

KILLERS, FILLERS, AND FODDER

by

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Although our ability to deter Soviet aggression and expansion is predicated on an array of strategies, weapons, and other factors, our plans to actually confront the Soviets around the world, if necessary, depend largely on our land combat capability. The principal ground weapon system on which we currently rely is the tank. Unfortunately, the balance of power in armor is stacked heavily in favor of our potential enemy.

Quantitative comparisons of our armor force versus the Soviet armor force can be variously constructed. One can compare total numbers of tanks, numbers of tanks in forward-deployed units, annual tank production, potential tank production, rapid reinforcement capability, mid-range reinforcement capability, and so on. Regardless of the way you slice that pie, however, we get the smaller piece. In the most favorable scenario, NATO-force tanks in Central Europe are outnumbered only by about 1.2 to 1 by those of the Warsaw Pact. That projection, however, fails to consider a Soviet buildup prior to hostilities and overlooks the prospect that in a Warsaw Pact attack on NATO forces the actual tank-to-tank battle ratios would probably exceed 5 to 1 at the point of attempted penetration. In other parts of the world where we might face the Soviets, particularly in Southwest Asia, we could expect an even more bleak picture.

Can we alter our quantitative disadvantage? No. Each of our new M-1 tanks will cost over \$1.5 million, and the total production of M-1 tanks is expected to be only 7000. In view of the high cost of the M-1, we will probably be fortunate if budget cuts don't force us to lower our total

production or lengthen the number of years necessary to obtain enough tanks to equip our force.

For many years we have balanced the Soviet advantage in weapons quantity with our clear advantage in quality. We believed that our superior tanks, though fewer in number, could at least hold their own against the much more numerous, but inferior, Russian tanks. That era is at an end.

Few would dispute that the M-1 tank is a modern, sophisticated main battle tank, the best in the world, or at least on a par with the best; but those of us who have followed the Soviets' progress with their newest tanks recognize that we no longer have the clear quality edge of years past. Our tank is superior in most ways, but theirs has the advantage in other areas, notably in its more effective frontal armor protection, smaller silhouette, and better armor-defeating main gun ammunition. Whose tank is better? We think ours is. We know that our tank will at least hold its own, but it is wishful thinking to continue to predict lopsided kill ratios based solely on a superior weapon system.

If our equipment is only slightly better, can training then make the difference necessary to overcome the numerical disadvantage we face? Probably not. Although our armor training is excellent, we would be naive to believe that our potential adversary is inept in training its armor forces for combat. In fact, the evidence indicates that the contrary is true. Soviet training is not nearly as sophisticated as ours, but it does produce Russian tankers with a firm grasp of the basics necessary to be effective in combat. We do believe that our training will produce better-trained crews than theirs, but certainly

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not so much better that we can expect training alone to close the quantity gap.

Can tactics make the decisive difference? There is no way to answer that question with any degree of certainty, short of war. Tactics obviously will weigh heavily in the outcome of any series of engagements. France was credited with having the finest land army in the world prior to World War II. Yet the German blitzkrieg thoroughly destroyed the French Army in a matter of weeks. German tactics more than compensated for the French advantage in the number of tanks deployed in that campaign.

During the mid-1970s, we introduced the "active defense" as our decisive tactic to impale the Russian Bear. Less than a decade later, we have decided that perhaps the "active defense" doesn't work as well as we expected. Today we are hearing about attacking and disrupting the second echelon concurrently with our engagement of the first echelon. Unfortunately, many experienced officers are apprehensive about this concept and believe that they will need all the force available to stop the enemy's first echelon.

Although tactics may well be the decisive factor in any future conflict, we should be most reluctant to believe that our numerical disadvantage would be fully offset by our current tactical concepts, no matter how sound they may be.

There is one element, however, that we have yet to consider.

THE HUMAN ELEMENT

Selection of armor crewmen may well be the single most important aspect of armor combat effectiveness in any future conflict. The modern computer has a seemingly unlimited capability to solve complex technical problems, but we all know and accept that a computer is no better than its input: "garbage in, garbage out," as the old, shopworn phrase goes. The fastest car in a race doesn't win unless the right driver is behind the wheel. The point is, the right person must be selected to make full use of the potential of the machine. Training alone cannot make the difference. If a person is not

intelligent enough to understand how computers function, he can never be expected to use a computer to its best advantage. If a person is afraid of driving fast, or doesn't possess superior hand-eye coordination, or doesn't have a winning attitude, he will never be a winning race car driver. The same reasoning holds true in any man-machine interface. No matter how good the machine is, if the man operating it is unable to exploit its potential, the machine will never be fully effective.

Will our current crews be effective with their new tanks? We have no way of knowing with any degree of certainty. Soldiers who possess the mental and physical prerequisites to fully accomplish their duties in combat can certainly be trained to perform those duties in peacetime. On the other hand, soldiers who do well in training may not be effective in combat. Peacetime training, on the whole, is not a close approximation of combat. In combat, the soldier faces fatigue, danger, and a host of psychological stresses not present in even the most arduous training environment. Peacetime training *can* be a discriminator: if a soldier cannot perform his duties in training, he certainly won't be able to do better in combat. Most training, however, has little predictive value. Marksmanship training is a case in point. A soldier who is an excellent marksman on the range may fire wildly or not at all in combat.

The focus of any effort to evaluate the combat potential of a tank crew must be primarily on the tank commander. He trains

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his crew for combat and is the key player in identifying any member of the crew who is unable to do his job properly in combat. The tank commander can compensate for a weak member of his crew in peacetime and, to a certain extent, in combat. On the other hand, while a crew can carry a weak tank commander in peacetime, they cannot do so in battle. In battle, the burden of success or failure is totally on the tank commander. He must make all of the decisions. He must locate the enemy and present targets to the gunner. He must tell the driver which way to go and the loader which ammunition to load. The tank will behave as the tank commander behaves. If the tank commander is aggressive by nature, his aggressive spirit will be manifested in the way he maneuvers his tank. If he tends to be overly cautious, his tank will be maneuvered with uncertainty and a lack of boldness.

Who are our tank commanders today, and are they the right men for their job? Officer tank commanders are obtained from the same sources as the bulk of our officer corps. Most are commissioned from ROTC, a much smaller number are graduates of the US Military Academy, and a few are Officer Candidate School graduates. While USMA and OCS applicants must meet demanding admission standards, however, our only indication of the aptitude of ROTC graduates is the fact that they have obtained a college degree and have completed their ROTC training course.

Enlisted tank commanders normally have enlisted for Armor and have worked up to their current position and grade after having held other crewmember jobs. All too often they have been promoted not primarily because of their advancement potential, but because they amassed promotion points for time in service and time in grade, and were thoroughly coached prior to their appearance before the promotion board. They have at least performed their duties at lower grades in an adequate fashion and have not been severe disciplinary problems. Some are outstanding soldiers, and some are not.

Enlisted soldiers are tested for aptitudes for military service upon entering the Army.

Each must achieve at least Category IV on the Armed Forces Qualification Test (AFQT). Brighter enlistees, those in AFQT Categories I and II, tend to enlist for technical skill training; relatively few enlist for Armor. Furthermore, a lower number of Category I and II armor crewmen reenlist after their first tour because they see more advancement potential in a civilian career. The result is a high percentage of enlisted tank commanders in AFQT Categories III and IV.

All armor crewmen, including officers, must meet the minimum physical standards required for combat arms soldiers. They must have reasonably good vision, but they may wear glasses. Agility, hand-eye coordination, and manual dexterity are not tested.

Having come through the entry, classification, promotion, and selection process described above, a tank commander, as we know, can still clearly fail to measure up to the requirements of the job. Far too often, in these circumstances, we attempt to compensate for a demonstrated lack of ability with training. If one tank commander is less able than his peers, we give him more training. If a crew doesn't do well in a training evaluation, we comment on the crew's "poor state of training." Unfortunately, additional training is usually not the solution to the problem.

KILLERS, FILLERS, AND FODDER

The result of our failure to set high standards for selection of tank commanders is that most of our current tank crews will not be truly effective in combat. A few will be real *killers* and account for the bulk of the enemy tanks destroyed by our tanks; most will be *fillers*, simply maneuvering with the rest of the tanks and trying not to be destroyed themselves; and a number will be *fodder*, certain to be defeated within their first few encounters with the enemy.

S. L. A. Marshall, in his important book *Men Against Fire*, observed that less than one American infantryman in four actually fired his weapon in combat in World War II.¹ Incredible. Yet all of these men had undergone at least basic training and had

qualified with their weapons on a firing range. In later writings, Marshall noted that more soldiers fired their weapons at the enemy in Korea than in World War II, but nonfirers were still present in high numbers.² Since infantrymen and armor crewmen are from the same population and meet the same enlistment standards, their reaction to battlefield stresses and their relative effectiveness should be generally similar.

In 1958, the US Army Leadership Human Research Unit at Presidio of Monterey, California, published an analysis of combat fighters and nonfighters, entitled "Fighter 1." The study attempted to pinpoint the basic differences between good and poor combat performers in the Korean War. It found that:

The fighter tended to be:

- (1) More intelligent
- (2) More masculine
- (3) A 'doer'
- (4) More socially mature
- (5) Preferred socially and in combat by his peers

[He also tended to have:]

- (6) Greater emotional stability
- (7) More leadership potential
- (8) Better health and vitality (larger and heavier)
- (9) A more stable home life
- (10) A greater fund of military knowledge
- (11) Greater speed and accuracy in manual and physical performance.³

Two conclusions drawn from the study were that "the qualities of fighters are potentially measurable" and that the study gave "promise of the possibility of identifying fighters by appropriately developed tests."⁴ The study also concluded that "men who are low in intelligence tend to make poor fighters" and that "when any combat branch is allocated a disproportionate share of men . . . who are low in intelligence, its fighting potential will be reduced."⁵

A parallel exists between the nature of combat experienced by Air Force fighter pilots and Army tank commanders. Each

commands a complex weapon system with the prime mission of engaging and destroying similar enemy weapon systems. Each faces success or failure dependent on his ability to acquire and accurately engage the opposing enemy weapon system before the enemy is able to accurately engage him.

If we accept that the nature of combat is roughly the same for the fighter pilot and the tank commander, it is reasonable to assume that the type of person who would be successful in combat as a fighter pilot would also be successful as a tank commander. It is also logical to believe that the combat performance of a randomly selected group of fighter pilots would roughly parallel the battlefield performance of a similar group of tank commanders. Since no studies have been made of tank commander performance in combat, I have focused on the recorded combat performance of fighter pilots as an approximation of the expected performance of tank commanders.

In World War II, five percent of the 5000 Eighth Air Force fighter pilots who flew against the Germans during 1943-45 accounted for 40 percent of the enemy aircraft shot down. In the Korean War, the results were almost exactly the same: 4.8 percent of our F-86 pilots garnered over 38 percent of the total enemy kills.⁶ Even when the analysis of fighter pilot effectiveness is narrowed to consider only fighter pilots with a large number of proven opportunities to kill, the results are similar. A small percentage of pilots (approximately 10 percent) achieve the bulk of the air-to-air kills. In both conflicts, over half the fighter pilots with some opportunity to score an air-to-air kill did not do so. In addition, there was no apparent reason for the disparity in combat effectiveness; the pilots presumably had met the same high standards to become fighter pilots, they had received the same training, and they had flown the same missions. Yet some became "aces" (killers), some scored a low number of kills or did not score at all (fillers), and some were themselves killed, usually in their first 10 missions (fodder).⁷

In the mid-1970s the Air Force commissioned McDonnell Douglas to study the difference in effectiveness between fighter

pilots. The final report of the year-long study was published in April 1977. It concluded that "there are large individual differences in performance which are significant even when comparable equipment is used."⁸ Further, "some 45 factors . . . can be reasonably hypothesized to be of predictive value in identifying the combat effective air-to-air fighter pilot."⁹

During the latter part of 1977, the US Army Training and Doctrine Command conducted the battalion phase of the Division Restructuring Study at Fort Hood, Texas. The overall study was designed to test a new optimum force structure for the 1980s. The battalion test phase was conducted to compare the performance of tank and mechanized battalions organized in accordance with a test TOE, with the performance of tank and mechanized battalions organized under the H-Series TOE. The test made maximum use of the TRADOC Combined Arms Test Activity (TCATA) Field Instrumented System (TAFIS) to provide realism and to collect data on direct fire systems. TAFIS consisted of laser fire simulators and receivers mounted on tanks and TOE vehicles, similar to the current MILES (Multiple Integrated Laser Engagement System). Preliminary training, TAFIS orientation training, and the battalion test together occupied each of the participating battalions for almost 90 days.

As the commander of one of the four tank battalions involved, I was able to conduct my own TAFIS orientation training. During these training sessions, I noticed that a few of my crews were almost always successful in simulated combat engagements, regardless of the odds, and others were almost always "killed."

The trend continued throughout the actual battalion test. During the conduct of the test, each instrumented engagement was recorded and the results were compiled daily. It became my habit to inquire about my battalion's results so that I could congratulate crews with high kill ratios. The same eight to 10 crews repeatedly scored well.

TCATA analysts observed similar results with all eight battalions that participated in

the test. During the course of the research for this article, I contacted the two test officers who were most involved at the time.¹⁰ They both confirmed that "approximately 20 percent of the instrumented vehicles accounted for about 80 percent of the kills." Further, with some exceptions, the biggest killers were the crews commanded by officers. According to the Chief Data Analyst, the officer-led crews killed almost twice as effectively as the platoon-sergeant-led crews, and the other enlisted-tank-commander-led crews seldom killed at all.

During the Battle of the Bulge in World War II, Creighton Abrams' tank battalion achieved extraordinary kill ratios, as did an Israeli tank brigade on the Golan Heights during the most recent Arab-Israeli War. In both instances, the units had apparently taken severe losses and, at the point of their remarkable success, all of their remaining tanks were commanded by officers.¹¹

In April 1981, TRADOC published the SCACE Study (Soldier Capability—Army Combat Effectiveness). The study was undertaken to examine a number of manpower issues, including the relationships between the capabilities of soldiers and the effectiveness of weapons, units, and larger forces.

The study offers a valuable insight into the human factor in war. For example, the study states,

The performance of the opposing forces in the 1967 and 1973 Arab-Israeli Wars convincingly showed that the capabilities of the individual soldier largely determine the effectiveness of weapons and the tactics that are employed. Human factors were found to be the major determinants of the outcome of the battles fought during these wars.¹²

The study also comments,

It would be foolhardy for us to believe that our qualitative advantage in hardware translates into a great enough edge in combat effectiveness of ground forces to compensate for the vast numerical superiority enjoyed by our adversaries.¹³

Regarding the selection of armor crewmen:

Our M-1 Abrams tank can be, as it was designed to be, the best fighting machine in the world; or it can equal the combat effectiveness of a big rock of the same size, depending on the capabilities of the soldiers who operate and maintain it.¹⁴

Several other SCACE findings are especially noteworthy:

The data from the reviewed literature overwhelmingly support the premise that . . . soldier capabilities are a major determinant of the combat effectiveness of weapons, units, and forces.

The data also convincingly support the conclusions that the variables that determine soldier capabilities are identifiable, measurable, and useful for prediction of both noncombat and combat effectiveness of soldiers and weapons.

There is an essentially linear relationship between the combat and peacetime performance of soldiers and their mental abilities. High ability soldiers . . . get greater effectiveness out of any weapon, simple or complex, and improve the overall combat and cost-effectiveness of the Army.¹⁵

A US Army Recruiting Command Research Memorandum published in January 1982 has captured the interest of the Armor community. The memorandum, entitled "The Gideon Criterion: The Effects of Selection Criteria on Soldier Capabilities and Battle Results," addresses the relationship between the intelligence of armor crewmen and tank gunnery results. The data used in the study are the firing results from the 1981 Canadian Army Trophy Competition held at Grafenwoehr, Germany, in June 1981.

While the Gideon report contains several flaws in statistical analysis, it does present a strong case that the gunnery performance of a tank is highly related to the AFQT score of the tank commander.¹⁶ A simple combat

simulation conducted during the course of the analysis showed that one tank commanded by a tank commander with an AFQT Category II score could be expected to have the same kill ratio as six tanks commanded by tank commanders with AFQT Category IV scores.¹⁷

The Gideon report also states,

Although the cost and difficulty of recruiting personnel with higher mental aptitude is significant, the consequences of not recruiting them could be more significant. If our efforts to 'train to fight and win outnumbered' are taken seriously, the manpower quality of our tank force must be improved.¹⁸

IMPROVE THE HUMAN FACTOR

The evidence is overwhelming. We have spent billions of dollars improving our armor equipment and practically nothing toward improving the quality of the men who operate it. We have a tank force that contains a small percentage of real killers, a great number of fillers, and considerable fodder. Too many of our tank commanders are not intelligent enough to fully exploit the capabilities of the machines they command, and too few possess the "fighter pilot ace" instinct necessary to win on the battlefield.

We must upgrade the quality of our tank commanders if we expect to win any major ground war in the future. Our tank commanders must be intelligent, they must be physically fit for their job, and they must have a competitive, "killer" mentality.

The entrance criterion is easy to establish. We can simply set AFQT Category II as the minimum standard for all tank commanders.

Physical requirements should also be higher for entrance into Armor. In addition to meeting the current physical standards, all prospective tankers should be tested for manual dexterity, hand-eye coordination, and agility. They should also have to meet higher vision standards. Preferably they should be required to have 20/20 vision without glasses.

Finally, we should develop some means of identifying the "killer" instinct and select as tank commanders only those men who demonstrate a corresponding type of behavior pattern. This need presents one of the most difficult problems in upgrading the quality of tank commanders. No statistically reliable test for the "killer" instinct exists. We can and must, however, do better than we are now doing.

How can we fill our tank turrets with the tank commanders we so badly need? If we establish a higher AFQT standard, we will have taken the first giant step. High intelligence seems to be a significant factor separating the combat fighter from the nonfighter. We can also administer stress tests to prospective tank commanders and eliminate any who show an inability to function well under stress. Another obvious indicator is competitive behavior, as opposed to passive behavior. A soldier who has demonstrated his competitiveness through athletics or some other activity should be a strong choice to be a tank commander over someone who always avoids competitive situations. Even the use of an arcade video game such as "Battle Zone" or "Pac Man" might assist in identifying prospective tank commanders who are competitive and aggressive. Finally, a number of psychological tests are available that could further help in the selection of those soldiers who would be more apt to win on the battlefield.

Numerous difficulties will have to be overcome to bring about a substantial increase in the quality of our tank commanders. Under our current recruiting and personnel management systems, the only way we can obtain quality enlisted tank commanders would seem to be to raise the enlistment standards for all Armor military occupational specialties. This could be accomplished, however, only at the expense of other branches; if more AFQT Category I's and II's go into Armor, fewer will be available for other career fields.

Perhaps, then, a more feasible method should be considered. Little evidence exists to support the need to raise intelligence or

aptitude standards for all tank crew members. It would be preferable, therefore, to continue recruiting armor crewmen to be drivers, loaders, and gunners under current standards. Tank commanders, on the other hand, could all be acquired at the entry level, just as we now obtain officer tank commanders at the entry level. Should tank commanders all be officers, then? No. We don't need or want that number of Armor officers at the lieutenant level, and many of the precommissioning standards for officers are not particularly relevant for tank commanders.

Why not use warrant officer tank commanders? They could be recruited from a population of young men who would not otherwise be inclined to enlist. Career retention should be considerably better than with the aviation warrant program because Armor warrants would not perceive a ready market for trained and experienced tank commanders in the civilian sector. The costs to the Army should not be appreciably higher, considering the relatively low numbers involved. An Armor warrant officer candidate course could easily be designed to be comparable to the training that enlisted tank commanders currently receive in the aggregate.

Other benefits could also accrue. Enlisted crewmen, while being denied the opportunity to become tank commanders without qualifying for and going through a warrant officer candidate course, could specialize as they advance in rank. At the E-5 or E-6 level, they could receive additional training as track vehicle mechanics or turret mechanics or master gunners or armor communications specialists. Such training would replace current NCO courses designed to prepare them to be tank commanders. It is not difficult to imagine the advantages of having one or two track vehicle mechanics, a turret mechanic, a radio repairman, and a master gunner all within a tank platoon.

IN CONCLUSION

To review the main points of the argument:

- Our current tank force is badly outnumbered by that of our potential adversary.

- We have not been able to offset this disadvantage with technology, training, or tactics.

- We have not adequately considered the human factor; perhaps it alone can provide us with a decisive advantage over our enemy.

- Only a small percentage of our current tank commanders would be truly effective in combat.

- Tank commanders must be selected who are intelligent enough to employ our complex modern tanks to their maximum effectiveness, and who have the "killer" instinct necessary to win in battle.

This article is not intended to be an indictment of enlisted tank commanders or Armor noncommissioned officers in any way. For the most part, they are dedicated, professional soldiers who are a credit to the United States Army. They work hard and they train hard. Most of them also eventually become competent peacetime tank commanders, and some would be outstanding in combat as well. The majority, however, are just not equipped to fully exploit their sophisticated tank in battle. When faced with the sudden requirement for a series of rapid-fire decisions, the confusion and danger of battle, and the necessity to react immediately and violently to the ever-changing situation, they will not perform well enough to fight and win outnumbered.

The tank commander we must have is a winner. He must want to be the best at whatever he does. He must want to compete, and he must be extremely good in a stressful, competitive environment. He must be an achiever, and he must be a poor loser. He must be a "killer," not a "filler" or "fodder."

Most experienced armor commanders will agree with the points set forth in this article if they take the time to reflect on their past experience in armor units. They will recall a number of tank commanders who were outstanding in training and who could be counted on to do as well in combat. The

memory of those tank commanders, however, will be vastly overshadowed by the recollection of the mediocre and the inept.

The challenge for the leadership of the Army is to react now to a deplorable situation that many Armor officers have recognized for some time. The evidence has long been clear in their day-to-day experience and is now becoming apparent even statistically. The changes necessary will be neither easy nor pleasant. The advantage to be gained, however, is too great to be ignored.

NOTES

1. S. L. A. Marshall, *Men Against Fire* (Washington: Infantry Journal, 1947), p. 60.

2. S. L. A. Marshall, *Commentary on Infantry Operations and Weapons Usage in Korea, Winter of 1950-51* (Chevy Chase, Md.: Johns Hopkins Univ., Operations Research Office, 1951).

3. Robert L. Egbert et al., *Fighter 1: An Analysis of Combat Fighters and Non-Fighters* (Presidio of Monterey, Calif.: US Army Leadership Human Research Unit, 1958), p. 4. [Also published as Human Resources Research Office Technical Report 44 (Washington: George Washington Univ., December 1957).]

4. *Ibid.*, p. 5.

5. *Ibid.*

6. Edward W. Youngling et al., *Feasibility Study to Predict Combat Effectiveness for Selected Military Roles: Fighter Pilot Effectiveness*, McDonnell Douglas Corp., April 1977, p. 1-8.

7. *Ibid.*

8. *Ibid.*, p. 8-1.

9. *Ibid.*, p. 1-4.

10. Interview with LTC John M. Pinson (USA Ret), formerly the Test Officer for the Battalion Phase of DRS, TRADOC Combined Arms Test Activity, Killeen, Texas, 30 March 1982. Telephone interview with MAJ William F. Hulse, formerly the Test Control Officer and Chief Data Analyst for DRS, TRADOC Combined Arms Test Activity, White Sands Missile Range, New Mexico, 30 March and 24 May 1982.

11. This information was provided in a recent lecture at the US Army War College by an eminently qualified guest speaker who went on to also say that he, himself, had become an advocate of smaller tank platoons simply to increase the ratio of tanks with officer tank commanders.

12. Juri Toomepuu, *Soldier Capability—Army Combat Effectiveness (SCACE)*, US Army Training and Doctrine Command, April 1981, p. 12.

13. *Ibid.*, p. 37.

14. *Ibid.*, p. 61.

15. *Ibid.*, pp. 67-68.

16. J. R. Wallace, *The Gideon Criterion: The Effects of Selection Criteria on Soldier Capabilities and Battle Results*, US Army Recruiting Command Research Memorandum, January 1982, p. 8.

17. *Ibid.*, p. 9.

18. *Ibid.*, p. 8.