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MILITARY MONOGRAPH

TITLE: A TANK COMPANY ON OKINAWA

SCOPE: This monograph is written with a view of relating, in general, the experiences of Company "A", 711th Tank Battalion in the Okinawan Campaign. The monograph is divided into four sections: The preliminary planning phase, the assault phase, the operational statistics, and the conclusions and recommendations.

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Captain

SOUTHERN OKINAWA PROGRESS OF ATTACK

ROUTE of Company A

YONTAN
A/F

III
XXX
XXIV

HAGUSHI

ORANGE BEACH
I+II

KADENA
A/F

7
XX
96

1 Apr
2 Apr

4 Apr

10 Apr
15 Apr

1 MAY

10 MAY

20 MAY

NAHA

SHUREI

YONAGARI
A/F

YONAGARU

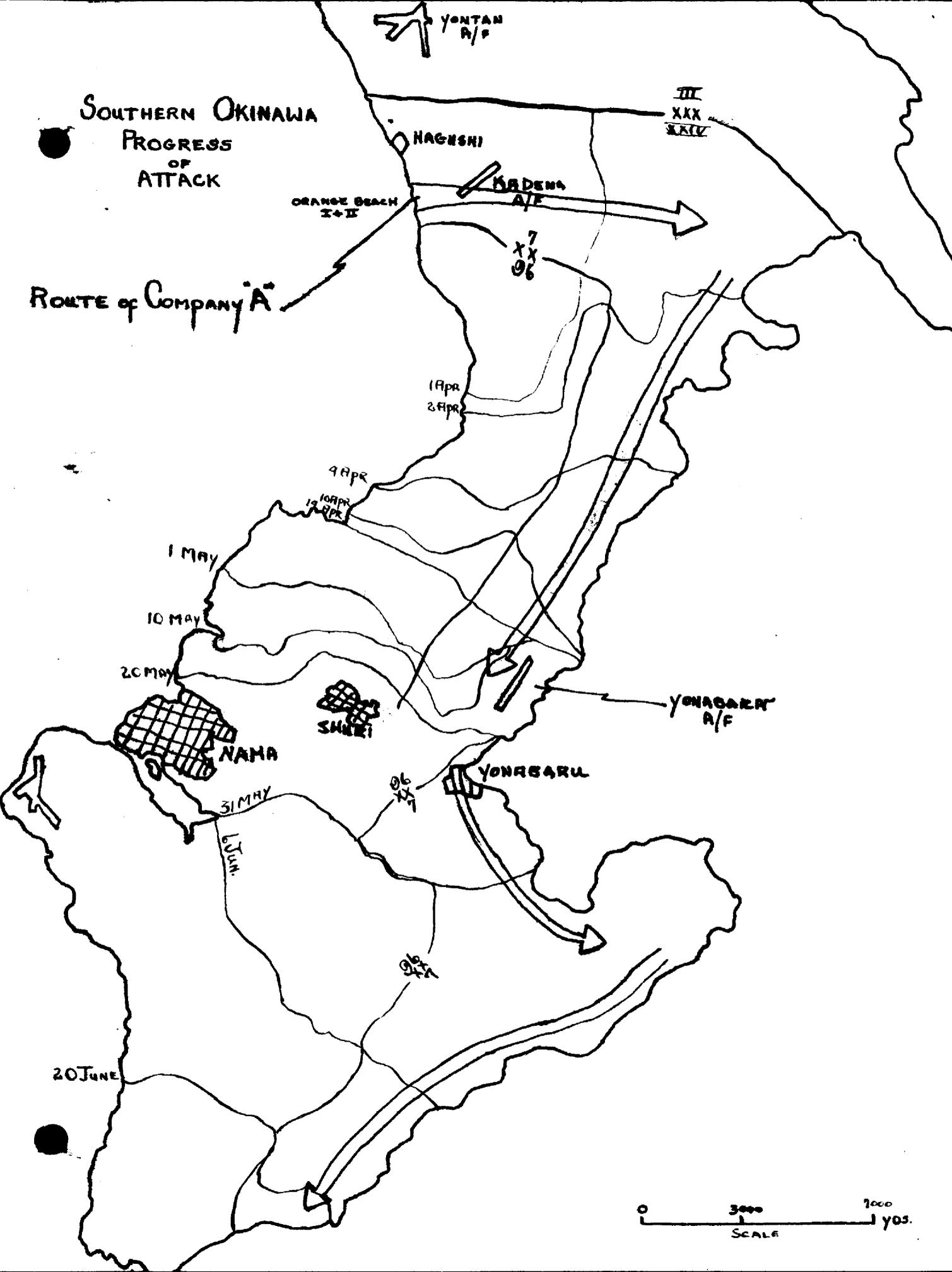
31 MAY

1 Jun

96
XX

20 JUNE

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"The enemy's power lies in its tanks. It has become obvious that our general battle against the American Forces is a battle against their M-1 and M-4 tanks-----."

the late General Mitsuru Ushijima
Commanding General, Japanese 32d Army
Okinawa

"The outstanding feature of Japanese ground organization encountered on Okinawa was the cave-type defense-----. The most frequent use of tanks (both standard and flame thrower) was in closely knit Tank-Infantry-Teams in close-in reduction of hostile cave and pillbox positions. For this work tanks were invaluable-----."

Action Report, XXIV Corps
Ryukyus Campaign

A TANK COMPANY ON OKINAWA

I

This story of "A Tank Company on Okinawa" must begin on the island of Leyte, for it was there the company executed the preliminary planning, training, and rehearsals in preparation for the invasion of Okinawa.

The 711 Tank Battalion was placed in support of the 7th Infantry Division on Leyte after the Leyte operation was completed. Training with the 7th Infantry Division started immediately. The tank companies were assigned to infantry regiments for training and later fought with these same regiments on the Okinawa Campaign. A number of exercises were set up to perfect the tank-infantry team emphasizing liaison, proper target designation by the infantry, moving and directing the tank to target, communication, and familiarization of infantry with tank characteristics.

The division artillery instructed all tank commanders in forward observer methods used by the division artillery, and familiarized the tankers in the organization and communications of the artillery. The division conducted a Transportation Quartermaster School which was attended by at least one officer from each company. The division also conducted a course of instruction in perimeter defense, and all officers and key NCOs attended.

To facilitate liaison between the infantry and tank, the mortar platoon personnel in Headquarters Company Tank Battalion were relieved of their mortars and given necessary radio equipment to form liaison teams. Each team consisted of a SCR 509 and two men, one radio operator and one man to carry the radio. There was a liaison team formed for

each of the tank platoons. The liaison corporal of each tank company with his organic equipment, 1/4 ton vehicle and SCR 509, constituted the liaison for the tank company commander at infantry regimental headquarters. The liaison teams made up from the mortar platoons were sent to the infantry battalion headquarters several weeks before embarkation so as to become acquainted with the personnel of the infantry battalion.

The regular water proofing kits were used to waterproof all wheeled vehicles and tanks. No particular difficulties were encountered for the kits included everything necessary and there was an adequate supply. Time was a limiting factor, and the job required the concentrated effort of everyone concerned.

It is interesting to note that we stowed ammunition of all kinds in considerable excess to that specified in training manuals. Each of the tanks carried fully a hundred per cent more 30 calibre ammunition than is specified and approximately fifteen more rounds of 75-mm and 105-mm ammunition.

All of the tanks supporting an infantry regiment were placed under the command of the medium tank commander. Hence, the company was reinforced by a platoon of five light tanks and a platoon of six medium M4A1 flame thrower tanks. The company's tank strength was then twenty eight tanks.

The battalion had a variety of ships on which it had to load its vehicles. Company "A" was extremely fortunate because, less platoons

attached, it was loaded on one Landing Ship Deck. The Landing Ship Deck is large enough to accommodate the entire company. Some of the other organizations experience considerable difficulty assembling all their vehicles prior to the assault landing and then again after landing. The individual tanks of the company were loaded into LCMs. This was accomplished by constructing sand approaches in the water to the ramp of the LCM. One of the tanks was lost when a LCM sunk enroute from the beach to the Landing Ship Deck. The exact cause was never definitely established, but it is believed the load was not properly balanced. This is quite possible for it was very difficult to lead the tanks into the LCM from these sand approaches. The chief difficulty was holding the LCM in place when the tank first entered. All other vehicles were loaded without mishap.

The target, Okinawa Gunto, is in the approximate center of a string of islands that are spread like a net across the eastern entrance to the China Sea. This string of islands is known as the Ryukyus. They are of little economic value, but their location gives them immense strategic importance. They command the sea approaches to the China coast between Peechew and Shanghai, and in Japanese hands the East China Sea was a Japanese lake. Okinawa is the key island of the entire group. It is a long narrow island made up of plateaus and ridges. It is sixty seven miles long, and varies from three to ten miles in width. The island provides many anchorage facilities and a number of seaplane landing bases. Although not large, the island also is ample for

airfields and submarine bases. Okinawa had three large airfields in operation, two airstrips, and other potential airfield sites. The strategic importance is illustrated by the following table of mileages:

Distances from OKINAWA

| | | | |
|--------------|------|-----------|------|
| TOKYO | 845 | SHANGHAI | 450 |
| OSAICA | 650 | HONG KONG | 780 |
| FUSAN, KOREA | 540 | MANILA | 790 |
| DA IREN | 830 | GUAM | 1230 |
| PEKING | 1000 | SAIPAN | 1210 |

II

The forces employed on the Okinawa Campaign were the III Amphibious Marine Corps and the XXIV Army Corps. Both were under command of Tenth Army. Both corps were used to cut the island in two, then III Amphibious Marine Corps and the XXIV Army Corps were to advance north and south respectively. Early on 1 April 1945, the landing forces assembled off Hagushi Beaches on the west coast of Okinawa under cover of intense fire from the air and sea forces of the Fifth Fleet. The landing was made with two corps abreast- XXIV Army Corps on the right and the III Amphibious Marine Corps on the left. XXIV Corps landed with two divisions abreast- 96th Infantry Division on the right and 7th Infantry Division on the left. Each division landed with two regiments abreast. Each regiment had two battalions in the assault.

Company "A" landed on Orange Beaches I and II on Landing Day, 1 April 1945, at H+30 minutes. These were interior beaches in the vicinity of Kadena Airfield. The landing was made with virtually no opposition by the enemy. The only difficulties encountered were those presented by the beach and terrain. The tanks were unloaded from the LCM on a reef, approximately seventy five yards from the shore line. The water was approximately three feet deep. It was necessary to exercise extreme ^{caution} to avoid the shell holes in the reef caused by naval gun fire. Company "A" lost no tanks in the shell holes. Inland from the shore line at approximately thirty five yards, the first terrain obstacle was encountered. The Okinawians had constructed retaining walls for their fields out of rock, coral, and cement. The walls were between four

and five feet high and approximately a foot and a half thick. The tanks passed this obstacle by taking advantage of the broken sections in the wall created by the naval gun fire. Even though the obstacle mentioned did not cause any serious delay, considerable confusion resulted and individual tanks were lost from their platoons.

The next terrain feature that was of some concern was a gorge that varied from fifty feet to a hundred and fifty feet in depth and from fifty to two hundred feet in width. The gorge separated Orange Beaches I and II. One tank of the first platoon was forced to remain in a forward area the first night after it hit a mine that damaged its suspension system. Company maintenance was incapable of assisting the tank because of this gorge. Until the second day when the tank was evacuated to the rear by the company maintenance, the tank crew with assistance ^{from} by the infantry prevented the enemy from further damaging the tank.

Another incident that occurred the first day that is noteworthy happened while over running Kadema Airfield. The Japanese had utilized all forms of natural cover around the field such as shacks, haystacks, barns, and caves to store ordance materiel, spare parts, ammunition, and other items used in conjunction with the airfield. The tanks with infantry in close support were reducing these installations until the tank fire set off considerable quantities of aerial bombs. This resulted in injury to infantrymen. Hence, the infantry hesitated using the tanks in close support for the remainder of the day.

The first platoon got into difficulty with the terrain. The first three tanks negotiated a fill across a small defile that had been constructed for native wagons or cart traffic. The fill gave away when the fourth tank attempted to cross and it turned over. The platoon was split on either side of this fill and was forced to spend the night in this isolated position. They succeeded in killing five Japanese without loss to themselves. The fourth tank was righted the next day, and the platoon continued to fight.

The progress to the eastern side of Okinawa, and then the movement south was relatively uneventful until about 7 April. The intensity of enemy artillery fire grew progressively worse. During this period almost the only contact with the enemy was at night. The enemy persisted in attacking the company bivouac area at night with small raiding parties. The raiding parties usually were armed only with hand grenades, knives, and bundles and cylinders of picric acid. The picric acid, an explosive, was a hard substance in one pound blocks. The Japanese would tie together varying numbers of these blocks armed with a fuse and attempt to place them under a tank. The Americans referred to these bundles as satchel charges. The Japanese attempted the same thing with the cylinder shaped tubes filled with picric acid and armed with a fuse.

Our system of perimeter defense proved very effective, for the enemy raiding parties attacking Company "A" were never successful. In general, it consisted of placing the tanks in a circle between

twenty and fifty yards apart. Every effort was made to go into bivouac before dark so as to facilitate laying the coaxial machine gun for grazing fire in front of the tank and crossing the fire with adjacent tanks. The bow gun was dismounted and placed into position for firing from under the tank. A hole was dug under the tank approximately a foot and a half in depth and large enough for three men to sleep and for one man to sit guard. Each tank was connected to its respective platoon leader with sound power wire, and the platoon leader was connected with the company commander. The company commander and headquarters section were located within the perimeter. The company commander was connected with infantry regimental commander by sound power wire and on some occasions by radio. Trip flares were placed at likely avenues of approach outside of the perimeter. This system provided complete communication and all around protection.

During this period and throughout the operation, the company tank dozer proved invaluable. Because of the presence of the extensive irrigation system, there were many small bridges or culverts which the Japanese destroyed. The dozer was constantly at work preparing crossings over the irrigation ditches and otherwise impassable terrain. The dozer was used to break the ground for each tank when a perimeter was set up. The dozer was used to seal caves, and thus prevent the further use of the caves by the enemy. In some cases the dozer was used to determine the existence of mines. In areas where mines were suspected the dozer preceded the column, pushing its blade along the

surface of the ground. Several mines were detonated without injury to the crew or to the tank. In all cases the damage to the blade was negligible. Also the dozer was most effective in making an area just occupied livable by clearing and burying the remnants of the Japanese Army.

The deepest penetration into enemy territory was made on 7 April by a platoon of tanks attached to an infantry reconnaissance platoon. The mission was reconnaissance in force of Youaberu Airfield. This force advanced into enemy territory a mile and one half, but were forced to abandon the mission after receiving intense artillery fire and mortar fire while canalized on a section of road. This maneuver apparently took the enemy by surprise for it was uninterrupted until the concentration of artillery and mortar fire fell. The force was permitted to fire on the reverse slopes of Japanese positions which resulted in inflicting considerable damage and sealing numerous caves. The tanks and infantry reconnaissance platoons withdrew without loss, but this type operation was never attempted again.

The progress of the attack from 10 April to 1 May slowed down considerably. At this time the American forces were in contact with the concentrated enemy strength. The Japanese commander had most of his forces in the southern part of the island which was the most important part in respect to population, resources, and development. Here he made full use of the advantage given to him by commanding ground. The ground pattern on Southern Okinawa is such that the ridges and principal

hill masses run generally across the island or perpendicular to the American advance. The enemy organized his defenses so that a battle had to be fought for each successive ridge. The winning of the forward slope and then the crest was only a prelude to the struggle for the reverse slope. The company, still supporting the 32d Infantry Regiment, assisted in taking these ridge line objectives until the well known Yeuabaru-Shuri-Naha Line was finally reached.

The defensive position on Okinawa proved that the Japanese had learned from defeat. His organized defensive technique was decidedly improved. The hills, ridges, and escarpments, usually of volcanic origin or coral rock, had natural caves, crevasses, and indentations. The enemy developed these natural features with innumerable deep caves and connecting tunnels or in some cases a deep trench system. The caves had various exits to the flanks and rear or reverse slope of the positions. The enemy always provided for several firing positions for each of its direct fire artillery pieces or antitank guns. Frequently these positions would be at different elevations on the hill side. Some of the guns captured were found mounted on narrow gauge railroad tracks which facilitated easy movement from one firing position to another. The positions were always well camouflaged and equipped with an opening and closing device. The device was a sheet of metal positioned at such an angle that when opened direct hits were often deflected thus causing no harm to gun or crew. These positions were sited for mutual support and always had infantry and automatic weapons for local

protection. These special defensive strongpoints were further augmented by fortified tombs, pillboxes, revetments, and blackhouses. Particular attention was paid to all around defense and defense organized in depth. The approaches to these cave positions were covered by indirect artillery fire and mortar fire. These positions were constructed large enough to facilitate continuous occupation by the crews. In fact, accommodations for most of the troops defending a hill or ridge were provided in these cave-tunnels. There was room for supplies of ammunition, water, and rations.

The occupation of each of these ridges was possible only after the bitterest of fighting. The terrain was relatively open and in general permitted free movement of tanks. The infantry took full advantage of this and demanded the maximum of their tank support. Emphasis was not placed on the close coordinated infantry-tank team. The terrain was sufficiently open to permit the mutual support of tanks, and tank maneuverability was not too restricted. The most important factor was the quantity of artillery fire attracted by the tank. The artillery fire made it impossible for the infantry to remain in close vicinity of the tank.

The chief weakness of this cave type defense was that it tended to immobilize the defenders and to make them vulnerable to a determined tank attack. The tank could maneuver so as to direct large calibre fire and flames into cave openings on either forward or reverse slopes. The Japanese did try to counteract this by moving a portion of the

defending force out via side and rear exits to engage our forces from the flank. These were not banzai attacks, but well coordinated, effective maneuvers.

The cave system of defense provided the Japanese good protection from naval air strikes, naval gunfire, and army artillery fire. He was vulnerable to attack by infantry and tanks. To combat this form of attack the enemy relied upon his artillery to separate the infantry from the tanks. This was substantiated by captured enemy documents. Japanese PW also revealed that the primary mission of all artillery, both indirect and direct, was the destruction of the U.S. tanks whenever they presented a target. The effectiveness of the Japanese artillery and mortar fire was most surprising to the Americans. Previously their artillery had been unimpressive. Heretofore the artillery fire was uncontrolled, lacked coordination, and heavy artillery concentration or counter battery was not employed by the Japanese. Usually guns were sited in direct fire positions and employed individually. The guns that were fired indirectly lacked coordination or mass. On Okinawa there was a decided improvement. The Japanese used a carefully coordinated over all defensive fire plan with guns situated for the firing of concentrations of battery and battalions. Okinawa was reported to be the location of the Japanese artillery school. They had made complete survey and registration of their artillery.

As the attack progressed, the Japanese were forced to keep their artillery concealed in caves during day light hours. The American

counter battery fire and naval air craft took too great a toll of his artillery. However, he continued the night artillery, particularly at dawn and dusk, when the Americans were more relaxed performing maintenance, eating, and engaged in personal chores. The enemy's artillery on Okinawa included 70-mm, 75-mm, 105-mm, 150-mm, and many of the same calibre in howitzers. His mortars included 50-mm, 70-mm, 81-mm, 90-mm, 150-mm, and 320-mm (spigot) mortars.

The more elaborate positions mentioned previously were most effectively reduced by the flame thrower tank. The infantry came to "love" the flame thrower tank. In fact, they would not move until the forward slope of their objective was completely burned from end to end. The effectiveness of the flame tank was due to the ability of the flame to penetrate the opening of a position and "turn corners" within. Frequently the enemy was destroyed even if they were not burned due to the rapid consumption of oxygen in such a limited period of time by the intense heat. This was particularly true if a cross draft did not exist in the cave or tunnel. The Japanese were terrified by the flame tank. This was learned through prisoner interrogation. The greatest problem was getting the tank within flame thrower range. This problem represented many hours of study of terrain reconnaissance on the part of all concerned, including the division engineer. Another discouraging factor was the problem of keeping the tank supplied with flame fuel. A tank would expend its load in fifty to seventy seconds of continuous burning. In many incidents it would take hours before it could be refueled.

The flame tank battalion resupplied their units and initially the commander of Company "A" had no control over this operation. Too frequently the service facilities were not displaced far enough forward. Much valuable time was lost, but this was corrected. The formation habitually used was one flame tank attached to a section of tanks with 75-mm guns. The 75-mm gun tanks would support the flame tank, leaving the flame tank free to concentrate on its mission. The flame tank was forward with a standard tank on each of its flanks. In addition to supporting the flame tank, the standard tanks had the mission of destroying the enemy that was forced to leave its position as a result of the flame. This combination was most effective, and many Japanese were flushed from their positions by the flame and fell the prey of 75 calibre and 30 calibre fire from the standard tanks. After the infantry learned to know the flame tank, and when the terrain was more suitable to tank movement, every village, every wooded area, and every likely position was burned, wither killing the enemy with flame or forcing him to expose himself to the fire of 75-mm guns and 30 calibre guns. The flame thrower tank proved to be a most valuable and effective weapon on Okinawa.

It is noteworthy to mention that the company was used once on this operation as auxiliary artillery. The company was not tied in with the organic artillery nor was it given any firing data by the artillery. It simply went into an indirect firing position and supported the advance of 32d Regiment in such a position. This act was prompted after continuous

continuous rains prevented or further complicated the maneuvering of tanks. Also, we could not fire direct fire from front line positions because of the artillery fire we would attract on the infantry. Shortly hereafter the 7th Infantry was relieved by the 96th Infantry Division for a period of ten days. The company remained in an indirect fire position just one day. Three officers of the company went forward in different places of the front lines and acted as forward observers. The fire was effective and several missions on enemy occupied tombs and caves proved most successful.

III

During eighty three days of combat, seventy of which were days of commitment, Company "A" used 13,113 gallons of 80 octane gasoline or an average of 158 gallons per day. This consumption of gasoline was far less than was contemplated during our training phase. The training participated in was based upon the experience of tank units in the Mediterranean Theater rather than the Pacific Theater. The difference may be explained by the close tank-infantry coordination demanding limited movement over short distances, and the fact that forward assembly areas for the company were habitual. Also the excellent defensive positions occupied by the enemy in this limited, rugged, defensive terrain demanded frontal attack with only localized envelopments. The maneuver of tanks was restricted.

The same reasons limited the requirements of lube and grease. Also the tanks were new, and the maintenance was at a high level. Following is a table of lube and grease consumption:

| | |
|------------------|-------------|
| SAE #50---- | 575 gallons |
| SAE #30---- | 185 gallons |
| SAE #90---- | 139 gallons |
| Grease CP #1---- | 50 pounds |
| Grease CP#2---- | 240 pounds |
| Keresene----- | 30 gallons |

The above data does not include the consumption of the flame thrower platoon attached to Company "A".

The consumption of ammunition was not different from what was contemplated during training and preliminary planning. The expenditure of ammunition indicates the preponderance of fire placed on the enemy by the company. Following is a list by type of ammunition consumed:

105-mm How. Shell, S/F, HE, M1, w/PDF M48A1 or M48A2-----1769 rds.
 105-mm How. Shell, S/F, Smoke, Phos. WP, M60, s/PDF M57-- 20 rds.
 75-mm Gun, Shell, Fixed, HE, M48 S/C w/PDF M48-----9421 rds.
 75-mm Gun, Shell, Fixed, HE, M48 N/C w/PDF M48-----1728 rds.
 75-mm Gun, Shell, Fixed, HE, M48 S/C w/PDF M54-----3700 rds.
 75-mm Gun, Smoke, Phos. WP, Mk11, N/C unf.----- 75 rds.
 75-mm Gun, Proj. Fixed, APC, M61, w/Tracer&EDF M66A1----- 304 rds.
 75-mm Gun, Shrapnel, Fixed, Mk1----- 33 rds.
 37-mm Gun, Shell, Fixed, HE, M63, w/BDF M58-----2032 rds.
 37-mm Gun, Shot, Fixed, APC, M51, w/Tracer----- 244 rds.
 37-mm Gun, Canister, Fixed, M2----- 669 rds.
 Mortar, Bomb, Smoke, 2inch Mortar, M3, C/R----- 96 rds.
 Grenades, Hand Frag. Mk 11A1 w/ign. fuse M10A3----- (app)370 rds.
 Calibre 30, Cart., ball & tracer, 4-1----- 719,280 rds./
 Calibre 50 ----- none
 Calibre 45----- (app.)29,000 rds.
 Flare, Trip, M49 and M48-----74

It was necessary to use the shrapnel, normal charge ammunition, and HE with M54 fuse because of a shortage in 75-mm gun ammunition. The shrapnel proved more satisfactory than was anticipated. It gave a

canister effect proving very effective at close ranges. It could not be fired reliably at great ranges.

A detailed list of tank and vehicular parts required on this operation is not at hand. Attention is directed to that section of this report dealing with 2d and 3d echelon tank maintenance. There one may note the major items needed as replacements. It is to be recalled that the company was equipped with new M4A3 tanks. The parts replacement was due to enemy action and not as a result of wear and tear.

Tank Damages and Personnel Losses

| <u>Tank</u> | <u>Cause of Damage</u> | <u>Damage to Tank</u> | <u>Salvaged or Repaired</u> | <u>Personnel Casualties</u> |
|-------------|---|---|-----------------------------|-----------------------------|
| Tank w/75 | Molotov Cocktail | Burned hoses and wiring | Repaired | None |
| Tank w/75 | Satchel charged and later burned | Completely destroyed | Destroyed | None |
| Tank w/75 | Satchel charged and later burned | Demolished by fire | Destroyed | None |
| Tank w/75 | Hit mine, satchel charged, later burned | XXXXXXXXXX | XXXXXXXXXX | 2 EM wounded |
| Tank w/75 | Hit mine, satchel charged, later burned | XXXXXXXXXX | XXXXXXXXXX | 1 EM wounded |
| Tank w/75 | Hit mine | Broke track damaging Begie Wheel | Repaired | None |
| Tank w/75 | Immobilized by terrain, later burned by enemy | Demolished by fire | Destroyed | 1 EM Killed |
| Tank w/75 | Direct hit from Jap artillery | Caved in top of right sponson, destroyed gas tank | Repaired | None |

| <u>Tank</u> | <u>Cause of Damage</u> | <u>Damage to Tank</u> | <u>Salvaged or Repaired</u> | <u>Personnel Casualties</u> |
|------------------|---|--------------------------------------|-----------------------------|-----------------------------|
| Tank w/75 | Hit Mine | Final drive and one Bogie bracket | Repaired | None |
| Tank w/75 | Immeblized by terrain later burned by enemy | Demolished by fire | Destroyed | 1 EM killed |
| Tank w/75 | Satchel charged | Engine and radiator | Repaired | 2 wounded |
| Tank w/75 | Hit mine | Broken track | Repaired | None |
| Tank w/75 | Artillery fire | Tank burned | Destroyed | None |
| Tank w/105 | Hit mine | Suspension system & engine destroyed | Salvaged | None |
| Tank w/75 | LCM sunk | Lost in Leyte Bay | Destroyed | None |
| w/flame thrower | Immobilized by terrain later burned | Demolished by fire | Destroyed | None |
| Tank w/f thrower | Jap artillery fire | Radiator, sprocket & track damaged | Repaired | 1 EM killed |
| Tank w/f thrower | Jap artillery fire | Radiator, sprocket & track damaged | Repaired | 1 EM wounded |
| Tank w/75 | Artillery or mortar fire | Damaged engine and radiator | Repaired | None |

It will be noted that the greatest damage done to Company "A" was as a result of attacks by enemy personnel armed with satchel charges, demolitions, and inflammable liquid. This was the most effective weapon the Japanese used for the total destruction of tanks. The terrain favored the defender, immobilizing the tanks, slowing down the tanks, prevented freedom of maneuver, and permitted the enemy to close in and accomplish his mission. However, the battalion after action report indicated that more tanks were disabled by artillery fire. The nature of the damage in most cases allowed repair, but the tanks were out of action for considerable periods of time. Mines of all types were the third most destructive to the battalion. The Japanese used a combination of a mine with either an aerial bomb or a large artillery round of ammunition. These mines alone were not sufficiently large to inflict total destruction of American tanks.

The personnel casualties listed are not the operational total. In addition, two men were severely burned when the ship they were on was struck by a Japanese suicide plane. Two men were wounded by artillery in the company bivouac. One man was killed by a Japanese sniper. There were a few other minor casualties. It is felt that the number of casualties received was low. This may be attributed to a high degree of skill, courage, and a certain amount of luck.

2d and 3d Echelon Maintenance on Tank, M4A3

| <u>Date</u> | <u>Reason</u> | <u>Work Performed</u> |
|-------------|------------------|--|
| 4-2-45 | Hit mine | Replaced Bogie wheel and sections to track |
| 4-10-45 | Artillery fire | Straightened and welded right rear suspension, replaced top engine compartment door. |
| 4-10-45 | Hit mine | Replaced sections in track |
| 4-10-45 | Artillery fire | Replaced final drive, repaired final drive plate, replaced right suspension assembly |
| 4-19-45 | Hit mine | Final drive and bogie bracket |
| 4-20-45 | Artillery fire | Replaced engine, replaced radiator |
| 4-30-45 | Mechanic failure | Pulled engine, replaced clutch assy., replaced gas tank. |
| 5-3-45 | Mechanic failure | Replaced transmission oil cooler |
| 5-7-45 | Artillery fire | Replaced exhaust manifold and head gasket |
| 6-8-45 | Mechanic failure | Replaced engine |
| 6-14-45 | Cracked tube | Replaced 105-mm tube (105-mm tank) |
| 6-22-45 | Satchel charge | Replaced engine, radiator and welded hull |

The list of maintenance activity above represents only the major incidents. In addition, of course, there were daily acts not noted. Further, no mention is made of evacuation to higher echelons, or salvage performed.

Enemy Materiel Destroyed

| | |
|------------------------------------|----|
| 150-mm artillery piece----- | 1 |
| 75-mm artillery piece----- | 1 |
| Artillery piece, unknown cal.----- | 1 |
| 47-mm at gun----- | 1 |
| Knee Mortar----- | 4 |
| Mortar, unknown size----- | 3 |
| LMG----- | 5 |
| MG, unknown----- | 16 |
| Ammo Dump----- | 1 |

Above is a list of known enemy materiel destroyed. It is felt that far more materiel was put out of action by the company. It is impossible to take definite credit in view of the close coordination of tank-infantry team. Also, the progress of the attack was such at time that it did not permit observation of the effect.

IV

At this date, almost three years after the operation in question, it is difficult to make recommendations for most of the discrepancies noted by the author have been corrected. Mention will be made of discrepancy and the correction to indicate concurrence. Basically the organization of the separate tank battalion was unsound for operations in the Pacific Theater of operations. The organization did not make the most economical use of personnel and equipment. Battalion headquarters did not operate tactically. It only served as an administrative headquarters. It was not too effective in the latter function. The distance between company headquarters and battalion headquarters, usually in the vicinity of division headquarters, was so great that communications failed and it was impossible to make our supply needs known. Battalion, ignorant of the tactical situation, could not anticipate the company needs. It was found more expedient to use infantry supply channels. For the most part the regimental S-4 supplied the company with gasoline, ammunition, and rations. Personnel administration was conducted over radio when possible, otherwise by personal conduct between company and battalion headquarters. Initially the company clerk remained at battalion headquarters with the personnel section. This was unsatisfactory, so the clerk operated at company headquarters maintaining liaison with battalion personnel section. Battalion headquarters possibly should have established it CP forward of division headquarters. The battalion should have maintained liaison with the infantry regimental headquarters since the regiment had tactical control of one third of the tank battalion. This discussion appears to be an adverse criticism of this

particular battalions. This is partially the case perhaps. However, analysis of the battalion's problem is worthy of some consideration. It had a responsibility to division, to its companies, and yet it did not have control of its subordinates. The logical solution of this confused duplication of effort is to make the tank company organic to the infantry regiment. This is further true to facilitate training together before fighting together.

As mentioned before, all tanks supporting the infantry regiment were under the command of the medium tank commander. This meant the medium tank commander had platoons from two different companies attached to his command. Furthermore, the flame thrower platoon was from a different tank battalion. Needless to say this was a most awkward situation. If the infantry regiment is going to be given this support it should be organic to the infantry regiment's tank officer.

The light tank, M5A1 was not suitable against the Japanese defense that existed on Okinawa. Any place the light tank could be used the medium tank could be used also. The light tank is more mobile, but in the Pacific Theater big envelopments or movements were impossible. The supported infantry refused the services of the light tank. They wanted the heavier fire power of the medium tank. In summary, the light tank, M5A1 is not suited for close support of infantry fighting against a well organized defense.

The mortar platoon of a separate tank battalion was never used as such in the Pacific due to the large number of mortars in the infantry

divison. Also they were never used because the battalieu never operated tactically and could not place them in a position and coordinate their activity with the infantry. It seems reasonable to organize the tank battalieu organic to the infantry divison without a mortar platoon.

The tank dozer should be organic in the tank company. It was useful as mentioned. However, there were certain disadvantages not found in the armored bulldozer, D7. The armored bulldozer, D7 should be organic in at least the Headquarters company of the tank battalieu.

The public address system mounted in tanks was most effective in the control of civilians, and in some cases Japanese were induced to surrender by going forward in the tank and giving the enemy surrender instructions over the public address system. The public address system should be T E equipment.

The tank-infantry phone should be installed on each tank. The standard hand set TS-13 with a control box on rear of tank was very effective.

Each company should carry a spare BC 604 transmitter and possibly two BC 603 receivers.

Each tank should have one TS 10 sound powered telephone.

The tank company should have available a remote control unit.

The 1/4 ton liaison truck in company headquarters should have a SCR 508 rather than the SCR 528.

The company should have added to its T E equipment one alignment set ME-B or similar instrument.

The liaison teams sent by the tank battalieu to the infantry battalions

were very effective. If this system is to ^{be} used additional men should be added to the T/O of the company and three SCR 509 radios as T/E equipment must be added. The battation had the AN/VRC-3 sets installed in the tanks as is now specified in T/O and E. The AN/VRC-3 sets were used as listening stations on the infantry net to keep the tanks in the infantry picture. Generally this means of communication was not used. The infantry would express its request for tank support to the infantry battalion commander who would pass the request to the tank commander through the liaison team. The reception on the AN/VRC-3 sets was often very poor. Also the cannenseer was usually too busy with other tasks, and he could not properly monitor the infantry net. As a whole, the use of AN/VRC-3 sets was not viewed favorably. Perhaps this was due in some extent to insufficient training.

Tank companies should never be sent into combat until the organic tank retrievers are made available. Several tanks were completely destroyed by the enemy after they had been left on the battlefield only immobilized by either the terrain or as a result of enemy action. Had retrievers been available, the tanks would not have been lost to the enemy.

Company messes should bring all available condiments, baking powder, sugar, flour, and other ingredients on hand, because from time to time it will be possible to make hot bread or cakes for the troops.

Organizations should bring adequate supply of cleaning and preserving equipment. The use of bore cleaner on artillery pieces is advocated.

Clothing and equipment taken on an operation should be cut to a minimum, especially in areas such as found in the Pacific. If the men are

forced to carry all of their clothing and equipment on or in the tank, much of it will be lost as a result of mortar and artillery fire, or when the tank is knocked out.

The use of tanks for the evacuation of casualties, and the carrying of supplies forward is worthy of mention. Frequently this use of tanks was necessary when the routes to forward infantry positions were covered by enemy fire. It is believed that the infantry would have found it impossible on several occasions to remain in forward positions if it had not been for the tanks bringing forward rations, water, and ammunition.

Some of the tactical principles most frequently ignored are listed as follows and are stated to emphasize their importance:

Not less than two tanks should ever be employed in support of infantry. Tanks must mutually support each other even if infantry is supporting.

Missions given tanks by the infantry must be clear, concise, and with definite objective explained. Too frequently the infantry demanded too much area fire without specific targets. This resulted in heavy expenditure of ammunition and undue exposure to the enemy. A time element should be imposed by the infantry on every mission given tanks.

The tank commander must be taught to use the least logical avenue of approach. He will find it more difficult to maneuver, but in the long run he will minimize his problems.

Tanks must be given latitude in the selection of their firing positions. They should be permitted to fire from full defilade positions. The tankers must remember not to attract artillery fire on the infantry position.

The infantry should request only the ~~number~~ of tanks necessary to accomplish the mission and only when they are needed. Much valuable resupply and maintenance time is lost if an excessive number of tanks remain idly awaiting a mission. However it is to be remembered that the presence of tanks serves as a morale booster for the infantryman. Tanks should be provided generously for the infantry if it can be done without prejudicing the availability of adequate numbers of tanks for their more effective roles. The beneficial effect upon the infantry morale of the presence of the tank may be out of all proportion to its actual effectiveness, but it is to be remembered that the tank has a proportionately adverse effect upon the morale of the enemy. When tanks successfully accomplish their mission, the ground must be taken by the infantry. If this is not done a repetition of the same task will be necessary. If the ground is not taken it will serve to give the enemy an opportunity to develop his antitank defenses in that sector.

Flame tanks must always be covered by at least two other tanks.

Supply dumps of ammunition and flame thrower fuel must be kept in small dumps well forward to facilitate replenishment.

Tanks must be released early enough to perform daily maintenance. The infantry, not having the preponderance of equipment, must be reminded of this at times.

Mine squads should be attached directly to tank companies so as to effect precise and timely mine detection and clearance.

Tank commanders should be consulted on the capabilities and limitations

of tanks when they are employed.

The infantry should designate specific targets to the tankers and not just general areas. A uniform system of target designation should be developed. Perhaps the clock method.

In the Pacific it was found unsound to position the tanks on the MTR as a defensive weapon at night.

The tank-infantry team principles should be adhered to strictly when terrain features canalize the tanks or restrict their maneuverability.

In such an operation as the one discussed, it is recommended that the infantry station guides on the beaches to lead landing tank units to their supported infantry. If this is done the specified tank unit will more likely arrive to support its designated infantry.

The infantry commander should not overlook the use of a tank as a vehicle to be used in his personal reconnaissance in forward areas. The company, 32d Regiment made effective use of tanks for this purpose. The division engineer used a tank to go forward and observe a major obstacle. This assisted him in making an estimate of the situation. When the obstacle was in friendly hands the necessary equipment, personnel, and materiel were at hand without delay.

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