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AD-A026 339

REPORT OF THE AD HOC GROUP TO REVIEW THE  
1974 SUMMER STUDY RESULTS

ARMY SCIENTIFIC ADVISORY PANEL

APRIL 1976

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DEPARTMENT OF THE ARMY  
OFFICE OF THE DEPUTY CHIEF OF STAFF FOR  
RESEARCH, DEVELOPMENT, AND ACQUISITION  
WASHINGTON, D. C. 20310



ADA 026339

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ARMY SCIENTIFIC ADVISORY PANEL  
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APRIL 1976

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Final Report of the Army Scientific Advisory Panel Ad Hoc Group to Review the 1974 Summer Study Results ✓		5. TYPE OF REPORT & PERIOD COVERED Final Report ✓
7. AUTHOR(s) Ad Hoc Group		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Army Scientific Advisory Panel (ASAP) HQDA (DAMA-ARA) Washington, DC 20310 ✓		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS Same as above.		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE April 1976 ✓
		13. NUMBER OF PAGES 39
		15. SECURITY CLASS. (of this report)  UNCLASSIFIED
16. DISTRIBUTION STATEMENT (of this Report)		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE N/A
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) Approved for public release, distribution unlimited.		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Battlefield Surveillance & Target Acquisition Intelligence and Command, Control & Communications (IC <sup>3</sup> ) Firepower, Mobility Enhancement & Denial Survivability in Conventional CBR & EW Environments Field Army Air Defense		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The ASAP conducted a Summer Study at HQ TRADOC, Ft. Monroe, VA during the period 15-26 July 1974. The Panel addressed Mission Area Deficiencies and Opportunities (MADO) in six subgroups: 1 - Battlefield Surveillance & Target Acquisition; 2 - Intelligence, Command & Control, and Communications; 3 - Firepower (Close Combat and Fire Support); 4 - Mobility Enhancement & Denial; 5 - Survivability in Conventional, CBR, and EW Environments; and 6 - Field Army Air Defense. Ad hoc group reviewed recommendations made in original report to determine their validity and status of implementation/disposition.		

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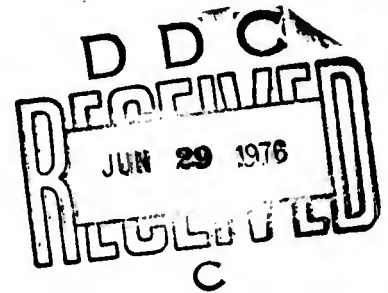
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A REPORT OF THE ASAP  
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TO  
REVIEW

1974 SUMMER STUDY RESULTS



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## 1. INTRODUCTION AND OBSERVATIONS

This Report by the ASAP Ad Hoc Group (consisting of the six Summer Study Panel Chairmen) presents a brief review of actions resulting from the 1974 Army Summer Study.

The Ad Hoc Group found this task to be particularly difficult for several reasons.

1. The Summer Study was completed in July of 1974, but the Report was not issued until July of 1975.
2. When the Report was issued, the distribution was very limited and many of the people who were affected by the recommendations did not receive copies.
3. In fact, many of the people who were affected by recommendations from the 1974 Summer Study had not heard of the Report until requested to prepare responses for the Ad Hoc Review Group. This allowed very little time for preparing a response for the Committee.
4. Because of the wide range of topics in the 1974 Summer Study and the large number of recommendations (145 separate recommendations in the area of mission area deficiencies and opportunities), the response to the Ad Hoc Group was overwhelming. The briefings on September 3 & 4 were lengthy and involved dozens of speakers and hundreds of viewgraphs.
5. Perhaps the best response and the most positive action as a result of the Summer Study recommendations, was made by those groups and personnel who had actually participated in the 1974 Summer Study. They were part of the Study, participated in the recommendations and as a result took action on these recommendations when they returned to their normal Army jobs.

The recommendations the committee made regarding the 1976 Summer Study are contained in Section 4 and are highly flavored by this experience of participating in and reviewing the 1974 Summer Study.

Section 3 contains an overall evaluation by each of the Summer Study Chairmen for their area of responsibility. Section 4 only deals with recommendations for the 1976 Summer Study.

## 2. BACKGROUND

During the period 15 through 26 July 1974, The Army Scientific Advisory Panel held a Summer Study at Fort Monroe, Virginia. The Study effort was divided into two areas: Mission Area Deficiencies and Opportunities, which was in turn divided into six sub-areas; a) Battle Field Surveillance and Target Acquisition; b) Intelligence, Command, Control and Communications (C<sup>3</sup>); c) Firepower; d) Mobility Enhancement and Denial; e) Survivability in Conventional CBR and EW Environments; f) Field Army Air Defense. The second study area, Ballistic Missile Defense (BMD), was divided into two areas; a) Site Defense Follow-on after prototype demonstrations and b) BMD Technology.

Each study area was assigned an ASAP Chairman and each ASAP member was assigned to two study groups. A substantial amount of support was provided by LA Headquarters, DARCOM and TRADOC to each of the study groups. Rough draft reports on the findings and recommendations were prepared by the end of the Summer Study with a final presentation by each Chairman to an audience of Senior Army Officers and civilians.

The rough draft reports of each study group were then assembled into an overall Summer Study Report, issued in July 1975. This report contains a total of 182 recommendations.

On June 17, 1975, Dr. K. C. Emerson, Acting Assistant Secretary of the Army for R&D, established an ASAP Ad Hoc Group consisting of the 1974 Summer Study Panel Chairmen on Mission Area Deficiencies and Opportunities.

### MISSION AREA

Chairman - Mr. Jack I. Hope	Mobility Enhancement & Denial
Mr. Burton P. Brown, Jr.	Field Army Air Defense
Mr. Howard P. Gates, Jr.	Intelligence, Command, Control
Mr. Willis M. Hawkins	Firepower
Dr. James J. Renier	Survivability in a CW Environment
Dr. Nicholas Yaru	Battlefield Surveillance & Target Acquisition
Col David Ellis - Mil. Staff Assistant, TRADOC	
Col Robert J. Feist - Mil. Staff Assistant, DARCOM	

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The terms of reference for this Ad Hoc Group are attached as Appendix I, but essentially consists of the following functions:

1. Review the 1974 Summer Study Recommendations and Findings and determine the status of their current validity and implementation by the Army.
2. Depending upon this review, determine whether further recommendations should be made.
3. Make recommendations regarding possible Study Areas for the 1976 Summer Study.

The Ad Hoc Group met at DARCOM Headquarters on September 3 and 4 to review the status of Army activities in the area of Summer Study recommendations. The agenda for this two day meeting and various participants from the Army are enclosed at Appendix II and Appendix III.

### 3. PANEL OBSERVATIONS

Meetings were held on September 3 & 4, 1975 and additional written material was reviewed. A summary of the panel's observations of Army activities resulting from the 1974 Summer Study follows:

#### (1) BATTLEFIELD SURVEILLANCE AND TARGET ACQUISITION

The 1974 summer study panel dealing with subject of Battlefield Surveillance and Target Acquisition generated eighteen recommendations as a result of a review of the Army's ongoing work on this subject. (See Chapter 1, pages 7-11).

The principle recommendation dealt with the problem of overall weapon system design as defined in recommendation (1). It was reassuring to learn that the reorganization of DARCOM under General Deane does in fact attack the Army Materiel approach from an overall weapon system concept. In addition the DARCOM reorganization and interplay with TRADOC brings in user participation earlier in the stages of material acquisition which can yield more flexible requirements for a technical feasibility phase (recommendations 2 and 3).

The Command and Control study group recommendations dealt in depth with decentralized mini-computer usage at various levels of command (our recommendation 4). In particular the data transmitted to a given unit and their decisions based on their own computations should be relevant to the unit's missions and fire delivery capability. Definite progress in the distributed computer concept was noted in the review meeting.

The ECOM review of recommendations 5, 6, 7, 12, 13, 14, 15, 16 and 18 indicated orderly progress in the areas.

Weapons Location Systems (5) are moving well through test. The TPQ-36, TPQ-37 programs are addressing cost, size and vulnerability. New concepts



such as laser artillery location systems are being investigated. Acoustic work is progressing and the concept of integrating a low cost acoustic system for rough angular surveillance over a 360° azimuth as an adjunct to the accurate sector coverage TPQ-36 and 37 radars appears a worthwhile consideration.

Foliage penetration progress appears slow but recommendation (7) still appears valid.

Progress on recommendation (12) is minimal because of proper review in DDR&E. The low cost Electro-Optical (EO) equipment program has developed a mini-range finder specifically meeting recommendation (13).

Progress in fiber optics is literally exploding and low loss-long cable work is noteworthy (15). Work on improved accuracy of REMBASS sensor location is progressing (18).

Laser applications and combined laser and FLIR work appears aptly directed.

The night vision program (9), (10), (11) is strong and progress is firm. Recent work demonstrating range improvement and high reliability for gallium arsenide photo cathodes over alloy photo cathodes (recommendation 9 predicted the opposite) is noteworthy and a contribution in the field.

FLIR modularity and cost reduction work is progressing.

Data link work on RPV (17) is progressing. Some questions arise with regard to the GA link capability for controlling the platform. Capability and design for real time sensor data handling appears to be progressing.

In summary, it appears that intelligent interpretation and implementation are evident on those recommendations made by the summer study panel in its attempt to constructively review the surveillance and target acquisition programs.

## (2) INTELLIGENCE, COMMAND, CONTROL & COMMUNICATIONS

Certain organizations had early access to the findings and recommendations of the report and have acted on them. Other organizations perhaps only just received and read the report and have not yet had time to respond. In still other cases, the recommendations simply coincided with actions just started or about to be started. In certain cases, the responsible organization was not on the report distribution list. PM ARTADS is an example.

The Committee was particularly impressed by the responsiveness of the technical communications people at ECOM. The recommendations have received good attention and effort; new programs have been started; actions have been taken.

The technical satellite communications people should reconsider their response to the Committee's single recommendation (Chapter II, paragraph IV H). It was felt that their response was perhaps too hasty when one considers that the intent of the recommendation was to open up satellite communication to tactical application by eliminating the need for literally billions of dollars in special terrestrial equipment. Previous tactical satellite communication programs have floundered for lack of funds to proliferate the satellite-dedicated terrestrial gear. The Satellite Communications Agency's response did not reflect a considered, reasoned investigation of alternate ways to reach the recommended objectives, limitations on the various approaches, etc.; no doubt conventional wisdom had the upper hand because of the time limitations for reply.

TRADOC and the operational communications people should give serious attention to recommendations on minimizing communication. Dispersed in one section were recommendations to:

- 1) Design tactical C&C systems in such a way as to minimize communications and data transfer needs. (Recommendation Chapter II, paragraph II A 1 & 2)
- 2) Perform studies and experiments in a disciplined field situation to determine the methods and the extent to which battlefield communication can be minimized. (Recommendations in Chapter II)
- 3) Consider the use of miniature, hand-held, formatted data entry and readout devices as a substitute for much voice communication. (Recommendations in Chapter II)

In the area of position location and navigation the Committee had hoped to impart to TRADOC and the aircraft, vehicular, and infantry users the importance of a system that would permit all elements of the Army to operate in a common electronic grid with the Air Force and Marines. The Committee was concerned by the indifference of the users to adopting an early and effective solution to this problem.

With respect to battlefield IFF, the Committee felt that the Yom Kippur war taught the lesson of the importance of identification. No sense of urgency on the part of either TRADOC or the technical people was expressed on this.

From the responses received, the recommendations regarding intelligence (Recommendations in Chapter II) were not conveyed to the individuals and organizations capable of assessing them and instituting action. Either that, or the Committee was not adequately cleared to hear the reports of actions taken.

There are beginnings of some recognition of the importance of EW training and FW use in tactical operations, but not enough, yet, to stir the Army to centralizing responsibility in a single general officer on the Army Staff; the planning is still diffused in a committee. (Recommendation Chapter II, paragraph IV G)

Recommendations in command control (Chapter II), particularly tactical, have received some response and perhaps improvement can be expected. A combined management of requirements, user testing, and development in this area is expected because this is the area where the Army most suffers from the effects of geographical and organizational separation of the activities.

### (3) FIREPOWER

The committee considered three subjects:

- a. Were the summer study recommendations still valid and is the Army responding?
- b. Are there further recommendations?
- c. What subjects would be profitable for a similar group to study next summer (1976)?

### Validity of Summer Study Suggestions and Army Response:

The recommendations and suggestions (Chapter II) contained in the 1974 Study Report are still valid and should not be changed. From the information at hand, however, the Army response has left some elements of the study out, or has only touched them lightly. These are:

a. Suggested Subjects for Analysis: The presentation charts covered analysis efforts (although mostly by inference) on specific weapons but did not describe any efforts on the major tactical problems suggested.

- (1) Light Airlifted Division
- (2) Combat in Urban Areas
- (3) Fire Effectiveness Assessment (Real time-tactical)

(4) Tac-Fire revisited

(5) Reassessment of how to keep requirements consistent in order to cut down R&D spans and get weapons out of R&D earlier. (A "lessons learned" approach was suggested and system elements for such a study high-lighted.)

b. The terminally guided weapons programs appear to be hardware oriented. Insufficient attention is being paid to the overall concept of how and when "spots" will be available to utilize these weapons and how each weapon fits into the Division tactical concept.

c. No effort was apparent on light weight vehicles to carry some of the light weight weapons which are being pursued (Artillery rockets - low recoil guns).

d. An impressive list of new operational concept tests was included but the analytical back-up that should precede the design of such tests was not in evidence. Conclusions from operational tests are difficult to derive, and may be erroneous, if the test has been awkwardly designed or left to "field" creativity.

e. Hardware development on several field computers was noted without any demonstration of how such computers fit into the total tactical firepower control concept (See A (4) above). This may be wasted R&D effort in spite of the fact that available technology can make a major contribution in this area.

Further Recommendations for Army Action: (Chapter III, pages 14 - 15)

Most of the suggestions are implicit in the above discussion, but for emphasis the following are offered:

a. The total concept of the "directed" indirect firepower-spot seekers, terminally guided weapons, etc., needs broad analytical treatment. These questions and many more need answers:

- (1) How do you find targets to spot?
- (2) How do you signal that the spot is on and locate the general area?
- (3) How vulnerable is the spotter? How long can he hold the spot? How long must he hold the spot?
- (4) How does the commander control the mix of dumb and smart warheads? Does this imply the need for special units?

b. The use of computers in the field needs to be revisited (Chapter III, Recommendation 4). Not clear at present is where, if anywhere, a large central computer is needed and what functions it should perform. This implies the other important question as to what local functions (short range mortar fire) can benefit from specialized small computers independent of other Division computers. Equally difficult is how a computer can aid the spotters and the weapons which depend on his position, knowledge, and ability to point.

c. The decision as to what 20mm to 40mm programs to pursue is as confused now as it has been for the past 15 years. In spite of repeated crash studies and some pretty sound advice, clear production or policy decisions still have not been made. DOD may be as much at fault in this vacuum as the Army. The committee felt that comments on this item were beyond its scope.

(4) MOBILITY ENHANCEMENT & DENIAL (Chapter IV, pages 1-5)

The Army's response to recommendations in the mobility enhancement and denial area were mixed, that is, some actions were very responsive and some were not. In many cases, it appears that those Army functions well represented in the Summer Study itself, took advantage of this situation and actually pursued the recommendations which were made. While others not represented at the Summer Study took little action as a direct result of the recommendations. This does not mean that their work is counter to the Summer Study recommendations but only that their work is being conducted independent of any input from the Summer Study.

The following are specific comments:

Land Navigation (Chapter IV, page 7)

Responses to recommendations in the area of land navigation and national global positioning are covered in the Section on Command, Control and Communication.

Combat Vehicle Operations (Chapter IV)

The mobility panel made several recommendations in the area of Combat Vehicle Operations, several of which were observations of results from the 1973 Middle East War. These recommendations included:

- 1) Studies to determine if the addition of a limping capability would be desirable in combat vehicles.
- 2) Studies of the possible benefits of adding a "rapid repairability" requirement to combat vehicles.
- 3) Studies of the adequacy of current combat vehicles for operation in urban environments.

4) Analysis and verification by test of the effect of speed and acceleration capability on the survivability of combat vehicles. While some of these recommendations such as rapid repairability and survivability, vs. speed, are being examined in the normal course of Army R&D activities, it is not obvious that the Summer Study recommendations had much affect on Army R&D activities. This is particularly true in the area of studying a requirement for a limping capability. Apparently, TACOM took the attitude that many of these Study recommendations could not be initiated unless a requirement were to be issued by TRADOC, and of course TRADOC would not issue a requirement unless they believed it was both feasible and desirable to ask for these added capabilities.

The Committee felt that TACOM should perhaps better define what areas of their research and development activities, i.e. exploratory development, should be conducted in advance of TRADOC requirements and which R&D activity, i.e. engineering development, should be fully controlled by TRADOC requirements on specific weapon systems.

#### Mine Detection and Neutralization

MERDC activities in areas covered by the Summer Study recommendations are very good. This is particularly true in the area of Mine Detection and Neutralization, where effort includes the examination of some very advanced and novel concepts to be explored for possible application, all the way up to actually improving the current mine field breaching systems.

A related area which has received very good response is that of Barriers. Again, some of the conceptual ideas being evaluated are the result of ingenious thinking and the potential payoff will be high for possible use in future battlefield delaying tactics.

#### Gap Crossing

MERDC is also pursuing most of the study group recommendations (Chapter IV 3.1.3) and showed impressive progress in the area of reducing bridge weights, increasing gap width capability, and reducing erection time.

#### Earth Moving

MERDC is following all of the recommendations (Chapter IV 3.2) in the Summer Study such as; the Universal Engineer Tractor Tests are continuing, substantial advances in dust control techniques are being demonstrated and fog dispersing systems are being actively studied.

#### POL

This work is well directed and is providing good results. (Chapter IV 3.3.1)



### Containerization

The Containerization Program is also well directed. (Chapter IV 3.3.2)

### Electric Power

M.

The overall mobile electric power program at MERDC is very successful. (Chapter IV 3.3.3) A large family of mobile electric generators has been developed and fielded, and the group has made major improvements in the overall reliability of these systems. The Army should have procured some of the 10KW turbo alternators which resulted from this successful development program, and perhaps the 10KW turbine drive unit will be equally successful.

The recommendation that all services and in particular, electrical power and communications services for a Command Post be examined from the standpoint of mobility was not evident based on the review. It would still appear desirable for the Army to make a study of integrating all of the Command Post services from the standpoint of mobility so that a Command Post can be set up or torn down in a minimum of time.

In summary the Army has many very good programs in the area of Mobility Enhancement and Denial and much progress is being made.

### (5) SURVIVAL IN CONVENTIONAL ENVIRONMENTS

#### Camouflage

Recommendations: (See Chapter V Recommendations, Page 3, also Chapter V App III)

a. Establish responsibility for maintaining cognizance of the camouflage effort at a level in the Army command structure which can effectively coordinate the roles to be played by TROSCOM, TRADOC, and FORSCOM.

b. Set up a program manager for camouflage at the DA level with specific responsibilities in: Survival of equipment and personnel in battle; disruption of enemy intelligence; and protection of critical and sensitive items.

The recommendations were not specifically followed. However, steps were taken in centralizing responsibility for survivability at AMSAA.

c. It was especially gratifying to see the excellent work at MERDC that represented a start in trying to measure the effectiveness of a camouflage program in terms of "Military Value" at a reduced "Military Cost." There has been a decided shift to the "top down" approach or systems approach in the direction of the program, and an



attempt is being made to establish useful models which can lead to camouflage specifications for equipment.

d. Based on the systems analysis activity defined by above, it was recommended that the camouflage requirements which must be met by DARCOM Commodity Commands should be defined. The Program Manager at DA, working with MERDC Camouflage Division, CEAO, and DARCOM Program Managers should prepare camouflage specifications which become part of development requirements for equipment. (Chapter V Introduction, paragraph 1-2). The key item here is the direct involvement of General DePuy in the development of better requirements for camouflage. To some degree it seems that the Panel was pushing for the wrong people to become involved in requirements. It was interesting, however, that General DePuy's influence apparently has not yet been felt since the effort at Ft. Leavenworth has not been increased from its woefully inadequate level.

e. The recommendation to define a test activity at MASSTER or CDEC to verify the military value and military cost of camouflage developments and to verify the significance of objective tests by DARCOM personnel has resulted in a plan consistent with development under the effort stated in paragraph above.

#### Ballistic Survivability (See Chapter V, page 3)

a. The work at the US Army Materials & Mechanics Research Center (AMMRC) on armor and materiel for personal protection is vital and integral to survivability in a ballistic environment. It is very clear that the work in this area is being strongly encouraged.

b. There was no strong statement to the effect that the systems vulnerability analysis and design work is being more fully exploited but it was clear that its scope of application is far greater than that presented at the Summer Study. Nine areas of investigation ranging from tank hatches to the Hawk system were described in great detail. These efforts looked very good.

c. To the degree possible ballistic survivability requirements are being made an integral part of the ROC. Changes have been made to AR 71-9 Force Development Materiel objectives and requirements and a decided emphasis has been placed on the review of requirements documents to assure inclusion of vulnerability/survivability requirements.

d. The recommendation that the Army consider for major items of Army materiel, the organizational concept of program manager for survivability, was not adopted. However, a lead agency was established with an office and a test and design mission. AMSAA was designated lead activity for survivability in October 1974.

e. It was suggested that considerable enhancement of survivability of materiel already in existence in the Army's inventory could be achieved by skillful application of the vulnerability analysis work at BRL. The Product Improvement Program should be employed to accomplish this. The Army was encouraged to take the necessary steps to see that this is done. The Committee was uncertain if the PIP is being employed to accomplish what was suggested. There seems to be great concern for going back into fielded systems on a long-term sensible basis to incorporate survivability enhancements.

f. The recommendation (Chapter V, page 4, paragraph 6) was made to develop means to protect the troops against artillery fire, perhaps by jamming VT fuzes. The Army has apparently been round and round this question for years. The general concensus is that to pursue this problem further would not make any sense. Apparently the jamming system has to be very exact to be successful and it is not clear just how to obtain the knowledge required to do this on a reliable basis. It is also not clear that from a mission standpoint that the solution would be cost-effective. There were some who felt that the analysis was not properly done. Perhaps a little more effort in this area would resolve whether this recommendation is worth any further effort.

Survivability in a CW Environment (See Recommendation Chapter V, page 9)

a. The recommendation was made to develop an awareness within the leadership of the country, DOD management, and throughout the Army of the serious threat posed by the Soviets in regard to chemical warfare. The need for chemical defense must be emphasized. The need for chemical defense seems to be getting more attention within DOD, but the Committee was not sure how well Congress or others are responding to DOD's expression of need.

b. The suggestion to grasp the lead (Chapter V, Recommendations, page 9, paragraph 2) in the development of a program that can assure that the United States can accomplish its stated objectives with respect to chemical warfare by 1980 seems to be reflected in the Army's renewed feeling of responsibility with regard to chemical defense.

c. The need to impress upon the DOD (Chapter V, Recommendations, page 9, paragraph 3) and the Joint Staff the need to clarify the role of the various services with regard to chemical warfare was not specifically addressed. It would be difficult for the ASAP to determine whether this had been done effectively.

d. The need to develop potential scenarios (Chapter V, Recommendations, page 9, paragraph 4) and perform analyses that will reveal more clearly the present capability to cope with a CW attack, and to develop concepts for what is needed has been met. TRACOC has recently used scenarios in their chemical defense studies and AMSAA is currently incorporating chemical scenarios into their war gaming programs.

e. The recommendation (Chapter V, Recommendations, page 9, paragraph 5) to develop a military doctrine for CW that is consistent with the short range threat and our present posture has been met. TRADOC is currently examining their training school programs to establish the changes required to improve training.

f. The need to develop a longer range military doctrine (Chapter V, Recommendations, page 9, paragraph 6) for CW that is consistent with US stated objectives and that can be used to drive the primary program also has been met as part of Para. e above. Similarly, initiation of immediate action within TRADOC to train US Army forces to meet the known threat and to develop requirements for material needed to achieve 1980 objectives has been answered.

g. Within the Department of the Army it was recommended that (Chapter V, Recommendations, page 10, paragraph 8) a Program Manager for chemical warfare be established to develop an organizational structure with sufficient authority to return the Army chemical defense/chemical warfare program to a healthy status. There has been no significant change with respect to this recommendation. This recommendation should not be casually dismissed. Strong program organization is probably necessary.

h. There is a need to place heavy funding and emphasis on the development of an antidote for nerve agents (Chapter V, Recommendations, page 10, paragraph 9). The Panel felt that irrespective of how the program is organized the US Army Surgeon General should feel completely responsible to have appropriate means of therapy and treatment at hand. This does not necessarily mean that the R&D must be managed by the Surgeon General but the knowledgeable panel members lean in this direction. Consideration of the use of universities and industry to support this effort was urged. This is now being adequately addressed. Significant effort is underway for development of an improved system, prophylactic measures, and personal decontamination kits. The handling of casualties is also being addressed.

i. It was recommended (Chapter V, Recommendations, page 10, paragraph 10) that the development of new chemical delivery system concepts be pushed, and that the Army should exploit the binary system concept employing this concept as the base line for the procurement and development of a retaliatory capability as soon as possible. Requirements are now being generated for ground and air systems. The Army seems to be handling this subject in an adequate fashion.

j. The need to accelerate the type classification (Chapter V, Recommendations, page 10, paragraph 11) of the new easier to use, developmental Army gas mask; intensify investigations of means of preventing contact with nerve agents especially through the use of

preparations that can be applied directly to the skin that will not be absorbed or wet by nerve agents; develop new ways to neutralize nerve agents upon contact with personnel or vehicles; and where possible, exploit the new urethane coatings for vehicles that are easier to decontaminate than acrylic paint coatings was discussed. All these recommendations are being addressed.

k. A recommendation (Chapter V, Recommendations, page 10, paragraph 12) was made to develop a new selective physical means for identifying and monitoring CW agents by placing greater effort on the ionization approach, and employing new technology to obtain a more inherently reliable area detector. The laser-RAMAN project should carry a high priority. No new ideas were presented with regard to new detection means other than the excellent work being done on the ionization detector. Perhaps a systems effort is required to determine whether point detectors can be used effectively in an area detection scheme since the ideas for area detectors are not plentiful.

l. Acceleration of the enzyme detector program was recommended (Chapter V, Recommendations, page 10, paragraph 13) to include assembly of a panel of top physical and analytical chemists to help develop and guide the new DARCOM program. This recommendation was adopted. The results of the scientific group study were not available at the meeting.

m. It was felt that the Army decontamination capability (Chapter V, Recommendations, page 10, paragraph 14) should be represented by deploying steam systems and shower equipment for this purpose to the field forces. Efforts in decontamination studies have been increased.

n. Despite all political pressure or other negative thinking about the CW program it was recommended (Chapter V, Recommendations, page 10, paragraph 15) not to settle for a capability that does not provide:

- (1) An effective medical treatment of CW poisoning.
- (2) An easy to use set of gas masks.
- (3) Protective clothing or protective skin preparation.
- (4) Air treatment equipment for vehicles.
- (5) Decontamination equipment for personnel and vehicles.
- (6) Efficient and selective warning and identification systems.
- (7) A thorough training program based upon a valid survival and retaliation doctrine.
- (8) Immediate CW protection for European nuclear storage sites and air defense sites.

No further comment is necessary. However, without the strong Army program manager organization concept the Committee felt that the follow-through on all of these items will be insufficient.

#### Survival in Electronic Warfare Environments

Since many of the recommendations in this category are either confidential or secret they are not reproduced here. The reader is referred to the ASAP Summer Study Report. (Chapter V, pages 14-16)

1) Recommendations are being adopted. Work has begun by AMSAA and CACDA.

2) This is being addressed under AN/TSQ-119 and Cefire Tiger.

3) EW training is being emphasized by TRADOC.

4) The recommendation that the Army should stress decentralized Command and Control was noted. However, it was also noted that the Army seems to be particularly slow in exploring the use of distributed micro processor systems to achieve a higher degree of decentralization. This area should receive more emphasis.

5) There was a feeling that insufficient effort is being expended to counter future potential threats. The programs seem more short-term.

6) This was sort of a motherhood recommendation. There always is a need for more intelligence.

7) There is concern for mobility. Whether or not this concern is translated into action is questionable.

8) This recommendation is addressed by the comments made under 4 and 9 through 17. (See Chapter V, pages 15-16)

There seem to be efforts or deliberations on all of the items mentioned in these recommendations. It was not possible to determine from the meeting whether the effort was sufficient. The significant factor was the ability of the briefer to describe each item and to talk about programs for those which made sense and to indicate reasons why some required no effort.

Other chairmen present were more familiar with the EW field than the Committee and seemed satisfied with the responses to the ASAP recommendations. These particular recommendations emanated more from the military assistant on the Panel and to explore these ideas in depth would require further meetings with his assistance.



5

(6) FIELD ARMY AIR DEFENSE

The actions stated in the subjects that were addressed were, for the most part, quite responsive to the recommendations. (Chapter VI) This is particularly true with respect to those recommendations that called for technology pursuits (such as in ECCM techniques and passive detection/tracking) and changes in hardware programs (e.g., the TSQ-73 link with AWACS; and the increase in flight program for Alternate STINGER).

The response to those recommendations that related to air defense planning or the need for interorganizational actions was less than impressive. For example:

a. The Committee concluded that "---- there does not appear to exist a set of clearly defined air defense objectives and a corresponding time-phased plan for a weapon mix to achieve these objectives." The response was: "MRD & EL has an air defense missile plan that is a major part of the Army missile plan now being modified ----." We called for an air defense plan, not an air defense missile plan!

b. There was no response to the important issues relating to intelligence collections. Reference Chapter VI, page 6, paragraph C.

c. There was no response to the recommendation which stated "Develop and field a new all-weather air defense gun system (Chapter VI, page 10).

In summary, the Committee felt that:

The Army spends a lot of money on the subject but not much fighting capability grows out of it.

We seem to lack a guiding champion for air defense.

4. 1976 SUMMER STUDY RECOMMENDATIONS

The Army Scientific Advisory Panel Executive Committee has already selected the 1976 Summer Study location as the Armed Forces Staff College, Norfolk, Virginia for the dates of July 19 thru July 30, 1976. This Ad Hoc Group did discuss the various possibilities of the 1976 Summer Study location and we agree that the Armed Forces Staff College should meet the requirements for a productive Summer Study.

Some of our additional recommendations include:

PROCEDURAL RECOMMENDATIONS

a. Summer Study Topic or Study Goals should be much more limited than they were for the 1974 Summer Study and perhaps be written up in the form of a specification which asks for a specific type of recommendation from each Group.

b. The number of groups should be limited, perhaps four or six, and all participants should be assigned to only one Group.

c. The work schedule should be arranged to eliminate the need for scheduled meetings on weekends and evenings, not that the ASAP Panel Members object to working long hours, but a proper balance between scheduled meetings and informal discussion periods leads to a more productive result.

d. Panel Members should be assigned to Groups well ahead of time, i.e., two months or more.

e. Once assigned, many of the briefings which have taken up time of prior Summer Studies could perhaps be given in the form of pre-briefings on one or two scheduled days before the Summer Study, thus allowing the actual Summer Study time to be more creative and productive rather than simply listening to many briefings.

f. The Chairman could perhaps organize ahead of the Summer Study, a schedule which would limit briefings to the early part of the Study and schedule final sessions for information exchange among the Panel members and for final report preparation.

g. Perhaps a scheduled follow-up for each Study Group one or two months after the Summer Study would result in more Army activity than to have a single Ad Hoc Review Group follow-up the Report more than one year later.

SUBJECT POSSIBILITIES

Committee members held informal discussions about various possible topics for the 1976 Summer Study. We concur with the current plans of USA Headquarters to base the 1976 Summer Study on a review of Army Systems and Long Range Plans, to determine whether or not the technology is in hand to support Army future systems requirements, provided they meet the requirements above: namely, the result the Army really wants from the ASAP member participating in the study should be clearly stated.



Some alternate suggested study topics were:

(1) The use of the spotter: This should encompass concepts of mobility, the equipment required, command and communication, vulnerability, timing of response and how targets are found and sorted out between those that need spots and those that don't. Firepower assessment should be included in this effort.

(2) The use of the Tactical Computer: This deliberation should help the Army sort out where new technology can help and should outline an analytical approach which will help determine how much netting is required and where independent elements may be used to help produce more effective firepower and adequate assessment without having to be controlled by some higher order computer or command.

(3) The reduction of weight: In spite of numerous sporadic efforts, the Army still weighs millions of pounds. With energy limits now threatening, it may be time for a new effort at reducing tactical weight. Rockets, guided weapons, new materials, can all contribute, but fighting concepts need to be revised also -- they are probably the most important drivers of the ultimate weight.

## APPENDIX I

### ASAP Ad Hoc Group on the

#### Review of the 1974 ASAP Summer Study

1. Background. The ASAP conducted a Summer Study at HQ TRADOC, Ft. Monroe, VA during the period 15-16 July 1974. The Panel addressed Mission Area Deficiencies and Opportunities (MADO) in six subgroups: 1 - Battlefield Surveillance & Target Acquisition; 2 - Intelligence, Command & Control, and Communications; 3 - Firepower (Close Combat and Fire Support); 4 - Mobility Enhancement & Denial; 5 - Survivability in Conventional, CBR, and EW Environments; and 6 - Field Army Air Defense. Additionally, subgroups 7 and 8 addressed Site Defense Follow On After Prototype Demonstrations and Technology, respectively, in examining ballistic Missile Defense in the Post Treaty World. Now that almost a year has passed since the Summer Study, it would be worthwhile to conduct a final review of what actions have been taken as a result of the Study in the MADO areas of interest. Such a review is not felt to be necessary in the BMD area. The Summer Study report document is scheduled for publication in June 1975.

#### 2. Terms of Reference:

a. Recognizing that many actions have been taken during the past ten months as a result of the original involvement and participation by personnel of HQDA and both the DARCOM and TRADOC, utilization of extracted and support material of the report document, and continuing programs of the Army, a review of the recommendations and findings of the Summer Study for a status of their current validity and implementation should be made.

b. Depending upon the determination of the current validity and status of implementation of the recommendations and findings, further recommendations should be made as to their disposition and action thereon.

c. As a result of the above efforts, the Ad Hoc Group should recommend appropriate matters from MADO or other areas for study at the 1976 Summer Study.

#### 3. Termination:

The Chairman of the Ad Hoc Group is requested to conclude his efforts at the earliest possible date. However, a final report should be submitted not later than 1 December 1975.

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## FOLLOW-ON OF ASAP 1974 SUMMER STUDY

## A G E N D A

3 SEPTEMBER

<u>TIME</u>	<u>TOPIC</u>	<u>LOCATION</u>	<u>RESPONSIBLE OFFICE ACTIVITY</u>
0815-0845	Chairman's Introduction	1W06	Mr. Hope
0845-1015	Battlefield, CSTA (Radar; Laser; NV; C/C)	1W06	MICOM (Mr. Cswell) ECOM (Mr. Sueta/CSTA) + Others
1015-1030	COFFEE BREAK	1W06	Project Office
1030-1200	Intelligence, C (ECOM, ASA Items)	1W06	ECOM/CADF (Briefer Not Designated)
1200-1300	LUNCH	CG's Mess	Project Office
1300-1330	Call on GEN Deane	1E08	Project Office
1400-1430	1976 Summer Study	1W06	Dr. Lasser
1430-1445	COFFEE BREAK	1W06	Project Office
1445-1615	Field Army Air Defense (EW Items) (Surface-to-Air Missiles)	1W06	ECOM/EWL (Mr. Jones) MICOM (Mr. Peterson)
1615-1700	DARCOM Organization Briefing	1W06	CPT Simonich

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4 SEPTEMBER

0830-0930	Firepower (Surface-to-Surface; ARMCOM Items) (Missiles; MICOM Items)	1W06	ARMCOM (Mr. Williams RIA) MICOM (Mr. Oswell)
0930-1030	Survivability (Conventional)	1W06	AMSAA (Mr. Bailey)
1030-1200	Mobility Enhancement & Denial	1W06	MERDC (Mr. Christian)
1200-1300	LUNCH		Project Office
1300-1630	Executive Session	1W06	Mr. Hope

APPENDIX III

LIST OF PARTICIPANTS

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APPENDIX IV

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