A D V A N C E G U A R D

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A monograph dealing with one of the important formations found in the armored divisions. In scope, views concerning armored equipment used during World War II, a possible trend for the armored equipment of tomorrow as well as technique in use of such equipment, are expressed.

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The importance of any opening move, whether it be in a game of chess, a collegiate basketball contest or the very serious business of war is self-evident. In the operational phase of war the function of an advance guard falls into the technique of an opening move; it is, therefore, of equal importance that both senior commander and junior officer know the mechanics and accepted practices involved.

The pages of history reveal the countless examples of man's effort in the development and use of weapons. Since the beginning of time he has fashioned them in one form or another, used them singly or im various combinations for his individual protection, procurement of food, or in the dispatch of his enemies. The early cave dweller progressed through a cycle in which he used a heavy knurled club at first, and later developed and used a fairly light, well-balanced spear. Quite by accident the significance of size and shape was brought into being when one of our shaggy ancestors accidentally left his club close to a fire one night and burned off the end. In his rage at finding the knobby end--the most effective part in his mind--ruined for any further purpose, he hurled it to the ground. However, his aim was bad, and instead of hitting the ground the club sailed through the air and buried itself in the side of an old log nearby. Being one of the more clever men of the day, this fellow was quick to realize what had happened when the fire had burned his club sharp at one end. It was only a step farther until the first crude spears were being made in this manner and their effectiveness

increased by the attachment of bits of sharp stone. The long lance-like weapon conceived was ideal for hunting small animals and birds, but the need for something with more cutting power and shock when dealing with the larger beasts, and particularly for use when unfriendly tribes swept in to raid his dwelling, fanned the spark of creative power.

It is not intended to trace the complete evolution of weapons that materialized, but suffice it to say our primitive man was soon applying the first simple mechanical principles of sling and bow, coupled with the dawning knowledge that working with another of his tribe in hunting or fighting usually resulted in less hazard to himself and more often success in his activities.

Thus began the groundwork for our present-day military science, and it is evident that many of the things that worked then will still produce good results when properly applied today. The modern tank trap, or the infantry trip flare can be traced back to the primitive hunter and his use of a snare or pitfall to trap the wary game. The principles of security during movement likewise were practiced down through the ages by the nomadic tribes in their wanderings from one feeding ground to another. When it was necessary to cross a river, one or more of the hunters usually preceded the group down to the water and drove the crocodiles and snakes away so that the remainder of the tribe could cross in safety. True that it is a far cry from those primordial matters to the varied formations

used by our armored columns in their wild race across the Continent of Europe during the past war. But again, by whatever name we choose to call the formations for movement of present-day military forces from one place to another, we find the roots way back in those primitive tribal movements through the steamy swamplands or across the barren and open plains. What they did and how they did it was a matter of necessity and survival. The pattern has not changed basically even today, nor is it expected to change 20, 50 or even 100 years hence. Technique and application of principles are the variables, which, in turn, are largely influenced by mission and purpose. The following quotation which appeared in the American Legion Magazine, pony edition February, 1947, has an excellent punch line for the subject in hand: (In the form of an after-action report)

"Defeat Accounted For"

"A startling statement by Heinrich Rausvonhaus Von and Zu Schnitzel, former German Field Marshal, has explained the crushing defeat suffered by Germany in the Battle of Bad Neusehoff. Allied military experts long had been puzzled by the surprising lack of resistance by the Nazis in this important engagement. German forces at Bad Neusehoff were under the over-all command of Field Marshal Rausvonhaus who said:

"'Dot vas ein stormisch dawnen mit grosser vind ge-blowen. Der Amerikanischer feelerouten-snoopers bin

geraisen der roofen mit grenaders und flamenspitters. Mein Groupen-kommandurs bin out-gaibben mit ranten und stampen, und mein Unter-kommandurs vas ge-snorten und fumen. Der Groupen-kommandur bin ge-writen der groupen order und preparen mit muchen hasten-maken.

"'Suddener iss ge-comen der Amerikanishers mit boomen und zingen und grosser roughen-stuffen mit tankers und zoomers. Der Amerikanishers bin up-shooten der groupen und raus mit der Faderland!

"'Mein gunsers vas firen. Mein howitzers und riflers vas up-broughten. Der stukas vas uppen. Der Panzers - Ach! Der Groupen-kommandur vas ge-caughten mit der Panzers downen!'"

Disregarding the humorous content of the above, the quotation fairly well covers the idea behind an advance-guard formation, or "covering force" as it is sometimes called. To say it another way, to avoid surprise, to avoid the restricting entangling, embarrassing, and confining influence of the inflexible, binding and noncooperative garments in half-off, half-on position, "mit der panzers downen", is the purpose in using such formations.

With the wealth of experience and lessons that came out of World War II it would be easy to dwell in the glories of the past or sit smugly by while tomorrow forms formidably behind the horizon ready to sweep the storm down relentlessly upon the unwary.

We shall not do that however; rather, we shall extract what value there is and try and fit it into our pattern for the future—prepared to meet the storm when it breaks. Since numerous publications exist, plus the official DA Field Manuals which contain excellent procedures for the potential advance-guard commander, the writer is not attempting here to paraphrase other military writings nor assemble an assortment of rules and regulations. It is intended instead to put forth an informal summary of thoughts and experiences, directed particularly toward formation and technique as well as physical characteristics of some of the armored equipment found in advance-guard formations during the past war. It is intended to be objective by carrying these thoughts and experiences forward into improvements where possible.

The foremost planners today are agreed that if war should come in the immediate future or even within the next five or ten years, it would be doubtful that materiel would undergo radical change. It is conceded that there would be refinements and improvements perhaps paralleling the strides from the old model T to the present Ford tank engine, but generally the limitations imposed by weight, weather and terrain will be fairly constant. Therefore, what type and style armored vehicle will be wanted in the armored army of tomorrow, and in sequence of thought, what type tank or armored vehicle within the formations will that army use? To begin on common ground, it is assumed that some opening formation, by whatever name, will still be required and used when elements of the

M-3A1 LIGHT TANKS. NOTE DUST PRODUCED BY JUST TWO TANKS MOVING CROSS-COUNTRY.

armored army move from one place to another. (1) It is referred to as "advance guard" herein. (2)

To give a picture of the type of equipment desired let us start conversely by listing some of the things which it is believed should be changed or corrected in our old or present equipment. (3) It will be recalled that the series M2 tanks, light and medium; the series M3, light and medium; the M4 medium; the M5 light; the M24 light; and the M26 medium all saw action in the war just passed, and frequently were used in one type or another of an advance-guard formation. The M2's and M3's light, as saw action in north Africa were primarily too lightly gunned. The excellent and accurate shooting little 37mm gun was just outclassed by the German Mk III and IV with the high velocity 75mm, and later, versions of their vaunted 88mm gun. The vertical volute spring type of suspension then in use precluded long, high speed runs without track or bogie wheel trouble. The narrow tracks cut through any type of soft terrain and accordingly rendered the tank road-bound in wet weather. They did have a measure of speed and maneuverability in dry weather, but then their dust-producing qualities were terrific. (4)

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(1) Par 237, FM 100-5.
(2) Par 38, Sect III, FM 17-33.
(3) Many of these things have been replaced or eliminated and are mentioned here merely for comparative purposes.
(4) "Tankers in Tunisia" - Hq The Armored Command, Ft Knox, Ky. 1943.

MIXED COLUMN ON THE MARCH. THE DUST CLOUD COULD BE SEEN FOR MILES.

That has been true of most American tanks with the exception of the M24; consequently, it is a source of amazement as to why our design engineers have insisted upon bringing out the exhaust stacks in such fashion that the resulting dust cloud could be seen for miles. Vision devices were inadequate or lacking completely, and gun sights were low powered and of the narrow field type. With the arrival of the M5 series some improvement was found, but generally most of the inherent disadvantages were still present to plague the tanker.

When the M4 series tank made its debut in 1942 great strides forward had been made. It was even possible eventually with arrival of the M4A3E8 to make long, hard, sustained road marches without losing 80% of the medium tanks because of bogie wheel blowouts. (5)

With replacement of the 75mm gun on the M4 by the 76mm gun a German tank could be knocked out without losing the first four or five tanks in the column, while the remainder of the platoon heroically but ineffectually bounced 75's off the front slope plates of the Mk V's. In addition, there was a marked improvement in the turret by the introduction of a cupola with all-around vision slots for the tank commander. To offset the good points, however, the crew almost suffocated when the tank was buttoned up and engaged in any degree of prolonged firing; or else in inclement weather they suffered from leakage and seepage around the hatches; or they nearly froze in the draft if the hatches were open in the cold weather. Ventilation was bad.

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(5) AAR #480, 45th Tk Bn, 13 AD, 7-10 Apr 45.

M24 LIGHT TANK. ABSENCE OF DUST AND QUIET OPERATION FAVOR THE ADVANCE.

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The M24 tank arrived in 1943 with smooth, quiet engines and practically no dust; in fact, the vertical exhaust stacks were one of the boons of the tankers. The crew had an excellent source of quick heat for coffee and warm rations which was the envy of most of the other soldiers. The crew compartment was warm and tight; through a baffle arrangement in the bulkhead warm air from the engine compartment could be directed inside. In addition, it had a heavier gun--heavier at least than the old 37mm--and the gun sight now provided for magnification and an improved field which was of immeasurable value in longer range firing. The track and suspension systems were the best produced thus far, being of the track-wheel type. To continue down the road of correct and practical tank design, the tank commander's cupola had an azimuth ring and periscope that could be rotated independently to a target and the azimuth for the gunner determined. Further, the tank commander had his own turret control on some of the later models and could take over the turret and lay the gun for the gunner without even the loss of time previously required to give a fire command. These features were not exclusive to the M24, but were a most welcome improvement in all the later model tanks in use at the end of the war.

While mention was made only briefly in the preceding paragraph in regard to the improvement in sights, the inclusion of fire control devices such as the azimuth indicator, the gunner's quadrant, the telescope sight, the aiming circle and night lighting devices may

M26 MEDIUM TANK FIRING. EXTREME MUZZLE BLAST AND FLASH CAN BE SEEN.

be considered as being standard equipment about half way through the war, and is a positive indication of the progress which was made when serious effort was put behind tank development. With all of its good points the M24 still left much to be desired; to mention a few things, the need for a higher velocity gun was soon felt shortly after the tank was used in combat. It was also found to be underpowered, especially in adverse cross-country operation and ground pressures developed were too high for satisfactory operation in mud or soft ground.

In brief summary of the things desired or not desired in tanks, the following may be considered as some of the most important, and which apply equally as well to light or medium tanks:

Low silhouette, but without the sacrifice of stowage space.

Quiet operation, but without a decrease in power output.

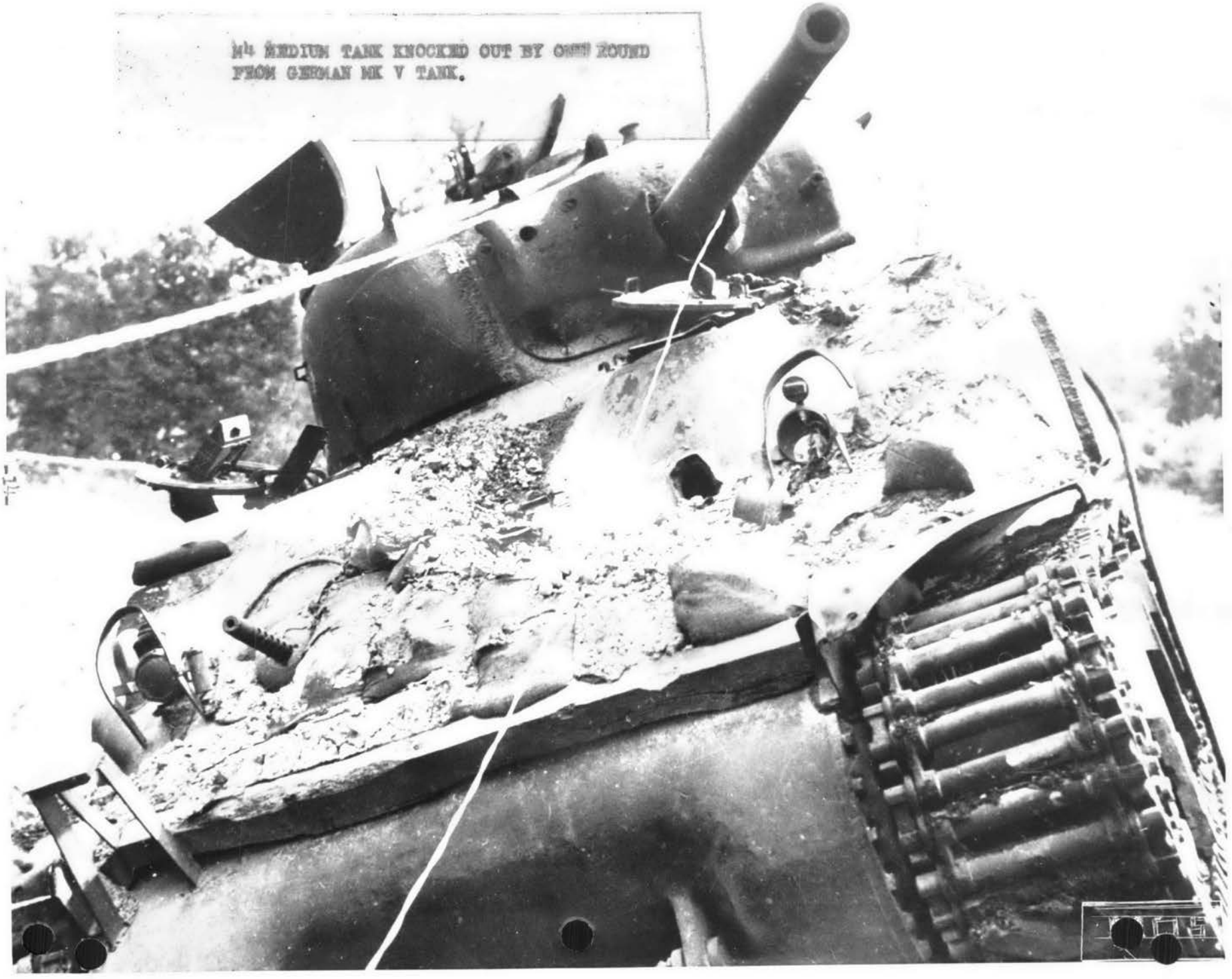
Wider track, all-weather type, with better floatation.

Higher powered engines, but without extreme noise and back-flash, especially for night operation.

Higher velocity gun (tank cannon), but with better control of muzzle blast and flash. This may come through improvement in ammunition. In any event, since it is the doctrine in use of armor that the tank itself is the principal antitank weapon, it should have a gun capable of reducing enemy armored vehicles.

Further reduction in the dust-producing characteristics of all tanks, with exhaust stacks brought up vertically through rear deck.

M4 MEDIUM TANK KNOCKED OUT BY ONE ROUND FROM GERMAN MK V TANK.



Further improvement in fire-control devices, ammunition and cannon to include consideration for a semi-automatic loading mechanism such as a cradle carrying one or two rounds designed to give a potential immediate fire capacity of three rounds in as little as six seconds. A device similar to those found on some of the German AA guns and following the same principle for rapid loading found in our own AA guns. Semi-automatic laying devices to include modified version of radar particularly for night firing. Ammunition improvement utilizing principle of shape charge to offset limitations and restrictions encountered in development of tank cannon with higher muzzle velocities.

Improvement in ventilation of all tanks, to include both heating and cooling of driver and fighting compartments, for operation in either hot or cold climate and under conditions of sustained firing. This will necessitate careful design to prevent the undesirable draft conditions which exist in several of the models at present.

With improved track and suspension systems and higher powered engines, there is a definite need for greater capacity for speed--both cross-country and road. Since weight limitations make it impossible to maintain armor protection comparable to capabilities of either higher velocity tank cannon, or the terrifically powerful shape charges presently found in some of the ground antitank weapons, and possibly soon to be incorporated in tank weapons, the elements of speed, quiet operation, low silhouette, cross-country ability and fire power are all a must in our tank design of tomorrow.

GERMAN MK V KNOCKED OUT BY TWO ROUNDS OF 76MM GUNFIRE. FIVE ROUNDS OF 75MM HAD PREVIOUSLY BOUNCED OFF THE FRONT SLOPE PLATE WITHOUT EFFECT.

A point of contention regarding the caliber of the coaxial machine gun is worthy of mention at this time. Many tank men felt the need, or at least the desire for the coaxial MG to be a .50 instead of the standard cal .30. In fact, some armored units obtained a limited number of air corps type cal .50 guns, and with only slight modification substituted them for their .30's. It is not intended to offer a conclusion on the matter in this writing. However, the excellent effect that can be obtained with the cal .50 cannot be denied especially when firing into houses, in and around stone walls or similar obstacles, or against lightly armored vehicles. The ammunition stowage poses the big problem and impartial analysis reveals that a cal .50 bullet is not needed to kill a man; the cal .30 does just as good a job even though a .50 cal bullet does a better job of getting to the man. The primary mission of the tanks is to get into rear area, supply and command installations and there to raise havoc with their machine guns. The presence of armor plate, cross-country ability and tank cannon are all designed to make possible achievment of the primary mission. To lean toward a heavier coaxial machine gun because it has more offensive strength at the sacrifice of valuable stowage space and ultimate potential volume of machine gun fire might be considered in the light of "robbing Peter to pay Paul". On the other side of the picture, it is also possible to visualize an enemy who may have most of his vehicles including personnel and cargo carriers lightly armored--at least to the extent of withstanding

small arms fire. In such case the coaxial cal .50 would be definitely desired.

Gathering the various tank features considered desirable into one or two composites it is not difficult to visualize the American armored division of the future as having essentially two tanks similar in design to our present M24 and M26 with the following exceptions:

The M24 will still be a "light tank", but will have a heavier gun (probably a 76mm) and will further incorporate many of the features previously mentioned, with a resulting weight class of approximately 24 tons. Likewise, the M26 will still be a "medium tank", but will be considerably faster, less noisy and less dusty. It is not believed practical for our tanks to be made any wider because of shipping restrictions; however, the bustle idea in turrets can be carried out for 360° to provide greater internal stowage space, and a sharper angle of incidence for enemy shell fire. Over-all length can be increased as necessary to provide more space for stowage, engines, fuel and crew without sacrificing any of the desirable features now contained in the American tanks. The M4 series tank has been a tried and true work horse in the history of armor, but it has been essentially an "improve-as-you-build" model which has now outlived its usefulness and should not be carried over except for training purposes. If the normal developments in tanks which are to come are applied to the M24 and the M26 we shall continue to have our tank design go in the right direction. The tankers of the next war

should not have to start the conflict and carry the odds against them that the tankers in the old M3's and M5's had in World War II. We have the potential to not only go in with the equal of any other nation's armored equipment, but with our inherent ability for development we should go in with superior materiel. It has been done in aircraft, and should be done in armor.

The development of a universal type of tank or automotive engine, based upon blocks, units, or series of power plants coupled up in accordance with power requirements fits in nicely with the idea of two basic tank designs. Carry the idea of the light tank of approximately 24 tons with one engine unit; the medium tank of approximately 45 - 50 tons with two engine units; down through the self-propelled artillery with comparable variations in power to weight. All armored vehicles could be of similar basic design; all should be full track, and have the same cross-country and speed characteristics. They will have either turret-mounted guns (tanks), or be turret-less artillery pieces of the self-propelled variety, or be a modified version of the turret-less type as personnel carriers. Further latitude will be provided by having such vehicles having either "light" or "medium" hull, as mentioned previously, to fill requirements for cargo carriers, and the addition of armored trailers where appropriate to round out logistic problems. The armored unit of the future then becomes a fighting machine of two major hull types, with three sub-types of armored vehicle. Characteristics of movement, maintenance, capabili-

M24 LIGHT TANKS AS PART OF THE ADVANCE GUARD FOR A REINFORCED TANK BATTALION. COMPANY IS REFUELING. ONE PLATOON OVERWATCHES FROM THE HIGH GROUND ABOUT 1000 YARDS TO THE FLANK. FROM WHENCE PICTURE WAS TAKEN WITH TELEPHOTO LENS.

ties, supply and production become universal with the elimination of the thousands of different problems now present with multiple design vehicles. It has been said that there is no known defense which will stop a coordinated, concentrated attack by fifty tanks. Visualize, then, the potential of an armored army. It would be capable of unlimited cross-country movement with all vehicles, not just the combat type, but supply, maintenance, and command as well. Literally, it would be the self-contained fighting force selecting route of advance and point of attack for decisive advantage, and then smashing with all of its might. Such movements are entirely within the realm of probability and depend only upon development of armored vehicles with the capabilities indicated.

Having gone into some detail regarding the physical characteristics of armor, it is in logical sequence to give consideration to the formations and technique of using those vehicles. These two items go quite well together since any positive theory or application of one involves the other. One of the common practices of the past war, in the armored divisions where it was normal to group combinations of armored infantry and tank battalions together, was the use of the light tank company of the tank battalion, as a covering force or advance guard. (6) (7)

Reinforcement varied from attachment of the battalion

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(6) Par 243-244, FM 100-5.
(7) Par 43, FM 17-33

GERMAN PILLBOX, A FAMILIAR OBSTACLE TO ARMOR AND INFANTRY ALIKE, AND OFTEN ENCOUNTERED IN ADVANCE GUARD ACTION.

reconnaissance platoon, to inclusion of an infantry platoon, another tank platoon, the battalion assault gun platoon, an engineer detachment, tank destroyer detachment, and artillery forward observer. The size, type and number of attachments depended upon the mission and tactical situation. The need for teamwork and sound clear thinking is all important. Here, the senior commander puts into the hands of a junior officer his confidence and trust to perform a job that involves the entire command. The advance-guard commander must be aggressive and daring without being foolhardy or reckless. His ability to appraise and counter a situation will reflect the success of his missions. The force mentioned in the preceding lines was used many times as advance guard for a combat command and was found to be satisfactory and adequate. The M24 light tank was excellent in this role because of its quiet and relatively dustless operation, although the desire for a heavier gun was felt many times. The presence of artillery-type weapons (assault guns) or the availability of such weapons (artillery FO) insured the heavy fire support necessary to punch through well organized or strongly held delaying positions.

Engineer elements not only provided the mechanical means for destroying or crossing small obstacles, but gathered and sent back to higher commanders valuable information concerning bridges, roads and general trafficability conditions that were important in the plan for general movement forward. The presence of infantry elements gave protection to the tanks, and insured their movement through defiles, towns

and woods without undue exposure to the deadly effects of "panzer-fausts" or other similar antitank weapons. When available the punch of tank destroyer elements was a welcomed addition to any advance-guard commander.

Now, having listed many of the elements to be found in a typical formation, let us stop and see just where the mission of an advance guard fits in. First, the actions of any unit fall into one of three catagories at all times:

1 - Advancing.

2 - Stopped.

3 - Withdrawing.

Any advance-guard force in a combat situation is charged with preventing a surprise attack upon the main force it represents; or permitting the main force to proceed into a situation that will place the advantage of action with the enemy; or permitting an enemy from causing the main force to be unnecessarily and unduly committed, thus interrupting and slowing the advance.

How does the advance guard function when the armored unit is advancing? Except where an advance (attack) is against a definitely located, prepared position such as the Sigfried line defences, the advance guard will perform similar action either for march column or cross-country movements. It will precede the main body, moving either by bounds, utilizing to the maximum, characteristics of terrain, or in tactical column along roads and trails, sweeping the area of advance

SUCCESSFUL ENCOUNTER. GERMAN DUAL PURPOSE AA-AT GUN KNOCKED OUT BY TANK FIRE OF ADVANCE GUARD.

to determine presence of enemy positions. Upon making contact it will engage, deploy and probe to determine the extent of resistance and positions. The good advance-guard commander will have a fluid, flexible team that will swiftly smother any small opposition, or flow rapidly through or around any definite positions, determining strength and location. Intelligence to his commander is continuous and vital. Missions must be carried on without serious engagement or commitment and resulting loss; otherwise, a normal advance guard would be expended and useless for further work after about the third encounter. It is then evident that the commander of this small but potent force should be well versed in the use and capabilities of the several arms that compose his team. In fact, it is the first good training and experience in combined arms and teamwork for all participants, and is the groundwork for higher-level activity at later dates. The advance-guard commander must know his enemy and be skillful in appraisal and estimate of whatever situation confronts him. The desired high level of performance expected from the advance-guard commander and his team will be achieved by the proficient and flexible way in which all elements working together on the mission tackle their problems.

In a meeting engagement from the tactical march column, the advance-guard commander commits his force in such manner as to determine the extent and strength of the enemy. (8) He maneuvers

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(8) Par 491, 503, 507, FM 100-5.

his force in a way that every possible advantage will be his while the main body forms for the impending attack, assuming that sufficient opposition exists for the column commander to order a coordinated attack. His mission, then, is one of screening and deception to prevent the enemy from knowing the true intentions of the force.

In keeping with the senior commander's plan, the advance guard may be further called upon to perform the task of a diversionary attack as the main attack gets under way, side-slipping or maneuvering to a flank to exploit a local success, or prepared to again lead off in the advance.

Further advance-guard technique includes provision for covering force activity when the main column leaves the road and coils for the night. The advance-guard commander will dispose his force well to the front and flanks of the proposed assembly area, providing security and preventing surprise while the tank and infantry companies take up their perimeter defense positions for the night. Later the formation will either be pulled back within the perimeter or will assume a position of responsibility on the perimeter itself. Necessary functions of refueling, maintenance, rest and regrouping are carried on at this time, but always prepared to move out at a moment's notice to act as either a counterattacking force, or pick up the duties of advance guard once again when movement is resumed.

When tactical necessity demands it, a withdrawal may be

ordered, in which case the advance guard becomes a handy and valuable tool in the hands of the column commander, and now merely modifies name and technique slightly and becomes rear guard. (9) It reverses technique and fights delaying actions, or reverts to the screening mission and allows the main force time to deploy and occupy selected defensive positions. Further activity includes protection on exposed flanks, or being held as a counterattacking force.

The versatility of an advance guard is considerable, and probably one of the most important characteristics of the formation as used in an armored division. It should not be overrated nor over-committed however, but properly permitted to function within the fairly well defined limits of strength. The combinations enumerated revolved around a light tank company equipped with the M24 tank, and elements of armored infantry mounted in half tracks, armored engineers, and self-propelled artillery of the type found in an armored division during the past war. With the change in organization of the armored divisions wherein the tank battalions no longer have a light tank company, the value of this writing would be nil except as it could be applied to the new TO&E. In substance and in function there is no change. The new TO&E for the tank battalion provides four medium companies instead of the old three medium and one light. This makes no difference in the expected need for an advance-guard formation, nor in the fact that the major element will be drawn from the tank

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(9) Par 599, FM 100-5

battalion itself just as before. It was not uncommon to relieve the light tank company of its normal advance-guard mission and use a medium company in place just as a matter of rest and rotation when conditions permitted. Generally, it may be stated the mission was better performed by the light company just as the assault missions were better performed by the medium companies. With the parity established by the presence of four medium companies the battalion commander has one less problem now.

The technique of movement in the fast situations found mostly in Europe, especially after the Rhine was crossed and armored columns raced in all directions across Germany, may cause you to ask, "How much or how far will an advance guard precede its main body in this type situation?". It was the writer's experience to have an interval of as much as twenty minutes or more when resistance was light or scattered, but to establish this as normal would be dangerous and would invite defeat and loss sooner or later. (10) <u>However, as much distance as is tactically possible under the circumstances should be taken.</u> The reason for this statement, and as an example, is the numerous unsuccessful missions performed by various divisional reconnaissance units or, for that matter, tank units also in the role of advance guard, who were given only five minutes more or less to precede a reinforced battalion or combat command. It's a vicious circle before it starts. The commander of necessity must designate

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(10) Par 427, FM 100-5

an advance unit, but it must have time to precede the unit and work tactically without being overrun by the very unit it represents. Perhaps the answer to part of this is having a well-developed SOP to provide for any contingency; and certainly an established team ready to take the field at a moment's notice to fill exactly this need is essential in any organization rated as ready for combat. The point is one which must be given careful consideration, pre-planning and training and is worthy of serious thought by senior and junior officer alike. The advance-guard formation functioning properly is like a well-lubricated bearing; it will make the going much smoother and won't let you down when the going gets rough.

The matter of road space for this type formation is of interest, as in most cases there will be limitations for clearance in approach marches, or for other reasons. The tank company without any attachments will require at least one mile, and with normal reinforcements of an infantry platoon, an artillery FO, and an engineer squad another half mile. This is a bare minimum to get on the road. Platoons require at least 500 yards to begin to work tactically, and there should be two or three hundred yards both in depth and laterally if they get off the roads and work cross-country. Again, the more space and interval that can reasonably be taken and still maintain good visual contact, the better the effect and the more certain the advance. The terrain and opposition will, of course, dictate further how far apart the platoons can best operate and

support one another. There will be times, when for reasons of maneuver to outflank a position or gain a vantage point they may temporarily be out of contact. They should never break radio contact nor operate less than a tank section in those circumstances. To do so for any length of time defeats the purpose of the advance guard, leads to the piece-meal commitment of the platoons in a likely dangerous situation or allows the enemy the chance to concentrate effective fire on a single element with resulting loss.

A brief word regarding communications, they generally are adequate and satisfactory in the armored organization if training, maintenance and the development of a good SOP for inter-company communication are worked out. Simple brevity code words cut radio traffic to a minimum, and eliminate any tendency to become concerned with maintaining radio contact or superfluous speech. The present FM tank radio is somewhat sensitive to terrain, and in hilly or difficult country the advance-guard commander must conduct his movements in order to carry out his mission, and at the same time keep his commander informed. It would be very desirable to have one CW set in every tank company, or at least in those carrying out advance-guard missions.

The tank company commander in an armored organization will usually be the advance-guard commander, and his position in the column will be determined by his selection of the best spot for coordinating and controlling his force. On the march he will usually find the position following the leading platoon as satisfactory, with

the artillery FO either just to his rear or somewhere in the second platoon (in his own tank); the FO should be far enough forward to give the support he represents without exposing himself unduly and getting knocked out in a fire fight. Since the first two platoons will usually deploy either upon contact or in making a tactical move through or around a dangerous location, the infantry platoon is best situated either just in front of, or within elements of the third platoon. It is thus available for dismounted groundwork, should that be required, or it is prepared to maneuver with the third platoon. It is sometimes desirable to dispose elements of the infantry throughout the column to give close antitank protection. Perhaps with development of a better personnel carrier than the World War II half-track it will be possible to take the infantry right up to an action in their carriers; thus far it has not been feasible. They are needed mostly when the tanks are passing through defiles, wooded areas, or villages and their most effective actions in support are then either from the backs of the tanks or on the ground.

Engineer elements, if present, follow to the rear of the column, plus any trains vehicles which may have been included. It was found very desirable to include an ammunition truck, or a fuel truck whenever possible to offset the greater consumption of these elements by the advance guard in its more extensive maneuvers. The tank company maintenance officer in the tank maintenance vehicle,

plus some of the maintenance personnel in a quarter-ton, the medical aid men in a quarter-ton or in the maintenance tank, and the company liaison corporal also mounted in a quarter-ton, constituted the balance of the thin-skinned tail of the advance-guard column. To risk these elements so far forward meant furnishing some protection, which could usually be done by using the number two tank of the headquarters section without breaking up any of the platoons. The result was highly satisfactory. When contact became strong and the engagement with an enemy position warranted it, the thin-skinned sections dropped back, or allowed themselves to be overtaken and carried forward with other elements of the main column combat trains which were following. When the company trains dropped back they acted as a brake on the column following, slowed the advance to the point where the column commander had been given sufficient information by the time leading elements overtook the advance guard to order a coordinated attack if such was indicated, or the trouble had been cleared and the advance continued as before. As happened in many of the last days of the war, a terrific volume of artillery fire was dumped on the offending location and any potential delay effectively eliminated. Again, this is not normal, nor is it the usual pattern for advance-guard action.

Given a proper time interval between advance guard and main body, the leading unit will usually proceed down the road or trail until fired upon or it is necessary to make a tactical advance across

the terrain adjacent to the road or trail. The latter is more advisable, but usually slower. The formation then becomes the same as for any cross-country movement with the two leading platoons fanned out to the flanks in a somewhat inverted "V", and the third platoon and attachments following the point of the "V" at a tactical distance. The advance-guard commander and artillery forward observer will frequently maneuver to the flanks either with one of the platoons or just behind them to a point of observation and vantage. Control, radio contact, and movement forward are thus facilitated, but care must be taken that such movements do not result in the isolation of the commander or in his being cut off by some remote enemy position that ignored the larger force. Throughout all the movements in dangerous territory the principles of fire and movement, reconnaissance by fire as well as any tactical groupings necessary to accomplish the mission, are employed. In extensive cross-country movements, especially over broken, rolling, or semi-wooded areas, the three platoons may be thrown out as a screen. The advance is then by bounds, permitting the small force to gain dominating terrain and keeping the main body in more or less visual contact. Distance between advance guard and main body is somewhat less than for movement along roads, but distance between elements of the advance guard is materially increased in order to cover the advance and give the desired time interval of warning if any threat develops.

One other weighty factor enters into all movement of an

Army in any war of the future, and that is air action. During the crossings of France in the war just passed, the disastrous effect of air activity upon enemy columns including armor could be readily seen. What then does this imply as far as our column movements of the future are concerned? It is wishful thinking to hope we shall have the same degree of air superiority again. Sound logic indicates at least that we shall not have it in all places at all times; therefore, steps must be taken to protect vehicles and columns from the same disaster which overtook the German columns when Allied air hit them with such devastating effect in World War II. Part of the answer may be in movement at night as it was in North Africa. Camouflage technique and discipline will again be a vital necessity, and perhaps there will be much greater movement across country with wide dispersion of vehicles. Advancement in development of fire control may produce a centrally-operated device which will place the concentrated fire of all available AA weapons on attacking planes, or radar-controlled AA weapons with their deadly effective fire may be integrated as low as company level. Lacking air superiority, it will be necessary to either develop new techniques and equipment or improve existing methods within armor in order to make it too costly for enemy air to carry out the raids which are otherwise possible. In any event, remembering the practice of camouflage, night movement, dispersion, and the technique of doing them correctly is good training doctrine and may be invaluable in the future.

Armor is the thunderbolt of any Army; it is a thrusting weapon, not a bludgeon, designed to strike at the vital parts of an enemy. Just as the surgeon uses the probe to locate a shell fragment lying close to the spine of a patient, the commander directs his armored columns into the flesh of the enemy. Like the point of the lance, the advance guard sharpens and tempers the spear of armor, driving fast and deeply, sustained by the strength and force of the main body.

B I B L I O G R A P H Y

TITLE	CLASSIFICATION
After Action Report #480, 45th Tank Battalion, 13th Armored Division. 7-10 April 1945	Restricted
American Legion Magazine, Pony Edition, February, 1947	Unclassified
Department of the Army Field Manual 17-33	Restricted
Department of the Army Field Manual 100-5	Unclassified
Development of Armored Vehicles, Volume 1, AGF Board #2, The Armored School, Ft Knox, Kentucky	Restricted
Tankers in Tunisia, Headquarters Armored Command, Ft Knox, Kentucky, 1943	Unclassified