

NEWSLETTER
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Patton Battalion - USABOT is a chapter of the US Army Brotherhood of Tankers and is a 501(c)3 Non-Profit.

Patton Battalion - USABOT covers Illinois, Indiana, Kentucky & Tennessee.

The Blood and Guts Newsletter covers events and activities within our area and USABOT National.

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We continue with the history of the Master Gunner Program in this months issue. We are working our way up to the Pilot course and Class 001. We begin by looking at the analysis papers that we pushed down to each school in TRADOC. These are lessons learned for each school in the TRADOC system. All based of the lessons learned from the Arab-Israeli War in 1973. I included these as they are important to look at when you are looking back as to *why* there was a need for a Master Gunner Program.

There is an email from Gen John Sherman Crow on what he witnessed as the Secretary of the General Staff for Gen Donn Starry. From there we see how Gen Starry was going to build this program into the current force structure. We have the approval from TRADOC for the program.

As we move on in the history of the Master Gunner program I have recently came in contact with a British tank NCO who was a Gunnery Instructor and joined the British Army in 1976. So we should have some good conversations about gunnery during the same period as the beginnings of the Master Gunner program.

I finished another great book on women who served this nation during World War II. *Our Mothers' War: American Women at Home and at the Front During World War II* by Emily Yellin. I don't think that I can express how important it is that men take the time to read this book. We have a lot of men who have heartburn with women serving in the military. I still don't think that these men who hold that attitude realize what women have done in the military from WWI to today.

There were so many women that I looked up while reading this book. How this book lead me to purchase other books about some women so that I could learn more about their service.

KP Morris
 Patton 6

[HTTPS://DOUGHBOY.ORG](https://DOUGHBOY.ORG)
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Some Armor School History on December 14, 2022. Abrams Master Gunner Class 23-001. Top Row, LT to RT, SSG Cox, SSG Soto, SGT Lockhart, SGT Mayfield, SGT Ramirez Bottom Row, LT to RT, SSG Chartier, SSG Brown, SSG Benyak, SFC Pingicer, SFC Wilds, COL Kranc, Commander 316th Cavalry Brigade. The first women in both the National Guard and Active component to earn the K8 identifier!



History of the Master Gunner Program

In a letter dated 26 February 1974 we have from BG Morris J. Brady his guidance as the Director of the Special Readiness Group Study (SRGS). This document shows that original DOD guidance came out down was the following:

- a. Letter, DAFD-DOD, subject. Collection and Exploitation of Information on the Israeli-Arab War dated 26 November 1973.
- b. Message, Commander of TRADOC subject, Collection and Exploitation of Information on the Israeli-Arab War dated 30 November 1973.
- c. Letter, DAFD-DOD, subject: Lessons Learned from the 1973 Middle East Crisis, dated 6 December 1973.
- d. Letter, ATCD-CF, subject: Lessons Learned from the 1973 Middle East Crisis, dated 9 January 1974.
- e. Letter EFFD—DO-MEAG, subject: Army Staff Requirements for Data Analyses of the 1973 Israeli-Arab War, dated 4 February 1974.
- f. Letter ATCADC-SRSG, subject: Army Staff Requirements for Data Analysis, dated 22 February 1974.
- g. Letter ATCADC-SRSG, subject: Special Readiness study Group Information Letter, dated 20 February 1974.

In general this is what this meant. *Reference 1a* tasked USATRADOC to coordinate for the Army the collection and analysis of combat data from the Israeli-Arab War. *Reference 1b* designated the Commander, US Army Combined Arms Center, as the TRADOC proponent for conducting a collection and analysis of combat data derived from the 1973 Mid-East war. Specifically, the Commander, US Army Combined Arms Center, was directed to exploit the expertise available in TRADOC'S schools to assist in the evaluation and analysis of the amassed combat data. If manpower conflicts develop, he is also authorized to redirect command priorities to insure timely accomplishment of the DA - assigned task. *Reference 1c* tasked USATRADOC to provide Department of the Army abstracts or summaries of lessons learned to meet a requirement imposed by the Joint Chiefs of Staff. *Reference 1d* forwarded the initial summaries and indicated that a final report would follow by 30 June 1974. *Reference 1e* identified specific products needed by Department of the Army and the periodic progress reports necessary to keep the Army Staff informed. *Reference 1f* forwarded a copy of *reference 1e*. *Reference 1g* is the reference guide to material which the Special Readiness Study Group (SRSG) has available. This guide identifies the major areas of interest discussed in each document and the sources of the information.

All Addressees:

- (1) Review the SRSG plan. Identify topics that are not adequately covered and send your comments to SRSG by 11 March 1974.
- (2) In accordance with DA's reporting requirements, provide SRSG with an initial report on actions and analyses related to the 1973 Mid-East War by 14 March 1974 and an updated report by 10 May.
- (3) Contribute to the analyses conducted by the activities with primary responsibility, as summarized in inclosure 2.

The addresses were, Administration Center, Ft Benjamin Harrison, IN.

Logistics Center, Ft Lee, VA.

Command and General Staff College, Ft Leavenworth, KS.

Army Security Agency, Arlington, VA.

Army Material Command, Alexandria, VA.

Air Defense School, Ft Bliss, TX.

Armor School, Ft Knox, KY.

Aviation School, Ft Rucker, AL.

Engineer School, Ft Belvoir, VA.

Field Artillery School, Ft Sill, OK.

Infantry School, Ft Benning, GA.

Intelligence School, Ft Huachuca, AZ.

Ordnance Center School, Aberdeen Proving Ground, MD.

Foreign Science Technology Center, Charlottesville, VA.

We are going to focus on the tasking of the Armor School.

j. Armor School, Fort Knox, Kentucky:

- (1) Write analysis papers M4, M5, D1, and P1. These papers are requested by April 1974.
- (2) Request contributions to analysis papers M1, M2, D3, D4, D7, D11, and P2 by 20 March 1974.

ANALYSIS PAPER M -1

What antitank materiel improvements or doctrinal changes should be introduced into The US Army as result of antitank weapons in the 1973 Middle East War.

M-1. Evaluate the operational effectiveness and limitations of Arab and Israeli antitank guided missile systems used in the 1973 Middle East War.

Consider day and night operations as well as countermeasures.

In the analysis consider the following elements:

1. What were the loss exchange ratios for ATGM vs armored vehicles?

History of the Master Gunner Program - Cont.

2. At what ranges were effective kills achieved? F, M, and K?
3. Determine in which battles ATGMS were decisive. Why?
4. How many and what Types of ATGMs were launched and with what percentage of hits?
5. Determine the tactics of ATGM employment and any limitations.
6. How many ATGM firings were suppressed or the equipment damaged or destroyed by enemy direct fire? How many by indirect fire?
7. Determine the numbers and causes for missile aborts: Suppression, Technical failure or climatic?
8. What Israeli countermeasures were employed against Arab antitank missiles? Assess their effectiveness.
 - a. Evasive maneuvers
 - b. Electronic or decoy countermeasures
 - c. Tank fire
 - d. Infantry
 - e. Artillery
 - f. Attack aircraft
 - g. Smoke
9. Has ATOM resupply capability commensurate with rates of fire?
10. Is there evidence that armor stand-off plates or expedient stand-off material will degrade ATGM?
11. How many missiles were fire at night? How effective were they?
12. Were target acquisition means (night vision optics) for night use effective? Consider the effect of battlefield illumination.
13. What was the effect of day optics used at night with artificial illumination?
14. Determine any innovative usage of ATGMs which provided measurable advantage. Example: Did multiple ATGM firings prove decisive and influence exchange ratios?

ANALYSIS PAPER M – 2

Evaluate the operational effectiveness and limitations of Arab and Israeli conventional antitank weapons (ATW) used in The 1973 Middle East War, including day and night operations.

In The analysis consider the following elements:

1. How effective were each of the alternative countermeasures, including artillery, infantry, attack aircraft, armor, track shrouds, smoke, ETC.?
2. In engagements in which antitank weapons were employed, what were the exchange ratios for each type of antitank weapon.
3. At what ranges were effective kills achieved? M, F, or K?
4. How many ATW rounds by Type weapon were fired and with what percentage of hits?
5. Cite specific circumstances wherein antitank weapons were decisive. This will consider both defensive and offensive use.
6. Determine the tactics of ATH employment and any limitations.
7. Determine comparative densities of all antitank weapons on the battlefield.
8. Determine any innovative usage of the ATW's which provided measurable advantage. Example: Did extreme proliferation overwhelm targets and influence exchange ratios as deliberate method of employment?
9. What were night combat capabilities and limitations of all subject AT weapons?
10. What countermeasures were employed against ATHs? Assess the effectiveness of each countermeasure.
11. Was ATW resupply capability commensurate with rates of fire?

ANALYS PAPER M – 4

What armor materiel improvements or doctrinal changes should be introduced into US Army as result of armor employment in The 1973 Middle-East War? Analyze The inherent crew hazards that affect survivability or combat effectiveness of US M48/60 series tanks.

In The analysis consider the following elements:

1. How many M48 and M60 Tanks were combat-committed? Egyptian front? Syrian front? Determine the density.
2. Determine extent of crew Training of M48/60 Tanks prior to combat.
3. Describe the combat environment in which M48/60 Tanks participated, i.e., terrain, weather, severity of usage, enemy weaponry employed against.
4. What is the significant correlation between EEA 1, 2, and 3?
5. Of the tanks damaged, what number resulted in crew injuries?
6. Determine the number and circumstances of reported crew casualties which were direct attributable to tank system malfunctions, materiel failures, or explosion of volatile liquids and ammunition.
7. Compare crew hazards existing in Arab Tanks with those of US manufacture. Determine what crew hazards should be corrected in US Tanks.
8. Determine the degree of stability of IDF Tank crews and the respective individual crewmen in armor positions. How did IDF monitor Training and certify the quality of gunners and tank commanders? State the number of hours of training/years of stability for IDF crewmen. Consider the impact of mobilization on tank crew positions.

History of the Master Gunner Program - Cont.

9. Were any IDF reported crew hazards attributable to lack of maintenance expertise?
10. Obtain percentages of M48/60 tanks repairable and non-repairable by echelon of maintenance.
11. What are the causes of crew injury solely attributable to enemy action? Isolate these cases from those determined in EEA above.
12. What are the exchange ratios of tank battles participated in by M48/60 tanks?

ANALYSIS PAPER M – 5

Evaluate the effectiveness of tanks against close-in infantry in the Middle East War and identify the major tank or combat vehicle characteristics that contributed to this effectiveness. Consider the M48/60 cupolas.

In the analysis consider the following elements:

1. What were tank forces by type of tank committed against close-in infantry forces?
2. What were the results of engagements involving tanks and close—in infantry. Consider-both fronts.
3. What infantry kills were achieved by tanks vs. close-in infantry using what weapon systems?
4. What tank kills were achieved by close—in infantry?
5. What was The doctrine for employment of infantry and tanks for both sides? Was the doctrine adhered To? How?
6. Did doctrinal misapplication contribute to excessive losses to close-in infantry forces? Explain.
7. At the conclusion of battles in which there was doctrinal misapplication what changes in the tactics of the opposing forces were observed?
8. What changes have IDF recommended and/or implemented for the cupolas on US Tanks? Why?
9. What changes have IDF recommended and/or implemented in tank turret or cupola weaponry? Why?
10. To what extent can effectiveness of IDF turret and cupola changes be measured quantitatively?

ANALYSEIS PAPER D – 1

Analyze the tactics and techniques employed by the Israelis to suppress or degrade Arab tank attacks.

In the analysis consider the following elements:

1. What was the effectiveness of and the techniques used for each of the following in degraded Arab Tank attacks?
 - a. Tank
 - b. AT weapon system
 - c. Artillery
 - d. Smoke
2. What was the artillery ammunition mix for each tank attack degraded by indirect fire techniques?
3. To what degree were successful degradation techniques range-dependent in either the direct or indirect fire case?
4. What countermeasures did the Arab forces devise to offset the IDF degradation techniques and how effective were they?
5. Quantify the results of IDF vs Arab tank attacks to determine number of kills (Type) and IDF weapon system attribution.
6. Which IDF techniques were based on existing doctrine and which were devised as an expedient?
7. To what extent did Arab tactics make the tank force vulnerabilive to degradation techniques?
8. To what degree did IDF crew training contribute to successful degradation techniques?
9. Identify those successful degradation techniques which were utilized within a combined arms team commitment.

ANALYSIS PAPER D – 3

ISSUE: What materiel improvement on doctrinal change should be introduced into US combined arms as a result of the 1973 Mid East War? Evaluate the effectiveness and limitations of Arab and IDF night operations. Consider the amount of preparation, type of equipment and techniques used.

In the analysis consider the following elements.

1. On each front what number and type of operations were conducted at night to include size,-type of unit and mission assigned?
2. What numbers and types of night vision devices were available? used?
3. Were any special techniques or tactics used for night operations?
4. How effective were the night operations in terms of mission accomplishment and in terms of survivability?
5. How much training had been conducted on night vision devices and night operations?
6. What were the deficiencies or limitations of night vision equipment?
 - a. Types of deficiencies.
 - b. Ranking of deficiencies.
7. What were the deficiencies or limitations of night Operations?
 - a. Types of deficiencies.
 - b. Ranking of deficiencies.
8. What are the characteristics of the active and passive night vision equipment (Arab and Israeli)?
9. How were they employed?
10. What countermeasures were used against night vision equipment?
11. How effective were the countermeasures?
12. What effect did artificial illumination of the battlefield have on night operations?

History of the Master Gunner Program - Cont.

ANALYSIS PAPER D – 4

ISSUE: What materiel improvement on doctrinal change should be introduced into US combined arms as a result of the 1973 Mid East War? Evaluate the effectiveness and limitations of Israeli Combined Arms Operations (including armor, infantry, artillery, air support and mobile air defense) and the effectiveness of Arab countermeasures against these Operations. Include an examination of any deception plans and their effectiveness.

In the analysis consider the following elements:

1. What is the Israeli concept of Combined Arms Operations?
2. What Arab tactics or techniques forced changes in this concept?
3. How were Israeli Combined Arms Teams employed in both the Golan Heights and Sinai areas?
4. Why were the Israeli initial armor-heavy thrusts in the Sinai unsuccessful?
5. What reorganization or changes were made as a result of these unsuccessful thrusts?
6. How effective were Israeli combined operations subsequent to these changes?
7. Which Arab tactics and techniques were most successful against Israeli combined arms teams?
8. What deception tactics were employed by the Israelis? How effective were they?
9. Did lack of available manpower/units restrict the deception capability of either side?

ANALYSIS PAPER D – 7

ISSUE: What materiel improvement on doctrinal change should be introduced into US combined arms as a result of the 1973 Mid East War? Evaluate the effectiveness and limitations of Arab Combined Arms Operations (including armor, infantry, artillery, air support and mobile air defense) and the effectiveness of Israeli countermeasures against these operations. Include an examination of an; deception plans and their effectiveness.

In the analysis consider the following elements:

1. What is the Arab (Egyptian and Syrian) concept of Combined Arms Operations?
2. Did any Israeli tactics or techniques force changes in this concept?
3. How were Arab combined arms teams employed in both the Golan Heights and Sinai areas?
4. What force structure were most successful?
5. Did the Egyptians 2nd Army employ the Combined Arms Concept?
6. Was the Egyptian Combined Arms team limited in mobility by its air defense system? If so, why?
7. Which Israeli tactics and techniques were most successful against the Arab Combined Arms teams?
8. What deception tactics were employed by the Arabs? How effective were they?
 - a. What turned initial Arab success into failure. Consider training, preparation, soldier and leadership.

ANALYSIS PAPER D – 11

ISSUE: Can the size of US Tactical Headquarters (En-Corps) be reduced without degrading unit performance?

a. Subtask: Analyze the organization and operation of Israeli tactical headquarters to evaluate their size, composition and performance.

b. Essential Elements of Analysis:

- (1) Were IDF HQ austere by US standards?
- (2) How were they organized, equipped and manned?
- (3) Are HQ echeloned, i.e., forward; main, tactical, rear, alternate, jump?
- (4) What tasks were performed at each echelon?
- (5) How often did forward/main CPS displace?
- (6) How long was required to prepare the CP for movement?
- (7) What techniques were used to maintain operations during displacement?
- (8) What tasks were abandoned in the heat of battle?
- (9) Which reports were written? How often?
- (10) Which were oral reports?
- (11) Are plans written? If not, how are they made?
- (12) Are estimates written? If not, how are they made?
- (13) How were orders transmitted?
- (14) Where were personnel records and administrator actions maintained and accomplished?
- (15) How were logistics managed? What records were maintained?
- (16) Were journals maintained?

ANALYSIS PAPER P – 1.

To what degree can crew training be directly attributed to superior tank crew performance, taking into account the relative quality of tank systems on each side.

In the analysis consider the following elements:

History of the Master Gunner Program - Cont.

1. Determine program content, length of training and areas of emphasis for IDF and Arab tank crews. Assess the contribution made by assignment stability on training.
2. Determine exchange ratios, for IDF-Arab tank battles.
3. Compare operational and technical characteristics of Opposing forces tanks.
4. As the war progressed, taking into account which side was on the defense, analyze the trends in the exchange ratios.
5. What degree of persistence in obtaining target hits can be measured for each side? How was this related to range of engagement?
6. Did any particular fire and maneuver techniques increase tank crew performance on the battlefield, e.g., formations, rate of advance, or use of cover and concealment?
7. What was the fire distribution plan for each side?
8. Determine the degree of stability in assignment and experience for each side's tank crews, combat and training, gunners and tank commanders.

ANALYSIS PAPER P – 2

ISSUE: What materiel improvement on doctrinal change should be introduced into US combined arms as a result of the 1973 Mid East War? Analyze the successful tactics and techniques employed by the Israeli leaders in combat. What role did positioning of leaders, motivation, initiative and adaptability play in determining the outcome of individual battles?

In the analysis consider the following elements:

1. Where were combat leaders positioned in each battle.
2. Where was the second in command located?
3. How and from where did these leaders receive intelligence or information on which to base decisions?
4. How often and how was information received from subordinate and superior headquarters?
5. Identify the number of combat leaders killed, under what circumstances were they killed?
6. How was transition made when the second in command was forced to assume command?
7. By what means were orders transmitted from higher headquarters and in what detail were they issued?
8. What leadership training had the combat leaders received? How are leaders and commanders developed? Experience, training?
9. How long had they been in command?
10. What flexibility did each leader have?
11. Were there battlefield promotions - if so, how were they handled?
12. What do the leaders regard as fundamental to tactic²¹ success on the battlefield?
13. What training was the most beneficial to their success on the battlefield?

Email from John Sherman Crow to Bill Hutton. October 15, 2022.

Bill, the following is the genesis of our Master Gunner program as I best remember:

In 1973 I was Secretary of the General Staff for MG Donn Starry at the Armor Center at Fort Knox.

A principal focus at the time was coordinating with MG Bob Baer, Project Manager, XM-1 Tank.

In late 1973, after the end of the Yom Kippur War, Generals Starry and Baer arranged a trip to England, Germany and Israel. The US party consisted of MG Donn Starry, MG Bob Baer, Col Bob Sunell, LTC John Sherman Crow and LTC Jim Bradin.

In England, major discussions focused on the 120mm rifled main gun and separated ammunition of the MK2 Chieftain tank and classified discussions regarding special armor. LTC Crow had previously commanded a tank squadron in the 11th Hussars in north Germany on a US-UK exchange program. His regiment was the first BAOR unit equipped with the MK2 Chieftain. During his tenure of command, he was particularly impressed with the quality and absolute uniformity of tank gunnery instruction administered by Gunnery Instructors having been certified after a multi-month program administered by the Royal Armour Centre in Bovington, England. LTC Crow made arrangements for General Starry to receive a special briefing by the head of the Gunnery Instructor program. General Starry was very impressed with the concept.

In Germany, major discussions focused on the German work on diesel tank engines, 120mm smooth bore tank guns and in Mep-pen, test firing against special armor arrays.

In Israel, most discussions were of a lessons learned nature with several battalion, brigade and division commanders of their experiences in the just concluded Yom Kippur War. Generals Starry and Baer had hours long discussions with Gen Tal, IDF architect of the Merkava Tank concept.

This trip resulted in Generals Starry and Baer developing close long term professional and personal relationships with the leading armor commanders of UK, Germany and the IDF.

On our return to Fort Knox, General Starry summoned the Chief of Weapons Department and that began the blueprint for what has resulted in the US Army's Master Gunner Program, the greatest combat multiplier in crew proficiency in our time.

History of the Master Gunner Program - Cont.

152130Z March 1974
 FROM GEN DePuy, CDR, TRADOC, GEN Kerwin, CDR, FORSCOM
 TO GEN ABRAMS, CSA
 INFO MG STARRY
 UNCLASSIFIED
 MCP 0325

1. We have jointly developed a proposal which we believe will significantly upgrade unit readiness of FORSCOM tank battalions and armored cavalry squadrons and enhance the proficiency of each tank crew.
2. The plan envisages (a) assignment of one master gunner to each tank battalion headquarters, tank company, armored cavalry squadron and armored cavalry troop within the FORSCOM structure, and (b) activation of 10 man war-time security augmentation of labeling it a "gunnery section." each FORSCOM tank company by labeling it a "gunnery section."
3. Master gunners are to advise the commander on methods of training tank crews and maintaining crew proficiency. To assure a high degree of standardization, TRADOC would establish a master gunner's course at Fort Knox in weapons, ammunition, and training techniques. Refresher courses would be provided when required and the Armor School would provide a continuous flow of information concerning changes in equipment, doctrine, and training techniques. Prerequisites for course attendance would include: (a) volunteers only: (b) nomination by bn/sqdn commander: (c) qualification on Table VIII within most recent 2 years: (d) agreement to a 2-year stabilized utilization tour in unit after successful course completion.
4. Additionally, it is suggested that DA would require USAREUR to flag highly qualified tank commanders returning to CONUS as candidates for the master gunner course; and that DA would provide intensive personnel management (closed loop) for master gunners subsequent to successful course completion.
5. The tank company "gunnery section" would include the master gunner and 9 other tank crewmen. It would provide the tank company commander flexibility and supernumerary help in maintaining +-man tank crews during training and operations given the current austere GSF manning of CONUS installations and the resultant SD requirements on STRAF units.
6. The master gunner program would cost 82 spaces. Activation of the remainder of the tank company gunnery sections would require 486 additional spaces, making a grand total of 568. TRADOC is prepared proximately 570 spaces to FORSCOM to underwrite the entire program.
7. We recommend approval of the entire 568 space package. However, should your plans for increased combat structure preclude approval of the entire package at this time, we establish the 82 space master gunner program as first priority. We consider it the basic and essential element of our proposal, and one which might well lead to Army-wide application.
8. We are ready to initiate immediately coordination between our staffs to entire proposed program. Manpower spaces could be made available for transfer from TRADOC to FORSCOM in the 1st Qtr, FY 75

Headquarters
 US Army Training and Doctrine Command
 7 May 1974

Dear Donn,

Your Master Gunners' Courses look good and should achieve their intended purpose. Concept approval for the courses is granted. I have instructed John McGiffert to provide the manpower and OMA funding required. He will be in touch with you soon on the details.

While resources are significant, I feel that personnel assigned to this program can assist in other high priority missions such as meeting USAREUR training surges. M60A2 training for USAREUR bound NCOs is a case in point. I am very interested in this program and trust that you will move ahead promptly.

Sincerely,
 W. E. DePuy
 General, United States Army
 Commanding

To Major General Donn A. Starry
 Commandant
 US Army Armor School
 Fort Knox, Kentucky 40121

8 May 1974
 MEMORANDUM FOR: CHIEF OF STAFF

1. The following are the results of my discussion with the Chief of Staff on 6 May. Present were General Weyand and General DePuy.

History of the Master Gunner Program - Cont.

a. As you will recall, General DePuy and I recommended a master gunner program for armor units, along with the transfer of about 500 spaces from TRADOC to PORSCOM for the purpose of improving tank gunnery. The DA reply to our recommendation was that the master gunnery program was approved, but the transfer of spaces as an adjunct to the program was not approved. At this meeting, General Abrams indicated that he will approve our recommendation about the transfer of spaces, but indicated that we all must agree on the objectives to be attained. He stated he does not want to get off on a "do good" program which would result in eye wash. We can probably expect approval on the 500 spaces sometime in the near future.

b. Stemming out of this conversation, the Chief of Staff then indicated that the Yom Kippur War demonstrated (when the equipment capability of Opposing forces is roughly the same) the worth of individual and team training and morale. He stated he wants the American soldier to be better than any other known soldier in the world in this respect. He recognizes that we have made substantial progress in readiness condition, but pointed out that this is mainly a management program. He wants to get "excellence at the fighting age." By that, he means he wants to get that excellence down at the squad and platoon, at direct support artillery, as well as in the tank crew. I outlined what we are doing in this area and stressed that this also means including the mortars, the radar, EW, camouflage, cover and concealment, etc. He agreed. I am going to write a personal letter to all commanders setting forth this theme and stating my objectives. I will send a draft to the staff for their review prior to dispatch.

Item c. Omitted.

d. During his visit to Europe, the Chief of Staff noted that many tanks during the field exercise were placed on the forward slope within easy tank range or within 1200 meters of the Soviet T-62. When the Chief of Staff questioned the officers and men, they did not know the capabilities of the T-62 and had no appreciation of the fact that the tremendous flat trajectory of the T-62 would pick off the forward slope tanks very easily. Regardless of the T-62's capability, of course, the tanks should not have been on the forward slope; however, the Chief of Staff was concerned that there are units which have little or no understanding of the enemy's weapons. Obviously, if our tank commanders and company commanders don't know what they are fighting against, then they don't know how to use their own weapons to the maximum. My question is, what are FORSCOM units doing to insure that the troops down at the fighting echelons understand the other side's capability.

The rest of this letter was omitted, did not pertain to the Master Gunner or Armor branch.

WALTER T. KERWIN, IR.
General, U. S. Army
Commanding

ATZK-CG-TSSG
SUBJECT: Combat Development Study Plan -Tank Special Study Group

9 September 1974

THRU: Major General Donn Starry
Commander
US Army Armor Center and Fort Knox
Fort Knox, Kentucky 40121

TO: General William E. DePuy
Commander
US Army Training and Doctrine Command
Fort Monroe, Virginia 23651

1. Purpose. The Tank Special Study Group (TSSG) will conduct a user's review and analysis of the XM1 Tank requirements documentation. Since June 1972, when the XM1 Task Force completed the requirements documentation, there have been several events which point up the need to revalidate specific tank requirements from the user's point of view. Among these events are: the October War; the delay in BUSHMASTER development; and the Tripartite main gun "shootoff." Therefore, TSSG will study the events, assess their impact on the stated main battle tank requirements and recommend appropriate future actions.

2. References. Inclosure 1.

Terms of Reference.

a. Problem and Impact. The XM1 Task Force in 1972 produced such a complete, analytical, data-based case for a new tank that DOD approved and Congress funded. Thus, the failure of the MBT 70 and XM 803 was overcome by a coordinated and professional study which clearly pointed out and proved the need for a new main battle tank. Now, two years later, two contractors are each building a prototype XMI for competitive selection in July 1976. Meanwhile, however, certain events of the intervening two years have caused questions to be raised about the tank requirements.

Specifically, the Arab-Israeli War experience has shed light on long range tank warfare in an era of anti-tank missile employment. Also, the Germans and the British are developing two different tank guns to compete with the US 105mm now planned for the XM1.

History of the Master Gunner Program - Cont.

The Secretary of Defense has agreed to a shootoff of the three guns in order to reach a decision as to which one should be adopted as standard throughout NATO.

The basic problem, then, is to analyze again the XM1 requirements in the context of these new events; not with a preconceived notion of changing the requirements and thereby jeopardizing the tank program. Rather, this new analysis will be done along the lines of its predecessor in a logical, factual manner. The results can then either validate the original requirement or provide compelling argument and data to support necessary revisions.

b. Objectives. To review the Materiel Need (Engineering Development) (MN(ED)) document. To review the Cost and Operational Effectiveness Analysis (COEA) document. To review the threat and mission profile used in the XM1 study. To develop a detailed, well documented and data supported report of the analysis with conclusions about the results and recommendations for future actions.

c. Scope. The topical outline below indicates the scope of the TSSG effort:

- Review October War results.
- Review the threat profile and expected target arrays.
- Assess current tank doctrine and that projected for the 1980- 2000 period.
- Review the requirement for the number of stowed main gun loads.
- Consider the possible alternatives stemming from the Tripartite main gun shootoff.
- Revalidate the entire system of complementary armament.
- Define suppression/Suppressive fires.
- Relate the MICV and XM1 in terms of suppression.
- Develop tradeoff analysis displays.
- Review the XM1 Task Force's use of models.
- Analyze RAM-D; define terms; develop goals and scoring criteria.
- Define survivability in terms of tank performance characteristics.
- Develop measures of effectiveness for RAM-D and for survivability.

d. Limits. The need for and the kinds of armor protection are not a part of this study. Types of ammunition are omitted except as they relate to gun selection, weight, storage or size of tank. The XM1 suspension system will not be analyzed unless required by some new evidence stemming from another part of the TSSG effort. The power pack of the XM1 will not be studied.

e. Assumptions.

- (1) The XM1 prototype development and competitive selection process will continue without regard to the TSSG analysis.
- (2) Data from the Tripartite shootoff will be available in sufficient time to permit analysis and impact on the XM-1 program.

f. Essential Elements of Analysis.

- (1) Will armor doctrine change in the 1980-1990 time frame with the introduction of XM1?
- (2) What are the lessons learned from the October War that affect tank warfare or tank characteristics?
- (3) What is the relationship between the tank main gun and its complementary weapons systems?
- (4) What characteristics constitute survivability? What are their measures?
- (5) What is the interrelationship among range, acceleration, horsepower, and weight?
- (6) How important to survivability is ammunition location? What is effect of compartmentalization?
- (7) How does the XM1 (with new requirements) compare to the M60A3, M60A4, Leopard II?
- (8) What are the tactical and firepower relationships of the XM1 and the MICV?
- (9) What is the optimum number of stowed main gun rounds for a given weight?
- (10) What happens to the XM1 if either the 110mm or 120mm gun is selected as the main armament?
- (11) What is the definition of suppression? How can it be measured?
- (12) Are the current measures of effectiveness for Reliability, Availability, Maintainability, and Durability adequate and useable.

g. Constraints. The overall Army tank program is well established. Therefore, TSSG will not review and redesign the entire program. Rather, the TSSG effort will be concentrated on only those requirements that may be affected by events since June 1972.

h. Alternatives. For study and comparison purposes, the following tank systems will be considered:

- (1) M60A3 (baseline)
- (2) M60A4
- (3) Leopard II
- (4) XM1

The design performance of the XM1, taken as a whole, must exceed the other alternatives in order to be judged cost effective.

i. Measures of Effectiveness. TSSG will employ standard measures of effectiveness in each area for which they have been established and, as appropriate, modify or define new measures of effectiveness. Below are listed in part the measures of effectiveness that are planned for use:

History of the Master Gunner Program - Cont.

<u>Subsystem</u>	<u>Measure of Effectiveness</u>	<u>Remarks</u>
Main gun	Conditional Probabilities ph(shot); pp(h1t); pk(pen)	
Range	Miles per gallon; gallons per mile	
Ammunition Storage	Number of rounds stowed in turret	
Agility	Acceleration	

j. Methodology. The study will include both quantitative and qualitative analysis. Conceptually, the sequence of events is:

- (1) Review the requirements documentation of the XM1.
- (2) Review the models used by XM1 Task Force and their current availability.
- (3) Design or search out any necessary new models.
- (4) Describe the October War results in terms of useable, measurable data.
- (5) Compare step (1) with the results of the October War fallout step (4).
- (6) Use computer models to analyze each alternative component and systems.
- (7) List advantages and disadvantages of alternative components and systems.
- (8) Complete a detailed tradeoff analysis covering each of the interrelated parts of the tank system.

k. Models. The IUA Model and the DYN TACS Model are both being considered for use. In addition, the XM1 Task Force designed several individual computer analytical routines which will be used as needed.

1. Related Studies.

- (1) ARSV
- (2) ASH
- (3) TOW COBRA
- (4) DRAGON
- (5) MICV
- (6) M60A3
- (7) BUSHMASTER
- (8) Machine Gun Test

7. Environment/Threat Guidance. The study will address the requirements for the XM1 within the context of Scenario Oriented Recurring Evaluation System (SCORES) Study which incorporates the threat. A mid-intensity war scenario, incorporating CBR and anti-tank missile defense, will be used throughout the analysis.

8. Support and Resource Requirements:

a. Support Requirements:

- (1) DA (DCSOPS): Concepts Analysis Agency support is required to conduct a modified COEA.
- (2) TRADOC Organizations.
 - (a) HQ TRADOC.
 1. Provide system analysis support on an as-required basis.
 2. Provide assistance in conducting a modified COEA.
 - (b) Combined Arms Combat Developments Activity.
 1. Provide technical (Operations Research Systems Analysis) support on an on-call basis.
 2. Provide computer support to include programming.
 - (c) Logistics Center. Provide support for RAM-D analyses on an on-call basis.
 - (d) USA TRADOC Systems Analysis Agency (USATRASANA). Provide systems analysis support on an on-call basis.
- (3) US Army Materiel Command Organizations:
 - (a) Provide technical assistance in the areas of studies and models as requested.
 - (b) Provide cost data as requested.
 - (c) Provide specifications and performance data estimates for all equipment as requested.
 - (d) Provide reliability and maintenance data for all equipment as requested.
 - (e) Project Manager, XM1 Tank, provide cost data and concept tradeoff analyses as required.
 - (f) Army Materiel Systems Analysis Agency provide technical assistance in support of computer programs on an on-call basis.
 - (g) Ballistics Research Laboratories provide vulnerability data as required.
 - (h) Human Engineering Laboratory provide data for analysis of tank agility and acceleration requirements.

b. Resource Requirements.

- (1) The TSSG requires assistance in the COEA. Technical assistance is not now and is not expected to be available from USAARMC/USAARMS resources.

History of the Master Gunner Program - Cont.

(2) Personnel.

(a) TRADOC: 18 personnel.

1. Study Group Chief, Deputy, X0/Admin Officer, one Team Chief, four project officers, and seven administrative personnel from Fort Knox assets.
2. One project officer (analyst), knowledgeable expert in MICV development and employment, from Fort Benning.
3. One Team Chief (CD experience), expert in modeling and former member of the Middle-East study group, from CACDA, Fort Leavenworth.
4. One project officer (analyst), expert in RAM-D, from LOGCEN, Fort Lee.
5. One liaison officer from Project Manager, XM1 Tank.

(b) USAMC: 6 personnel.

1. One Team Chief (04/05) with cost analysis experience.
2. Two project officers (OR/SA qualified).
3. One project officer (cost analysis or OR/SA).
4. One project officer (analyst).

(3) Funds will be required for the following:

- (a) To support travel, administrative and logistical facets of the TSSG: \$225,000.
- (b) For contractor and computer support: \$750,000.

9. Administration.

- a. Study title: Tank Requirements Analysis.
- b. Study schedule: See Inclosure 2.
- c. Study Group Chief: Colonel Glenn K. Otis, TSSG, Fort Knox, Kentucky 40121, AUTOVON

GLENN K. OTIS
Colonel, Armor
Chief, TSSG

INCLOSURE 5

TANK IMPROVEMENTS

1. The majority of war—related observations concerning US produced tank shortcomings have been recognized and, as I understand it, study of each reported deficiency is underway. Therefore, this paper will only restate deficiencies observed and will not go into detail on each.

2. The M60A1 Cupola

a. Removal of the cupola and introduction of a multi-position hatch which will allow for battlefield observation without body exposure and with overhead protection is the most mentioned and perhaps most important single modification recommended. High tank commander casualties are partly attributed to the fact that the cupola requires the commander to expose himself to an unacceptable degree in order to view the battlefield and fight the battle. Additionally, although the IDF considers the M85 machine gun to be an excellent weapon, the difficulty of reloading is believed to nullify the excellence of the system.

b. An additional consideration, and one not generally noted in previous reports, is that the cupola may "bounce off" when the tank takes a hit near, but not necessarily on, the cupola itself. When it comes off, the tank commander's head comes with it. This characteristic was reported and "clean" cupolas were observed on the battlefield.

3. Ammunition storage above the turret ring

a. Although not established by data, commanders indicated a high incidence of catastrophic M60A1 kills due to hits in the turret which caused either immediate or delayed burning and low order detonation of ammunition stored above the turret ring.

b. Assessment data indicates that of the 119 IDF tanks, all types, examined, 57.18% of the impacts experienced were above the turret ring, thus indicating the vulnerability of ammunition stored in that area.

c. Study of various means of relocation of the ammunition stored above the turret ring is recommended. However, a critical factor of the battle is the amount of main gun ammunition available. Therefore, reduction in the number of rounds available in order to reduce the vulnerability caused by ammunition above the turret ring is not recommended.

(See 4 below).

4. Turret Fire Extinguishing Capability IDF commanders strongly recommend the installation of a fire extinguishing capability in the turret. Many report that if tanks could have been saved from going catastrophic a built-in extinguisher had been available. They particularly desire the capability in order that ammunition might be extinguished.

5. Coaxial Machine Gun Performance

The M73 and M219 co—axial machine gun performance was generally rated unsatisfactory by the IDF. Weak extractors, weak springs, cracks in various mechanisms and other deficiencies have been reported through AMC channels. It is possible that non-US produced ammunition may account for some of the difficulties experienced. The systems should be completely re-tested and

History of the Master Gunner Program - Cont.

evaluated for reliability.

6. Tank Commander's Machine Gun

IDF Armor commanders consider that the most effective system for the tank commander is the 7.62 dual purpose machine gun. This system provides the required anti-personnel capability, allows for more ammunition to be stowed and provides the means for establishing a "curtain of fire" for the unit when under air attack. Commanders consider this latter capability to be essential.

7. Searchlight and Other Externally Mounted Equipment

WSEG Team Report No. 96, USDAO Tel Aviv Msg 1125 May 74, DTG 211220Z May 74, provides a complete report on searchlight and other externally mounted equipment survivability. In their current configuration, such systems do not survive. Study and development of an armor protected system is indicated.

8. Anti-tank missile countermeasures are of continuing interest and the IDF has experimented, none too successfully, with some concepts. The development of a capability to create smoke, quickly, in the immediate vicinity of the tank should be investigated.

It is important to note some things here. At this time in 1974 the M60A1 and the M551 were the main tanks in the fleet, the M60A2 was new and in limited use. The M60A3 was in production. The XM1 was the new product on the drawing board. The XM1 was having all of the *Lessons Learned* applied to it. It was interesting to see the mention of the M60A4.

This is important as we were fielding several tanks and we were looking to the future in design of the next tank. The National Guard was fielded with many variants of the M48 during this time. The 1973 War had really rattled the cages in the Armor community. The key leaders were looking deep into the value of the lesson learned.

When conversing with CSM(R) Jim Benham he verified the above statement and went on to tell me that Armor NCOs were limited in the early 1970's. Jim said "In late 73 at Carson I had a 10 man tank platoon. One tank E5 and one pending discharge E5. No Lt. On the positive side, a lot of E4s and 3s filled in as TCs. Most tank units had non-tank 1SGs and CSMs. SFCs were scarce. It was so bad that I took several men from the retraining brigade from Ft. Riley who had served time! We had medicals pending discharge. So it was a challenge. The M60A1 tanks were in bad repair. Big parts shortages, I found three running, one striped for parts with no engine, and one sitting on busted torsion bars."

He followed up with "Thankfully, a few key leaders saw the problem and took steps to fix it. It did not happen overnight, but by 1980 I saw a dramatic difference in Germany as we started drawing the A3s and tank gunnery was once more a priority. I believe the master gunner program tuned things around in a few short years."

The Armor leaders had many things on their plate in the early 1970s.

We will start looking into the Pilot Program and the 1st Class of Master Gunners in the next newsletter.



Another great photo from the Idaho Army National Guard. Look close at the round.

Our Mothers' War by Emily Yellin

Our Mothers' War: American Women at Home and at the Front During World War II
by Emily Yellin

Paperback, 464 pages

Published March 7th 2005 by Free Press (first published May 4th 2004)

ISBN0743245164 (ISBN13: 9780743245166)

Description

Our Mothers' War is a stunning and unprecedented portrait of women during World War II, a war that forever transformed the way women participate in American society.

Never before has the vast range of women's experiences during this pivotal era been brought together in one book. Now, *Our Mothers' War* re-creates what American women from all walks of life were doing and thinking, on the home front and abroad. These heart-warming and sometimes heartbreaking accounts of the women we have known as mothers, aunts, and grandmothers reveal facets of their lives that have usually remained unmentioned and unappreciated.

Our Mothers' War gives center stage to one of WWII's most essential fighting forces: the women of America, whose extraordinary bravery, strength, and humanity shine through on every page.

About the Author

Emily Yellin is the author of *Our Mothers' War*, and was a longtime contributor to the *New York Times*. She has also written for *Time*, the *Washington Post*, the *International Herald Tribune*, *Newsweek*, *Smithsonian Magazine*, and other publications. She graduated from the University of Wisconsin—Madison with a degree in English literature and received a master's degree in journalism from Northwestern University. She currently lives in Memphis, Tennessee.

My Review

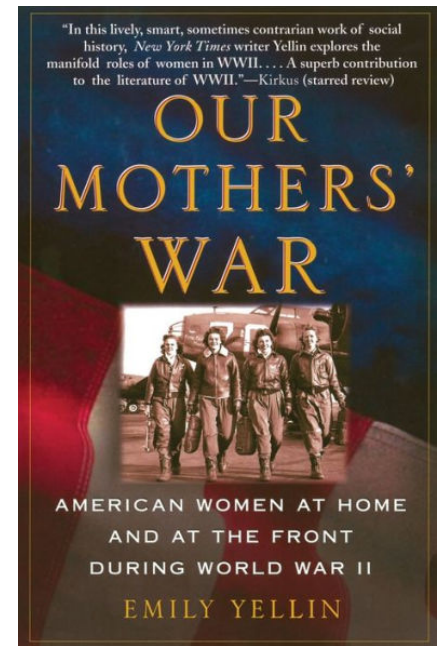
Wow, this was a great book. When I was trying to get a book to tell the story of women during WWII I hit the lottery with this book. So many great stories that you have never heard about or have been told. So much more than Rosie the Riveter. And this did talk about that.

There are stories about women from all races, color and creeds. Stories about women in service, in factories, on the home front and every where in between. So many things to learn about how they helped win the war. The best part is by flying in planes that men pilots were too scared to fly in.

One of the things I noticed when I read this book was how women were treated by men at the time. This struck a cord with me as I have seen how some dads react to their sons playing golf with my daughter. It is the dads who seem to be more upset about losing to a girl. But over the years I have seen that the boys she plays with respect her and talk to her as on the same level. So after some 80 years maybe the cycle is being broken.

There were many books listed in this book. So if you wanted to know more there is always a place to find more of the story. This helped as I have found a few books for my winter reading list thanks to this book.

I believe that you will come away with a different view of your mother, grandmother or other women in you life after reading this book.



Patton Monument Report for 2022

As of December 15, 2022, the Monument fund has \$26,501.00.

Total in Monument Account: \$26,501.00.

The Bourg Tee Shirts we have on hand. **(UPDATED)**

Large: Yellow - 2, **2XL:** Yellow - 2, Tan - 2, OD - 3, **3XL:** Yellow - 2, Tan - 2, OD - 1, **4XL:** Yellow - 1.

M4 Tee Shirt

Large: Tan - 1.

2XL: Tan - 1

New Mugs!!!

We now have the 15oz Red Ball Express mug and the new 15oz Treat'em Rough Mug!

Lapel Pins

We are looking at \$12 each for these.



Patton Battalion Funds / Memberships / Dues

The Patton Battalion, as of December 15, has 438 members on our battalion Facebook page. Out of those 451 members we are currently at 93 paid members. The Patton Battalion has \$0.43 in funds in the PayPal account. We have \$415.46 in the Patton Operating account. Battalions funds are \$415.46. There are no Monument funds in the Battalion account as of this time.

In order to be a paid member of the battalion you must be a paid member of USABOT National. Again, a paid first year membership of \$15.00 which gets you a free battalion patch. Since we now have the battalion patch in the larger size both in color and subdued you have a choice as to which one you want free with your paid membership.

Both patches are also available for \$5 EA.

Your annual membership renewal will be \$10.00 every year after that. **Annual dues for the battalion are now due in June of each year!**

You can pay for your battalion membership through Paypal at: **pattonbattalion@outlook.com** or **patton.battalion@usabot.org**.

If you don't have a Paypal account you can send a check or Money Order to:

Patton Battalion - USABOT
1432 Flood Road
Shelbyville, KY 40065



ATTENTION

USABOT Memberships can be renewed and purchased By mail at

USABOT
68 West Marion ST
Doylestown, OH 44230

Make checks payable to USABOT
If at all possible try to go the USABOT Store Online and register there so that the G4 can track.

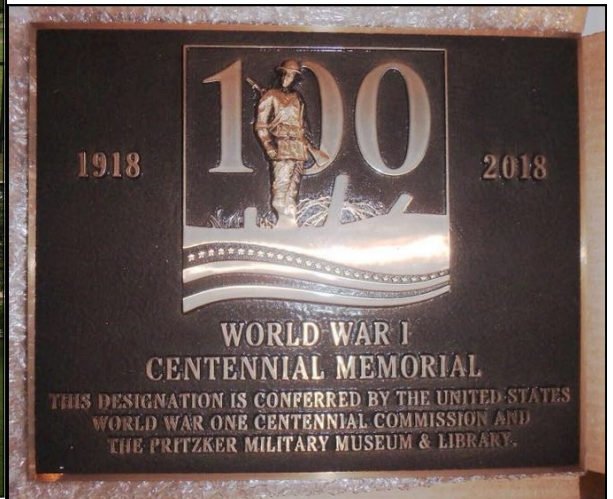
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Patton Joins the US Tank Corps Monument



The US Tank Corps shirts we still have few tees left!

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Be sure to check us out on Twitter @pattonbattalion



st. szer. Sławomir KOZIOL

Polish forces firing their M1A2 Abrams SEPv3 tanks.

Coming up in the January Issue - More of the history of the Master Gunner Program.

Upcoming Events

US Cavalry & Armor Association Chapter Fort Knox - Stable Call monthly meeting, 3rd Thursday of every month, Location TBD - Fort Knox, KY.

Indiana Military Museum Schedule 2023

- The Great War Event, April 1-2, 2023
- WWII Event Spring - TBD
- WWII Event Fall - TBD
- Vietnam War Event - TBD

Eleventh Annual Tanker Homecoming - Tucson, AZ. Dates TBD.

Gainey Cup - Ft Benning, GA, 1-5 May 2023.

Operation Anvil - Battle for Southern France 1944- Phil Moore Park, Bowling Green, KY.

Patton and the US Tank Corps Monument - Fort Knox - *TBD*

