the entire deployment would be executed by air—we would go ashore by air and continue to be supported by air. The only items not air-delivered were fuel and water. A civilian contractor risked ambush to deliver aviation fuel by truck and Marine water trucks bustled between the base and the town of Soc Trang, a distance of about three miles.

Our task unit consisted of an operational element and a base-keeping element. The former was my outfit.

The normal 200-man T/O of my unit was augmented by about 50 maintenance personnel. In addition to our H-34D helicopters, we were given 01B observation aircraft and C-117D transport aircraft, the latter were utilized for liaison and ration runs between Soc Trang and Saigon.

The base-keeping element was given about the same number of personnel as the helicopter squadron. In addition to usual camp facilities, it was assigned a TAFDS and a MATCU, the latter equipped with TACAN and GCA. The primary reason these navigation and landing aids were included on the equipment list was so the C-130F transports could get into Soc Trang with essential supplies and gear, regardless of weather conditions. Secondly, of course, the helicopters would make use of them at night and in foul weather

Exercise TULUNGAN ended on 1 April, and the squadron immediately backloaded to the USS *Princeton* (LPH-5), which had been its home for the preceding six months. The ship then steamed north, stopping first at Subic Bay. There, we went through an around-the-clock process of swapping aircraft with our sister squadron so that we would take the aircraft ashore that had the longest time to run before scheduled overhaul. This completed, the *Princeton* headed still farther north to Okinawa to pick up the remainder of our personnel and gear.

Meanwhile, the task unit headquarters and MABS were making their last minute preparations at Okinawa. Then, on 8 April, they began flying into Soc Trang to start erecting the camp and establishing liaison with the Commander, U. S. Military Assistance Command, Vietnam, (COMUSMACV) and the Vietnamese III Corps Headquarters.

The *Princeton* departed Okinawa on the evening of 10 April and arrived at a position about 20 miles off the mouth of the Mekong River at dawn on 15 April. All personnel and gear were helicopter-lifted ashore by mid-afternoon. The only difficulty encountered was when one 01B made an unscheduled landing back aboard ship because of a rough-running engine; however, it was able to fly ashore later. The helicopter squadron portion of the camp was erected by dark, and the task unit could have started accepting missions the next day. It was a week, though, before III Corps requested the first combat troop lift. The intervening time was spent with briefings, area familiarization flights, and in making the camp more habitable. A few minor missions were also flown.

Our activities in Vietnam can best be viewed in chronological order. Examination of a relatively small number of our missions will be sufficient to determine what lessons were learned on this deployment and to pinpoint procedures that we considered either effective or ineffective.

Wednesday, 18 April: Two helicopters were requested to haul priority supplies from Ca Mau to Binh Hung. Ca Mau is the southernmost town in Vietnam that is under control of the Vietnamese government; Binh Hung is Father Hoa's famed "village that refuses to die." No roads lead to Binh Hung. The tree-lined canals and streams, which are the only surface routes of transportation, are ideal for ambush, and the VC control the surrounding countryside. Therefore, helicopters are the safest means of transportation between Binh Hung and the "outside world." For this reason, Marine helicopters, being based farther south than any other helicopter unit, would fly the Ca Mau-Binh Hung route many times.

Upon their arrival at Binh Hung, the pilots received their first taste of just one of the operational hazards in the area: unpredictable terrain. They landed and shut-down on what appeared to be hard, dry ground. In a couple of minutes, though, they noticed that the landing gear was slowly but steadily sinking. Timbers were quickly shoved under the axles, yet the axles were solid on the timbers before the helicopters could be started and rotors engaged for take-off. After that experience, the helicopters always carried a short length of marston-matting to be placed under the wheels by the crew chief before the

helicopters were shut down in the field.

Friday, 20 April: A practice troop lift was flown with the 21st Division. A problem was highlighted that had not occurred to us before. The small size of the Vietnamese troops (they are about five-footers) made it difficult for them to embark in the helicopters when they were on solid ground, and impossible when they were in mud. The squadron metalsmiths built large jury-rig steps from wood and angle iron to solve the problem.

Sunday, 22 April: The squadron made its first troop lift against opposition today (Easter Sunday). "Operation Lockjaw," as it was called, consisted of landing approximately 340 troops of the Vietnamese 7th Division on one side of a stream-divided village while a U. S. Army helicopter company (from Saigon) landed a like number on the other side. Opposition was light and no aircraft were hit, so the Corps gained some "combat veterans" for a very reasonable price.

Tuesday, 24 April: "Operation Nightingale" entailed landing troops of the 21st Division in eight separate landing sites. Enemy small arms fire was received upon landing in several of the sites, and one helicopter was hit in an oil line. The pilot was able to take off and fly about a mile from the objective before landing in a rice paddy near a Self Defense Corps outpost. We were then able to make use of the "down-bird" procedure we had formulated, but had not yet tried.

A wingman landed and retrieved the crew, while a division of four helicopters proceeded to the forward loading site where it picked up the repair crew and troops from the reserve to form perimeter security. The repair crew determined what was needed to fix our downed bird; the part was flown in from Soc Trang, immediately installed, and the helicopter was then flown out and returned to base—all within two hours of the time it was hit. The reserve troops were then lifted out of the area.

The ground action went quite well also. The Viet Cong lost 52 troops killed and two captured, against three Vietnamese troops killed and six wounded.

Thursday, 26 April: The squadron went on its first "short-order" mission today. The III Corps briefing officer arrived at Soc Trang shortly after 0700. The crews were briefed, helicopters proceeded to the troop pick-up point, and landing was executed at 0900. Very light opposition was encountered upon landing, and the Vietnamese troops rounded up over 100 VC suspects for questioning. This indicated to us not only that quick-reaction type missions are feasible, but also that the results are more than satisfactory.

Tuesday, 1 May: Twenty-four helicopters and two observation aircraft launched to help the 21st Division "crash" the Communist May Day festivities. Mission successful.

The Marines established their base camp adjacent to a former Japanese fighter strip, three miles from the village of Soc Trang. The entire deployment—tents, vehicles, supplies—was made by air.

Saturday, 5 May: The Ba Xuyen Province Chief requested helicopter support to help his civil guards raid a VC "fortified village" located about 12 miles southwest of Soc Trang. Because of the proximity of the target, and

the obvious problem of maintaining an element of surprise, a tactic new to us was utilized. The helicopter flight rendezvoused over Soc Trang at treetop-level and proceeded to the objective at the same altitude. The flight leader climbed to 1,500 feet and flew slightly to the rear of the flight so that he could keep it in sight. He was thus able to give "steers" to each element of the flight so that they were able to land precisely as planned on sites that encircled the village.

This procedure of "calling the plays from the top of the grandstand" is quite effective when a low-level approach is required and low-oblique checkpoints are limited, as was the case here. Surprise apparently was maintained, too, because the troops reported 60 VC killed, 15 wounded, and 24 captured, with no friendly losses.

Wednesday, 9 May: The village of Cai Ngay is located about 20 miles south of Ca Mau, and is situated in a heavily wooded area where two sizable streams cross. The Viet Cong had made Cai Ngay a well fortified village. We received a mission request to pick up troops from the 21st Division at Ca Mau and land them at Cai Ngay as soon as a preparatory air strike had lifted. According to plan, the Vietnamese "Able Dog" pilot broke off his attack as we came in sight. He had been working the village over for about 20 minutes and several columns of rising smoke indicated that he had done his job well.

The helicopter flight split into six smaller flights to land troops in their encircling positions, and the individual flights commenced their landing approaches simultaneously. Half the flights received small arms fire while they were still in their approaches, and it continued until after they had discharged their troops and departed the area.

Eight of the 22 helicopters, plus the only participating OIB, were hit at least once. One Vietnamese Army man was killed and another wounded while they were airborne. Some automatic rifle fire was observed. All except one of the damaged aircraft were able to get back to Ca Mau before repairs were made. The damaged aircraft had to make an emergency landing a few miles from Cai Ngay for repairs before it could be returned to Ca Mau. The "down-bird" procedure got another workout.

Why, we wanted to know, were we subjected to this heavy opposition when we were landing on the heels of an air strike? We concluded that it was not in spite of, but because of the air strike. When the air strike started, the VC grabbed their guns and headed out of town. They must have made it as far as the ditches and dikes running through the fields that were the intended helicopter landing sites. There the VC took up firing positions.

The VC were doubly lucky in this instance, because they apparently found themselves outside the ring of troops the helicopters placed around the village. When the troops closed on the village, their bag was zero.

We began to have serious reservations about preparatory air strikes in this type operation. Besides the possibility of inflicting casualties on current or potential friends, forfeiture of the element of surprise is a certainty. There did not seem to be enough favorable results to offset these drawbacks.

That is not to say, however, that there is *no* place for air support in counter-guerrilla operations. Some *on-call* support would have been most welcome that day, and would probably have caused some VC casualties. But the language barrier between the attack pilots and helicopter flight leader precluded calling the strike in on target. This mission precipitated our insistence upon being covered by support fighter aircraft flown by English-speaking pilots.

Thursday, 10 May: The squadron returned to the scene of its first combat troop lift today, and the general scheme of maneuver was just about the same as before. This time, however, there was a welcoming committee.

As the flight approached the village, armed men could be seen scurrying out into the fields where they dove into tall weeds and literally disappeared. A few of them, who happened to land in a sparse spot, could be seen lying on their backs firing upward at the helicopters as they passed only a few feet above them. The rest of them were presumably doing the same thing. One helicopter was hit, but was able to make it back to the forward loading site before repairs were made.

This mission pointed up a cardinal principle of counter-guerrilla work: never repeat a previous maneuver. It is a tremendous temptation to repeat something that works

well the first time, but there are few tactics more dangerous (or less effective) when operating helicopters against irregulars.

By the very nature of their doctrine, the Viet Cong is an "army of shadows." They *must* remain dispersed among the population, mass only when they intend to deliver a blow, then very rapidly disperse again. As long as the struggle is classified as an insurgency, they will always be "outweighed" by the government troops. Therefore, if they allow themselves to become cornered, they are dead.

While the government troops are "heavier" and pack more punch, there is no reason why they cannot be just as nimble as the VC, if the helicopters are employed to maximum advantage. There is no point in "telegraphing punches" with elaborate preparations for a massive mission; quick-reaction missions give better results anyway. And it isn't that difficult to vary ground tactics, constantly change flight procedures and routes, and employ various means of deception.

In the instant case, the VC apparently were so sure that the previous successful operation would be duplicated some time in the future that they formulated a counter plan and waited nearly a month to put it into effect. And it paid off for them. Also, when five helicopters were shot down on a single mission early in 1963, it is reported that they were making their *third* landing in the same place.

Saturday, 19 May: The Ba Xuyen Province Chief received intelligence to the effect that a meeting of some Viet Cong leaders would take place in a village about 12 miles southeast of Soc Trang. Troops were brought to Soc Trang for loading and they were landed in "typical" formation (i.e., in four groups at the four corners of the objective village).

The Viet Cong, as usual, started slipping through the thin line of government troops, and headed for a river that lay about a mile away across open rice paddies. Their getaway seemed to be certain.

About the time they reached the mid-point between the village and the river, however, four helicopters that had been circling out of sight came in and landed their troops in a column between the VC and the river. Not all the fleeing VC were captured, but the tactic was successful enough to convince us that we were on the right track by employing an airborne reserve concept.

The principal reason the effort was not more successful was that some of the troops didn't know which way to advance when they debarked from the helicopters. We remedied this situation for future operations by preparing a debarkation diagram. A simple sketch was made of the plan view of the helicopter cabin. The legend, "Direction of Attack," was put on it in both English and Vietnamese. A quantity of them were reproduced and distributed to the pilots. Just before landing, the copilot marked an arrow on a diagram and handed it to the crew chief, who in turn gave it to the heli-team leader.

Wednesday, 23 May: A message was received about 2000 stating that two Vietnamese officers had received severe head wounds in an engagement about 30 miles southwest of Saigon and needed immediate evacuation. The weather was quite poor at the time. A ragged ceiling hung at about 300 feet and rain-hampered visibility was limited to no more than a couple of miles.

Two helicopters launched and navigated the 50 miles to the pick-up point by a combination of dead reckoning and occasional visual checks on larger towns en route. When they reached the vicinity of the site, they were guided to a landing by a bonfire. The casualties were picked up rapidly and taken to a hospital in Saigon.

Judging by the reaction of the 7th Division Commander, in whose sector it took place, this was as important as any mission we flew. He indicated that this was the first night helicopter evacuation they had had, and the effect it would have on the morale and fighting spirit of his troops was immeasurable. Daytime casualty evacuation missions were numerous and routine.

Sunday, 27 May: We were "spending a quiet Sunday at home" when a message was received that a fortified village located about 85 miles north of Soc Trang was under attack. Aircraft were manned and launched immediately and proceeded to a troop pick-up site about 15 miles from the besieged village. The VC broke contact immediately and slipped away into the nearby woods just before the troops were landed.

While the mission produced no scalps, we heard later that this rapid response to a call

for help from the villagers did much toward selling the fortified village concept to the people in that vicinity.

We heard of more than one instance where the VC broke off an attack simply because helicopters appeared overhead, even though the 'copters were headed on another mission and the crews were unaware that the attack was in progress. So the mere presence of airborne helicopters in an area would appear to limit the insurgents' freedom of action.

Saturday, 2 June: An American advisor in an observation aircraft spotted what appeared to be a VC camp on a hilltop in the vicinity of Rach Gia. He reported the sighting to the 21st Division Commander, who immediately requested and received helicopter and fixed-wing air support.

The helicopters were launched from Soc Trang as soon as they could be manned, picked up troops at Can Tho, and proceeded to the objective. When they arrived, a B-26 Vietnamese bomber had the hilltop under rocket attack. The troops were landed in an encircling disposition around the base of the hill. They contracted around its sides and scaled the hill without making VC contact.

This seemed to us to be another case of an air strike serving the purpose of warning the VC, if this had indeed been one of their camps. It strengthened our previously stated conviction that uncontrolled air strikes are of questionable value at best in counter-guerrilla work and probably do more harm than good.

Monday, 4 June: The day started as a routine lift of 7th Division troops in the Plain of Reeds area to the west of Saigon. But it turned out to be our "Longest Day."

When the troops landed on their first objective, a village situated at a stream junction, many armed and uniformed Viet Cong soldiers were flushed from the village. They headed north in the direction of the Cambodian border. This signalled the beginning of a huge checker game all over that sector.

When the helicopters returned to the pick-up point for the second scheduled load, the flight leader hurriedly briefed the Division Commander as to what he had observed. The Division Commander decided to carry through with the second scheduled landing in approximately the same place as the first. He indicated that this was to give him a substantial holding force and he would start hitting from the other direction (i.e., this was to be his "anvil" and he intended to make other "hammer landings" and catch the VC in between).

Five more landings were made with troops from the reserve and from various garrisons in the area, and with security troops "borrowed" from the local province chief. On one of the landings, the VC got the jump on the government troops and slipped outside the "net." The helicopters swung around and made a dummy landing approach to the far side of them, so they turned and ran back into the face of the government troops (an example of deception, as previously mentioned).

On the last landing, we confirmed something we had suspected right along: the aviator's hard hat is not bullet-proof. The flight leader's copilot, was leaning out the window using a submachine gun to spray a group of VC troops who were firing at the flight as it was lifting off. The flight leader heard a bullet hit the aircraft and looked around the cockpit to see if everything was still functioning. He saw a large hole in the back of the copilot's helmet and informed him that the back of his helmet had been nicked. The copilot turned around to face the flight leader, who then spotted a small clean hole in the front of the helmet. The bullet had gone in the front of the helmet and out the back, passing through the half-inch-thick padding between the helmet and his head.

The main lesson gained from this day's flight was the importance of remaining flexible. It is a good idea to plan meticulously for this type combat, just as much so as with any other type. Since targets are nearly always fleeting, however, and unexpected opportunities present themselves and then nearly always evaporate immediately, the commander must be prepared to alter his plans much more rapidly than with most other types of combat. Ideally, an officer with power of decision over commitment or noncommitment of the troops should be airborne over the scene of action.

"Meanwhile back at the fort," (Soc Trang) things were somewhat less than quiet for the few aircraft and crews left there. The Ba Xuyen Province Chief came to the base seeking assistance. He had been unable to

gain communication with his garrison at Vinh Quoi, about 25 miles west of Soc Trang.

Troops were loaded into the only four helicopters remaining at the base, and they proceeded to Vinh Quoi. When they arrived, they found the village in flames, with several hundred pillaging VC still on the scene. The VC decided to flee instead of finishing their job of destruction—probably because they had no way of knowing that the bulk of the choppers were up north and they outnumbered by far any force that could be landed right away.

As the VC scurried away from Vinh Quoi in all directions, by boat and on foot, the four helicopters shuttled troops into the ransacked village to set up a defense before dark. On outbound trips, they evacuated the widows, orphans, wounded, and dead.

Thursday, 7 June: On a landing with 21st Division troops today, many people flushed from the objective village while the helicopters were on final approach. There were so many, in fact, that they posed somewhat of a traffic problem in the landing sites. As no weapons were in evidence, it was out of the question to use suppressive fire, both because of the don't-shoot-first policy and the likelihood of hitting innocent people. Nevertheless, two of our helicopters were hit by small arms fire.

This was by no means the only time we were faced with this situation—the VC intermingling with the local population while they fired at us. If there is an answer to this problem, we didn't find it. This is one of the inherent characteristics of counter-guerrilla work that merely has got to be accepted as part of the job.

Friday 8 June: Today we experienced good results with the Eagle Flight (the name given to the airborne reserve). A system of ground-to-air signals was worked out so that the same troops could be retrieved and used over and over again.

As usual, many people started streaming out of the objective village while the main flight of helicopters was landing. The reserve troops were then placed where they could intercept and check a group of them. When they were satisfied that they were "clean," they would signal for pick-up. In the meantime, the helicopter flight cruised around keeping the

The diminutive size of the average Vietnamese made it difficult for him to embark in the helicopters when he was on solid ground, and impossible when he was in the mud.

GCA	Ground Control Approach
MABS	Marine Air Base Squadron
MATCU	Marine Air Traffic Control Unit
SEATO	South East Asia Treaty Organization
TACAN	Tactical Air Navigation
TAFDS	Tactical Aviation Fuel Dispensing System
T/O	Tables of Organization

area under surveillance, and would have another suspicious group spotted by the time the troops were picked up again.

This evolution was repeated several times before they hit pay dirt. A lone, black-clad figure was seen making his way from dike to dike toward a tree-lined canal, his apparent escape route. The troops landed and picked him up, and he was identified as a VC leader. He was carrying a suitcase filled with money and documents.

Thursday, 14 June: The squadron participated in its first jungle mission today, supporting the 5th Division in a landing in Viet Cong "D-Zone." The landing site was a pear-shaped clearing about 35 miles north of Saigon, in which the VC had emplaced sharpened bamboo poles as an anti-helicopter device. While the helicopters could probably have landed among the poles without too much difficulty, it would have been pretty hard on the troops when they debarked. Therefore, the landing was made around the perimeter of the clearing between the poles and the trees.

By restricting us to a landing in this narrow perimeter, the VC had an ideal set-up for a mine or machinegun defense. Fortunately, though, they chose not to defend the site.

We noted several differences between jungle and delta helicopter operations. Whereas we had some degree of selectivity of landing sites for a particular objective in the delta area, there are likely to be no more than a couple, and perhaps only one clearing in the jungle that is usable for a certain objective. This, of course, favors the defender.

Also, it is more difficult to remain oriented over a "sea of trees" than over a patchwork of streams and canals. Generally speaking, though, the degree of accuracy in navigation is greater than in the delta area. Dead reckoning can be employed over the jungle, and when it leads to a clearing, that undoubtedly is the right spot. In the delta, however, most villages are similar enough in appearance that the objective could be any one of several in the immediate vicinity unless pinpoint navigation and accurate map reading is used to single out the proper one.

Although it fortunately did not apply on this mission, the matter of making forced landings and retrieving crews from downed aircraft is considerably more difficult in a jungle area than on the delta.

Saturday, 16 June: The VC ambushed a convoy to the north of Saigon, killed two American officers and several Vietnamese soldiers, and captured a quantity of weapons. The squadron was diverted from another mission to land troops in an attempt to head them off.

The helicopters received small arms fire while landing. As soon as they had discharged their troops and cleared the area, a radio call was received that requested them to land again and move some troops that had been placed in the wrong spot by another outfit. The request was denied.

The only reason this is noted here is to bring out a principle. Although we considered it feasible to land and discharge troops while receiving moderate small arms fire, it is *not* feasible to land and sit on the ground long enough to load troops within range of opposing small arms. Troops can debark in a few seconds, but loading is another matter. Either the troops must group into heli-teams for rapid loading and be vulnerable themselves, or the helicopters must make sitting ducks of themselves while they wait for the troops to get organized and loaded. Therefore, loading must be done in a "secure" area, unless likely loss of troops and/or helicopters is an acceptable risk under the prevailing situation.

Monday, 18 June: Today was the only time we had to delay a mission because of weather. Between the pick-up point and the landing site, rain got so heavy that we could no longer keep visual contact with the ground and the flight elements lost sight of one another. A preconceived plan for such a situation was executed without difficulty. On signal of the flight leader, each flight element reversed course in turn, starting from the rear. After breaking into clear weather, the flight rendezvoused and proceeded to the pick-up point to wait for the squall to pass, then proceeded with the operation again.

Friday, 6 July: We made a second trip to Cai Ngay today. The helicopters received no opposing fire and the troops found the town completely deserted. The state of the refuse and garbage indicated that the mass evacuation had probably taken place the day be-

A Vietnamese infantryman, his AR-15 rifle slung over his shoulder, heads out on a patrol, seemingly unmindful that his country has been engaged in anti-guerrilla warfare against the Viet Cong insurgents for more than nine years.

fore. The most logical explanation was that a security leak alerted the villagers.

Wednesday, 18 July: The largest helicopter lift in Vietnam to date took place today in a landing with 5th Division troops north of Saigon. The Marines led with 18 helicopters, the U. S. Army came next with 12, and the Vietnamese Air Force followed with 11.

In a joint operation like this, with helicopters flown by pilots who do not speak the same language, detailed planning is obviously a must. The foremost drawback, even if the operation is well-planned, is the lack of flexibility brought about by a virtual communication blackout. This particular operation was relatively uneventful and opposition was moderate, so it worked out reasonably well. That is not to say, however, that this should become a commonplace occurrence until some procedure is worked out to overcome the communication barrier.

Friday, 20 July: The first helicopter night troop landing in Vietnam was made today. The helicopters departed Soc Trang at 0425, departed the pick-up point at 0515, and landed the 7th Division troops on their objective in the Plain of Reeds at 0600, which was ten minutes before first light. The reasoning which dictated this selection of time was the desirability of an approach and landing in darkness for surprise, offset by the consideration that while the VC are slippery enough in daylight, in darkness they are even more so. Therefore, it was arranged that the government troops set up their encircling positions in darkness and close with the VC as soon as it was light enough to see.

All navigation would have to be visual, so the route was selected accordingly. The half moon would give enough light to reflect from bodies of water, which decided the checkpoints. Distinctive river/shore contours, lakes, and stream junctions provided the navigation fixes. Helicopter running lights were extinguished before reaching the Initial Point, and thereafter the engine exhaust was used to hold formation. The landing was made with the aid of the exhaust reflecting in the flooded rice paddies to show where the ground was.

The landing was completed without incident. It should be noted, though, that the success of this landing does not automatically make all types of night landings without landing aids a routine matter. The terrain was flat, the moon gave some degree of illumination, and the squadron at this time had been flying together for two years. The conditions were therefore nearly ideal.

Wednesday, 1 August: My squadron was officially relieved by another Marine helicopter squadron at 0001 this morning. All aircraft and gear changed hands at this point, although the actual work involved in the transfer had been going on for over a week. Also, the incoming pilots had been flying on missions in increasing numbers over the same

period, while my pilots were slowly phased back to Okinawa for return to the States. This created a minimum break in continuity because of the squadron exchange.

All told, my squadron had made some 50 combat troop-lift missions which entailed about 130 landings by flights of helicopters against Viet Cong opposition.

Seventeen of our helicopters and two of the OIBs sustained gunfire damage, most of them more than once. While the VC created considerable work for the metalsmiths and mechs, they fortunately did not manage to do any damage that came under the cognizance of the doctor.

A GRADUATE of the University of Maryland, Lieutenant Colonel Clapp was commissioned a second lieutenant and received the wings of a Naval Aviator upon completion of flight training at Pensacola, Florida, in July 1943. During World War II, he participated in the Iwo Jima and Okinawa campaigns and in the first carrier-based raid on Tokyo. He served in Korea from 1952–1953, where he flew combat support missions as a helicopter pilot and as an attack aircraft pilot. He is presently assigned as executive officer of the Marine Air Reserve Training Detachment, NAS Twin Cities, Minneapolis, Minnesota.

Crew Protection

Before we landed in Vietnam, we exchanged our orange flight suits for tan ones so as not to present quite as attractive a target in the cockpit. We wore standard ground-type body armor over the suits. This type protective gear is not ideal but was all we had. In the high heat and humidity, many of the crewmen developed fairly serious cases of rash from wearing the armor for extended periods of time. Also, the armor leaves too much exposed area and would not stop a direct hit anyway. A camouflaged, fire-retardant flight suit is needed in case the crew has to walk out following a crash landing. And built-in armor plate is needed in the helicopter. Ideally, it should be easily removable so that the additional weight would not have to be carried when it was not needed.

Armament

We decided not to install machine guns on the helicopters as the Army had done. There were several reasons behind this decision, the principal one being that it would tend to block the cabin door. We figured that our best defense was to hold our time on the ground in the landing zone to a bare minimum. The best way to accomplish this is to have the cabin exit door clear and to have the crew chief help the troops debark rather than handle a machine gun. We did, however, carry two "Greasegun" submachine guns in each helicopter. The copilot covered the left side of the helicopter while the crew chief covered the right when we were close to, or on, the ground. They, of course, fired only when they could see a VC soldier firing at us.

Maps

We used 1:250,000 maps for en route navigation and 1:100,000 for terminal guidance in the objective area. This was found to be an adequate system as long as the crew remained oriented. There is no opportunity for reorientation, though, when flying at 100 knots a few feet above the ground.

Vulnerability

The question of helicopter vulnerability seems to be a perennial one, so we will examine our experience in this regard. We had nearly every part of a helicopter hit at one time or another—main rotor blades, tail rotor blades and shaft, engine, transmission housing, tires, structural spars, etc. The only hits that made an immediate landing essential was when an engine oil tank or line was damaged, and the oil was subsequently pumped overboard. Granted, most of the hits were from single-fire weapons; and heavy automatic fire would probably have made it an entirely different ball game. Still, the helicopter does not seem to be as fragile as some people think.

It would be foolhardy in the extreme to try to storm a fortified position in helicopters, or attempt to operate in the vicinity of a machine gun concentration. Likewise, some losses will likely occur when operating in an environment somewhat less formidable than either of those described here. Still, it is not necessary to "sanitize" an area completely

before helicopters can operate in it, if moderate losses are an acceptable factor. Surprise, deception, sound tactics, and a variety of "plays" will go a long way toward keeping losses at a minimum level in the counter-insurgency environment.

Crew Escape

Although relatively slow-flying helicopters are undoubtedly more vulnerable than high-performance, fixed-wing aircraft, when subjected to the same pattern of fire, the helicopters do have an advantageous characteristic. In a counter-insurgency situation, the countryside is "no-man's land" at best, if not totally hostile. If a fixed-wing aircraft goes down, the crew must either evade and walk out, or defend themselves while a helicopter is summoned for pick-up. On the other hand, since helicopters do not normally travel singly over hostile territory, they have inherent escape means in the form of an accompanying helicopter. Also, they are more likely to have a repairable machine after landing, one that can be flown out again.

Escort Aircraft

Helicopters need escort aircraft to call on for suppressive fire. The escorting aircraft must have flight characteristics that permit them to stay close to the helicopters and constantly in a position to initiate an attack. A target is not going to be seen until it is firing at the helicopters, and when this happens, even a short delay is too long.

The armament of the escort aircraft should be anti-personnel in nature. Their sole mission is to make someone stop shooting at the helicopters, and make them stop immediately. When an enemy gunner is no longer a threat to the helicopters, he ceases to be a valid target for the escort aircraft. When the helicopters get out of his range, he should be forgotten unless there are aircraft in the vicinity that are not assigned to the escort that can take him under fire.

It is realized that this is a rather loose and indefinite treatment of the important subject of helicopter escort, but it is purposely so. It is intended merely to give a sketch of the *results* the helicopter flight leader needs in order for him to get his work done (i.e., keep the opposition off his back while he places troops where they are supposed to be). Much work is still needed in developing hardware and doctrine before this result is achieved.

Conclusion

What did Operation Shu-Fly add to the store of knowledge for this type combat? It certainly did *not* produce a group of anti-guerrilla experts who have all the answers. It is believed, however, that most of the participants did come away with a keen awareness of the unique characteristics of this type combat. Along with a very few answers, they undoubtedly have many more questions to which they will try to find solutions. And if an appreciation of the problems inherent in this facet of military operations is all that was gained, then the deployment can still be considered productive.

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Liaison Officer For Intercommunication

During a SEATO joint exercise, one of the allied officers was assigned as a liaison officer on board a U. S. ship. When he got back to his own ship, one of his friends was curious to know what he had done.

"Nothing," said the liaison officer, "Just translate our people speaking English to the English speaking people."

——Contributed by Lieutenant PRAVIT SIVARAKS, Royal Thai Navy