircraft spaced 3 minutes between launches, one from the T-37 runway and one from the overflow runway. Even at bases with only two runways, the 3-minute launch was used.

Meanwhile, however, the accelerated American air offensive against North Vietnam caused F-105 and F-4 pilots to complete their tours earlier than expected, thus exacerbating the shortage. A study group headed by Maj. Gen. Jack J. Catton in the fall of 1966 looked into this problem and recommended a number of short- and long-term measures to provide 9,400 flight personnel for Southeast Asia over a 21-month period beginning 1 January 1967. After reviewing these proposals, General McConnell on 18 October directed action be taken on many of them. One of his more significant decisions was to turn to the major air commands for pilots serving in "behind the line" administrative or other non-flying positions. Some 3,000 pilots subsequently were identified by name and withdrawn from these organizations. Many were older pilots who required retraining and found themselves going through TAC's combat crew or replacement training schools. General McConnell also ordered a 30 percent reduction in the number of officers attending professional military schools; advanced the phaseout dates of certain SAC and ADC squadrons, freeing their personnel for retraining and reassignment; retained Reserve officers scheduled for retirement for another year; withdrew, effective 1 January 1967, all USAF advisers below the grade of colonel with Air National Guard and Air Force Reserve units; substituted navigators for pilots in the F-4 rear seat*; and expanded ATC's undergraduate pilot training program.

In 1971, based on experience obtained from several years of combat

*Although the substitution of navigators for pilots helped alleviate the pilot shortage, it had the reverse effect on navigator manning.

and on the need to reduce expenditures, the Air Force decreased the length of undergraduate pilot training from 53 to 48 weeks and cut the amount of actual flying time from 240 to 208.5 hours. ATC accomplished this in part by providing 16 instead of 30 flying hours in the T-41, a period deemed sufficient to identify students lacking the aptitude to go on to jet training. The command obtained the remainder of the savings by eliminating five flights from the T-37 and seven flights from the T-38 portions of the course.

These actions helped to alleviate the shortage of fixed-wing pilots, but other measures were necessary to fulfill rising helicopter pilot requirements in Southeast Asia. In 1965 there were about 700 helicopter pilots in the Air Force engaged primarily in flying rescue, recovery, mapping, and charting missions, in supporting SAC missile sites, and in assisting humanitarian relief operations. To maintain the helicopter force, ATC graduated about 60 pilots a year through a special undergraduate course that included instruction in both fixed- and rotary-wing aircraft. They underwent 120 hours of training in the T-28, another 70 hours of rotary wing transition in the H-19, and 35 hours of specialized flying in the H-21, H-43, or CH-3 helicopters—altogether a total of 43 weeks.

Presuming a sizeable growth in its helicopter inventory, the Air Force determined that it would need to almost double the number of pilots. To expand the undergraduate helicopter training program, ATC dropped the T-28 phase and transferred it from Randolph to Sheppard AFB where it could use the jet undergraduate pilot training pipeline. However, the training still consumed 43 weeks.

In an effort to shorten training time, the Air Force in December 1965 requested, and the Secretary of Defense approved, taking experienced fixed-wing pilots and converting them to helicopter pilots. ATC set up a 12-week conversion course during which students received 70 hours of rotary-wing training in the H-19 and either the H-43 or CH-3. The first students entered the new course in April 1966 and graduated 3 months later. In September 1966, as the pilot shortage continued, Headquarters USAF directed ATC to concentrate all helicopter training efforts on the 12-week course. Since undergraduate helicopter trainees received 105 hours of rotary-wing flight time and conversion students only 70 hours, it was possible to increase production significantly by relying on experienced fixed-wing pilots as the source of supply for helicopter training.

Thus, where ATC previously trained 60 helicopter pilots in 43 weeks, it could now produce 90 in 12 weeks with no increase in training resources. There was another dividend. By eliminating undergraduate helicopter students from the fixed-wing undergraduate course, ATC could train 60 additional jet pilots annually with the same training facilities.

Overall, during the 6 years between fiscal 1965 and 1971, the period of expanding combat activity, ATC trained 22,948 pilots of all types. In the last years of the war, even as combat gradually wound down, the training bases produced another 10,250 pilots.

Airlift and Special Operations Crews

Another important training effort in 1965—producing replacement crews for Southeast Asia airlift units—was a TAC responsibility. Before 1965, TAC had annually trained about 400 C-130 crews (pilot, copilot, navigator, flight engineer, and loadmaster as a unit). In the late summer of 1965, as combat requirements rose, Headquarters USAF directed TAC to expand the rate of training to 480 crews for 1966.

To handle this larger training load,

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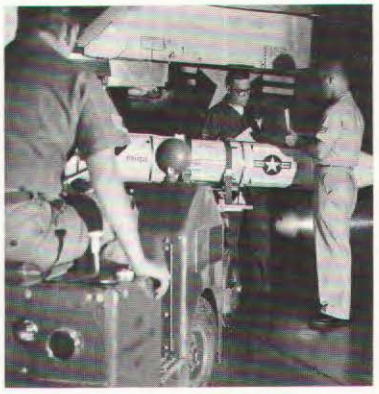

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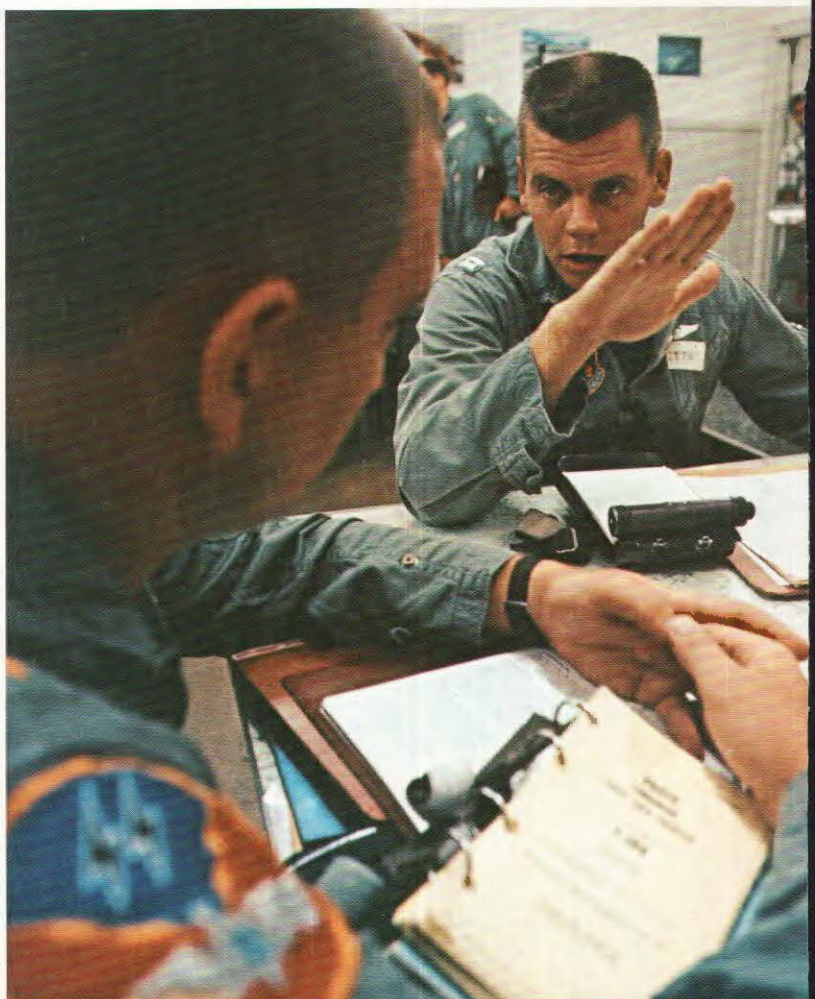
(1) A photography student learns how to maintain and operate a reconnaissance camera at a Department of Aerospace Photography course at Lowry AFB, Colo. (2) T-28 Nomad aircraft were employed to train Air Commandos during the early 1960's. (3) Ordnance loading training at Lowry AFB. (4) A lieutenant learns the latest photo interpretation techniques at the Armed Forces Air Intelligence Training Center, Lowry AFB. (5) The final phase of undergraduate pilot training at Randolph AFB, Tex., involved flying the twin engine T-38 jet. Prior to a flight, Instructor Pilot Capt. Clyde S. Betts (r.) discusses a training flight mission with his student, 2d Lt. Fred Young. (6) At Lowry AFB students entered the weapons mechanics course to learn how to maintain the air intercept missile (AIM).



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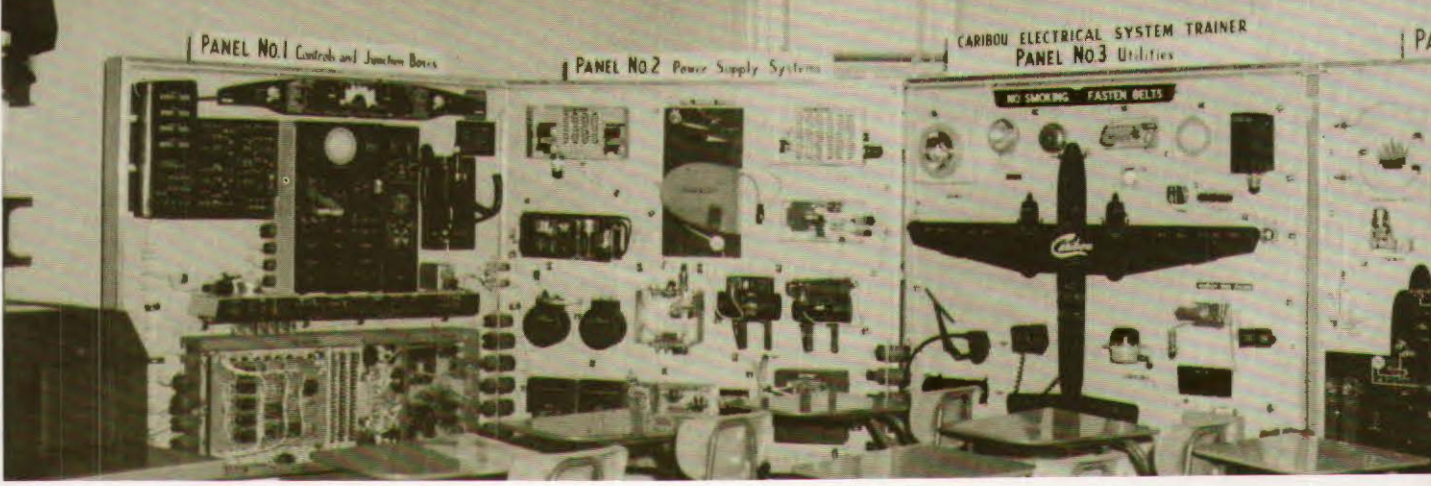

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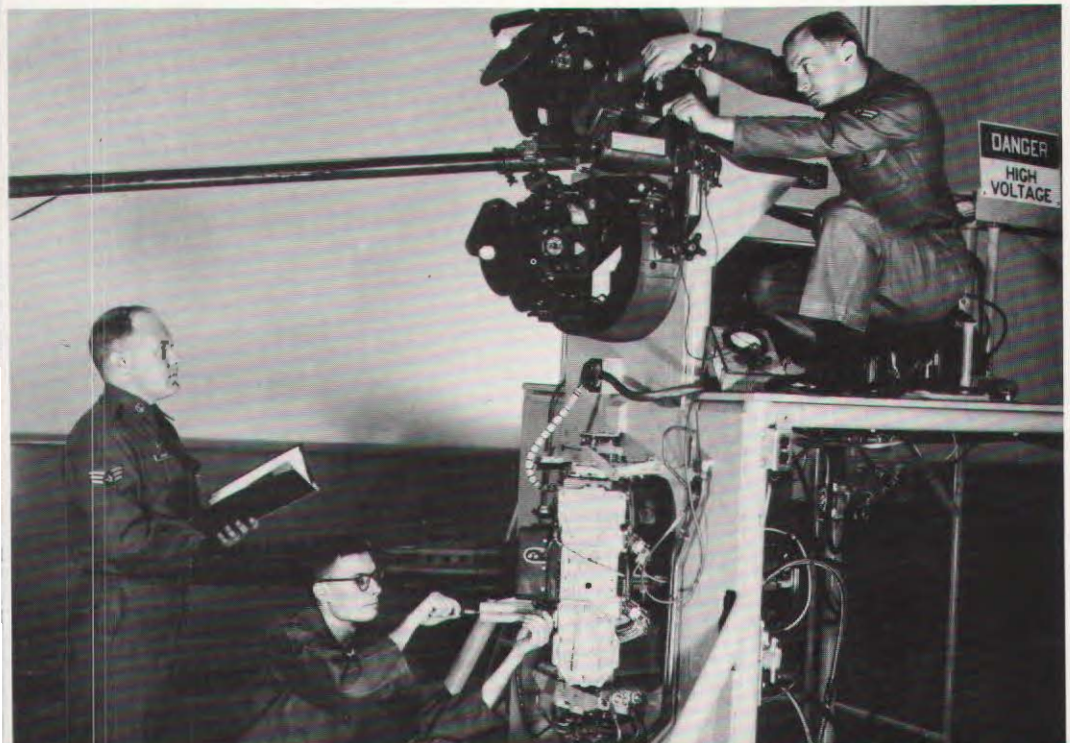

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(1) A C-7A Caribou transport Electrical System Training Aid. (2) Caribou crewmen study the C-7's electrical systems training aids at Sewart AFB, Tenn. (3) Students learn to adjust the controlling radar system in the Bomber Branch of Lowry's Department of Avionics Training.

TAC transferred 42 pilots and flight engineer instructors and 24 aircraft from its operational force to the 4442d Combat Training Group (later Wing) at Sewart AFB, Tenn. The number of instructors soon grew to 146 pilots, 63 navigators, 84 flight engineers, and 84 loadmasters, who manned five TAC replacement training units established in November 1965 within five airlift wings. These RTU's were based at Forbes AFB, Kan.; Lockbourne AFB, Ohio; Pope AFB, N.C.; Dyess AFB, Tex., and Sewart.

Phase I of C-130 crew training began in December 1965 and included navigators and loadmasters only; the rest of the crew joined in the training during Phase II. At the time, few TAC pilots had qualified to operate C-130's into short, unimproved fields, a basic necessity in Southeast Asia. Consequently, TAC emphasized instruction and practice in landings and takeoffs from such types of fields. Within a year, TAC had trained 500 C-130 replacement crews. After completing this initial task, the command inactivated the Forbes and Dyess units and kept the other three for on-going replacement training.

TAC also trained replacements to man C-123 squadrons, the first elements of which had arrived in South Vietnam as early as January 1962. As the inventory of aircraft and the scope of operations increased, the command in late 1965 established the 4410th Combat Crew Training Wing at Hurlburt AFB, Fla., to provide replacements. By 30 June 1966, it had graduated and made available for SEA duty almost 600 aircrewmen (252 of them pilots).

Training crews for the Air Force's third tactical transport, the C-7A Caribou, got under way in 1966, after the Army Chief of Staff agreed in April to turn the airplane over to the Air Force. In preparation for the actual transfer, TAC organized the 4449th Combat Crew Training Squadron at Fort Benning, Ga., as a component of its 4449th Wing. Beginning in May, Army instructors provided a 3-week course to squadron personnel slated to train USAF pilots and flight engineers in the operation of the C-7. The first class of USAF students began training at Fort Benning in June 1966, but later classes met at Sewart. By 30 June 1967, TAC had trained sufficient crews—479 Caribou pilots, copilots, and flight engineers—to enable them to operate the six Caribou squadrons in Southeast Asia.

The task of training replacement crews for a host of other tactical aircraft—such as the 0-1, 0-2, 0V-10, U-10, A-1E, A-26, C-47, and A-37—also fell to TAC. As the war continued, the command's capabilities grew to encompass two wings which operated training facilities at Hurlburt AFB, Fla.; England AFB, La.; Holly Field Navy Auxiliary Air Station, Fla.; and Forbes AFB, Kan. Replacement crewmen to operate this myriad of airplanes gradually increased over the mid- and late 1960's. For example, 1,620 crewmen were trained in fiscal year 1966; 3 years later, the figure had grown to more than 2,880.

Technical Training

During the early years of the war, the shortage of maintenance personnel became a manpower problem second only to the aircrew deficit. With the tours of aircraft mechanics and other maintenance men also limited to 1-year tours, the Air Force found it necessary to provide for a continuous flow of airmen technicians to Southeast Asia. Consequently, the training of aircraft, engine, radar, and other specialists became a priority matter and, on 28 October 1965, Headquarters USAF directed TAC and ATC to undertake an expanded program for this purpose.

Representatives of the two commands and the Air Staff held two conferences on the subject during Nov-

ember and December 1965 at Randolph AFB, Tex., and Langley AFB, Va. They concluded that TAC should provide most of the aircraft maintenance replacements through expanded on-the-job training (OJT) on its own bases. The conferees rejected an alternate proposal to transfer aircraft to ATC technical training centers for the same purpose. ATC supported TAC by expanding field training detachments at 16 TAC bases.

TAC was expected to provide half of the maintenance replacements for Southeast Asia with other commands supplying the remainder. But since many airmen in the latter group would lack current qualification or would have no actual experience on TAC aircraft, TAC and ATC jointly undertook another improvisation. Such personnel would be sent to TAC bases in a temporary "enroute to SEA" duty status and receive job-oriented flight line proficiency training as well as specialized instruction. The airmen would get 4 hours of classroom instruction from the ATC detachment and 4 hours of proficiency training from TAC personnel daily during the TDY period, expected to average about 30 days.

Initially, highest priority was given to training approximately 1,800 maintenance personnel to augment TAC units deployed to Southeast Asia in November 1965. Soon after the deployment, it became evident that 25 to 35 percent more maintenance men per squadron were needed to support the high level of combat. This special training effort got under way in January 1966 on an emergency basis. By May, more than 1,800 had completed the course and could serve with maintenance crews of the F-100, F-105, F-4C, RF-4C, RB-66, or C-130 aircraft.

In April 1966, the urgency of the second phase of replacement training was underlined by PACAF's request for 4,813 maintenance personnel between July 1966 and May 1967. Concurrently, Headquarters USAF noted that additional units would deploy to Southeast Asia between May 1966 and April 1967. This expanded combat force meant that ATC and TAC would have to train 3,237 technicians to support the additional units. The requirement was subsequently modified because most of the deploying units obtained "filler" personnel several months before they left.

As demand for replacements increased during 1966, TAC suffered a steady decline of skilled personnel and had to depend more and more on semi-skilled maintenance men. To ease this pressure on TAC, Headquarters USAF raised to 55 percent the number of replacement trainees withdrawn from other commands and sent through the "enroute" course. TAC on-the-job training doubled in 1966—from 16,711 airmen in January to 32,355 by December. The airmen soon overloaded housing and messing facilities and, at one point, some enroute personnel undergoing TDY training lived off base and were transported daily to and from the maintenance shops and flight lines. Replacement training eased somewhat after PACAF agreed to accept semi-skilled personnel to meet one third of its requirements.

Maintenance training was but one aspect of a vast technical training effort which began in the summer of 1965. In July Headquarters USAF decided to recruit 88,000 new airmen, most of whom would require specialized technical training in such areas as communications, electronics, supply, munitions, and avionics. By the spring of 1966 the Air Force had raised its fiscal year 1966 recruitment target to 107,000 personnel. To handle these large numbers, ATC placed the five technical training centers—Chanute AFB, Ill.; Keesler AFB, Miss.; Lackland and Sheppard AFB's in Texas; and Lowry AFB, Colo.—on 6-day, round-the-clock operations.

A problem that ATC faced in taking on this large training burden was a

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(1) TSgt N.D. Newson discusses simulator lessons and training progress, procedures, techniques, and study assignments in updating Royal Australian Air Force crewmen who served under the Australian Task Force in Vietnam. (2) Students in the Undergraduate Pilot Training Course at Randolph AFB, Colo. receive classroom instruction prior to starting flight training. (3) Conventional Weapons Branch instructors. Department of Aerospace Munitions practice loading ordnance on an F-105 at Lowry AFB, Colo. (4) This realistic C-130 simulator interior was used to train flight personnel. (5) At the Armed Forces Air Intelligence Training Center, Lowry AFB, an instructor discusses briefing techniques to a class of intelligence operations students. (6) TSgt Scholen, 304S Field Training Detachment, explains the construction and function of the C-7A propellers and components at Sewart AFB, Tenn.

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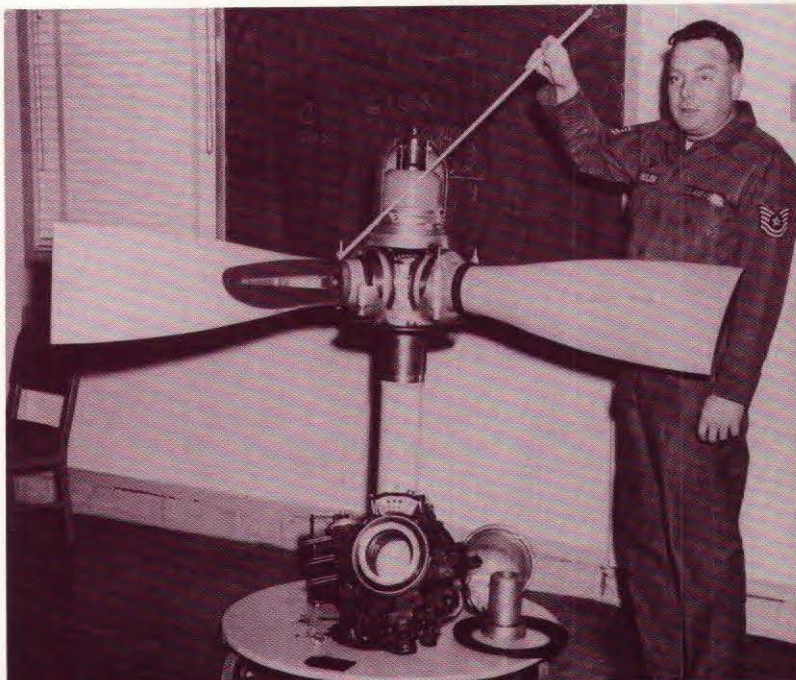


shortage of about 7,000 instructors. As a partial solution, ATC identified former instructors and had them reassigned to the training centers. Headquarters USAF gave priority to manning the ATC instructor force, but combat demands for experienced personnel in Southeast Asia soon forced ATC to use recent school graduates. As a result, at the height of the 1965-1967 Southeast Asia buildup, 25 percent of the instructors were recent graduates of their training centers.

By the end of June 1966, ATC technical centers had graduated 145,000 students and, with the major bottleneck broken, ATC soon returned the centers to a 5-day week. Thereafter, ATC maintained normal operations with minor exceptions. In 1968, for example, Lowry went to a 6-day-a-week schedule to training 4,000 munition specialists, more than double the number trained before January 1968.

Officer Recruitment

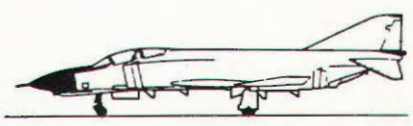
Recruitment of adequate numbers of officers for the expanding Air Force brought with it several difficulties which the Air Training Command undertook to resolve. One stemmed from the location of the Officer Training School (OTS) on Lackland AFB, which was soon overcrowded and without enough classroom and housing facilities due to the tremendous surge in airman basic military training which also was conducted there. During 1965, OTS commissioned 2,596 college graduates, of which 332 were former enlisted men who had passed through the Airman Education and Commissioning Program. Under this program, the Air Force sent airmen with high scholastic aptitude, particularly in science and engineering, to college for up to 24 months. After obtaining a degree, they received military training at the Lackland school to earn their commissions as second lieutenants.

As the pace of combat quickened, the Air Force raised its requirement for OTS officers to 7,781 in fiscal year 1967. To meet this goal in the face of existing facility shortages, ATC added a half-day to the school week, reduced the course time from 60 to 54 days, and increased the number of classes each year from 8 to 10. OTS production was at a high the next year, when 7,383 officers were commissioned. Thereafter, as requirements were satisfied, the course reverted to the normal 60-day, 5-day-a-week schedule. Between 1 July 1966 and 1 July 1970, the Officer Training School commissioned 26,582 new officers.

Another important source of officers during the war was the Air Force Reserve Officers Training Corps (AFROTC) which commissioned 26,853 college graduates between July 1966 and July 1970. In 1966 AFROTC training was offered at 177 colleges and universities. As the conflict proceeded in Southeast Asia, the growth of antiwar sentiment throughout the nation caused a number of colleges and universities to first challenge the academic rank, credit, and departmental status of the AFROTC units on their campuses and then, in some cases, to eliminate them entirely. On the other hand, some non-participating educational institutions invited the Air Force to establish units on their campuses. In 1970, AFROTC operated at 174 colleges and universities.

Survival Training

In late 1961 the Air Force required all flying personnel at wing level and below who were involved in counterinsurgency operations to complete a



basic survival, escape, and evasion course. The first class of 134 students to undergo instruction in the 21-day course met at Stead AFB, Nev., on 23 November. During the next 3 years additional hundreds received survival training at Stead preparatory to their departure for South Vietnam and Thailand.

As the pace of air operations in Southeast Asia quickened, Headquarters USAF in January 1965 directed PACAF to establish a jungle survival school to train aircrew members enroute to the war zone. At the time the only course for such training was at the Tropic Survival School, Albrook AFB, C.Z. The Jungle Survival School began operation at Clark on 12 April with a 4-man instruction team detailed from Stead for 120 days. Initially set for 6 days, the course was soon reduced to 5 days. By late June, a permanent instructor cadre was in place.

The school's original goal was to train 720 per year. The surge in combat operations after mid-1965 caused the training goal to be increased. In 1967 the school graduated 6,734 students at Clark, while its mobile training teams instructed another 1,582 in South Vietnam and Thailand. Even these measures proved inadequate, and in 1968 more than 11,000 personnel completed the jungle course.

Meanwhile, with Stead AFB scheduled to close in 1966, the Air Force shifted the survival training course to Fairchild AFB, Wash., where a class commenced training on 27 June. In January 1966, prior to the move, the course was reduced from 21 to 18 training days. It included academic and operational training in basic survival, escape, and evasion. On 1 November 1966 the Air Force made another important change by shifting TAC's Sea Survival School from Langley AFB, Va., to Homestead AFB, Fla. The new school location enabled TAC to train aircrews year round, whereas training at Langley was limited to 7 months. Some cooler temperatures during the 5 coldest months were unendurable. Tactical fighter and reconnaissance crews destined for the war zone received priority for this training.

In July 1967 the Air Force reduced the Fairchild survival course to 13 days for SEA-destined personnel by eliminating the field training phase. This was done because the PACAF Jungle Survival School provided field training in the Philippines. Two additional days were saved in 1968 by eliminating unarmed combat training. The number of graduates of the Fairchild school grew steadily, with 10,164 completing the course during fiscal year 1970. Budgetary and manpower limitations subsequently led to smaller training classes, but they obviously reflected the reduced levels of combat in the war zone.

During the course of its strenuous efforts to increase and maintain the strength of its combat forces, the Air Force built up to a peak in March 1969 of 97,551 officers and airmen in the war zone—60,785 in South Vietnam and 36,766 in Thailand. After peaking in 1969, personnel strength in South Vietnam declined fairly steadily, almost in a direct line until only 7,608 officers and airmen were there on 31 December 1972. By March 1973, there were none. The Thailand-based force also began a decline from its 1969 peak strength, slipping downward at a steady rate except for a 5-month period begining in March 1972, when Hanoi launched its massive invasion of South Vietnam. The North Vietnamese attack led to the return of additional USAF units (about 13,800 men) to Thailand, from where they resumed air attacks against the Hanoi-Haiphong area. After this latest enemy offensive, a substantial USAF force stayed on in Thailand after the formal cease-fire agreement was signed in Paris in January 1973, ending U.S. combat operations in both South and North Vietnam.