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Tanks with Infantry.

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INFANTRY TRAINING MEMORANDUM NO.----------

TANKS WITH INFANTRY

1.Tanks in co-operation with other Infantry weapons during the World War.

The tank in the World War was a new weapon, both to those actually using it and to those with whom it co-operated. The plans under which it was used were largely experimental. These plans varied in character from the highly spectacular, and practically independent attack of the entire British Tank Corps at Cambrai, to the assigning of very small numbers of them to an infantry unit, acting under the most detailed orders as to objectives, mission, route, and rate of advance.

Experience demonstrated that in order to overcome the anti-tank defenses of the enemy, special assistance and co-operation from the artillery and air service was absolutely essential. Further Infantry and Tank Commanders soon learned that to obtain success from the use of their Tanks, they must operate in the closest coordination with the infantry they were supporting. Tanks were developed, and exist to provide a means whereby the infantry is enabled to assume the offensive against defensive zones organized in depth and using the power of the machine gun to repel assaults. Their development took place after massed artillery and poison gas had failed to make such offensive action of the infantry possible. In working out the best methods for the tanks to render this assistance to the infantry it was found essential that the maximum of mutual understanding and spirit of co-operation should exist between the infantry and its tanks.

During the World War the Division had no separate tank organization corresponding to the present Divisional Tank Company. All tanks belonged to a separate Corps and were Army Troops. For any action tanks were allotted to the different Corps, and to Divisions as considered necessary by Army Headquarters. One of the governing principles of this allotment was that tanks should be used in numbers, or not at all. Following this principle the allotment was usually made at the rate of one Battalion of Tanks per Division. This proportion of tanks allowed the Division Commander to demand from them a practically continuous support for his general infantry assault from the jump-off to the objective.

Tanks were not vulnerable to small arms fire nor to shrapnel, and their greatest enemy was the isolated guns and anti-tank rifles scattered through the enemy's defenses, which could fire on them over open sights. Tanks could cross ordinary trenches, and make lanes through enemy wire for our Infantry, and deliver fire against the garrison at deadly ranges. They could take a position but could not hold it, nor could they damage enemy personnel that had taken refuge underground. These facts were taken into consideration in working out the best methods of Tank and Infantry co-operation, the general principles of which were as follows:

GENERAL:

1.Front line tanks should support the infantry assault lines during

1.Continued) an advance, and regulate their movements on the needs of the Infantry they are supporting. This principle properly makes the
GENERAL) tanks responsible for maintaining connection with the infantry and not vice versa.

2.Infantry must be constantly on the alert to take advantage of all opportunities of advance created by the tanks.

3.In situations where the infantry line is preceded by scouts, these scouts should be trained to locate accurately, and report or signal quickly to the nearest tank, the exact position of enemy resistance.

4.Riflemen should unhesitatingly open fire on an enemy regardless of the position of the tanks, as their fire will not damage the tank.

5.Tanks and infantry should advance by bounds. When resistance is located the tank should proceed at all possible speed to its destruction, and then patrol the vicinity until the infantry takes possession of the point by a similar bound.

6.Upon reaching the objective, tanks should patrol and exploit to the front until the position is consolidated by the infantry. The infantry Commander should then release tanks at once.

7.Infantry must avoid grouping behind the tank during an advance, as the tanks are sure to draw concentrated machine gun fire.

8.The infantry should aid the tanks against the nearer defenses of the enemy with all the weapons at its disposal. (F.T.D.R.)

9.Liaison measures between Infantry and Tanks must be thorough and workable.

SPECIAL WEAPONS:

1.Machine guns were frequently able to aid tanks by opening fire on enemy anti-tank guns, and maintaining same until the gun could be destroyed by a tank. Machine guns and tanks worked together because the machine gun fire could be kept up on any position regardless of the position of the tank.

2.It was found effective to use bombers to clean up an enemy garrison that had been forced into its dugouts by the action of the tanks.

3.When tanks were advancing through infantry lines to assist the infantry, the latter could frequently protect the advance of the tanks into action by use of smoke bombs.

4.The infantry 37 mm. and accompanying gun were frequently able

to protect tanks by locating and destroying anti-tank guns.

2. TRAINING OF DIVISIONAL TANK ORGANIZATION.

(a) Characteristics of Divisional Tanks. (Present Type.)

The present Divisional Tank is known as the Renault Type.
Its overall length is 15½ feet and it weighs 6 tons.
It mounts one gun, either machine or 37 mm.
The gun is mounted in a revolving turret.
It can ascend a grade of 1/2, and a vertical wall of three feet.
It can traverse practically any ground the infantryman can except heavily timbered or bouldered ground, bad swamps, and unbridged streams of more than two feet in depth.
Its armor is proof against all small arms fire, (new 50 cal. machine gun excepted) against shrapnel, small shell fragments and splinters.
It is not proof against a hit from any sized cannon.
The crew is two men, one driver and one gunner.
Its speed varies from one to six miles per hour depending on the nature of the ground. It can operate in both mud and sand, but its speed and maneuvering ability is cut down by both.
On roads it is transported by truck. The divisional company is equipped with one truck for each tank. On long hauls it is carried by rail.
It can cross a six foot trench.
It can make lanes through wire except in very exceptional cases where the wire is particularly heavy, and the belt very wide.
Total number of tanks is twenty-five, divided as follows:

3 fighting platoons of five tanks each.
1 reserve and training section of 8 tanks.
1 company commander's tank.
1 signal tank. This tank can communicate with the Division and Brigade sets, but not with the Battalion and Regimental (Infantry) radio sets.

(b) Missions assignable to Divisional Tank Company.

Normally, when tanks are needed by the Division Commander to support his general Infantry assault, these tanks will be allotted to the Division by the Army Headquarters, for that particular action. Such a mission is not a normal one for the Divisional Company. This company will usually be in reserve at the beginning of any action. Its position will be such that it can readily answer to any call made upon it by the Division Commander.

It is apparent that even if tanks are not allotted from G.H.Q. for a particular action, the Division Commander will not usually commit his Divisional Company to the action in its early stages, due to their scarcity in numbers and difficulty of replacement, and the fact that they use themselves up rapidly in action due to mechanical deterioration. Rather he will hold it out for use when

its particular kind of power will be imperative in some portion of the field. The missions to which he will usually assign them will be as follows:

1. To support the infantry in the assault of any position when the Infantry has been unable to take same without their assistance.
2. To assist in breaking up hostile counter attack.
3. For use in making counter attack against an advancing enemy.
4. In exceptional circumstances to aid in covering a withdrawal from action.
5. To accompany the Advance Guard when advancing, especially when contact with enemy is immiment.

(c) Suggested methods for the accomplishment of above missions.

(note: See par. 1, above for co-operation between tanks and Infantry.)

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1. When the Divisional Company is called on to aid the Infantry in reduction of some particular resistance they will do this by:

(a) Destroying enemy machine gun nests.
(b) Destroying enemy accessory defenses, especially wire.
(c) Forcing an enemy garrison to take cover in dugouts etc. until our infantry can occupy position.
(d) Patrolling and exploiting in front of objective until position is well consolidated by infantry.
(e) Increasing volume of fire of Infantry.

The following general rules for conduct of Tanks apply:

(a) All movements of tanks in front of railhead to be under cover if possible.
(b) Intervals between front line tanks determined by the total frontage to cover, and number of tanks assigned.
(c) The 37 mm. tanks and machine gun tanks to be arranged in the front line to mutually support each other.
(d) Tanks habitually maneuver to outflank an enemy's strong points, villages, woods and etc.
(e) Proper arrangements to be made with artillery and air service for special aid during combat.
(f) Proper use of terrain during all stages to prevent unnecessary exposure to observation of enemy, which will result in attracting concentrated artillery fire.
(g) Supply and repair measures must be well thought out to the end that all tanks will be constantly ready for action, and can be immediately repaired and re-supplied after an action.

1. To assist in breaking up hostile counter attacks.

Tanks will be especially valuable in assisting in breaking up hostile counter attacks immediately after a position has been taken, and before the infantry has had opportunity to properly consolidate it. During this period the tanks should be patrolling and exploiting to front and flanks. They must avoid concentrating, in order to reduce losses from the artillery preparations for the counter attack. At the instant the hostile infantry starts forward the tanks should advance upon it and with their gun fire, and crushing effect of the tank demoralize and destroy the formation. Their presence in this position will not interfere with the machine gun and rifle fire of our infantry.

Care must be taken that the tanks, during this period, do not get out of control and can be readily fallied by their commander as soon as necessity for their presence at that point ceases to exist.

3. For use in making counter attacks against an advancing enemy.

(Tanks should be located under cover from hostile artillery fire as near as possible to the point selected for the counter attack, as early as practicable.)
General methods for normal attack apply, except that tanks should be allowed more latitude in maneuver and exploitation.
Tanks should make every effort to surprise any supports or massed troops of the enemy.

4. In exceptional circumstances to aid in covering withdrawal. The tank is essentially an offensive weapon, and its use in covering the withdrawal of a defeated force will be justified only when absolutely necessary in order to save a portion of such force. When however the Divisional Company is used for this purpose, the following principles apply:

1. To be launched at top speed directly upon, or on the flank, of that part of the enemy most dangerous to our troops.
2. All tanks used to be in assault echelon. No support platoon necessary.
3. Their mission will be to cause losses and demoralization in the enemy's advancing forces and not to take a particular position as in normal attack.
4. The company must be prepared to sacrifice itself entirely if necessary. They must depend upon their own efforts to accomplish withdrawal after their mission is complete.

5. To accompany the Advance Guard when advancing.

They will be invaluable in this position when contact with the enemy is imminent. The following is a normal method:

1. One platoon proceeding under their own power with the support. Two of these should be with advance party, the other three with support.
2. Remainder of company, on trucks, with main body.
3. The front tanks are immediately available for demolishing resistance of small bodies of machine guns, auto-rifles, etc. One platoon is available to the advance guard Commander for use in attacking an enemy in considerable force who is attempting to delay main body.
4. The Division Commander retains control of the major portion of the Company, as described in par. 2 (b) above.

(d) Relation of Divisional Tanks to Infantry Rifle Company.

The Infantry Company Commander will probably never have any tanks attached under his command. He must however be familiar with the capabilities and limitation of tanks. His company must be thoroughly trained in the methods of co-operation between infantry tanks as outlined in par. 1, above. Preceding any action, conference between him and the commander of the tanks in his front will insure better co-operation and better results from the efforts of the tanks to aid the advance of the company. Above all, the infantry must understand that the tank is not usurping the mission of the infantry, but is only trying to aid in its accomplishment. Therefore the infantry company fights its way forward in all respects as if the tanks were not present, and in so doing takes advantage of all opportunities created by the tanks.

(e) Relation of Divisional Tanks to Infantry Battalion.

When the Divisional Company is used in supporting an attack against a particular position at least one platoon will normally be attached temporarily to an Infantry assaulting battalion. During the action these tanks will be an integral part of the battalion, and must be released by the Battalion Commander upon the successful completion of the mission assigned before they may return to their rallying point. The Battalion Commander will therefore have at his disposal every type of infantry weapon. It is in this command that the final and detailed co-ordination of all these arms must be arranged. With his entire personnel thoroughly grounded in the principles of co-operation between tanks and infantry, the commander will be in position to arrange a sound play whereby the maximum results will be obtained. Liaison between the tanks and battalion commander throughout the action must be maintained, in

order that he can use their power against an unforseen obstacle, in coordination with the efforts of his infantry.

(f) Relation of Divisional Tanks to Machine Gun Companies.

Machine guns and tanks operate well together against targets within reach of both due to the fact that the fire of the guns may be kept up even when the tanks are in the position. The guns actually aid the tanks by keeping up their overhead and indirect fire while the tanks are in the enemy position before the infantry arrives at that point. Machine gun crews can further render invaluable aid to the tanks by watching for anti-tank guns and rifles and concentrating fire on them, until destroyed by our forces.

(g) Relation of Divisional Tanks to Accompanying Gun.

Accompanying guns attack enemy machine gun nests, hostile strong points and enemy tanks. The first two missions are identical with two of the missions of tanks. Therefore a thorough coordination of their efforts is essential. The gun should concentrate its efforts in the attack of a strong point upon the enemy guns and anti-tank rifles in the position. If the gun is successful in doing this, the tanks will be able to crush the machine gun nests, make lanes through the wire and force the enemy garrison into its dugouts or cause it to retire. Both the accompanying gun and the infantry 37 mm can lend invaluable aid to the tank throughout the action by locating and destroying the enemy anti-tank rifles and guns. Whenever possible assistance to accomplish the destruction of these defenses should be given by the "Infantry Batteries" detailed from the artillery.

3. General:

As the mechanical efficiency of the tank, including speed, mobility and reliability is improved, its sphere of usefulness to the infantry will correspondingly grow. The missions assignable will increase in variety, and the probability of their accomplishment will be more certain. However, it is apparent that tanks can never take over the mission of the infantry, no matter to what degree developed. Advancing infantry will continue to be the deciding factor, and the tank should be carefully studied and developed as an important means of aiding this advance.

The following paragraph from French Tank Drill Regulations clearly gives the relation existing between the Infantry and its Tanks:

with an exterior shield.

The turrets in which the cannon and machine guns are mounted revolve 360°.

(c) ARMOR:-

The armor in general is six-tenths inches thick on sides, front and rear, and certain portions of the turret, except:

Bottom plating	.25"
Roof plating	5/16"
Fire screen (sheet steel)	.25"

In the case of the signal tank, the signal turret is protected by six-tenths inch armor.

(d) COMMUNICATION:-

There are provided four pigeons for Co. Headquarters and two per platoon; one set of signal flags for each fighting tank. Each signal tank is equipped with a complete radio set. The radio set at present installed in this tank is able to communicate with brigade and division headquarters but not with regimental and battalion headquarters.

(e) FLOATATION:-

On hard ground 6.8 lbs. per square inch;
On soft ground 4.7 lbs. per square inch.

(f) OIL CONSUMPTION:-

The gasoline tank has a capacity of 114.13 quarts; is made of double sheet steel with a space between the two thicknesses of steel filled with best quality of wool felt so that if the tank is pierced by bullets, the expansion of the felt on being moistened with the gasoline, will prevent excessive leakage. When the tank is running at average speed the following oil is consumed:

To sum up; efficacious co-operation of the tanks and infantry necessitates on the part of the latter a fixed determination to fight without waiting for the tanks to dispose of all the difficulties encountered, and on the part of the tanks, a determination to become acquainted with the needs of the infantry they are supporting, and to satisfy these needs. (F.T.D.R.)

(signed) D.D.Eisenhower.

Major, U.S.A.