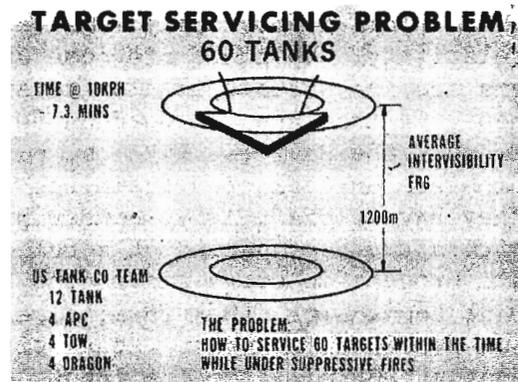


PRESENTATION BY MG GORMAN
ARMOR OFFICER ADVANCED COURSE
FORT KNOX, KENTUCKY
23 APRIL 1976

I'm a pinch hitter for the speaker that was unable to join you for one reason or another. Out at Leavenworth the other day, they were agonizing over problems of readiness reporting in the U.S. Army and what that all adds up to, so I chose to impose on you the ideas that I put in front of the students at the Command and General Staff College. It turns out what I choose to talk about is really very appropriate for this group because I was drawing upon a corpus of information that we have just acquired concerning tank training and I hope that what I have to say might cast some light on your professional undertaking. You have to start off by asking yourself what is the problem, and there are any number of ways of characterizing the problem of the profession in any era. I have elected to use as my start point the problem which is going to be put before the high command of the Army next week. The Vice Chief of Staff of the Army will convene with all the senior officials in the department who are concerned with weapons systems acquisition to look at armor and antiarmor systems for the next 10 years, and they start out with a consideration of this as the problem. When you boil down all the threat analyses that we have been working with over the past year or two, it gets down to this at the company level. Here's a tank company team on a hill in Germany confronting an attacking Soviet force. You can cut the business any way you want to, but you will find out that from this hill to the next masking terrain, it is about 1200 meters, which is average in the Federal Republic of Germany, so, if the Reds are genuinely interested



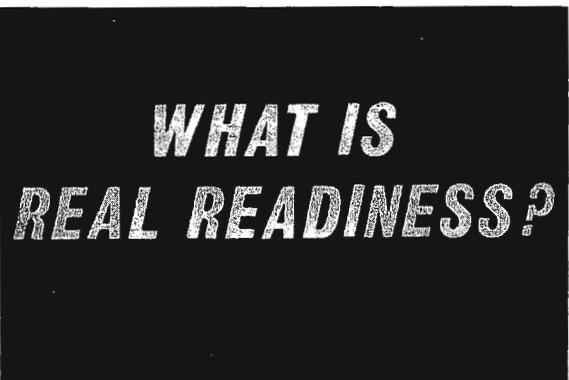
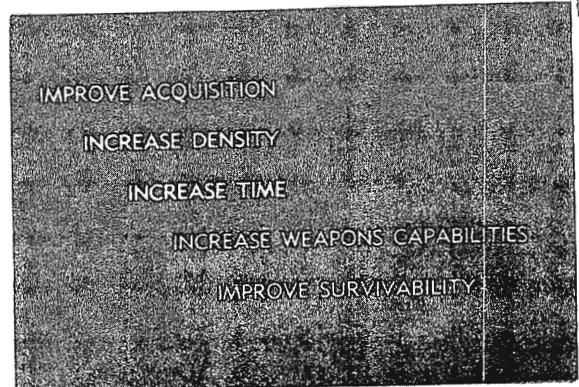
in pressing through this company--that is to say they are going to commit themselves to a breakthrough attack--this company commander would probably see something like 60 armored vehicles: 60 tanks or a mix of tanks, BMP's or whatever. There will be 60 armored vehicles out there. Now, this intervisibility distance, of course, dictates a certain time gate depending upon the speed of advance and you can rest assured you know they are going to cross that interval just as fast as they can. This will dictate a time gate, that is to say, this team down here will have just a certain period of time, seven minutes or so, to "service" those 60 targets. If they don't do it quickly and well, they are going to be knee-deep in T62's sometime around minute seven and one-half. What we mean by the word "service" is acquiring the target, going through the engagement sequence, and putting steel on target. This is the friendly force in this consideration. I'll show you some analyses later on how the battle came out, but I want to focus on this part of that company team, the 12 tanks, because they are the vital element in the problem. They are the outfit that has the highest rate of fire, and the performance of the tanks will dictate the outcome of this battle. The battle outcome is far less sensitive to how the infantry does their thing, how the TOW crews perform or how the DRAGON gunners perform, the tanks drive the equation. This is obviously a matter of relativity. Up there are some other tankers and the outcome is also sensitive to how good they are. A word on Soviet tank crews. The Soviets, like us, put a lot of emphasis on tank crew training. Unlike us, they have a draft Army, conscript supported, with a two year period of service, soldiers are brought in every six months. Soviet tank commanders, therefore, have a metered and predictable input. Every six or 12 months they will receive inputs for their crew which permits them to run a fairly stable training program on a six or 12 months cycle. They train in their training

SOVIET CREW

- ◆ LATERAL ENTRY
- ◆ 6 OR 12 MONTH STABILITY
- ◆ FREQUENT TRAINING IN INDIVIDUAL AND CREW FUNCTIONS
- ◆ VERY LITTLE CROSS TRAINING
- ◆ EMPHASIS ON COMBINED ARMS TRAINING
- ◆ TANK GUNNERY EMPHASIS:
 - MASSES FIRE
 - TARGET DISCRIMINATION
 - ROUND SELECTION
 - "GRAZING SHOT"
 - USE OF SIMULATORS AND TRAINING AIDS

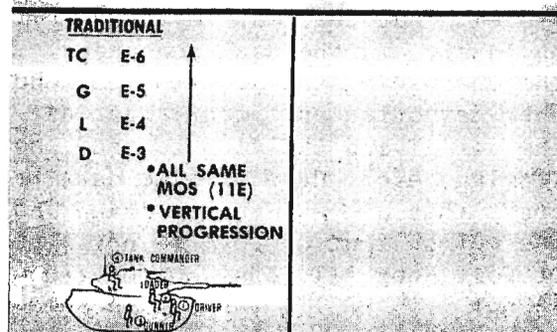
base the man for the job which he will hold throughout his two year period of service. They select crew commanders in basic training. They put a man through a tank commanders course, he goes to the tank as a tank commander and he remains a tank commander the entire time he is in service. Same with gunners, they go to a gunners course, they arrive as gunners, they remain gunners. Loaders, drivers, ditto. They do not spend any great amount of time trying to cross-train. They put a lot of emphasis on training with infantry in particular and it is fascinating to note that their tank gunnery is entirely practiced for offensive operation. Their tank ranges consist of parallel lanes of three or four, depending upon the organization of the tank platoon in the outfit, they fire by platoon, they fire advancing straight ahead at targets that are always within about a 15 degree arc dead ahead. They spend a lot of time firing the main gun at infantry targets dead ahead. They stop occasionally to fire from the short halt, but to a remarkable degree they are practicing on their tank ranges for exactly the drill that we saw on the previous slide: get across it in the shortest period of time with the maximum volume of fire. It becomes pretty clear from the way they practice that they're as interested in suppression as in accuracy. In the Soviet Army, tankers are foreclosed from special duty, you cannot use Soviet tankers for post detail. That is the province of the motorized infantry. The tankers work rather on tank gunnery. They have weekly drills that they must complete, two or three times a month they fire subcaliber, they have a 23mm subcaliber device which is very well developed, their target systems are electrically scored, once every six months they fire the main gun in a qualification exercise. Incidentally, the terminology grazing shot is what you call battle sights. This is an Army that is practicing for perfection in the attack that we described at the outset. Now, what can we do

to assist that company commander of the U.S. force in meeting such a threat? This is an actual slide from the presentation that the Vice Chief and the senior officers will consider. Obviously, we can improve the capability of this force to acquire targets. We can increase the density of weapons in the team. We can increase the amount of time that the team commander has to work on those targets. For example, giving him a rocket system that could carry mines out there and lay them in the space directly to the front so that the Soviet force was held out there in the area where his weapons were bearing. We can increase the capabilities of the weapons, develop a new munition for the 105 gun, for example, which would deliver higher velocities, greater probability of hit and greater concentration power. Or, we could harden our weapons systems, harden TOW, harden DRAGON, harden the infantry system, put more protection on our tanks. Now, I am not going to take you through future weapons systems. My argument concerns itself with what could you do this year or next year with the tanks we have now. What could that company team commander do in Germany this year or next year? It turns out that there are a few things you can do about acquisition, and I will describe some of them. There's a good bit that you can do about weapons capabilities to improve your probability of hit, your rate of fire, that would aid in servicing those targets that I just described and these actions will flow, I submit, from better training in the American tank force. That training, I contend, is at the root of the answer to this question. We measure all sorts of nifty things in order to compute and report readiness and I don't have any quarrel with Army Regulation 220-1, I simply tell you that what is reported thereon doesn't have much to do with the ability of the team commander to handle the problem that I've just outlined for



reasons that will become apparent as we go on. Let's examine who's really out there in those 12 tanks. I am going to show you some data taken from a just completed survey of the tanks of the U.S. Army. The data is drawn from two separate surveys, one extends across 15 battalions of the Army in USAREUR and in the continental United States. I should add that that first survey was taken at the time that the units were on Table VIII or Range 80 at Grafenwohr at the peak of their gunnery cycle. The second survey was taken when the units were off season, it is sort of a come-as-you-are survey. Again, cross Army, both surveys touched better than 20 percent of serving tankers. The first thing that strikes you when you look at an armor outfit is that the hypothetical crew, the crew that is envisaged by the Enlisted Personnel Management System, isn't often there. This is the way the crew is supposed to look. A career progression is provided for in MOS 11E from E3 through E6. Most of us had some notion that the Army's tanks were manned by leathery old sergeants with a lot of tanking under their belts and that we were training progressively fellows for these more honourous duties. There's a lot of argument I know in the audience whether the driver ought to be an E3, but the notion was that this was the skill most commonly held by entry level soldiers and that American tanks are pretty easy to drive anyway. The loader is an E4 because he figures in the acquisition process. He is one of the fellows with his head out of the tank and he can acquire targets. He's also a key member of the weapons system. He figures heavily in the rate of fire. I guess it was General Starry who remarked that loading one of these things with add-on stabilization is like putting a suppository in a panther. The loader is probably worth at least an E4. The gunner, obviously, is the man at the

TANK CREWS



telescope who puts the gun on lay and he has to be terribly important to that weapons system. But the most important fellow, obviously, is the tank commander. He's the one making the decision on acquisition, both detection and identification. He's the one giving the fire command, doing the ranging, etc. Here is some data from the crews that are out there firing Table VIII. One out of four of them is not a graduate of Fort Knox AIT. One out of ten of them is not even an 11E today. In some CONUS tank battalions, only about 75 percent of the men even carry the MOS of tankers, the rest are cooks, bottle washers, cabinet makers, you name it. The reason for the difference here, of course, is that some fellows have recently been reclassified tankers or they came out of AIT as infantrymen and some division commander redesignated and retrained them as tankers. And, of course, for those of us who are in the advanced individual training business, this statistic is always just a little bit disappointing. For the past two years, Fort Knox has trained 120 percent of the Army's requirements for 11E. Where they all go I don't know, but out at Fort Leavenworth the commander from Berlin admitted that he was way overstrength in 11E and there was another commander, same geographic area to the south, who allowed as how he was way understrength, and I just had to say you ought to get together and straighten that out. You have to draw a conclusion here that these battalions are representative of what we would have if we went to war and I think it's fair to say that one out of every four members of your tank crew is an amateur. When you look at who is actually in charge out there, you will discover that 53 percent, about half of the tank commanders, are E5 or under. There's the sample that we looked at here, 268 tanks were examined. The guy who's sitting with his eyeball at the telescope in most of the tanks, seven out of ten of our tanks, is a first term. He's lucky

TANK CREWS

◆ 89.1% ARE 11E

◆ RANGE

CONUS: 74.9% - 97.7%

USAREUR: 83.0% - 96.7%

74% - AIT TRAINED

11E TC AND GUNNER SHORTAGES

	TC		GUNNER	
E3	6		E2	24
E4	22	53%	E3	69
E5	114		E4	171
E6	82		E5	113
E7	44		E6	4
	268			381

if he's had one gunnery season under his belt. He too is a neophyte, an amateur. What's worse, he probably just got that job as gunner before he started the gunnery cycle. I'll show you some data on that in a minute. The Army Regulation says that tankers shall have a Profile 1 in all of these categories, but when you look at our sample of tankers you discover that a number of them have Profile 2 in their eyes. What does that mean? Profile 2 soldiers, gentlemen, are the Willie Weakeyes. Profile 2 soldiers have this kind of an eye condition or another. Soldiers will generally see with their best monocular vision when it comes to target detection and identification. But, as I will show you, you pay a substantial price for permitting a man to get into the target detection acquisition chain if he happens to be in this group. Understand, this is corrected vision, you can get glasses on him and he can see up to 20/20, he's outside of the frame of this analysis. As far as we know, give him glasses that are not fogged up or spattered with mud, and a man with glasses can see just about as well as the fellow with the naked eyeball. Here is the price that you pay for impaired vision. That time, of course, figures in the engagement sequence. It detracts from your ability rapidly to engage, particularly if you're in a situation where the detection of the target is difficult. As pertains to identification, this is the percentage of correct responses here; as you can see, the fellow with normal vision is far more often right in identifying targets than is the fellow with impaired vision. We don't report guys with visual difficulties in our readiness report, but I submit to you if my problem posed at the outset of this presentation is on the mark that this is a consideration that all of us ought to bear in mind if we're going to operate tanks professionally. I think you may have seen slides like this before. One of the phenomena with which the American Army has to live that the Soviet counterpart does not is the substantial amount of mobility within the force. It's referred to by a variety of

PHYSICAL PROFILE

CATEGORY	PROFILE (PROFILE)	FREQUENCIES		
		1	2	3
P (physical)		947	6	7
U (upper extremities)		948	10	0
L (lower extremities)		947	9	3
H (hearing)		933	23	3
E (eyes)		731	228	1
S (psychiatric)		941	7	0

VISION PROFILE

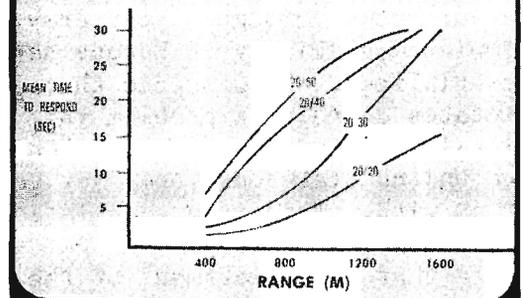
PROFILE

1 — UNCORRECTED VISUAL ACUITY $\leq 20/200$
CORRECTABLE TO 20/20

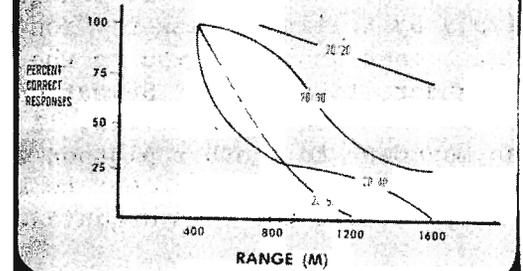
2 — DISTANT VISUAL ACUITY CORRECTABLE TO:

BEST EYE	WORST EYE
20/40	20/70
20/30	20/100
20/20	20/400

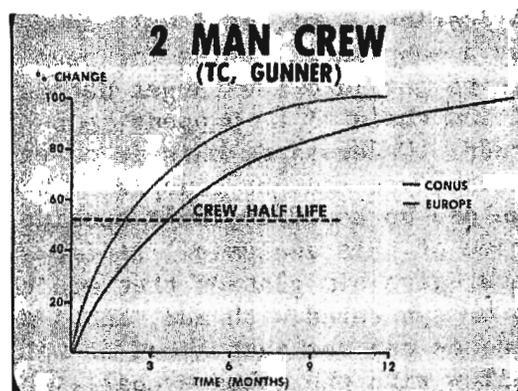
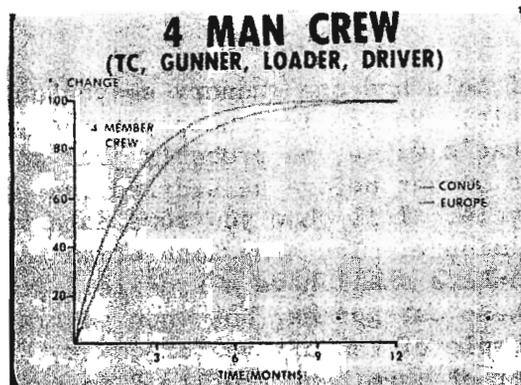
DETECT



IDENTIFY



names--turnover, turbulence or whatever-- but we're talking about changing jobs with alarming frequency. These curves compare job changes in any one of these four positions. You will be a statistic on this computation if there were any one of the fellows in that crew who changed jobs in the period. As you can see, about 80 percent of the crews, whether in CONUS or in Europe, have such a job change every three months. Think back a moment at all the stuff on training management that you read and remember that we love to talk about annual gunnery or off season gunnery, meaning every six months, and you just have to admit that's not often enough to cope with this phenomenon. If it is true that the relationship among the crew members is important, you can't keep changing them that frequently and have any kind of combat readiness. Now you might say that the gunner and tank commander are more critical to the crew than the driver and loader, this is true! But when you look at them you find they change just as frequently. Every three months either the tank commander or the gunner or both change in our crews throughout the Army. Contemplated stability in Europe has just not materialized. I postulate that this problem dictates a training problem that the traditional training management techniques of the United States Army has yet to come to grips with. This is a compilation of who did the moving. There is a perception out there that the Department of the Army is reaching down with levies into these units and plucking people out and that this is causing the mobility. Yes, that's going on. There is no doubt but what this has a marked impact on the whole business. But 22 percent of the reported changes occurred simply by telling a tanker: "You were the loader last week, now you're the tank commander, take over." Seventeen percent was movement to another crew, 11 percent was movement to another platoon within the same organization, 8 percent to another company within the same organization. So



CREW TURBULENCE:
WHERE AND HOW MUCH?

WHERE	MINIMUM % / MONTH
POSITION	22%
CREW	17%
PLATOON	11%
COMPANY	8%
BATTALION	7%

57% OF POSITION TURBULENCE CAUSED BY PERSONNEL CHANGES WITHIN THE BATTALION.

you add this up, less the rounding, 50 percent of the turbulence was caused by personnel changes within the battalion. Yes, I appreciate this cascade effect, the over 40 percent caused by division or DA brings about a sort of domino effect, you move one fellow and you've got to move a whole bunch of others. But do appreciate that a lot of this business happens within the units and ask yourself if it would be feasible, as battalion S-1 or as assistant S-3 or as company commanders, to do anything to mitigate the impact of this personnel mobility because everyone of those personnel changes brings with it a training problem of one kind or another. Try to measure the impact across the Army and you get figures like this for various tank systems. This is probably the most complicated tank system that we have ever put in the United States Army. It takes a hell of a lot of training to get the most out of it. It's a great tank, it has a lot in it that's admirable, but it is hard to train and yet that's the system that is being subjected to the greatest amount of instability. What this figure tells you is that commanders all over the Army, as most of you are well aware, stack their crews for periods just before they go out to fire their gunnery season. The unfortunate fact of the matter is that the Russians aren't going to time the war to take you on right at the end of Table VIII. The unfortunate part of the game is that most of us will fight sometime one month after we fire Table VIII when we've already disbanded the crews that we've just completed training. Would you believe that in that company team that we were looking at there is a tank commander who never fired Table VIII, would you believe that there are gunners out there that have never fired Table VIII, that half the loaders have never fired Table VIII? Again, we're an amateurish Army out there. This is an attitudinal survey. We went

STABILITY : THE EXTENT

T252

CATEGORY	CONUS		
	M60A1	M551	M60A2
% OF CREWS TOGETHER MORE THAN 3 MONTHS WITHOUT CHANGE	79	75	17
% OF CREWS THAT TRAINED MORE THAN 3 MONTHS PRIOR TO TABLE VIII	77	73	21%
% OF CREWS THAT REMAINED TOGETHER MORE THAN 1 MONTH AFTER FIRING TABLE VIII	50%	56%	36%

ACTUAL PRODUCTS OF TURBULENCE

T252

PERCENT OF CREWMEN WHO HAVE NEVER FIRED TABLE VIII	CONUS	
	M60A1	M551
TANK COMMANDER	10%	
GUNNER	13%	
LOADER	42%	
DRIVER	29%	
Average	24%	41%

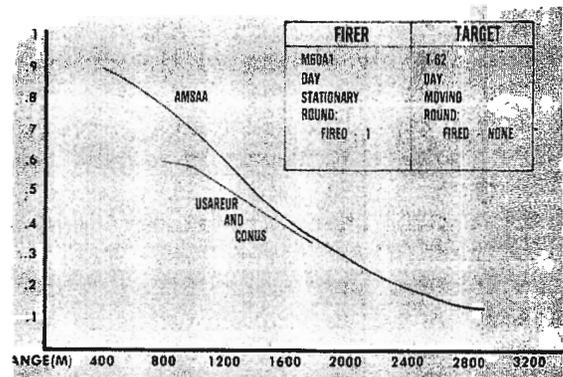
down and asked guys what they thought about being tankers and I don't know what your feeling is about it, but it's somewhat alarming to me that four out of ten sergeant tank commanders want to get out of tanking. That is evident in the reenlistment statistics. Tankers reenlist at about the same rate as other soldiers in the Army, one out of three eligible will reenlist, but often he will reenlist for another MOS. That accounts for some of the shortages of senior 11E noncommissioned officers with which you have to live out there in the force. Why is it that we've got tank commanders who don't like their job? You know the answer better than I. Long hours, cold, dirt, mud, snow, rain, sleet, muck, steady pressure on maintenance, their job extends on in the motor park long after the other participants in the exercise have gone home, it begins earlier in the morning with before operations maintenance, all of the hassling that goes on in the name of being tankers. One of the answers to the problem I posed at the outset is simply to develop a corps of tankers far more competent, far more persuaded that they are indeed in charge of the key weapon system of the United States Army, which is what we say in Field Manual 100-5. We say the tank is the most important weapon system we own and yet we haven't persuaded our enlisted men that they have important, vital and interesting jobs. What you're looking at is the comparison of the actual performance of the crews of 15 battalions in actual firing against a moving T-62-type target in daylight. This is the problem that we're talking about in servicing. This is what the weapons system ought to be capable of, this black curve, the Army Materiel Systems Analysis Agency prediction for the capability of the weapon. This is what the force fired and we're simply not getting out of weapons systems what we ought to. We're not getting anywhere near the probability of hits that ought to be there. Some of you might want to speculate why the accuracy falls off

JOB SATISFACTION

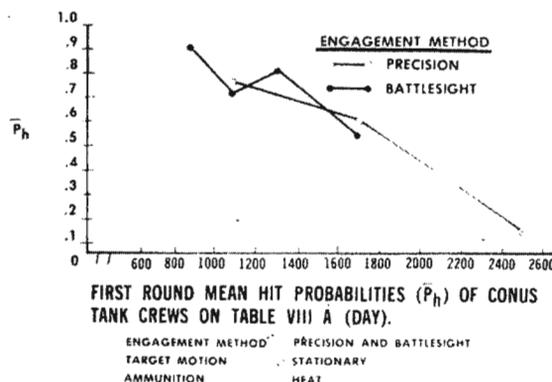
55% LIKE CURRENT JOB

BUT

43% OF ENLISTED TC AND
65% OF OTHER CREWMEN
INDICATE DESIRE TO
CHANGE MOS

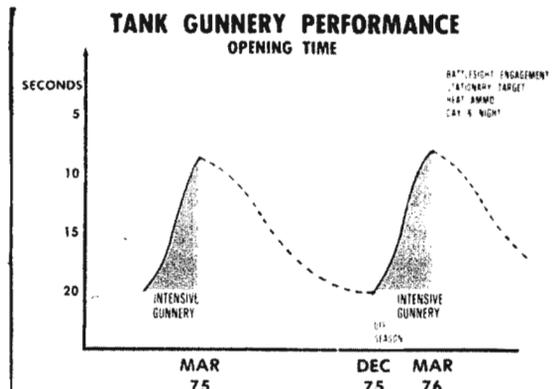


more rapidly at the closer ranges. In the firings that we tracked here over the last several months, we've kept careful book on the differences between engagements using the precision method versus engagements using the battlesight method of engagement and we discovered that there was no difference in accuracy between the two methods. That's a finding that Fort Knox had predicted, it had been established here long since, but there are still commanders out there who refuse to believe that and persist in putting considerable training emphasis on precision fire as opposed to firing with the battlesight. What's the difference? The difference is, of course, in engagement time. It turns out that battlesight engagement is about twice as fast as precision fire both day and night. It is possible to shoot fast and hit. You'll hit as often as using precision methods and you can do it at night as well as daytime. So we ought to be spending a lot more time on battlesight engagement. Here is data taken from actual firing of several battalions who went through an intensive gunnery cycle in the first quarter of calendar year 75. Again, we fired some crews here in order to establish this data point, fired some crews here in order to establish that one, fired some crews here, fired some crews there. And, of course, what you're looking at here on the ordinate is opening time. As you can see, an intensive gunnery cycle will cut the time to engage by 100 percent. You can cut it from 20 seconds to 10 seconds with any kind of crew. The data shows that there is no correlation between who's in the crew, the intensive gunnery training will work. What Fort Knox has prescribed in the several tables will produce the desired results, but, of course, when you start breaking up those teams that have gone through that training, you immediately dissipate that expertise. The point here is that when you're going to war, and you're

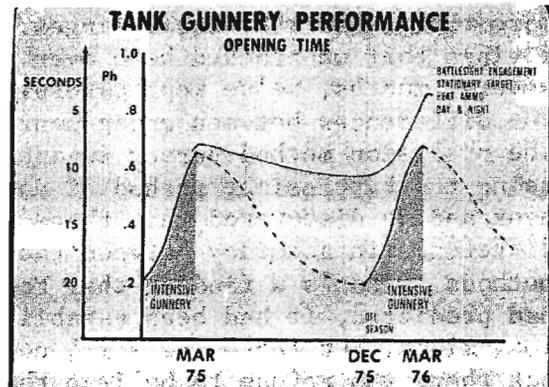


OVERALL FIRST ROUND MEAN FIRING TIMES (TARGET MOTION: STATIONARY: AMMO: HEAT)

SOURCE	ENGAGEMENT METHOD		MEAN DIFFERENCE
	PRECISION	BATTLESIGHT	
TABLE VIIIA (DAY)			
USAREUR	14.29	7.58	6.71
CONUS	18.97	9.49	6.48
TABLE VIIIB (NIGHT)			
USAREUR	15.39	10.78	4.61
CONUS	23.90	11.59	12.31



going to have 20 seconds, 30 seconds opening time to contend with as you lay on successive targets, that's going to burn up those seven minutes of servicing time pretty fast. I watched a tank down at Fort Hood here recently engage three targets at ranges out to 1600 meters and hit all three in 11 seconds. It can be done with a good crew, it takes a lot of drilling, but it can be done. What we're going to look at is probability of hit (PH). This curve here depicts accuracy. These crews at the end of intensive gunnery were shooting a PH somewhere on the average of 65 or so, that fell off about 18 percent in this time interval, which says that you lose accuracy far slower than you lose time. Again, that would make sense to you, I think, because time is a function of that crew interaction. It's a matter of the teamwork, how rapidly you can get the whole sequence put together and again you will note that the intensive gunnery cycle does produce marked results. These data suggest that improvements on the order of 30 percent in accuracy can be achieved in an intensive gunnery cycle. It also tells you that we are getting a little better. Looking at this peak versus this peak, you see that we really are pushing the art of gunnery forward and in this particular outfit that represents a lot more emphasis on gunnery and a far more cogent approach to teaching the gunnery business during this period. In any event, what those curves tell you are two things--training does make a difference--and a big difference--in the capability of the weapons system. In fact, you get more out of training than we can buy for you in terms of a better tank or better ammunition or a nifty range finder or a computer onboard. You can get more out of training up with your existing equipment than we can by buying you some fancy



black boxes to make the gunnery problem easier. Not that I don't want to buy you black boxes, I do, but there's a lot that can be gotten out of doing the training job better. The other thing that's evident on this chart is that we must address this area in here as a matter of urgency in the force, we've got to find out how to come to grips with that problem. I know, of course, that training developers here are doing some superb work in this respect. We've got to get the work here translated into reality to the force and get operating on it in order to bring up our readiness out there. We used Table VIII as our measure of effectiveness in this little analysis. Fort Knox has prescribed additional and newer tables but you all appreciate, of course, that most of the force is still firing Table VIII as it was some time ago. And all of this is true about Table VIII: we're still shooting at targets well delineated with barber poles and beaten areas, it is not hard to find the target on most of our Table VIII. There's no surprise out there. Targets are by and large stationary, no pop-up feature, they're not scored electrically like the Russian targets, and, therefore, what we're practicing on Table VIII and the previous tables doesn't really tell us whether we're up to the servicing problem that I started out with. We're going to have to have a Table IX and a Table X as a matter of urgency in the Army. We're going to have to have electrically scored targets with pop-up features, targets that permit us to change the target array from day to day. We need a probability scoring capability; we're going to have to significantly advance the art of tank gunnery if we're going to stretch the force toward the problem on hand. And, fortunately, there's a lot of movement in that direction and I have a great deal of optimism that we're going to get there. We're going to

TABLE VIII DEFICIENCIES

- TARGET ACQUISITION
- UNEXPECTED TARGETS
- MULTIPLE TARGETS
- TARGET MOVEMENT
- RANGE TO TARGETS
- AMMUNITION LIMITATIONS
- LACK OF HOSTILE ENVIRONMENT

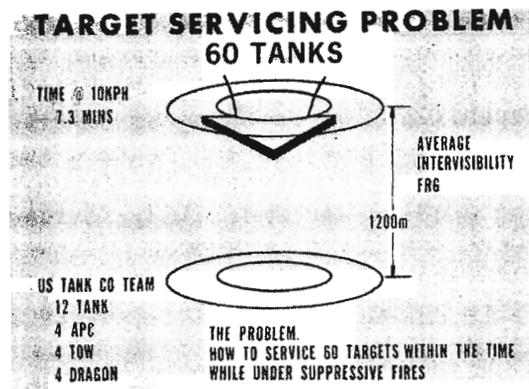
CONCLUSION:

A POOR MEASURE OF EFFECTIVENESS

need the enthusiastic cooperation of every professional in the tanking business. If you go to the officers of the Armor and you ask them how they evaluate their subordinates, you get a response as shown. What is significant about this table is the unanimity of opinion that tank gunnery or performance on tank gunnery is the measure of effectiveness of an 11E. And, there is corresponding unanimity that the MOS test and the enlisted efficiency report link the measure of effectiveness that we ought to use. These are the measures that we use to promote those guys, to decide whether we'll send them to school, to determine their assignments, and to make decisions about subjecting them to what the personnel managers refer to as qualitative management program. As long as we are using these measures of effectiveness in our centralized promotion system, I submit you are going to have a corps of noncommissioned officers that wonder what it is that we are about. Maybe that accounts for the disenlistment rate in 11E. Hopefully, of course, the skill qualification tests, the Soldier's Manuals and all the other good things you are working on here at Fort Knox are going to regress some of that, but I tell you you've got a huge problem out there. To remind you again what we are talking about here, that's the problem this fellow must solve. I am certain that somebody has imposed on you before this year the notion that the outcome of that battle will be a function not alone of the proficiency of those crews but of the tactics that they are using. Where he positions these troops, the commands that he gives them, the way that the whole battle is put together in terms of interaction among the several weapons systems, his artillery and his other fire support, there's a tactic involved in here. This is an analysis which was derived from gaming out that battle that I just showed you using the same kind of analytic tool that we used to decide to buy new weapons systems. The model to which I just referred says

OFFICER PERCEPTION OF THE USEFULNESS OF PROFICIENCY INDICATORS

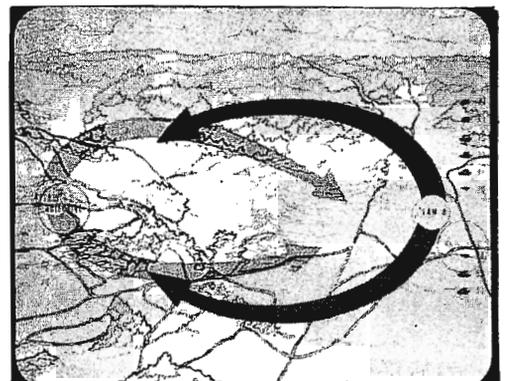
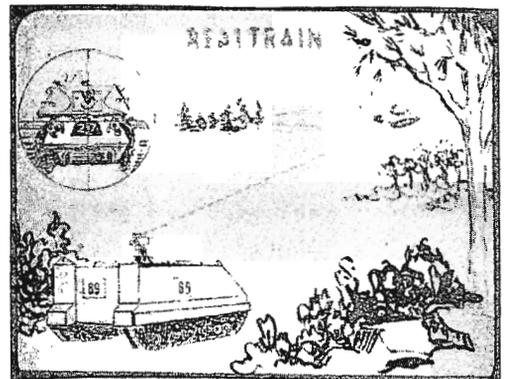
TANK GUNNERY	70.8%
ORTT/ATT	31.9%
DAILY JOB PERFORMANCE	29.1%
PRELIM GUNNER'S EXAM	27.8%
CONDITION OF TANK ABILITY (?)	19.4%
TANK CREW PROFICIENCY COURSE	12.5%
MOS TEST	6.9%
SUPERVISOR EVALUATION	6.9%
	5.6%



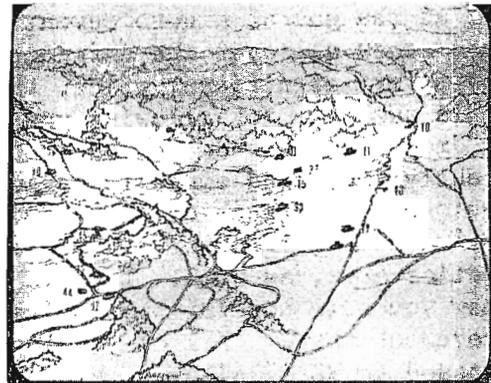
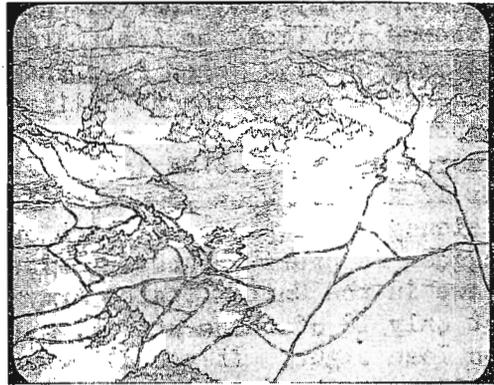
that the effectiveness in battle is the function of the capability of the weapons system, the proficiency of the crew and the tactics of techniques of the commander concerned. What you're seeing here are losses on the attacking force and the defending force where P is at the full capability of the weapons system, that black curve that I showed you from the Army Materiel Systems Analysis Agency. When P or the crew proficiency is up to the capability of the weapon, RED loses 25 of the attacking 60 armored vehicles, BLUE loses seven out of his 12 tanks. When you degrade your proficiency by 25 percent--which our data would suggest is pretty representative of most crews in the United States Army--you take out only 18 of those attacking tanks and you lose eight. If you allow your proficiency to be degraded by 40 percent--and again the data suggests that there are battalions that are down that much--the attacker loses only 14 vehicles, the defender loses nine out of 12 and, obviously, at the end of minute seven, the bad guys swarm all over the defender. So you pay a very significant price, these analyses would suggest, for allowing your proficiency to drop off. How do you correct that? Greatly increased emphasis on gunnery, obviously an attack on turbulence, but you've also got to work on the T, the tactics area, as well. I would like to show you some hopeful statistics on improvement there. All of you have been exposed to REALTRAIN, you know how it works. What I want to do is show you some data from the mobile training team headed up by the Armor School that went to Europe in November and came back the end of February. To remind you of what this REALTRAIN business is all about, this is an actual example of a REALTRAIN engagement at one of the training areas in Germany. This particular case pitted a RED team, Team A, against a BLUE team, Team B. The RED team has been engaged in REALTRAIN for two and one-half weeks. This battle

$$E = F(W, P, T)$$

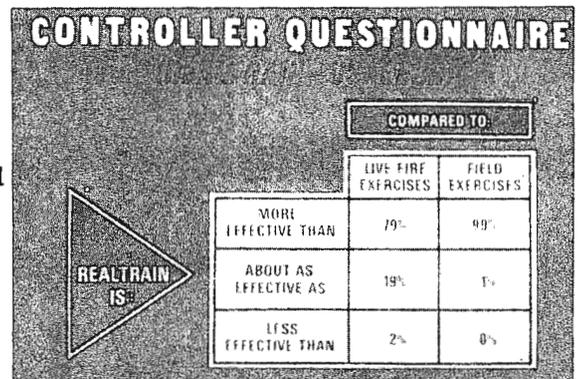
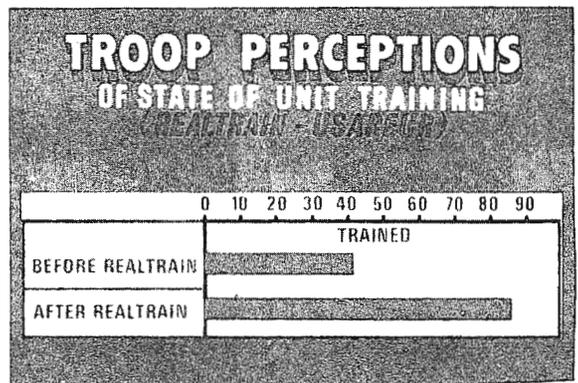
LOSSES		
	RED	BLUE
1.0 P	25 OF 60	7 OF 12
.75 P	18	8
.60 P	14	9



occurred on the 18th of December. The RED team does not know where the BLUE team is or what its mission is, but, as you can see, the exercise was set up to precipitate a meeting engagement. Note that RED team is operating in two sub-elements, a light section of tanks, an artillery squad and a TOW on the north and a comparable force on the south. Note that BLUE has weighted his northern axis where he has a heavy section of tanks, two squads of infantry and a TOW while a light section and a TOW are down on the south. The RED team, the pros that have been doing this about two and one-half weeks, elected in this instance to lay back and let BLUE take the initiative. The BLUE commander directed that they seize this ridge and then be prepared for further orders. Let's take a look at that terrain without the courses on it, it will give you a better impression of what it's like. Back here is BLUE, their commander told them to get up on that ridge and then wait for orders where to go from there. RED put his weapons back here on these high grounds, ran an infantry squad forward and set up an OP in this area, and ambushed BLUE. As BLUE leader came across the ridge, he was killed. Lacking any further instructions, the rest of BLUE continued to pile up onto the intermediate objective. Here is the opening engagement in the battle. They took out three vehicles in the first whack. Here is the infantry OP, up here the APC. The battle, which I've got in some detail, took about two and one-half hours. The finales look like this. As you can see, the BLUE force creamed up here on the intermediate objective, the RED force infantry assaulted to clean out these remaining tanks down here. This simulation is so real that you even see the infantry in a typical screw-up. This platoon leader called back to this APC and directed the driver to report to him up on the objective. The guy turned left instead of right and drove up here where he was knocked out by his own artillery. That's so real it hurts. That's the end of the engagement, and, as you know, you call



everybody in and you have a critique in which everybody figures out who shot who where and why. And I can assure you that that young lieutenant commanding BLUE got a very vivid lesson in how to put all of it together. It is very fascinating to note that during four months' of reporting on these sort of engagements--where there's one or more a day throughout that period--that communication within the experienced troops is much more frequent and substantive than communication within the inexperienced troops. The major difference between the two was that the RED team infantry talked to their tankers, identified targets for them, alerted them what was coming on, called for the TOW's, and used their artillery; the tankers, in turn, talked the infantry into position. There was just considerably more teamwork evident! It builds teamwork, it builds the tactics, it teaches how to cope with situations like we portrayed at the outset. You've got a training technique here that really works. We trained 1500 soldiers of USAREUR with that mobile training team and they were asked how they felt about the ability of their units to execute its mission. And, as you can see, there was a substantial subjective gain in confidence reported after a week or more of REALTRAIN exercising than before. When we asked 400 or so officers and noncommissioned officers who were trained as controllers to compare REALTRAIN with live fire or conventional field exercises--and, incidentally, the majority of these controllers had participated in the recent REFORGER--we got these kinds of comparisons. Whatever else you've got to say about that training technique of yours, it is greatly more satisfying to the troops at the company officer and NCO level than the usual way of going out there and stumbling around while serving as a training aid for generals. Does it teach cover and concealment? Most of the participants said so. Does it teach you to use artillery? Most of them felt that it was very effective, in fact, 90 percent of them. Does it teach you to use all available



weapons? Yes, indeed. It goes, it seems to me, directly to the heart of the T proposition in that model we're talking about. This is a sergeant by the name of Burlen, his name tape read Buriem, when I called him on that, he said well, they made a little mistake so I left it like that. He was a quintessential tanker. He looked like a pot bellied stove with a pistol belt on it. But, by god, he was a proud tanker. He had been out in the training area at Friedberg when I talked with him in late February for three weeks, day in, day out, moved the tanks out, left them there, pulled all his maintenance out there, and February in Friedberg is muddy, foggy, cold with snow on the ground. Just a miserable place to be. The day I got there the tankers were waiting for the infantry to show up, fog on the road had precluded the infantry from leaving the kaserne on time and, in a situation like that, the soldiers normally sit around and bitch. Not these people. They were out adjusting track tension, checking radios, working with the Hoffman devices, the weapons systems signature simulators, and otherwise honing that outfit for the upcoming engagement. They had been doing this for three weeks and there was a fantastic kind of enthusiasm evidenced in these troops, an enormous pride evidenced in that sergeant. I met a young lad who the day before had captured a BLUE tank. He was a loader, he had been dismounted to go forward to the edge of a woods to reconnoiter and one of the BLUE tanks had come barrelling past him into the edge of the woods and stopped, whereupon he climbed up on the back deck and dropped a hand grenade down the hatch killing the crew. The controller told him it was his, so he climbed in and drove the tank back to his own force. The only problem was, as he told me, he didn't know how to use the radio, he didn't have an SOI in his pocket and wasn't able to notify his unit he was coming back. The result was that he got

CONTROLLER QUESTIONNAIRE
(REALTRAIN - USAREUR)

HOW EFFECTIVE DO YOU CONSIDER REALTRAIN TO BE FOR TRAINING UNITS TO:

	USE TERRAIN FOR COVER AND CONCEALMENT?	EMPLOY INDIRECT FIRE?	EMPLOY ALL AVAILABLE WEAPONS?
VERY EFFECTIVE	88%	62%	73%
EFFECTIVE	12%	34%	26%
NOT EFFECTIVE	0%	4%	2%

COMMENTS BY STAFF SGT
B. CO., 3D BN, 32D AIRBOR (TEAM)

Q. AFTER 3 1/2 WEEKS OF TRAINING, WHAT IS YOUR OPINION OF REALTRAIN?

A. I SAY IT'S THE BEST TRAINING I'VE SEEN SINCE I HAVE BEEN IN THE ARMY--IT JUST CAN'T BE COMPARED WITH ANYTHING ELSE MY MEN WANT TO STAY ANOTHER MONTH. SINCE WE BEGAN TRAINING, I'VE HAD A TOTAL OF 3 SICK CALLS AND THOSE WERE BECAUSE OF THE FLU. ACCOUNTABILITY AND MORALE IS 100%. IT HAS BEEN BEAUTIFUL.

blown away when he came home. I asked him what he did about that and he said: "I got up this morning at 4:30 and picked up an SOI and received instruction on how to use it and now I know what to do if it ever happens again. I learned how to use the radio this morning while we were waiting, and today I'm going to get me my own tank." This outfit had been putting a lot of mileage on these tanks over cross country; they had really pounded them. Every tank in that platoon was running, everyone of them. Sergeant Burlen told me that's because these guys want to win! That, gentlemen, may tell us something about it. I saw the same kind of enthusiasm in the infantry. Friedberg is a very small local training area, not a lot of area in there is open, permitting long intervisibility. Most of the fighting took place in these exercises in fog, where a shot much longer than 100 meters was a rarity. So infantry weapons really dominated these little combats at Friedberg in this weather condition. But it is interesting that the entire four months that the mobile training team from TRADOC was over there, they missed only one day of training and that was because the infantry were unable to get to the training area because of the fog. You can run this training in all conditions of weather. Unfortunately, we haven't figured yet how to do it at night, but in any kind of daylight condition, when you've got any kind of visibility at all, you can do it. What happens, of course, is that in open terrain, in good visibility, the tanks and the TOW's dominated the combat when otherwise the infantry dominates combat, and that is pretty realistic. Again, we can't expect the Russians to show up on a bright sunshiny day. They are going to come in the morning when the fogs are in those valleys and we will have to fight in a lot of cases much like this slide depicts. What do we do about all of this? I guess

**COMMENTS BY STAFF SGT.
CG. C, 1ST BN, 36TH INF (TEAM A)**

Q. WHAT DO THE INFANTRYMEN SEEM TO LIKE MOST ABOUT THE REALTRAIN EXERCISES?

A. KILLING TANKS! YOU WANT TO GET THE TANKS WE FOUND OUT. THE TANKERS HAVE FOUND OUT, THAT WE INFANTRY CAN GET THOSE TANKS. ONCE WE CAN GET THE TANKS IN THE WOODS, WE CAN TEAR THEM UP. THEY CAN GET US IN OPEN TERRAIN THAT'S THEIR MEAT.

you worry about it a lot, and maybe we need to think more about how you put together these tank crews. I am going to show you a solution that some members of my staff are working on and I do it with hazard because if certain armor generals were here they would probably disapprove. This is just staff chit-chat, gentlemen, but I'll throw it out because some of you might want to stand in for your generals. There may be a better way of putting together tank crews than we've been doing it in the past as illustrated on this flip. Supposing we were to organize and train our tank crews the way the Israelis do. You know, when they come in the Army they split the intake to the tank corps into what they call a hull group which they train as mechanics, and a turret group which they train as gunners, loaders and tank commanders. Further, they select the better guys to be gunners and the best to be tank commanders. This diagram suggests that maybe we could laterally insert at least some of these fellows, and we would have a kind of sliding grade feature in the plan that would permit a man who is a good driver to remain a good driver through the grade of E5. If we found a good man for tank commander with good eyesight and mental agility and the rest of it, we would make him a tank commander even as low as E4. We would give this fellow down here in the hull a mechanics MOS and train him to handle automotive mechanics skills. That would lead us to a pattern like this--and let me again warn you that this is all just speculation--where we bring in guys to one station unit training here at Fort Knox and give them either an MOS of 63 or 11E at skill level 1. Then we put them out in the force where they can grow from E3 to E5 in either of these MOS and they could be awarded the second skill level. We bring them along to their re-up decision and then permit them to either remain at skill level 2 in those MOS or branch to MOS 63 where they would pick up the primary technical course here at the Armor School to become a first

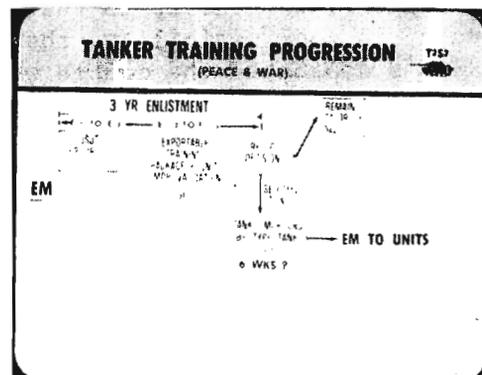
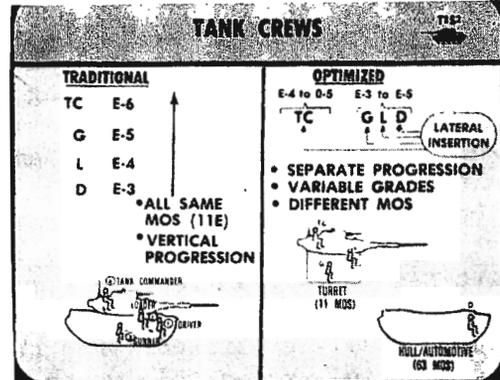
TANK CREWS

T752

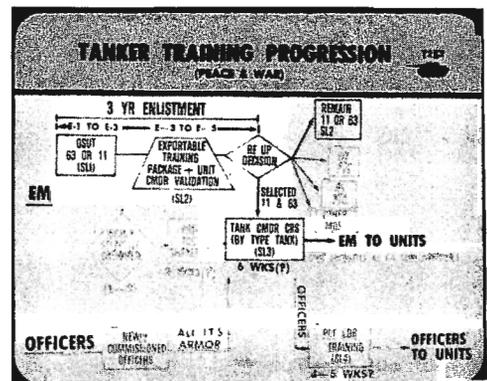
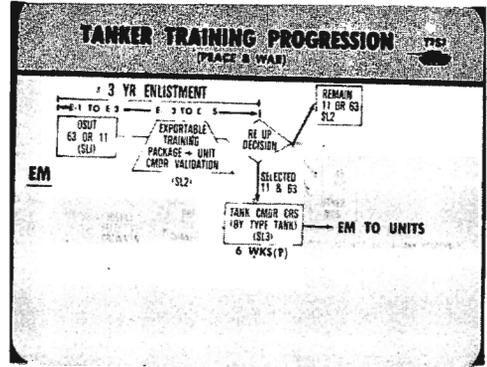
TRADITIONAL

TC E-6
G E-5
L E-4
D E-3

- ALL SAME MOS (11E)
- VERTICAL PROGRESSION



line supervisor, or take the turret mechanics MOS, again a primary technical course, or perhaps go into some other MOS. But selected ones could go on to a tank commanders course where they would get a skill level 3. We see this being the course length, but that doesn't much matter. Some of these soldiers we would want to pick out of the stream early-on. Again, maybe you would go out and recruit guys with good eyesight and good intellect and tell them that if they can cut it in the force, we'll give them a stripe right off the bat. We did a lot of that in the Vietnam War and sometimes it worked. In any event, they go through a crew commanders shakeout much like the warrant officer vetting program down in the Aviation School, of indeterminate length and then enter the tank commanders course and when they came out be promoted to E4 corporal, a tank corporal. They could go out to the force and serve as gunner or a tank commander. Obviously, we've got to do something like that with officers and we propose that we take all lieutenants of armor and run them through this tank commanders course. Then put them through platoon leaders training which would be in effect equivalent to that of the NCO skill level 4 and send them on out to the units. That's the sort of dream scheme we're tinkering with; it is hard to say what's going to happen to that one. It is a way, we thought, of getting at some of the problems that we were talking to here earlier on. In any event, our initial cut at cost turns out it doesn't cost any more than what we're doing right now, so cost is argument against doing it. You might end up then with tank crews out in the force that look like that. I showed that to General Mooney from MILPERCEN and he shuddered. That's unAmerican, that slide. But I submit that we might get out of it a force that could fight that battle that I described, fight it well, and win it.



POSSIBLE TANK CREWS T752		
A	B	C
TC E6	TC 01	TC E4 (TK CPL)
G E5	G E4 (TK CPL)	G E3
L E5	L E3	L E3
D E5 (63)	D E3 (63)	D E3 (63)