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TRADOC HISTORICAL MONOGRAPH SERIES

(1)

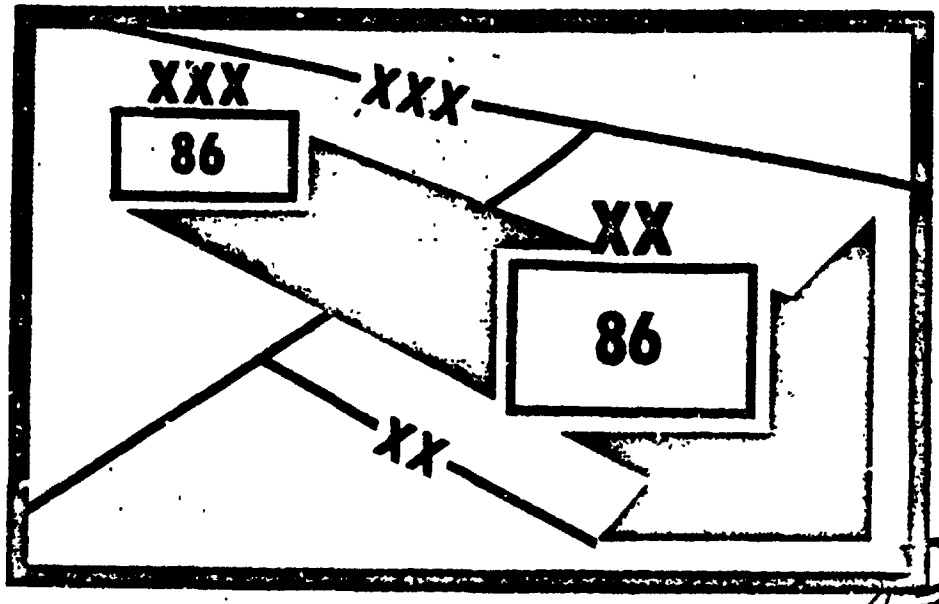
A HISTORY OF ARMY 86

VOLUME II

THE DEVELOPMENT OF THE LIGHT DIVISION, THE CORPS, AND ECHELONS ABOVE CORPS

NOVEMBER 1979 - DECEMBER 1980

BY JOHN L. ROMJUE



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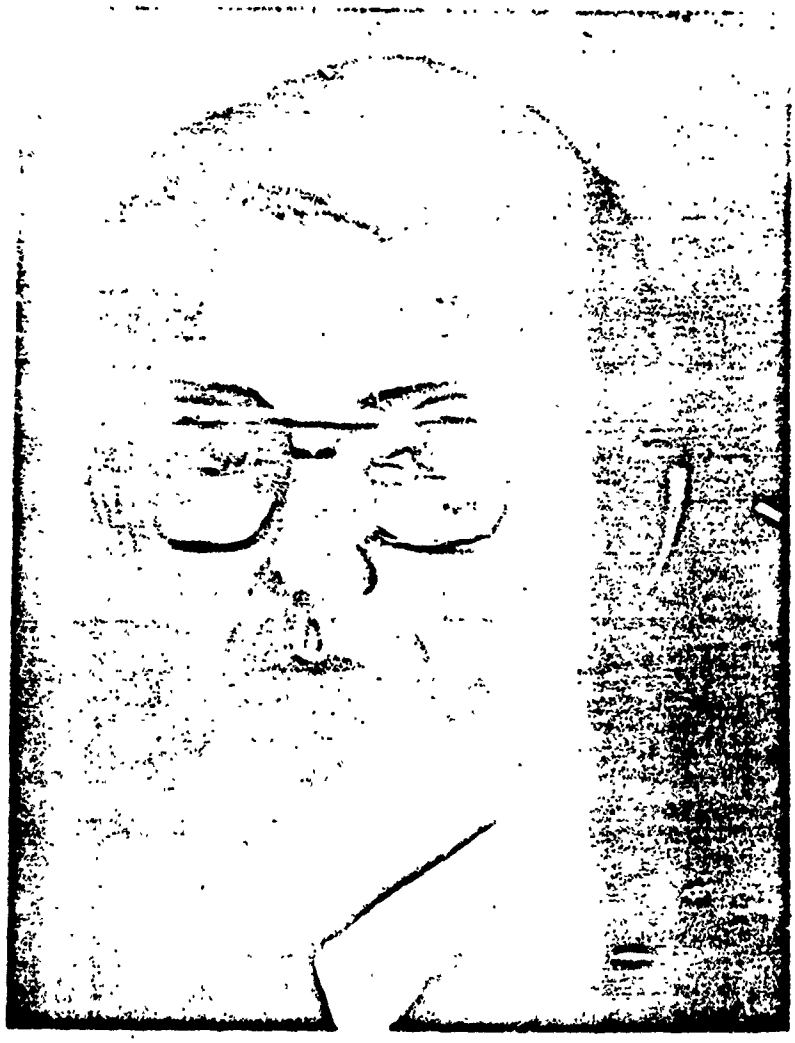

General Donn A. Starry
Commanding General
United States Army Training and Doctrine Command
1 July 1977 - 31 July 1981

TRADOC HISTORICAL MONOGRAPH SERIES

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June 1982

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FOREWORD

Army 86 was a landmark effort in the annals of Army force development. The four major Army 86 studies had the collective aim of designing Army tactical and support organizations, and operational concepts, capable of harnessing the combat power of a veritable generation of new weapons and equipment programed for delivery between 1979 and 1986. The origins and development of the heavy division, between September 1978 and October 1979, have been treated in an earlier monograph: *A History of Army 86* Volume I: *Division 86*, published in November 1980. The present volume covers the second year of the Army 86 Studies, November 1979 to December 1980. During that period, the planners of the U.S. Army Training and Doctrine Command designed the organizational structures of the new infantry light division, the heavy corps, and echelons above corps. In addition, they resolved, in collaboration with the Army Staff, the final design issues of the new heavy division, approved in principle by the Army Chief of Staff in October 1979, and laid the initial plans for the transition from the existing organizations of the armor and mechanized infantry divisions.

The U.S. Army last reorganized its divisional structure--from the pentomic to ROAD organization--in the early 1960s. No fully documented account of that realignment action was written. Now, almost twenty years later, we want to avoid a repetition of such an omission. The Army 8[illegible] monographs, researched and written by Mr. John L. Romjue of the TRADOC Historical Office, provide a useful record of the rationale and development of the combat organization designed to take the Army into the decade of the 1990s.

December 1981

HENRY O. MALONE, JR., Ph.D.
Chief Historian

This second edition of *A History of Army 86*, Volume II, is being issued together with an unclassified version of Volume I, so as to bring the record of these significant force development initiatives to a wider audience, both within and outside of the Army.

June 1982

H.O.M.

THE AUTHOR

Mr. John L. Romjue, Field History Coordinator in the Historical Office of the U.S. Army Training and Doctrine Command, is an Army historian specializing in doctrinal- and combat-developments. He was born in Washington, D.C. and served on active Army duty in Germany before completing both baccalaureate and master's degrees in history at the University of Missouri in 1962 and 1963. Afterwards, as a Fulbright Scholar in the University of Heidelberg, he studied modern European history, then continued graduate study in the University of California, Berkeley. Before joining the Training and Doctrine Command historical staff in 1974, he served as a historian in the Naval Facilities Engineering Command and as the command historian in the Army Combat Developments Experimentation Command. In addition to producing several historical monographs in the area of Army field experimentation, and annual surveys of Army doctrinal and combat developments, he is the author of numerous book reviews in modern German and European history and has published short stories in several literary journals.

PREFACE

The decade of the 1970s was marked by an intense effort on the part of the U.S. Army to develop advanced weaponry and equipment. In that decade, which witnessed the advanced stages of the historic buildup of Soviet missile, air, sea, and land forces, U.S. Army planners were to see the Soviet Union -- heretofore reliant on sheer numbers of men and weapons -- draw abreast of American weapon technology in one category after another, and in some areas forge ahead. The story of the Army's perseverance during these years to prepare the way for technological recovery has yet to be told. Hampered by the weak budgetary support accorded weapon programs during the post-Vietnam period, and by a sluggish national awareness of the Soviet military buildup until late in the 1970s, Army planners developed and "kept alive" the vital weapon programs on which the modernization of the Army in the 1980s could be based.

The new generation of weaponry that came out of this effort, along with important improvements that were being made to selected 1970s weapons, held the potential of greatly increased combat power for the Army's fighting units. The Army 86 Studies were the Army's effort to realize that potential by developing the operational concepts and designing the organizations of the Army of 1986 and beyond.

This volume describes the final changes to the heavy division following its approval in principle by the Chief of Staff of the Army in October 1979, and outlines the initial steps that TRADOC had taken in cooperation with the Department of the Army by the end of 1980 to plan the transition from the ROAD-based armor and mechanized infantry division organizations to the structures of Division 86. The volume then turns in succession to the design issues of the infantry light division, the corps, and echelons above corps. The structures of all four major elements of Army 86 gained approval in decisions by the Chief of Staff of the Army of August and September 1980. A determined attempt has been made to follow and document events and decisions fully and to present the open discussion of problems and issues that will be most useful to future planners and researchers.

The primary source documents cited are located in the Planning/Air Land Directorate of the Office of the Deputy Chief of Staff for Combat Developments, Headquarters, TRADOC, at Fort Monroe, Virginia. Copies of many of these documents have been retained in the TRADOC Historical Office files. The volume is also dependent on memoranda of the Army 86 planning meetings of 1979-80, as well as on interviews with planners, and on review by the principals involved. Preparation of the volume owes much to the assistance of Lieutenant Colonel Edward G. Walker and Major Bryant B. Hamaker, who had successive coordination responsibilities for Army 86 at TRADOC Headquarters, and to the comments of Colonel Frederick M. Franks, chief of the planning directorate during 1980-81, and Colonel John Greenway, the Army 86 coordinator at Fort Leavenworth during the studies' entire course. The monograph was typed by Mrs. Claudine D. Lovett.

JOHN L. ROMJUE
Historian

ABSTRACT

A History of Army 86 documents the two-year effort of the U.S. Army Training and Doctrine Command to develop the modernized concepts and structures for the divisions, corps, and echelons above corps that were envisioned for the Army of the late 1980s. This volume treats activities occurring between November 1979 and December 1980. During that period, final changes were made to the heavy division, developed the previous year, as TRADOC planners turned to and completed the study and design of the infantry light division, the corps, and the echelon above corps organizations.

Reviewing the concepts and structures that came out of the four major Army 86 Studies, the Chief of Staff of the Army approved them in decisions of August and September 1980. Preparation of an initial plan for transition from the ROAD-based organizations of the early 1980s to those of the new 19,966-man Division 86 heavy division drew to completion in December 1980 and was published early in 1981.

The new light Infantry Division 86 with 17,773 personnel emphasized new technology, strong antiarmor capability, and the versatility, tactical mobility, survivability, and strategic deployability required for a dual NATO and worldwide contingency mission. Containing both motorized infantry battalions and mobile protected gun battalions, Infantry Division 86 was approved for further planning and testing by a high technology test bed organization established at Fort Lewis, Wash.

Corps 86 united corps battle and support organizations and concepts to facilitate concurrent operations against the enemy's assault forces and, deep behind his lines, his second echelon units. The Corps 86 concept also focused on protecting rear areas, sustaining and reconstituting combat power, and integrating the air-land battle. A required force maturing from 85,118 personnel at D-day to 131,973 by D plus 180 days was approved for force planning.

Echelons Above Corps 86, completed in its first phase, laid the doctrinal groundwork and structured a theater army for the NATO theater of 1986 within the context of the integrated battlefield, joint and combined operations, and a six-months buildup period. The Chief of Staff of the Army approved the EAC 86 concepts and organizations for the general design of the theater army.

TABLE OF CONTENTS

TABLES

Chapter I

DIVISION 86 - THE HEAVY DIVISION

On 18 October 1979, the Chief of Staff of the Army, General Edward C. Meyer, approved in principle Division 86 as the new Army heavy division. The U.S. Army Training and Doctrine Command (TRADOC) had eloped Division 86 during the preceding year as the first of four major anizational studies. As the main part of the project drew to a close, the task forces that the TRADOC commander, General Donn A. Starry, had established at the TRADOC Army schools and at Fort Leavenworth for the Division 86 Study turned to full-time work on studies of Corps 86 and the light division. TRADOC planners had begun preliminary work on Corps 86 in early 1979 and had on 16 August published a study directive. At the 18 October meeting, General Meyer approved the continuance of the Corps 86 effort and approved a start on the light division. He would not make a final decision about Division 86 in June 1980 as had been planned, he said, unless confident about both corps and light division and about the outcome of a fourth study, the forthcoming Echelons Above Corps 86.[1] Late in 1979 General Starry established a group at Fort Leavenworth to undertake the final study. The purpose of these four efforts — together the Army 86 Studies — was to design and develop an objective force for the Army, to be in place by 1986. A secondary aim was to implement a process for force development and modernization that would furnish a continuing means of reviewing and developing organizations. The year 1986 had been selected for two reasons. In 1978, data about the threat posed by the armies of the Warsaw Pact were comprehensive and reliable only up to that date. Secondly, 1986 marked the end of a several-year period during which the great concentration of new Army weapons was programed to reach units in the field.

The development of all four parts of Army 86 was completed during 1980, excepting a second phase programed for Echelons Above Corps 86 and further contingency studies. Army 86 gained Army approval in decisions by General Meyer of August and September. Although the light division was subject to continuing review by the Chief of Staff of the Army and to change as determined by testing under the "high technology test bed" at Fort Lewis, Wash., by the end of 1980, the remaining Army 86 structure issues had been resolved and transition planning for the heavy division was well under way. The development stage of Army 86, begun over two years earlier, was completed with the exceptions just noted.

Status of Heavy Division Development: October 1979

The objective heavy division approved in principle by General Meyer on 18 October 1979 was presented on 29 October to the annual Army

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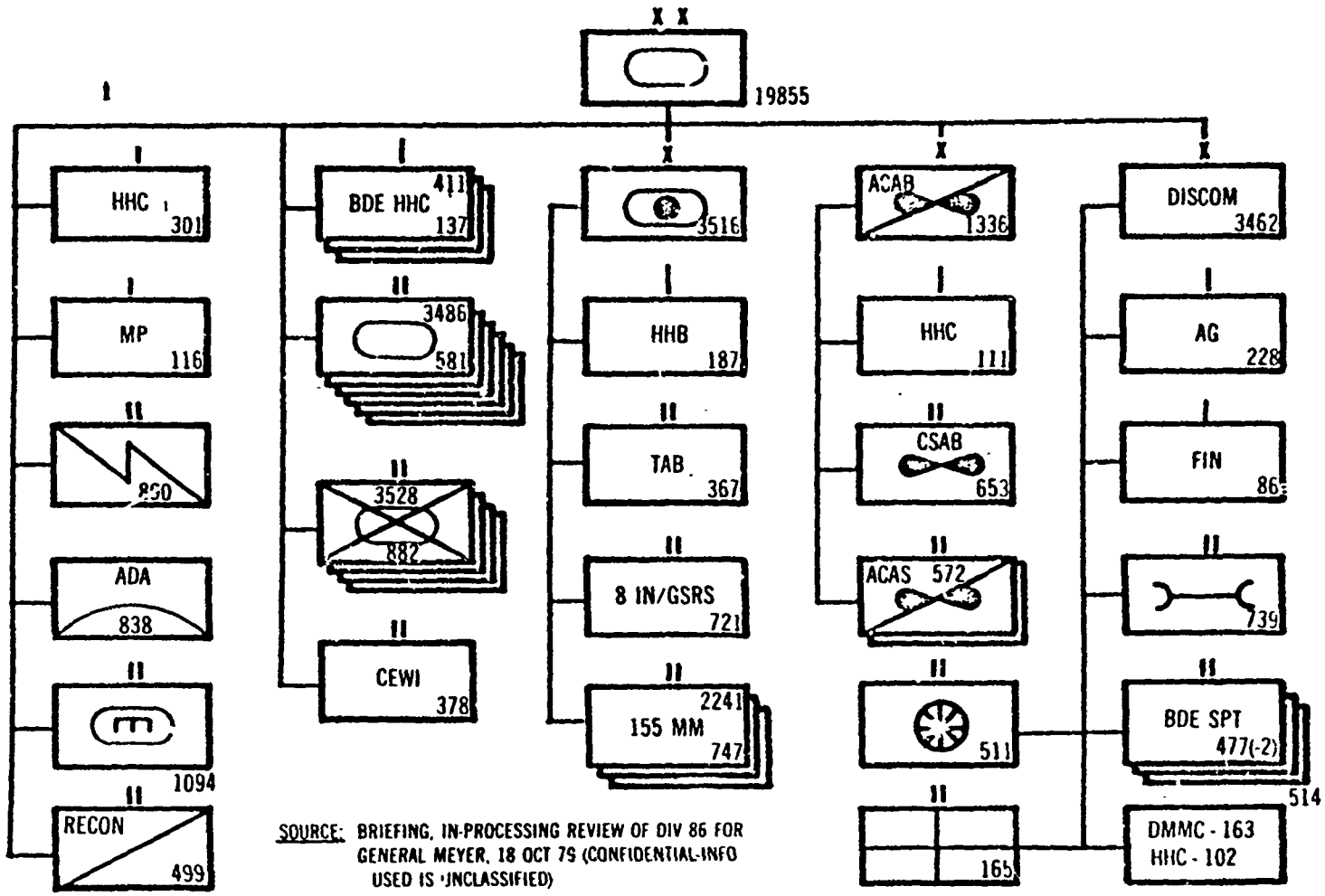
1 MFR, TRADOC Hist Ofc, 20 Nov 79, subj: DIVISION 86: In-Process Review for Chief of Staff, Army, General Meyer, and Army Commanders Conference.

CHART 1 — THE OBJECTIVE HEAVY DIVISION (OCTOBER 1979)



SOURCE: BRIEFING, IN-PROCESSING REVIEW OF DIV 86 FOR GENERAL MEYER, 18 OCT 79 (CONFIDENTIAL-INFO USED IS UNCLASSIFIED)

Commanders Conference, where it found general acceptance. Chart 1 indicates the principal features and innovations of the organization at that time.[2]

To recapitulate briefly, the heavy division approved in October 1979 was an organization of 19,855 personnel in its armor heavy version of six tank and four mechanized infantry battalions. With much greater firepower, mobility, and armored protection than the current ROAD-based divisions, it added to the three-brigade structure a fourth major component in an air cavalry attack brigade (ACAB) of two attack squadrons and a support squadron, consolidating all the division's aviation. Noteworthy in division artillery were 8-howitzer 155-mm. batteries and a battalion which employed both 8-inch howitzers and the multiple launched rocket system. There were four line companies in both the mechanized infantry and armored battalions, with TOW missile companies in the former and 4-tank platoons in the latter. Division 86 featured composite brigade support battalions, implementing the concept of "arm, fuel, fix, and feed forward." All these organizations were keyed to concepts of maximum firepower forward; improved command control; increased fire support, air defense, and ammunition resupply; and an improved combining of the arms. The structure imposed an increased leader-to-led ratio with smaller and less complex fighting companies and platoons. A new doctrinal focus was introduced in the tactic of disruption and attrition of the enemy's "follow-on" echelons.[3]

Acceptance of the heavy division in October 1979 by the Chief of Staff of the Army and the Army commanders was not unqualified. There was a significant hesitancy to accept as final the aviation organization presented. The ACAB would be changed significantly before final approval of the division on 1 August 1980. Tied up with the ACAB and with its implications for aviation units throughout the Army was the reconnaissance squadron, which lacked any air element in its October 1979 version. Nor had the important questions of maneuver battalion ratios been resolved. How many armor battalions and how many mechanized infantry battalions should the armor-heavy and mechanized versions of the heavy division have? General Meyer was not ready in October to decide the "mix."[4]

There were also minor "loose ends" to be tied up. Among these was the seemingly odd placement of an intelligence element, the all-source analysis center, in the divisional headquarters and headquarters company

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2 For its rationale and development, see John L. Romjue, A History of Army 86, Vol. I, Division 86: The Development of the Heavy Division (September 1978 - October 1979), Hq, U.S. Army TRADOC, August 1980, (hereinafter: Romjue, Division 86).

3 Ibid., pp. 113 - 27 (CONFIDENTIAL — Info used is UNCLASSIFIED).

4 Interview, John L. Romjue, TRADOC Historical Office, with LTC L. D. Bittrich, ODCSCD Planning/Air Land Dir, 24 Oct 79.

rather than in the combat electronic warfare-intelligence, or CEWI, battalion. Also, the heavy division retained a finance company, though finance seemed so apt a candidate for automation and centralization in the corps. The linked functions of reconnaissance, detection, and acquisition of enemy concentrations constituted another unresolved issue. The interrelationships of the CEWI battalion, reconnaissance squadron, and target acquisition battalion had not been resolved to the satisfaction of Division 86 planners and was under study. There were also the larger issues of "air-land" and electronic warfare.

Specific assignments came out of the 1979 Army Commanders Conference, which was held on 29 October, for all four of the Army 86 Studies. Lt. Gen. John R. McGiffert, Director of the Army Staff, sent these to General Starry on 10 December. As they applied to Division 86, these were as follows. TRADOC should complete the development of the objective heavy division. The command should review the ACAB role and the allocation of helicopters between division and corps and specifically reexamine the combat support aviation battalion. The ACAB had to be rationalized in the context of all the Army's aircraft and aircraft organizations. Particularly, the ACAB had to be in harmony with implementation policies in Europe deriving from the major ARCSA III study of 1976.[5]

The Department of the Army additionally told TRADOC to continue the rationalization of the functions, resources, and relationships of the CEWI battalion, reconnaissance squadron, and target acquisition battalion. In keeping with a new emphasis and frankness about the division's nuclear and chemical "options," division cells were to be designed for intelligence and warning. These cells were meant to focus on the second echelon of the enemy's attacking forces and permit the division not only to target but to select organic, support, or joint systems for the three types of battle — conventional, tactical nuclear, and chemical. Intelligence-warning cells were also to be developed for brigades and for armored cavalry regiments.

Besides these tasks, TRADOC was directed to analyze the cost, mobility, and maintenance of tracked versus wheeled vehicles for Division 86. Planners were to continue to review the new division support command, or DISCOM. In line with the Corps 86 effort, they were to clarify the proper battlefield functions of brigade, division, and corps. Whether Division 86 would require a change in the number of highly skilled personnel needed was another question the Department of the Army wanted answered. In its December directive, provision was made for the Department of the Army staff and other Army elements to give assistance in most of the final

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5 ARCSA: Aviation Requirements for the Combat Structure of the Army.

studies and analysis bearing on Division 86. TRADOC transmitted the loose-end assignments for Division 86 to the Army 86 task forces on 4 January 1981.[6]

Revision of the Battlefield Functions

The TRADOC planners had developed Division 86 within a conceptual framework of battlefield functions and tasks derived from the Battlefield Development Plan (BDP) document first published by the command in November 1978. The BDP was an attempt by TRADOC to bring together its work in weapon, training, doctrinal, and force structure developments by providing a detailed forecast of military technology, a close comparison of U.S. and Soviet military capabilities, and a comprehensive functional analysis and picture of the air-land battlefield.

The BDP analysts had viewed the battlefield in a framework of dual functions -- the central battle, and force generation. Briefly, the central battle was a tangible representation of combat by a division operating within a corps in Europe. Force generation, reflecting an appreciation of the echeloned nature of the enemy threat in Europe, was the concentrating of combat power and the second prime function of the corps in battle. Each of these complementary functions was seen in terms of five critical tasks keyed to a "deep" battlefield. The five tasks of the central battle outlined in 1978 were target servicing, air defense, suppression-counterfire, command-control-communications - electronic warfare, and logistical support. Those of force generation were interdiction, command-control-communications, force mobility, surveillance-fusion, and reconstitution.

The BDP view had provided the functional basis and the systematic means for the development of Division 86 by its functionally oriented task forces. The operational concept of Division 86 from which the task forces had worked advanced carefully defined concepts for each of the division's ten tasks, and the task force planners had fashioned their organizations accordingly.

The TRADOC commander had wanted to introduce a new way of viewing and shaping modern battle. He wanted to get division and corps commanders away from thinking in terms of branch organizations and capabilities only. He wanted them to think rather in terms of functions. Also, he wanted to name new ideas or concepts which, he thought, had become critically important in modern battle.

Experience with these terms and definitions during 1979 led to conceptual revisions in several of the tasks and functions. "Battle

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(1) Ltr DACS-DMC, LTG John R. McGiffert, Dir of the Army Staff to General Donn A. Starry, Cdr TRADOC, 10 Dec 79, subj: 1979 Army Commanders Conference. (FOR OFFICIAL USE ONLY -- Info used is not protected)
(2) Msg 041630Z Jan 80, Cdr TRADOC to distr, subj: Taskings Resulting from the 1979 Army Commanders Conference.

support" seemed more precise a term than logistics support, and planners had made this change in March 1979.[7] Several more changes followed as the planners tried to spotlight concerns neglected by the first conceptual grouping.

They found that a strict division of ten tasks between central battle and force generation was too mechanistic, and they dispensed with it. Not only did the realm of command-control-communications, or C3, cross the line. So did air defense. They now looked at all the critical tasks as separate battlefield functions. An important shift from the original layout was to pull together the engineer functions, that had been split between target servicing (countermobility and battlefield integration) and force mobility (mine and barrier clearing and bridging), and to tie the relationship of nuclear-biological-chemical reconnaissance, survey, and decontamination to these engineer functions in modifying the battlefield. Initially re-termed "battlefield alteration," this function was distinguished from the function of moving forces laterally and forward to have them in the proper place at the proper time. Battlefield alteration eventually emerged as "mobility-countermobility-survivability."

Another important change was the widening of the surveillance-fusion function and concept. This change was prompted by the Combined Arms Center's desire to resolve the CEWI/cavalry/target acquisition battalion relationship noted earlier. A larger function, intelligence, surveillance, and target acquisition (ISTA), emerged. The widened ISTA task force, first established under the Combined Arms Center, devolved upon the Intelligence Center and School at Fort Huachuca by a CAC announcement of 11 December 1979.[8]

Finally, what had formerly been the force mobility function -- the timely movement of a force to the right place on the battlefield -- became force movement. The remaining seven functions stayed substantially unchanged.[9] General Starry formalized the terms and their definitions, which he issued to the Army 86 task forces and study groups on 3 December 1979.[10] They were employed for the remainder of the project.[11]

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7 Romjue, Division 86, p. 59. (CONFIDENTIAL — Info used is UNCLASSIFIED)

8 Msg 111700Z Dec 79, Cdr CAC to distr, subj: Div 86 ISTA TF.

9 Memo ATCD-AN, COL Maddox to BG (P) Vuono, 21 Nov 79, subj: Battlefield Functions.

10 Msg 032024Z Dec 79, Cdr TRADOC to Cdr CAC, subj: Battlefield Functional Terminology.

11 See Appendix A, p. 115.

Final Heavy Division Changes

As work on the corps and light division went forward, the Army 86 task forces took up the final issues of the heavy division. Planners reviewed the structure for General Meyer on 3 - 4 April 1980, completed final changes at a general Army 86 review of 16 - 17 June, and presented it to the Chief of Staff of the Army for approval on 1 August.

The ACAB and the Reconnaissance Squadron

The main post-October change to the heavy division structure involved the air cavalry attack brigade and the reconnaissance squadron -- separate organizations under the division as presented in October 1979. The principle of consolidation of all division aircraft under the ACAB had excluded helicopters from the reconnaissance squadron, which had emerged as a pure ground force with limited reconnaissance, surveillance, and economy of force missions. The reconnaissance squadron and the cavalry mission had presented planners some of their hardest problems of definition during 1979. Excluding tanks from the structure, they had settled on a 499-man squadron mounted in 44 XM3 cavalry fighting vehicles and divided into three 93-man reconnaissance troops of 14 XM3s and two 107-mm. mortars each. The troops each had two six-vehicle scout platoons and a motorcycle platoon. Headquarters and headquarters troop encompassed a sensor platoon with a SOTAS[12] ground station and five short-range radars, and a nuclear-biological-chemical reconnaissance platoon.

Removal of tanks from the division reconnaissance squadron had been a key planning decision of Division 86. What was its rationale? The heavy division would as a rule operate as part of a heavy corps, and the corps possessed an organic armored cavalry regiment that, in its Corps 86 design, had considerably more combat power than had the current regiment. With this additional combat power in the corps regiment, the division cavalry squadron would no longer be called on so frequently for economy of force missions. Moreover, General Starry and his planners felt that the division reconnaissance squadron should be an integral part of the substantially increased intelligence and reconnaissance network in the new division and, in fact, with its capabilities would supplement and complement the electronic surveillance organizations and equipment very well. The tanks that had been part of the squadron, they thought, could probably be better used in the division's tank battalions, there to be more steadily employed in attack or defense, thus realizing a more efficient use of the division's tank strength. The reconnaissance squadron without tanks, yet with cavalry fighting vehicles and as part of the ACAB, would still retain or have immediately available to it a significant amount of firepower. Should the mission specifically demand tanks, that assistance could be furnished by reinforcement with one of the organic division tank battalions.[13]

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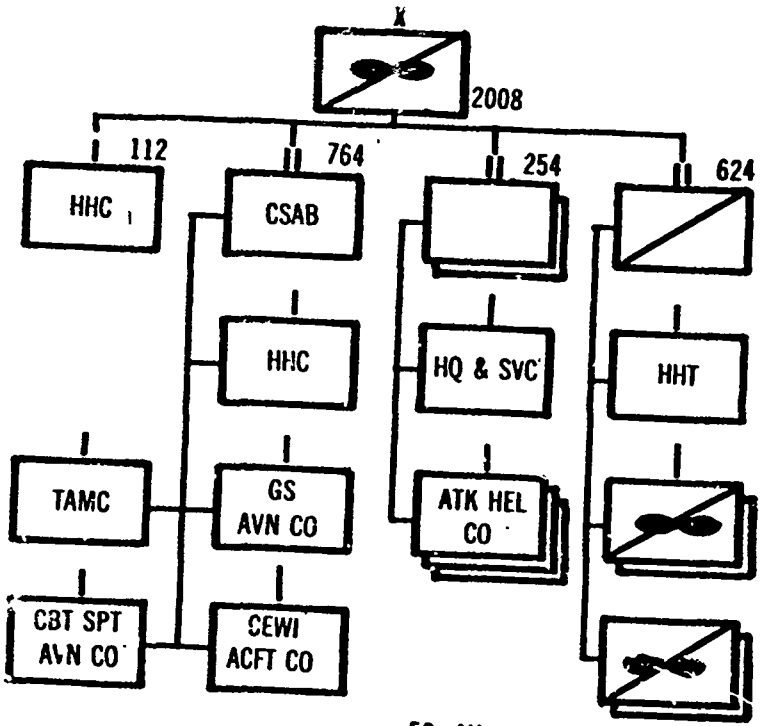
12 SOTAS: standoff target acquisition system.

13 DF Cmt 2, ATCC, COL Frederick M. Franks, Jr. to Hist Ofc, 27 Oct 81, subj: Army 86 Hist Monograph, Vol. II.

CHART 2 — TARGET SERVICING' AIR CAVALRY ATTACK BRIGADE



50	AH
48	SCT
6	OH
30	UH
12	EH
146	ACFT

CHARACTERISTICS

- DIVISION AVIATION CONSOLIDATED
- ORGANIC DS AVIATION MAINTENANCE
- CAVALRY SQUADRON CONTAINS GROUND AND AIR TROOPS
- RECONNAISSANCE AND ATTACK ELEMENTS SEPARATED

DIV 86/H-SERIES COMPARISON

- ELIMINATED TANKS FROM CAVALRY SQUADRON
- COMMAND STRUCTURE SIMILAR TO COMBAT ARMS ORGANIZATION

SOURCE: ARMY 86 BRIEFING PRESENTED TO GENERAL MEYER, CSA, 1 AUG 80.

Planners completed their study of the idea of merging the CEWI battalion, reconnaisance squadron, and target acquisition battalion. They did not consider implementation of this advanced concept feasible at this point, however, and recommended accordingly. The reconnaissance squadron problem then boiled down to the inescapable question of dedicated aerial reconnaissance. There were several meetings with FORSCOM about this subject. Ultimately, General Starry ruled that the air troops were indispensable. The ratio of air troops to ground troops then became the issue.

In February 1980, TRADOC directed the Armor Center at Fort Knox to examine the two-ground troop/two-air troop and other ratios. In late March, the Armor Center replied, recommending 3 ground troops and 2 aerial troops -- each aerial troop to field 6 scout and 4 attack helicopters. The Fort Knox planners made a strong argument for 3 ground troops. They were needed, they said, to perform the division's tasks of detailed ground reconnaissance and surveillance, to position and monitor remote sensing equipment, and to facilitate command control under nuclear-biological-chemical conditions as well as against electronic countermeasures. Ground scouts were far less susceptible than air scouts, they pointed out, to enemy fire and bad weather. The Infantry School supported this position, arguing from the operational conditions imposed by combat in Europe — the wide division frontages, heavy air defense threat, and the European weather and terrain. But the planners at the Combined Arms Center disagreed and directed the Armor Center to focus on the interaction of the two troop elements. At the Army 86 review of 16 - 17 June 1980, General Starry decided for two ground troops and two air troops in a 624-man cavalry squadron (Chart 2). The cavalry squadron, now an air and ground organization, was placed under the air cavalry attack brigade.[14]

With two air cavalry troops allocated to the cavalry squadron, planners restructured the ACAB attack element and also changed its nomenclature. In the place of two 286-man air cavalry attack squadrons, each with 4 air cavalry attack troops, they established two 254-man attack helicopter battalions, each with three attack helicopter companies. The troops had a 6-attack/4-scout helicopter complement, but the companies replacing them had 7 and 4, so that each battalion fielded 21 attack craft.

The third major change in the ACAB was in the combat support aviation battalion (CSAB). This organization contained the division's 12-aircraft company of special electronic mission SOTAS and QUICK FIX aircraft in support of the CEWI battalion, a transportation aircraft maintenance company, and a command aviation company. In response to studies of aerial lift, planners added utility helicopters and split the command

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(1) Msg 271810Z Mar 80, Cdr Arm Cen to Cdr CAC, subj: Recon Sqdn for Heavy Div 86. (2) Msg 091630Z Apr 80, Comdt Inf Sch to Cdr CAC, subj: Div 86 Recon Sqdn. (3) Msg 101345Z Apr 80, Cdr CAC to Cdr Arm Cen, subj: Recon Sqdn for Heavy Div 86. (4) Msg 241600Z Jun 80, Cdr CAC to distr, subj: 16 - 17 Jun Army 86 IPR - Results/Taskings. (5) MFR ATCS-H, TRADOC Historical Ofc, 24 Jul 81, subj: Historical Ofc Interview with COL Greenway on Army 86, 21 Jul 81 (hereinafter: Greenway Interview, 21 Jul 81).

aviation company between a combat support aircraft company of 15 utility helicopters devoted to troop and supply movement and a general support aviation company of 6 observation, 6 utility, and 10 scout aircraft.

The heavy division ACAB, with addition of the cavalry squadron and the other changes, numbered 2,008 personnel. With 146 aircraft, in the complements shown on Chart 2, it had 6 utility, 4 scout, and 2 attack helicopters more than the October 1979 version.[15]

The Battalion Ratio

The Army 86 planners examined the issue of the armor battalion - mechanized infantry battalion ratio comprehensively. Analysis included a wargame review, a force structuring tradeoff analysis, a battlefield analysis by U.S. Army, Europe, as well as direct attention by a study group.

Conclusions were presented to the Chief of Staff of the Army on 1 August 1980. A ratio of 5 tank battalions to 4 mechanized battalions was least costly, but a 6/4 ratio was judged to be required in the early, defensive battle in Europe. A ratio of either 5/5 or 4/6 was needed for the sustained defense. Another conclusion was that a standard ratio could be restrictive, since heavy divisions based in the United States might not deploy exclusively to Europe, and worldwide contingencies had to be considered. The ratio should remain flexible. TRADOC recommended a ratio of 6 tank battalions to 4 mechanized infantry battalions for the four armored divisions and a 5/5 ratio for the seven mechanized divisions.[16] On 1 August, General Meyer approved these recommendations subject to further review by the Department of the Army staff in concert with consideration by the major commands.[17]

Electronic Warfare and the CEWI Battalion

As noted before, the Division 86 planners were aware of the great combat potential of the expanding technology of electronic warfare. The combat electronic warfare-intelligence battalion, fashioned independently

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15 Army 86 Briefing to General Edward C. Meyer, CSA, 1 Aug 80.

16 The wargame review revealed the 6/4 mix more effective. The computer assisted wargame found the 6/4 and 5/5 mixes relatively equal. The USAREUR analysis found the 6/4 best for forward deployment against first assault, with infantry-heavy divisions reinforcing for sustainment. The FORSCOM review agreed with the USAREUR analysis and judged the 5/5 mix best for its own requirements. The study group found the 5/5 marginally desirable over the 6/4. (TRADOC Army 86 Briefing to General Meyer, 1 Aug 80)

17 (1) TRADOC In Process Review Bfg to General Meyer, CSA, 3 - 4 Apr 80. (SECRET -- Info used is UNCLASSIFIED) (2) Msg 131900Z Aug 80, Cdr TRADOC to distr, subj: Army 86 Briefings to CSA, 1 Aug 80, 11 Aug 80.

of Division 86 but a vital element of it, reflected the awareness. But an electronic warfare concept for the heavy division had not yet emerged in 1979. The outcome of the study of the CEWI battalion, reconnaissance squadron, and target acquisition battalion has been noted.

In its electronic warfare analysis of 1980, TRADOC attempted to find ways to harness emerging capabilities. In this sphere of the division's activities, there were offensive and defensive tasks. Electronic combat encompassed jamming enemy equipment and practicing electronic deception. Defensive electronic warfare included screening division communications, together with electronic counter countermeasures.

General Starry approved the electronic warfare concept for use in Division 86 design on 18 March 1980. Specific electronic warfare responsibilities -- in terms of enemy attacking echelons and specific enemy equipment and weaponry -- fell to brigade, division, and corps. Thus, the brigade had to attend to the first and follow-on battalions, the enemy's divisional short range air defense elements, reconnaissance and mortar elements, and attacking close air support aircraft and helicopters. The division dealt with the first and second echelon enemy regiments, the longer-range air defense, reconnaissance elements, and close air support aircraft and helicopters, and had the responsibility of targeting enemy jammers. Corps electronic warfare responsibilities encompassed the first and second echelon divisions of the attacking army, the enemy's tactical nuclear "SS" missiles, his intelligence and reconnaissance, and his long range air defense and aviation.

Guided by the division commander, the G3/G2 staff at the main command post of the heavy division coordinated the division's electronic offense and defense, aided by planning support from electronic warfare support elements and support teams. The main command post staff integrated division artillery firepower and CEWI battalion jamming against enemy targets pinpointed by the former's tactical operations center and by the latter's all-source analysis center. In line with the clearer perception of electronic warfare that the Army 86 planners had worked out by early 1980, General Starry moved the all-source analysis center out of the divisional headquarters and headquarters company and put it directly into the CEWI battalion, though the division commander retained operational control. Planners believed that, in the CEWI battalion, the basic organization was in place that could fight the division's electronic battle with the improved equipment that would be in use by 1986.[18]

The Air-Land Battle

Dwarfing all other Division 86 problems not resolved in 1979 was the issue of air-land battle as a joint concern of Army and Air Force. As with electronic warfare, the air-land battle transcended division operations and was a major concern of corps and theater.

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18 Briefing prep. for presentation to CSA, General Edward C. Meyer, 3 - 4 Apr 80. (SECRET -- Info used is UNCLASSIFIED)

The workshops of 1979 had seen discussion in detail of the issues of air-land. That the issues could not be resolved except at the highest service levels was well recognized, and in July 1979, General Meyer had indicated his willingness to take these issues to his U.S. Air Force counterpart, General Lew Allen, Jr.[19] On 11 October 1979, the two service chiefs, together with the Vice Chief of Staff of the Army, General John W. Vessey, Jr., the U.S. Air Force Tactical Air Command commander, General Wilbur L. Creech, and General Starry met at Fort Monroe to discuss air sortie requirements and other air-land matters.

The meeting of 11 October signified a recognition of the central air-land issue, but it was only a beginning. Ultimate solutions seemed distant, and the air-land battle promised to be a continuing planning concern. During 1979-80 some issues were resolved, others were deferred pending completion of related studies, and still others defied resolution by the Army 86 task forces and by the Echelons Above Corps 86 study group.

With regard to divisional and corps aspects of the air-land battle, treatment of the menace posed by enemy helicopters was under analysis in the Joint Countering of Attack Helicopters Study. TRADOC and the Tactical Air Command had cooperated several years in the development of a concept for airspace control, and the joint Air Force - Army group at Langley Air Force Base, Va., the Air-Land Forces Applications Agency, was preparing to publish an operational concept for the joint suppression of enemy air defense in 1981. But neither of these concepts seemed readily translatable into forms usable by the heavy division. Interdiction was under study by the Langley agency in its Joint Second Echelon Interdiction Study. In December 1980, this concept was revised and refocused on joint attack of the second echelon. With regard to air-ground operations, General Starry believed that current NATO procedures were adequate, but the Air Staff had reservations about allocation and assignment to Army corps of aircraft for interdiction, and this still needed resolving. The Logistics Center had under study the subjects of tactical airlift deployment, transportation requirements within the theater, and aero medical evacuation.[20]

Corps Support to the Heavy Division

Corps support concepts as well as corps units dedicated to direct support of the heavy division were a significant part of Division 86 planning. Analysis of corps support to the division artillery counterfire and

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(1) Briefing presented to CSA, General Meyer, 27 Jul 79, Ft Leavenworth, Kan. (CONFIDENTIAL -- Info used is UNCLASSIFIED) (2) MFR, TRADOC Hist Ofc, 30 Aug 79, subj: Briefing the Chief of Staff on Division 86, 27 July 1979.

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(1) Msg 281600Z Feb 80, Cdr CAC to Cdr TRADOC, subj: Air-Land Battle - Div 86/Corps 86/EAC 86. (2) Semiannual Hist Rept, ODCSDOC, Oct 80 - Mar 81. (CONFIDENTIAL -- Info used is UNCLASSIFIED) See below, Ch. III, p. 72.

interdiction missions had been extensive and thorough during 1979.[21] The division "slice" of corps support that came out of these analyses was a corps field artillery brigade to reinforce division artillery and supplement its counterfire. The corps field artillery brigade provided 2 battalions of 8-inch howitzers, 1 battalion of 155-mm. howitzers, and a multiple launched rocket system battalion. A corps target acquisition battalion backed up that of its division counterpart.

Corps support was essential to the division's signal needs. The corps signal brigade would integrate the division headquarters into its command communications system. The corps also provided access to the area communications system.

The military police concept of Division 86 had established a small MP company providing only limited functions -- circulation control, security for the CEWI battalion and the division command post, and a prisoner of war collection point in the division rear. To take care of convoy security, passage of lines, certain rear area combat operations, motor patrolling, evacuation of POWs, and river crossings, the Division 86 concept assigned the brigade scout platoons. What MP functions would the corps provide? Support by the corps MP brigade was to be dependent on mission and situation. The corps could give only limited support for rear area combat operations. It was responsible for control of maneuver of large units within the corps and for control of stragglers. The corps also would coordinate law enforcement duties with local authorities.

Corps support in the realm of intelligence - surveillance - target acquisition consisted of a tie-in with the theater intelligence system and provision of near real-time intelligence about the division's "area of interest" -- that is, the area 70 - 150 kilometers out to the front. This function would be provided through the corps CEWI group.

In the engineers' realm of mobility, countermobility, and survivability, the corps would provide direct combat support. It also provided for division use of a 215-meter ribbon bridge and four 30.5-meter or two 49.7-meter girder bridges, and limited general engineer support for airfields and supply routes. Corps support to the division support command, also dependent on specific mission and situation, included evacuation of equipment, backup direct support maintenance, aeromedical evacuation and treatment, and postal support. Corps finance support was almost total after the Division 86 planners decided that the application of advances in the automation of pay procedures and records permitted transfer of the 86-man finance company to the corps.[22]

Final Changes and Approval

General Starry approved the Division 86 organizations in their final form at the Army 86 review of 16 - 17 June 1980 at Fort Leavenworth

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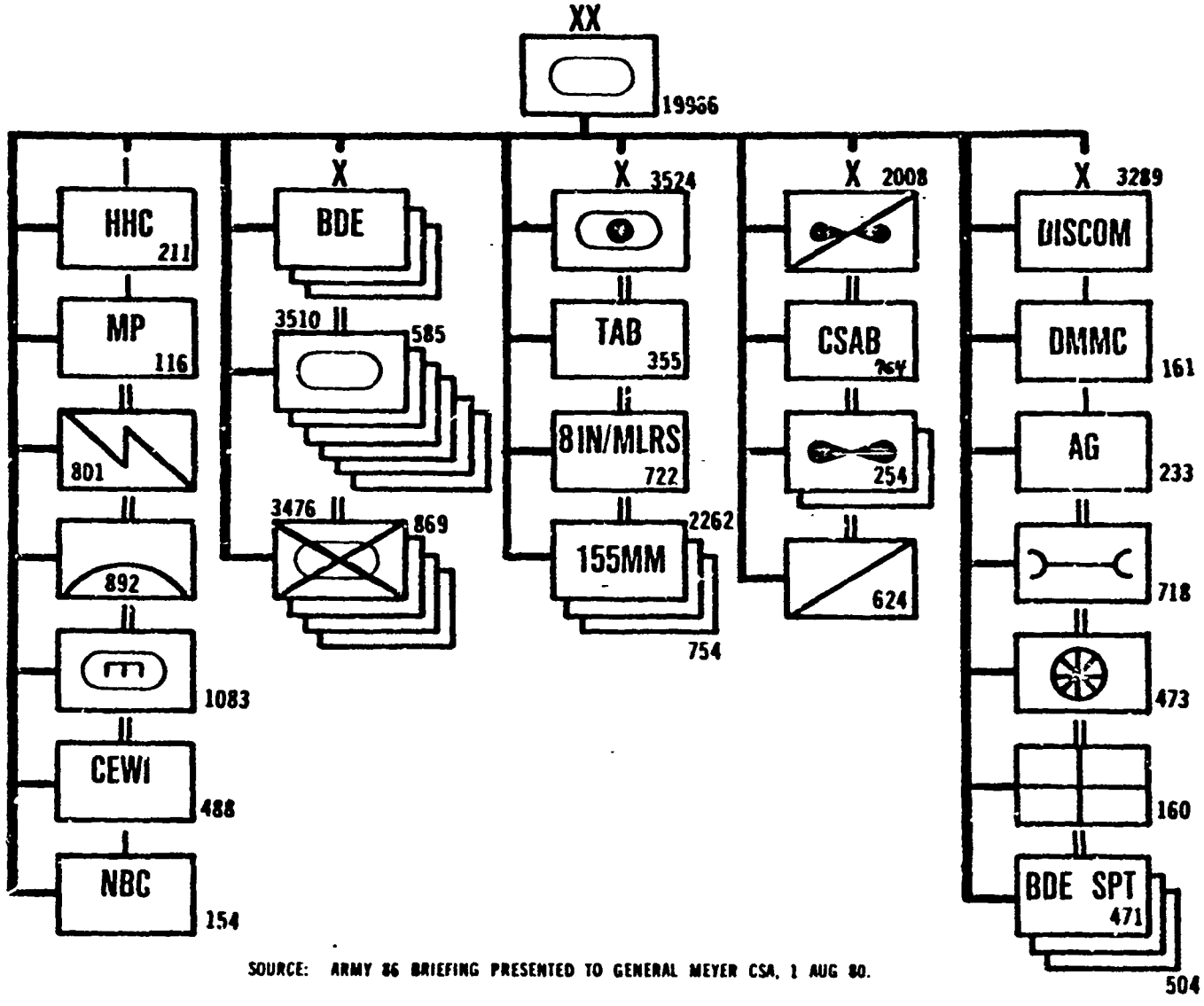
21 See Romjue, Division 86, pp. 80 - 82. (CONFIDENTIAL -- Info used is UNCLASSIFIED)

22 Army 86 Briefing presented to General Meyer, CSA, 1 Aug 80.

CHART 3 - DIVISION 86 - THE HEAVY DIVISION (AUGUST 1980)



SOURCE: ARMY 86 BRIEFING PRESENTED TO GENERAL MEYER CSA, 1 AUG 80.

(Chart 3). Besides the major changes just discussed, there had been many minor changes since approval of the heavy division in principle the previous October.

The TRADOC commander's decisions of June resulted in only slight personnel or equipment changes to the mechanized infantry battalion (869), division artillery (3,524), signal battalion (801), engineer battalion (1,083), brigade headquarters and headquarters company (138), and to most division support command elements. There was no change in the 116-man MP company.

Other changes were more noteworthy. In the tank battalion (585 personnel), the maintenance platoons of the tank companies were moved to the battalion headquarters and headquarters company. The changed ACAB and its organic cavalry squadron were approved at 2,008 personnel, as previously noted. In the air defense artillery battalion, General Starry, after a study of STINGER missile survivability, decided to restore this short-range air defense missile with its two-man teams to the three forward-area DIVAD gun companies. This raised the number of division STINGER teams from 44 to 73. The 24-man air defense electronic warfare squadron was eliminated. Final strength of the air defense artillery battalion was 892. Work to improve command control of the STINGER teams was to continue.

In the divisional headquarters and headquarters company, the all-source analysis center (ASAC) and its manning complement, were, as noted before, transferred to the CEWI battalion. Three spaces were added to the divisional headquarters and headquarters company, now 211 strong, as a finance section to coordinate this function with the finance unit at corps. As a part of a standardization effort between the heavy and light divisions during 1980, a cellular command post concept was added in the divisional headquarters and headquarters company.

Besides the ASAC, Starry directed addition of 12 electronic warfare support element spaces to the CEWI battalion. There were 4 three-man teams -- 1 team assigned to the divisional tactical operations center fire support element and 1 team to each brigade headquarters. All these changes together increased CEWI battalion strength to 488.

Final decisions affecting the division support command (DISCOM) were as follows. The TRADOC commander elected to withdraw the nuclear-biological-chemical (NBC) company from the DISCOM and establish it separately under the division. At strength of 154, the company fielded five 21-man decontamination platoons manning a total of 15 decontamination systems, a nineteen-man survey-smoke platoon with 12 smoke generators, and a 30-man headquarters platoon. NBC reconnaissance was to be provided by the ACAB's cavalry squadron.

There were several other changes to the DISCOM, approved finally at 3,289 personnel. Water supply and distribution responsibilities were transferred from the engineer battalion to the supply and transport battalion. To increase heavy transport, General Starry added an organic heavy equipment transporter company to the supply and transport battalion, giving the heavy division 24 heavy equipment transporters as opposed to the ROAD division's six. The division's radios were reduced from 4,905 to 4,439.

Starry also stood by retention of the medical companies of the three brigade support battalions, holding firm on the concept of that composite organization. Consideration of deleting 2½-ton trucks and relying more on five-ton trucks was deferred until completion of a tactical fleet study. "R3" considerations (robustness, redundancy, resiliency) had figured prominently in force structuring in 1979. R3 spaces were set at a final figure of 220 -- mostly for additional ammunition trucks (25 spaces), fuel trucks (95), and additional recovery vehicles (33).[23]

On 17 June 1980, the TRADOC commander approved the heavy division at 19,966 strong in the 6 armor battalion/4 mechanized infantry battalion version. The 5/5 version numbered 20,250. Detailed charts with personnel strengths, lists of major weapons and equipment, and current division organization comparisons, are at Appendix B.[24]

The June review spawned two further efforts -- a further examination of the effectiveness of company mortars, possibly in comparison to artillery, and an examination of possible increase in mine-breaching capabilities.[25]

TRADOC presented its formal Army 86 briefings to General Meyer on 1 August 1980 for decision. The Chief of Staff of the Army approved the objective heavy division as just outlined as the basic force design for implementation in accordance with the transition plan to be developed by the Department of the Army. Only two minor changes were directed. One was addition of a division postal unit. The other was the general substitution of the improved 81-mm. mortar, now considered sufficiently advanced in development, for the 107-mm. mortar. General Starry passed these directives to the task forces on 13 August, adding an additional instruction that a mine-clearing capability be developed. As previously noted, the Department of the Army staff would continue to study the battalion ratio. Late in August, the Combined Arms Center announced approval of a 31-man postal unit, to be placed in the AG company of the division support command.[26]

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23 Augmentation, not organic strength, would provide for the wartime functions of clothing exchange and bath, graves registration, personnel replacements, and decontamination of patients.

24 Msg 241600Z Jun 80, Cdr CAC to distr, subj: 16 - 17 Jun Army 86 IPR - Results/Taskings.

25 (1) Msg 091510Z Jul 80, Comdt Inf Sch to Cdr CAC, subj: 16 - 17 Jun 80 Army 86 IPR - Results/Taskings. (2) Msg 172200Z Jul 80, Comdt Engr Sch to Cdr CAC, subj: Div 86 Countermine Review.

26 (1) Msg 131900Z Aug 80, Cdr TRADOC to distr, subj: Army 86 Briefings to CSA, 1 Aug 80, 11 Aug 80. (2) Msg 271800Z Aug 80, Cdr CAC to distr, subj: CSA Army 86 Tasks.

There were scattered objections to the heavy division organization from the Department of the Army staff late in the planning. There was resistance in the Office of the Deputy Chief of Staff for Personnel to the small size and function of the MP company. The Office of the Surgeon General opposed placement of the medical companies into the brigade support battalions. There were suggestions for reconsideration of the NBC company. The Division 86 planners had dealt with these issues the previous year, and they did not re-emerge to change the final structure.[27]

Nor did change result from a request in late August by the Adjutant General, Maj. Gen. J. C. Pennington, for consideration of a large personnel and administration battalion in the heavy division to supply stronger administrative, morale, and replacement support. The TRADOC Chief of Staff, Maj. Gen. John B. Blount, replied to General Pennington in late September that planners were in the midst of developing operational concepts for the Division 86 administrative functions. These support systems remained to be tested. TRADOC had not yet been able to rationalize a personnel and administration battalion, but was keeping an open mind.[28]

Transition to Division 86: Initial Planning by TRADOC

The Division 86 planners appreciated the gigantic task the completion of their activities would set in motion. They had outlined its dimensions at the meetings of 1979. Production and fielding of over forty major new weapon and equipment systems, deployment, stationing, military construction, readiness activities, Reserve Component impact, logistical support, personnel programs, training and doctrinal revisions -- all were involved. At least 21,000 additional personnel would be required to man the eleven heavy divisions alone, and the procurement "gap" that existed between equipment funded and equipment required was considerable.

Of course, there was to be more involved than the heavy division alone. Year-by-year transition plans tied to the major Army budget and programing processes would ultimately be needed for all of Army 86. But Division 86 was the leading edge and the major part of the transition effort. Transition would proceed through a Department of the Army plan requiring contributions from all the major Army commands. The role of TRADOC would be significant. Having developed the heavy division designs, TRADOC planners had now to transpose them into documented form. They also had to provide the finished operational concepts, the materiel requirements, the extensive changes in doctrinal and training literature, and the new training programs that Division 86 would require. Transition planning began in earnest with General Meyer's approval in principle of the heavy division in October 1979. It proceeded throughout 1980, and the Department of the Army published the first full Division 86 transition plan on 26 January 1981.

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27 Msg 192020Z May 80, HQ DA to Cdr TRADOC, subj: DA Staff Comments on Div 86.

28 (1) Ltr DAAG, MG J. C. Pennington, TAG, to MG J. B. Blount, CofS, TRADOC, 27 Aug 80. (2) Ltr ATCS, Blount to Pennington, 29 Sep 80.

Early on, the Department of the Army determined that transition planning would harness the force development process used to produce the Army Program Objective Memorandum (POM) and known as the Total Army Analysis, or TAA. The next one -- to develop Army force structure for the POM years 1983-87 -- was TAA 87. In January and February 1980, TRADOC provided its centers and schools a broad overview of the process along with detailed force development data such as unit allocation rules and logistics planning factors. The planning was to be continuous on a cycle beginning in April of each year. It would start with the organizations of the heavy division. Some organizations at least had to be selected during early 1980, if the TAA 87 cycle was to be met.

Planners considered several factors in the selection. They looked at results of recent Army and Defense review of equipment programs and at fielding plans. They examined the ability of the training base to support each organizational conversion. They had to consider the current status of transition doctrine and the ability of a selected organization to execute tactics in support of the doctrine with current equipment.

On 14 March 1980, the Department of the Army told TRADOC to name the heavy division organizations that it would most likely recommend and that were ready -- that is, having automated unit reference sheets -- for early transition. These sheets were well worked out organization and equipment description lists from which standard new tables of organization and equipment would later be developed. TRADOC directed the task forces on 21 March to supply requisite data to meet the TAA-87 cycle, and directed the Combined Arms Center to provide firm automated unit reference sheets (AURS). The Logistics Center was directed to supply the logistical data. With all these data on hand, the Department of the Army together with the major commands, could select the organizations to launch the transition to Division 86.[29]

TRADOC sent out a letter of instruction on 28 April 1980 providing for the management of transition planning within TRADOC. The letter described the transition planning cycle and delineated responsibilities. It assigned the Deputy Chief of Staff for Combat Developments overall headquarters staff responsibilities. It also established the objectives, composition, and responsibilities of two overseeing bodies within TRADOC -- a Force Modernization General Officer Steering Committee to monitor and guide transition planning, and a Force Modernization Transition Review Board. The board was charged to review all proposed transition organizations to ensure integration of the essential materiel, logistics, personnel, training, and doctrine.

The TRADOC transition bodies worked closely with the management structure set up within Headquarters, Department of the Army to guide and direct the transition. The Department of the Army structure consisted of a Transition Planning and Implementation Group within ODCSOPS with overall responsibilities, an Army Transition Steering Committee made up of general

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(1) Msg 142022Z Mar 80, DA (DAMO-RQS) to Cdr TRADOC, subj; Army Input for TAA-87. (2) Msg 212130Z Mar 80, Cdr TRADOC to distr, subj: Division Input to TAA-87.

officers to administer guidance and direction, and an Army Force Modernization Coordination Office under the authority of the Chief of Staff of the Army.

(U) In April, the Department of the Army issued instructions for "Army 90 Transition Planning" -- Army 90 being the goal, Army 86 the way there. Planning would employ current agencies and procedures including, as initially conceived, the 1983-87 POM with TAA-87 as the implementing vehicle supported by the Army Modernization Information Memorandum. TRADOC was to contribute the force designs, assist in affordability analyses, provide AURS and, later, tables of organization and equipment (TOE), and furnish planning data for the TAA process.

On 28 April, TRADOC recommended for transition via TAA-87 most of the heavy division organizations. But after review, the Department of the Army announced a more extensive plan on 9 June. The plan would encompass not only heavy division but light division designs and as much of Corps 86 and Echelons Above Corps as could be made available in time. The Department of the Army view, however, also called for inclusion of some current "H-series" TOE in the comprehensive transition to Army 86.[30]

The significant problems of mixed new and old organizations and a mismatch of new weaponry with old organizations were apparent here. On 19 June, Infantry School planners pointed out the difficulties to be expected if the Army failed to integrate the fielding of the infantry and cavalry fighting vehicles with the transition to Division 86. Actually, the Combined Arms Center had anticipated the problem of significant amounts of new equipment being ready for issue before the Army was ready to accommodate them doctrinally or organizationally. Unit transition plans in a preliminary form had been submitted by the TRADOC Army schools through the Combined Arms Center (CAC) to the Department of the Army in late 1979. Writing to the TRADOC commander on 14 July 1980, the CAC commander, Lt. Gen. William R. Richardson, was insistent that organizational changes had to precede introduction of the new weaponry and equipment. The new materiel would be "under-utilized" in H-series organizations.[31]

Conversion of the mechanized infantry battalion was a test case for the larger conversion problem. On 14 July, CAC endorsed the Infantry School position -- to field the infantry fighting vehicle with the new Division 86 mechanized infantry battalion organization, including its 9-man squad, fourth rifle company, and antiarmor company. CAC also recommended concurrent transition to the Division 86 tank battalion. The

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(1) Semiannual Hist Repts, ODCSCD PAL Dir and Force Dev Dir, Oct 79 - Mar 80; PAL Dir, Apr - Sep 80; (SECRET -- Info used is UNCLASSIFIED) and Force Dev Dir, Apr - Sep 80. (2) Briefing, COL M. C. McAdams, Chief, ODCSCD Force Dev Dir, TRADOC to TRADOC Liaison Officers Confer, Ft. Monroe, Va., 2 Jun 80. (3) Ltr ATCD-FDD, MG John B. Blount, CofS to distr, 28 Apr 80, subj: Ltr of Instruction: Force Modernization Transition Planning.

31

Msg 141414Z Jul 80, Cdr CAC to Cdr TRADOC, subj: Transition to Division 86 Organizations.

organizational conversion had to occur first. Otherwise, two sets of doctrine and fielding plans -- one for the H-series, one for Division 86 -- would have to be written. The mechanized infantry and tank battalions had to convert concurrently to ensure 4-company alignment for tactical cross reinforcement and to ensure retention of the ability to fight the combined arms battle. Further, CAC argued, the conversions had to be Armywide in order to preclude the coexistence of two doctrines side by side. General Richardson recommended conversion of H-series organizations to the organizations of Division 86 as soon as possible.[32]

General Starry reiterated these viewpoints to the Department of the Army on 24 July. He additionally pointed out that the conversions would increase unit effectiveness even before arrival of the new equipment. If the alternate plan of modifying the H-series organizations according to the availability of the new equipment only were allowed to proceed, TRADOC would face the necessity of having to write and train to support two doctrinal concepts simultaneously.[33]

Meanwhile in June, General Starry had informed the Department of the Army about documentary preparations for the new and wider conversion plans. The AURS for the heavy and light divisions could be ready by August 1980, the Corps 86 and EAC 86 AURS somewhat later. In late June, the Department of the Army held its initial conference to begin considering the recommended AURS.[34]

By 1 August 1980, when Division 86 was presented to General Meyer for final approval, the heavy division concepts, organizational designs, and automated unit reference sheets were complete. Only minor revisions to transition plan data remained to be made. The Department of the Army and TRADOC positions on conversion were resolved in TRADOC's recommendation, and in General Meyer's approval, of an incremental conversion to the Division 86 heavy division. TRADOC recommended rapid transition to the new tank and mechanized infantry battalions, strictly avoided a piecemeal approach. At the same time, it was recognized that some organizations -- namely, the CEWI battalion, target acquisition battalion, and multiple launched rocket system battery -- remained hostage to the timely development of their equipment. The individual conversions would be programed into the FOM document not through the TAA-87 but through the TAA-88 process.[35]

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32 Ibid.

33 Msg 242005Z Jul 80, Cdr TRADOC to DA, subj: Transition of Div 86 Organizations.

34 Msg 232030Z Jun 80, Cdr TRADOC to DA, subj: Army 86 Excursion.

35 (1) Semiannual Hist Repts, ODCSCD PALD, Apr - Sep 80, (SECRET -- Info used is UNCLASSIFIED) and Force Dev Dir, Apr - Sep 80. (2) TRADOC Army 86 Bfg to General Meyer, CSA, 1 Aug 80. (3) Msg 190233Z Sep 80, DA to distr, subj: 1980 Army Commanders Conference.

The designs of Army 86 approved by the Chief of Staff of the Army in August and September 1980 and the incremental approach to transition planning were presented to the Army at large at the Army Commanders Conference on 27 October 1980. Out of this conference came a directive by General Meyer to move on with the transition as quickly as possible in order to get the Army standardized. The final months of 1980 saw completion of the initial transition plan. General Starry directed that transition should take place no later than FY 1984 or FY 1985. Planners wanted to start placing Division 86 organizations into the force structure starting in FY 1983. A draft transition plan was briefed to the Force Modernization Transition General Officer Steering Committee on 9 January 1981. The plan was published on 26 January, and TRADOC distributed it on 2 February 1981.[36]

What was the outline for transition? Addressing in detail all eleven of the armor and mechanized infantry divisions, the plan adhered to the general principle of establishing the new Division 86 organizations on or before the arrival of their new materiel systems. The approved automated unit reference sheets would serve as draft TOEs. To begin as early as March 1982, conversion would be two-staged -- an interim conversion based on current equipment, followed by conversion to final unit designs. A tank battalion of one armored division would convert to an interim configuration in March 1983 and to final heavy division configuration in March 1985. Some tank battalions, however, would forego the interim stage and convert directly to Division 86 on the earlier date. For each type unit -- tank battalions, NBC companies, signal battalions -- single dates were selected for the interim conversion in order to achieve as much uniformity as possible. Nearly all the tank battalions of the eleven divisions, for example, would convert either to interim or final form in March 1983. Nearly all the mechanized infantry battalions would convert on another date the same year.

For the interim organizations, the basic Division 86 organizational form was to be followed. But if there was no existing equipment to fulfill a function planned for a Division 86 subelement, that subelement -- the remotely piloted vehicle platoon, for example -- would not be established. In general, interim unit strengths were not to exceed those of Division 86 unit strengths. Combat vehicles would be provided in the numbers established by the Division 86 organizations. No procurement of items being replaced by modern materiel systems would be attempted for the interim organizations. These units would start out with reduced numbers of current systems, which would be added to as the modern systems were fielded to other units. Existing levels of support equipment such as radios and trucks would not be raised. An organization receiving functions, personnel, and equipment would undergo conversion two months before the organization giving up the functions, personnel, and equipment.

36

Incl, "HQDA Army 90 Transition Plan, 26 Jan 81," to ltr ATCD-D, MG John B. Blount, CofS TRADOC to distr, 2 Feb 81, subj: Division 86 Transition Plan. (CONFIDENTIAL -- Info used is UNCLASSIFIED)

The Department of the Army transition plan issued instructions governing the interim organizations in detail. Only a few major points can be noted here. In the tank battalion, personnel and equipment dedicated to short-range air defense and the armored vehicle launched bridges would be transferred to the air defense artillery and engineer battalions, respectively. Sufficient M60 tanks would be available by 1982 to field 58 to the battalion in accordance with the Division 86 design. Final conversion, of course, would not occur until the XM1 tank and cavalry fighting vehicle were received.

Similarly in the mechanized infantry battalion, there would be transfers to the air defense artillery battalion. The mechanized and tank battalions would convert to Division 86 as closely together in time as possible. M113 armored personnel carriers were to substitute for infantry fighting vehicles until received. As the infantry and cavalry fighting vehicles replaced the improved TOW vehicles and TOW carriers (in other than the antitank company), the former would go to the scout sections of other battalions and headquarters. Types of mortars -- 107-mm. and 81-mm. -- would not be mixed within a battalion or brigade. Final conversion of the battalion would come when all IFVs and CFVs were received.

The air defense artillery would increase substantially in size with receipt of all divisional man-portable air defense systems and their personnel. The interim organization would keep the current complement of VULCAN air defense guns but would not increase to the Division 86 level established for the new DIVAD guns. Conversion of aviation organizations to the Division 86 air cavalry attack brigade would await testing of the ACAB concept in the 9th Infantry Division. The special electronic mission aircraft companies would be formed only where both the QUICK FIX and SOTAS systems were received. In the cavalry squadron, XM1 tanks would not replace the assigned M60s since the Division 86 cavalry squadron would have no tanks. However, the M60s would be kept until sufficient CFVs were on hand to convert fully.

The CEWI battalion would convert to interim form when a suitable combination of old and new systems were on hand to fulfill Division 86 functional requirements. Final conversion depended on receipt of the SOTAS and other advanced systems. In the division support command, the brigade support battalions would be formed from the current forward area support coordinators, forward area supply sections, forward support maintenance companies, medical companies, and other units. The medical, maintenance, and supply and transport battalions would be reorganized.

In division artillery, enough 155-mm. self-propelled howitzers were available to convert all 155-mm. field artillery battalions, and all that were scheduled to convert before FY 1984 would convert to the Division 86 three-batteries-of-eight configuration on schedule. They would be converted close in time to the conversion of the maneuver battalions. The 8-inch/multiple launched rocket system battalion would initially convert to two six-howitzer batteries (and a nine-launcher rocket battery) until procurement programs for more 8-inch howitzers were initiated. The target acquisition battalion would be formed during FY 1982-83 from the target acquisition battery, elements of the headquarters and headquarters battery,

and new spaces as the new target acquisition systems arrived. The battalion would assume its final form upon delivery of the remotely piloted vehicles and the creation of RPV platoons.

The interim and final conversions outlined above give a general picture of the incremental process planned. In most cases, the major new materiel systems would arrive after the organizational conversion to Division 86. TRADOC expected action by the transition review board and steering committee by April 1981, with implementation of Division 86 beginning, through the TAA-88 process, two months later.

Many additional tasks of transition lay ahead of the staffs of TRADOC headquarters and the integrating centers and schools. Division 86 imposed new training requirements, new doctrinal and training literature, and resource requirements to support these activities, and the base operations necessary for construction and other support at the TRADOC installations. The Office of the Deputy Chief of Staff for Combat Developments at the headquarters furnished the TRADOC focus of the transition effort. The Combined Arms Center had the major responsibilities for identifying the training implications, managing the development of doctrine, updating the AURS, and other major tasks.[37]

Thus was completed the design of the heavy division, the U.S. Army's major fighting unit for the 1980s and beyond. Only marginally larger than the ROAD-based divisions of the late 1970s, it promised a significantly stronger fighting force, equipped with the new generation of military technology that it had been conceived to harness. There were distinct reforms in its leading ideas of maximum firepower forward; forward arming, fueling, and maintenance; composite brigade support battalions; increased leader-to-led ratios; and an improved combining of the arms. It harnessed effectively the combat potential of the powerful 1980s weapons. There were now 4-tank platoons of advanced XM1 tanks, TOW missile companies, a very powerful air cavalry attack brigade, 8-howitzer batteries of direct support artillery, rocket artillery units, and fully mechanized infantry.

At 20,000 men, the heavy division was the biggest Army division since the 28,000-man square division of World War I. Yet the new level of 20,000 men represented no sudden jump in numbers. By the 1980s, planners were documenting the full wartime complement of the ROAD armored division, with all its new equipment, at about 20,250.[38] Although the new 20,000-man level might draw critical comment, the new heavy division made its case for increased personnel strength. It had to meet not Soviet divisions, but Soviet multi-division echelons, whose equipment was at least as good as its own. The foundation stone of Army 86, the heavy division was its strongest element.

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37 Ibid. (CONFIDENTIAL -- Info used is UNCLASSIFIED)

38 Incl, "Armor Division Personnel Requirements, 1975-1981," to DF Cmt 2, ATCD-O, DCSCD to TRADOC Hist Ofc, 6 Oct 81, subj: Army 86 Hist Monograph, vol. II.

General Starry believed that his planners had produced a sound fighting organization that could meet the challenge in Europe.[39]

39 MFR, TRADOC Historical Office, 18 Mar 80, Historical Office Interview with General Starry, 6 Feb 80.

Chapter II

INFANTRY DIVISION 86 - THE LIGHT DIVISION

The concentration on modernizing the heavy divisions to meet the threat to NATO answered the Army's most pressing modernization need in the mid and late 1970s. The other side of the coin of modernization was the neglect suffered by the light divisions. The neglect was not inspired by a forgetful or arbitrary Army view about the value of light, non-mechanized infantry. Rather, it was a reflection of national and Department of Defense policies that paid scant attention, throughout most of the decade, to the prospect of U.S. military action elsewhere in the world than on the armor-dominated terrain of Europe. For the Army, these policies translated into an almost exclusive focus on the development of heavy forces. Department of Defense plans as late as 1979 envisaged mechanizing all the remaining active light infantry divisions exclusive of one airborne and one air assault division.[1]

During 1979, the Chief of Staff of the Army, General Meyer, took steps that succeeded in stopping the mechanization trend at ten divisions. Meyer argued successfully with Defense officials that there was another way than "heavying up" for the light divisions to be effective. That other way was increased technology. He advised Secretary of Defense Brown that he would have TRADOC study and design a light division along these lines.[2] The eventful year, 1979, marked the onset of the Iranian hostage crisis as well as the Soviet invasion of Afghanistan, and during 1979-1980, the Carter Administration and Department of Defense policymakers became alert to the need for flexible contingency forces, including rapidly deployable light infantry divisions.

Reorganization of the light division proved in some ways to be more difficult than reorganization of the heavy division. As the basic fighting organization to counter the threat of heavily armored Warsaw Pact forces in central Europe, the heavy division had a clear and undisputed mission. That clear fact furnished a stable basis upon which a logical operational concept and organizational structure were developed by Division 86 planners. But about the relatedness of the threat, mission, and structure

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1 In 1979, nine of the Army's 16 active divisions were "heavy": the 1st Cavalry Division (organized as armored); the 1st, 2d, and 3d Armored Divisions; and the 1st, 3d, 4th, 5th, and 8th Infantry Divisions (Mechanized). There were five "light" infantry divisions: the 2d, 7th, 9th, 24th, and 25th Infantry Divisions. No conversion was contemplated for the two remaining divisions, the 82d Airborne Division and the 101st Airborne (Air Assault) Division. 1979 Army Green Book, "1979 Command and Staff Directory," p. 106 ff.

2 Greenway Interview, 21 Jul 81.

of the light division, agreement was slow in coming. Until late in the project planners found it difficult to deal with the structural and strength implications that were present in the threat and mission imposed upon the light division of Army 86.

Initial Planning

Study of a light division was announced at the Division 86 workshop of 22 - 23 August 1979. It was also announced then that the 9th Infantry Division stationed at Fort Lewis, Wash. might serve in a way not yet defined as an organizational model for the effort. Formulation, development and evaluation, and synthesis phases extending from September 1979 to July 1980 were tentatively planned, and a methodological approach featuring task forces, war gaming, and analysis and very similar to that of the heavy division was expected.[3]

On 28 September 1979, General Starry met with General Meyer to discuss initial concepts for the light division. They agreed to a statement that spelled out a clear dual mission. The light division should be able to deploy rapidly to reinforce forward forces in NATO. It would also conduct worldwide contingency operations to destroy enemy forces and to control land areas, including population and resources. Starry communicated the basic mission to the Army 86 task forces on 4 October. The next day, the Combined Arms Center commander, General Richardson, alerted the task forces to general requirements. As with Division 86, the functional task forces were to "build" the division. Equipment and cost constraints were not to be a planning factor, though a personnel ceiling was.[4] Planners drew up a draft study plan, which they circulated on 15 October. On 18 October at the Division 86 review, Meyer approved starting the project. On 29 October, Starry sent the formal study directive to the CAC commander, and on 29 November, Richardson signed and distributed the light division study plan.[5]

General Starry noted that the magnitude of the threat to NATO had not lessened the Army's requirement to respond to contingencies worldwide.

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3 (1) MFR, TRADOC Hist Ofc, 30 Aug 79, subj: Division 86 GO III, 22 - 23 Aug 79. (2) Division 86 Briefings presented to the Division 86 General Officer Workshop III, 22 - 23 Aug 79. (CONFIDENTIAL — Info used is UNCLASSIFIED).

4 (1) Msg 041200Z Oct 79, Cdr TRADOC to distr, subj: Lt Div Study. (2) Msg 051400Z Oct 79, Cdr CAC to distr, subj: Lt Inf Div 86 Study - Advance Planning.

5 Except where otherwise noted, this section is based on the following: (1) Ltr ATCD-AN, GEN Donn A. Starry to Cdr USACAC, 29 Oct 79, subj: CD Study Directive: Light Divisions for the Next Decade (LD 86). (2) Ltr ATZLCA-FS, LTG William R. Richardson to distr, 29 Nov 79, subj: Cmbt Dev Study Plan: Light Division 86 (LD 86). (3) Ltr ATZLCA-FS, CAC to distr, 21 Dec 79, subj: Cmbt Dev Study Plan: Light Division 86 (LD 86), Change 1.

The Army had to be prepared to field strategically responsive, flexible, sustainable light divisions for an array of contingencies. These divisions would have to seize beachheads and airheads, repel counterattacks, and ready an area of operations for the arrival of heavy forces. But they also had to be flexible enough to reinforce in Europe. Their modernization would capitalize on innovative operational concepts and on advanced technology. They would round out Army capabilities for 1986.

For the light division design, the worldwide commitment, the nature of modern warfare, and the proliferation of arms posed special dilemmas. Light assault forces acting as spearheads into an area might not be adequate, given the Soviet Union's increasing ability to project mechanized and armored forces beyond its borders and the borders of its contiguous satellites. Strategically deployable light divisions had to arrive on site with sufficient combat power, especially in anti-armor, to challenge such forces.

Thus, the stated purpose of the study was to develop light divisions with significantly increased firepower to meet worldwide challenges to the Army. The light divisions would supplement and complement the heavy units of Division 86 and would be incorporable into a heavy corps.

The study's first objective was to develop operational concepts for light divisions to discharge contingency plans worldwide and to reinforce deployed forces in an established theater. The second main aim was to reorganize to take full advantage of new concepts and advanced developmental materiel -- combining high strategic mobility with combat power and the ability to sustain -- and to attain high anti-armor striking power while keeping manpower low. The study would set clear exactly what support the light division required from a corps or joint task force.

Using the functional framework of the Battlefield Development Plan, planners were directed to develop successively the three types of light divisions -- infantry, airborne, and air assault. But the immediate focus was on the first of these. Development of the other two was postponed beyond 1980. General Starry wanted the operational concept of the light division to dovetail with that of its heavy counterpart. Planners were to employ the Europe III scenario as an analytical tool, together with map exercises and other analytical aids. The TRADOC commander also wanted joint Air Force - Army considerations examined and full Air Force participation in development.

The point of departure was the current infantry division -- but employing the equipment programed to be in soldiers' hands by 1986. This 9-infantry battalion "base-case" division, planners called the "C-series." From it, the objective light division would first be developed for comparison with the C-series, then refined into Infantry Division 86.

No organic tank or mechanized infantry battalions were envisaged, though airborne, airmobile, rifle, and "high-technology" antitank brigades or battalions were planning possibilities. Starry directed that chemical and biological operations be considered and, in the NATO theater only, nuclear combat. He set a ceiling of 14,000 men at this point -- and 1,000

more if this would mean a major increase in combat effectiveness. The new infantry division, much smaller than the current ROAD infantry division, was to be "small on the outside, big on the inside."[6] In general, equipment was to be limited to that which C-141 aircraft could carry, although this limitation was adjustable.

Personnel strengths — by function — were initially set as follows:

Intelligence - Surveillance - Target Acquisition	840
Interdiction, Counterfire	2,105
Reconstitution, Battle Support	1,820
Command Control	1,185
Target Servicing	6,930
Air Defense	560
Mobility - Countermobility - Survivability	700
Force Movement	0
	14,140

Planners expected the bulk of new light division weaponry and equipment to be procurable in quantity by 1986. But they intended to consider other advanced equipment that could not be fielded by then or other equipment that was as yet unfunded but available, including allied-built systems. Equipment selection was a key consideration in the development of a light division truly light in manpower. Innovative equipment on the forward edge of technology was a necessity in order to balance the equation. Planners began to assemble a list.

The concept described for the light division was of a unit able to deploy rapidly to meet the dual mission earlier noted. Antiarmor power and battlefield mobility were its emphases. It would have combat missions in rear and urban areas. It might serve as a theater reserve. Normally it would operate as part of a corps or joint task force. It would not operate on terrain or in situations for which not structured. It required air superiority. When operating as an independent force, it required a corps "slice" of support. Its antiarmor and other firepower would be mobile, and helicopters and U.S. Air Force aircraft could help provide the mobility. In a lodgement, the light division needed the capability of operating out to a 150-kilometer radius using its own transport. This concept statement was later expanded and published in March 1980 as the infantry division's operational concept.[7]

What mission in terms of terrain and enemy force was the dual purpose division to have? The October 1979 directive stated that, employed

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6 Greenway Interview, 21 Jul 81.

7 See below, pp. 34-35.

Table 1 - LIGHT DIVISION TASK FORCE ASSIGNMENTS

Functions	Task Leader	Light Division Organizations	Proponent
Target Servicing	LTG Richardson	Inf Bns, Tank Bns, Cmbt Avn Bn	CAC, Inf Cen, Arm Cen, Avn Cen
Counterfire	MG Merritt	HQ DIVARTY, FA Bns	FA Cen
Air Defense	MG Oblinger	ADA Bn	AD Cen
Battle Support	MG DeHaven	HQ DISCOM, Med Bn, Maint Bn, S&T Bn, PA Co, Fin Co	Log Cen
Mobility-Countermobility-Survivability	MG Kelly BG Watson	Cmbt Engr Bn, NBC/Smoke Units	Engr Cen, Chem Sch
Intelligence-Surveillance-Target Acquisition	BG Teal	CEWI Elm, Tgt Acquis Unit, Recon Sqdns	Intel Cen, FA Cen, Arm Cen
Interdiction	MG Merritt	FA Bns	FA Cen
Force Movement[a]	MG DeHaven	Truck units	Log Cen
Reconstitution	MG DeHaven	HQ DISCOM, Med Bn, Maint Bn, S&T Bn, PA Co, Fin Co	Log Cen
Command, Control, and Communications	BG(P) Walker	HHC Div & Bde, Sig Bn, MP Co	CAC, Sig Cen, MP Sch
Human Dimension[b]	MG Melner	All organizations	Admin Cen

a Normally a corps function
b Special task force

Source: (1) Ltr ATZLCA-FS, LTG William R. Richardson, Cdr USACAC to distr, 29 Nov 79, subj: Cmbt Dev Study Plan: Light Division 86 (LD 86). (2) Ltr ATZLCA-FS, CAC to distr, 21 Dec 79, subj as above, Change 1.

on mixed or open terrain, the light division had to be able to "attack or defend to delay or disrupt enemy armored forces, or to destroy light enemy forces." In close terrain, against mounted forces or foot infantry, it had to be capable of attacking or defending to seize and hold, and to conduct rear area and urban operations and to delay or disrupt enemy operations.[8]

Difficulties were implicit in the open terrain portion of the stated mission. Defending or delaying without organic armor on open terrain against enemy tank attack seemed to present design challenges that were not surmountable. The problem was recognized, though ambivalently -- the light division would not operate on terrain or in situations for which it was not structured. Thus, the heavy half of the light division mission presented a stubborn dilemma. For this very reason, the development course of Infantry Division 86 was not to be smooth.

Management and integration of the project were in the hands of the Combined Arms Center. General Richardson's planners, including Brig. Gen. Jack A. Walker, the Assistant Commander of CACDA, and his Director of Force Design, Colonel John Greenway, coordinated the functional Army 86 task forces already in place for Division 86 and Corps 86 at Fort Leavenworth and the schools. Greenway had been project coordinator for Division 86 since the fall of 1978 and would continue in this capacity for the other Army 86 projects throughout 1980. Colonel John Fowler was assigned as the light division study project officer at Fort Leavenworth. He was succeeded early in 1980 by Major James Montano. CAC was also to conduct the planned workshops and force structure trade-off analysis. As with the Division 86 study, TRADOC headquarters aided CAC in formulation of the operational concept and mission, set the limits, and otherwise directed the effort. Again, the TRADOC schools and test and analysis activities furnished task force planners and analyses. Project phases and workshops for formulation, development, and evaluation and synthesis were planned to culminate in a decision by the Chief of Staff of the Army in December 1980.

Responsibilities were assigned to the TRADOC center and school commanders as shown in Table 1. Lt. Col. Edward G. Walker monitored the study in the Planning/Air Land Directorate of the Office of the Deputy Chief of Staff for Combat Developments at TRADOC Headquarters. The planning director, chief, Colonel Frederick M. Franks, oversaw this and the other Army 86 projects through the course of 1980. Heading up the task forces under the general officer task leaders were the following officers, several of whom, including Colonels Colson, Pokorny, and Del Vecchio, had done important work in the Division 86 project.

Target Servicing	COL Keith Colson
Counterfire, Interdiction	COL Anthony G. Pokorny
Air Defense	COL James W. Everett
Battle Support, Reconstitution	COL Robert C. Lybarger
Mobility-Countermobility-Survivability	LTC Donald E. Hendrickson
Intelligence - Surveillance - Target Acquisition	COL William P. Del Vecchio
Force Movement	LTC Albert J. Tumminello
Command-Control-Communications	COL William S. Kromer
Human Dimension	COL Arnold J. Habig

8 Study Directive, Light Divisions, 29 Oct 79.

The light division project expected to draw on a range of analytical models. The Combined Arms Center began with a screening exercise focusing on weapons effectiveness, firepower potential, and artillery effectiveness. These exercises were to be followed by a force structure trade-off analysis employing a modification of the computer assisted JIFFY war game and an ammunition resupply model. Cost and operational effectiveness analyses and further division level war gaming were also planned in order to compare the C-series and objective infantry divisions. Concurrent "mission area" analyses of major combat subjects such as fire support and light close combat would aid the effort. Also planned were supportability, chemical, tactical nuclear, and deployability analyses, and a force and program impact assessment.

The Too-Heavy First Design

As the Army 86 task forces began work on the operational and organizational concepts of the light division, General Starry invited participation in the effort by the other major commanders. General Robert M. Shoemaker, the FORSCOM commander, provided his points of contact for the effort on 30 November 1979. On the same day, General John R. Guthrie, the DARCOM commander, gave out guidelines to his subordinate commanders for innovative infantry division technology.[9]

Heavy equipment was an early issue. On 7 November, CAC informed the task forces that some exceptions to the exclusion of equipment exceeding C-141 load capacities might be made. Two days later, Engineer Center planners presented a list of engineer equipment the C-141 could not transport. The list included the mobility required armored vehicle launched bridge, the ribbon bridge, 5-ton bridge transporter, 20-ton crane, combat engineer vehicle, and the advanced surface launched units, fuel-air explosive system.[10]

Development of innovative equipment was a focal interest, and in early January 1980, CAC directed three of the schools to undertake special inquiries. The Engineer School was to examine technology and to aid the infantry in digging in and in overhead protection. The Infantry School was charged to arm the infantry squad to increase its lethal effect. CAC directed the Artillery School to look for additional means to protect gun crews.[11]

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9 (1) Msg 301900Z Nov 79, Cdr FORSCOM to Cdr TRADOC, subj: Lt Div 86 Study (LD 86). (2) Msg 301830Z Nov 79, Cdr DARCOM to distr, subj: New Initiatives to Support Inf Div 86 Study.

10 (1) Msg 071333Z Nov 79, Cdr CAC to Cdrs, Inf, Arm, and Avn Cens, subj: Inf Div 86 - Tgt Svc Work Plan. (2) Msg 091530Z Nov 79, Comdt Engr Cen to Cdr CAC, subj: Lt Inf Div (ID 86) Airlift Constraint.

11 Msg 091422Z Jan 80, Cdr CAC to distr, subj: LD86 Prebrief Results - Engineer/Infantry/Artillery.

On 8 January, CAC provided a tentative list of prospective new equipment for the light division. Methodically developed from task force lists, it included over 110 items of weaponry and equipment grouped by battlefield function. The list told which items were funded and which were in development without funding as yet, as well as items for which no program existed (Appendix C). Weapons such as the XM1 tank and infantry fighting vehicle were included -- to be considered if tank or mechanized infantry battalions became a part of the light division design after all. These and many other listed items were the weaponry on which Division 86 was based. Still other systems were improved versions or advanced models Some were "high-risk" developments -- such as a 40-mm. grenade machine gun firing 450 rounds a minute. Others, such as a portable mine neutralization system, promised very high payoffs in terms of combat effectiveness.[12]

The CAC planners advanced many high-technology possibilities in their initial designs. Many of their ideas were to be seconded by the Army Science Board, when that body was called upon for equipment recommendations in the summer of 1980.[13] As it turned out, not much new high technology was actually achievable for another five years at least, and some of the proposals that were advanced did not gain support. Thus, many design compromises were eventually made during the course of 1980.[14]

On 14 - 15 January, the light division planners met at Fort Monroe to review their progress for the TRADOC commander preliminary to the first planned workshop the following month. CAC and the task forces made formal presentations, outlining a 3-brigade division of 9 infantry battalions. The target servicing elements, including a 1,400-man air cavalry attack brigade, totalled about 8,800 personnel, almost 1,900 more than the manpower ceiling initially established.

Large structures that exceeded the ceilings were the rule. The counterfire-interdiction task force recommended a full DIVARTY of 3 direct support battalions of 3 batteries of eight M198 155-mm. towed howitzers and a large general support battalion with 155s, 8-inch howitzers, and the multiple launched rocket system. The battlefield support planners presented various options for the division support command, varying between 2,260 and 2,430, with conventional battalion organization and with brigade support battalions.

Planners on the intelligence, surveillance, target acquisition task force recommended a strong functional force employing a combat electronic warfare/intelligence battalion, reconnaissance squadron, and target

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12 Ltr ATZLCA-FAS, CAC to distr, 8 Jan 80, subj: New Equipment for ID 86.

13 See below, pp. 43 and 51 ff.

14 Greenway Interview, 21 Jul 81.

acquisition battalion. Together, these organizations exceeded the ISTA ceiling by over 450. Similarly, the recommended concepts and organizations of command-control-communications — a full communications capability, cellular command posts, organic defense, ninety-man scout platoons, headquarters and headquarters companies of division and brigade, the signal battalion, and the MP company -- added up to almost 1,560 personnel, and this was at least 300 too many. The mobility-countermobility-survivability planners called for an engineer battalion of almost 800 and a 140-man nuclear-biological-chemical company with a limited smoke capability and three decontamination platoons -- together about 250 in excess of allowed ceilings. The air defense concept, geared to successive phases in contingency operations, but also wrestling with the high air defense demands of NATO support, recommended a combined improved CHAPARRAL-STINGER battalion, with no firm conclusion regarding air defense guns.[15]

(U) General Starry believed that the January design did not implement the concept of a division capable of rapid deployment and able to seize a lodgement and operate out to a 150-kilometer distance while awaiting the arrival of heavier forces to engage armor-heavy enemy forces.[16] Moreover, the organizations of the January design exceeded the 14,000 ceiling by over 4,000 personnel. On 15 January, General Starry declared to planners that they had fallen into a "numbers trap" and reminded them of General McNair's success in keeping the World War II divisions lean -- "We need his ghost here."[17] General Richardson added that planning had suffered from the lingering influence of the heavy division. Planners had been "too protective and not innovative."[18]

(U) Starry elaborated further on his concept for the design of the infantry division, stating that in the U.S. Army, which was not manpower rich, planners could not design a division dependent on manpower to generate combat power. He also repeated that the infantry division would be deployed rapidly and would have sufficient combat power so that it could seize a lodgement and expand the lodgement to prepare for arrival of the heavier forces that would be needed to combat armored enemy forces. General Starry directed the light division planners to consider those missions that infantry forces historically had been able to accomplish as they sought to increase the battle effectiveness of infantry units. He told them to seek,

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15 MFR ATCS-H, TRADOC Hist Ofc, 20 Mar 80, subj: Light Div Gen Officer Review Conference, HQ TRADOC, 14 - 15 Jan 80.

16 (1) Ltr, General Donn A. Starry to Dr. Henry O. Malone, Jr , Chief Historian, TRADOC, 23 Oct 81. (2) DF Cmt 2, ATCG, COL Frederick M. Franks, Jr., to Hist Ofc, 27 Oct 81, subj: Army 86 Hist Monograph, Vol. II.

17 MFR ATCS-H, TRADOC Hist Ofc, 20 Mar 80, subj: Light Div Gen Officer Review Conference, Hq TRADOC, 14-15 Jan 80.

18 Ibid.

from historical study of infantry units, insights into innovative ways infantry might be employed in the future, including consultation of such works as Rommel's Attack.[19]

(U) On 15 January, General Richardson announced that, in the next ten days, TRADOC and the Combined Arms Center would develop ideas for the course ahead. The division had to be leaner and harder. Richardson also noted possible use of the 9th Infantry Division at Fort Lewis, Wash. as a structuring and modernizing vehicle for the emerging light division.[20]

The Second Design

Through late January 1980, planners at Fort Monroe and Fort Leavenworth produced a new, pared-back 14,000-man planning model for the light division. On 29 January, General Starry approved it as the basis for a new start on a lean, trim structure. Planning continued with a major light division meeting at Fort Leavenworth on 5 March, a workshop on 18 March, and presentation of the design to General Meyer for first review on 3 April.

Operational Concept

In March, planners completed an initial operational concept of the infantry division, a brief summary of which follows.[21] With its dual mission -- reinforcement of forward deployed NATO forces and deployment to other areas worldwide -- the division faced enemy forces that would vary from light infantry to tank formations. This circumstance required that it be well equipped with anti-armor weapons, be tactically mobile, and possess strong intelligence, surveillance, target acquisition resources. Against enemy light infantry, it had to be organized, equipped, and trained to attack to destroy the enemy; to defend, delay, or disrupt; and to fight in rear and urban areas. Against tank or motorized forces on close terrain, the division had to be capable of attacking to seize and defending to hold terrain, and of delaying or otherwise disrupting enemy forces. Against these heavy forces on mixed terrain, it had to be able to delay as well as to fight effectively in rear and urban areas. The light division would normally operate as part of a corps or joint task force, though it had to be self-dependent for initial contingency operations.

In contingency operations, the light division normally would conduct its operations by phase, organizing into assault and follow-on echelons. In the deployment phase, the division would normally arrive by air or sea in

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19 DF Cmt 2 ATCG, COL Frederick M. Franks, Jr., to Hist Ofc, 27 Oct 81, subj: Historical Monograph, Vol. II.

20 MFR ATCS-H, TRADOC Hist Ofc, 20 Mar 80, subj: Light Div Gen Officer Review Conference, Hq TRADOC, 14-15 Jan 80.

21 Inf Div 86, Operational Concept, Mar 1980, First Edition.

a landing zone secured by an advanced U.S. force or by forces of the country involved. After the division's assault force secured the immediate area, follow-on elements arrived. The lodgement phase began as the division expanded the secure area out to the range of organic direct support artillery. The division's highly mobile antiarmor forces moved to counter enemy attacks. Air fires and naval fires in some instances would support the division. In the final phase, the division secured the lodgement for expansion into a logistics base for the buildup of forces. Operations out to 150 kilometers from the lodgement area might be conducted.

In operations to support forward deployed forces such as in NATO, the light division faced essentially three combat situations — offensive, defensive, and delaying operations. In the offense, the division ordinarily would attack infantry only. Operations against motorized forces were to be undertaken only when the enemy's combat power was substantially weakened by natural factors such as terrain and bad weather or by military actions such as suppression, obscuration, deception operations, and surprise. The division gained its best advantage moving to contact through rugged terrain and dense foliage. Advancing by multiple routes, the division concentrated only as it closed on the objective. Its massed vehicle-mounted weapons rendered support at this juncture. The infantry division might also be used to attack and penetrate forward defensive belts, to seize key terrain or establish bridgeheads, to attack in rear areas, or to follow and support other forces.

In defensive operations, the division would, of course, be most effective against light infantry. But on close terrain, it could also defend against tank and motorized forces by prepositioning along the expected routes of advance and by keeping movement minimized. The infantry division might serve as a covering force to the main body, later joining the main body in defense, reserve, or rear operations. Other defensive roles were holding a riverline, installation, terrain feature, or urban area. The light division could not be expected to defend in place against heavy enemy armored forces on mixed or open terrain.

In delay operations, the division would most often delay enemy infantry, but might delay on mixed terrain against enemy armor if protected by established positions. In delay, the light division used its air and ground mobility to effect, fired from concealed positions, employed its weapons at their maximum ranges, avoided decisive combat, and took up the fight from newly established positions.[22]

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22 Ibid.

Development of the Second Design[23]

Target Servicing. The mobility of the infantry battalions of the light division had high costs. Pursuing the idea that not all the battalions needed to be fully mobile, General Starry told the target servicing planners to develop 2 infantry brigades of 3 foot infantry battalions and a mobile brigade of 2 mobile infantry battalions.

During the period, planners also examined a quite different brigade arrangement proposed by the Armor Center commander, Maj. Gen. Thomas P. Lynch. Built on the idea of "fixed" or semi-independent brigades,[24] the three-brigade Lynch structure consisted of 1 foot infantry, 1 mobile infantry, and an aerial brigade as a third maneuver brigade headquarters. Besides the lack of a third infantry brigade, this structure presented a major difficulty. How would the division commander transfer or cross-attach battalions from one brigade to another? General Lynch supported this concept forcefully nonetheless, as a small and highly mobile division structure.

On 5 March, Starry and Richardson directed the examination of other battalion ideas as well. If 2 or 3 more mobile battalions were added as "packages" to the division to strengthen it for a heavier mission, should they be added in each brigade or only in the mobile brigade? If a light tank battalion were considered, where should it be added?

The brigade structure presented to General Meyer on 3 April had 2 infantry brigades and 1 mobile brigade. The infantry brigade design at 2,278 personnel, proposed 3 infantry battalions of 676, an organic engineer company of 117, and a headquarters and headquarters company of 133. Built into the infantry brigades were the principles of a mobile headquarters, tank-killing battalions with 60 TOW and other antitank weapons, and engineers with advanced digging equipment. These battalions proposed three 122-man line companies, a 92-man TOW company, and a 218-man headquarters and headquarters company with a scout platoon and a six-tube 107-mm. mortar platoon. The three platoons of the infantry company were equipped with a mobile arms room.

As designed, the division's mobile infantry brigade had two 692-man battalions, a smaller organic engineer company of 89, and a headquarters and headquarters company of 90. The mobile battalions fielded the same complement of antitank weapons as did the infantry battalions.

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23 This section is based on the following: (1) Msg 301607Z Jan 80, Cdr CAC to distr, subj: Inf Div 86 Divisional Model and Milestones. (2) Msg 151620Z Feb 80, Cdr TRADOC to Cdr CAC, subj: Lt Div 86 Command Guidance. (3) Msg 191511Z Feb 80, Cdr CAC to distr, subj: Inf Div 86 Planning for Org Dev. (4) Msg 262000 Feb 80, Cdr CAC to Cdr Armor Cen, subj: Light Div 86 Div Alternative. (5) Msg, Cdr Armor Cen to Cdr CAC, 3 Mar 80, subj: LD 86 Div Alternative. (6) Msg 071545Z Mar 80, Cdr CAC to distr, subj: LD 86 Plan Guidance. (7) Msg 192058Z Mar 80, Cdr TRADOC to distr, subj: Army 86 Studies. (CONFIDENTIAL — Info used is UNCLASSIFIED) (8) CAC Briefing, Army 86, presented to CSA on 3 Apr 80. (SECRET — Info used is UNCLASSIFIED)

24 See Romjue, Division 86, pp. 66, 70, 92 - 95. (CONFIDENTIAL — Info used is UNCLASSIFIED)

The reconnaissance squadron received much attention. On 15 February, Starry abandoned the idea of a single reconnaissance troop and told planners to examine a squadron consisting of 2 ground and 2 air troops. The target service planners eventually opted for the heavy division solution -- placing the reconnaissance squadron under the division's air cavalry attack brigade. On 3 April, they recommended a 526-man squadron of two 105-man ground troops and two 34-man aerial troops of 4 attack and 6 scout helicopters each.

General Starry's initial guidance for a new ACAB structure was to examine organizations of 1 and 2 squadrons. On 15 February, he directed planners to concentrate on a one-squadron ACAB with 2 combat support aviation companies. At the same time, he directed General Lynch to develop and analyze an alternative -- an ACAB with 2 squadrons and 2 lift companies. By early March, planners had come around to a structure of 2 air cavalry attack squadrons, each with 4 attack troops, and a combat support aviation battalion with two combat support aviation companies. Attack strength was not the only important helicopter issue. Lift capacity for the mobile light division was of equal concern. Planners examined not only troop lift issues but capabilities of CH-47 helicopters to transport M198 howitzers in various climates.

As he had with the heavy division ACAB, Starry decided for a structure that would include all division aviation, incorporate the reconnaissance squadron, and provide the latter with organic air troops. On 18 March, [illegible] the air cavalry attack squadron structure in favor of an ACAB [illegible] two [illegible] attack helicopter battalions of 3 attack companies each [illegible] support aviation battalion with two combat support aviat[illegible] and a reconnaissance squadron 526 strong. The attack helico[illegible] fielded 7 attack and 4 scout helicopters each. The lift companies of the combat support aviation battalion each fielded 15 utility helicopters. This structure, an ACAB of 2,010 personnel and 161 aircraft, was presented to General Meyer.

Counterfire and Interdiction. The artillery planners at Fort Sill kept to their direct support structure of three battalions of towed 105-mm. howitzers, but reduced general support artillery solely to the multiple launched rocket system. Despite the requirement for a lean light division, the TRADOC commander directed retention of eight-howitzer batteries but limited the target acquisition function to a battery rather than a battalion. Planners still hoped to field a strong rocket element in a MLRS battalion of three batteries.

On 5 March, Starry affirmed the direct support structure of 3 battalions of 3 eight-howitzer batteries each, but set the general support structure at a single battery of 9 MLRS launchers. The difficulty of supplying the rocket system was the deciding issue. Also, the need for adequate organic maintenance strength necessitated a target acquisition battalion, set at 356 personnel. On 3 April, planners presented a light division DIVARTY of 2,491.

Air Defense. The air defense task force at Fort Bliss initially tried to keep the air defense artillery battalion lean by eliminating the improved CHAPARRAL short-range air defense missile. Their initial proposal

was for a battalion of 1 STINGER battery and 1 lightweight air defense gun battery. But on 5 March, General Richardson told the task force to restore the I-CHAPARRAL battery — about 190 additional personnel. The air defense concept was further revised to include the STINGER in both the forward and rear air defense elements. On 18 March, General Starry approved for presentation to General Meyer a 568-man air defense artillery battalion of 16 light guns, 12 I-CHAPARRALs, and 60 STINGERs in one I-CHAPARRAL - STINGER battery and three light gun - STINGER batteries. The latter were geared to brigade differences. Batteries of 6 light guns and 12 STINGERs supported the infantry brigades while a battery of 4 guns and 9 STINGERs supported the mobile brigade.

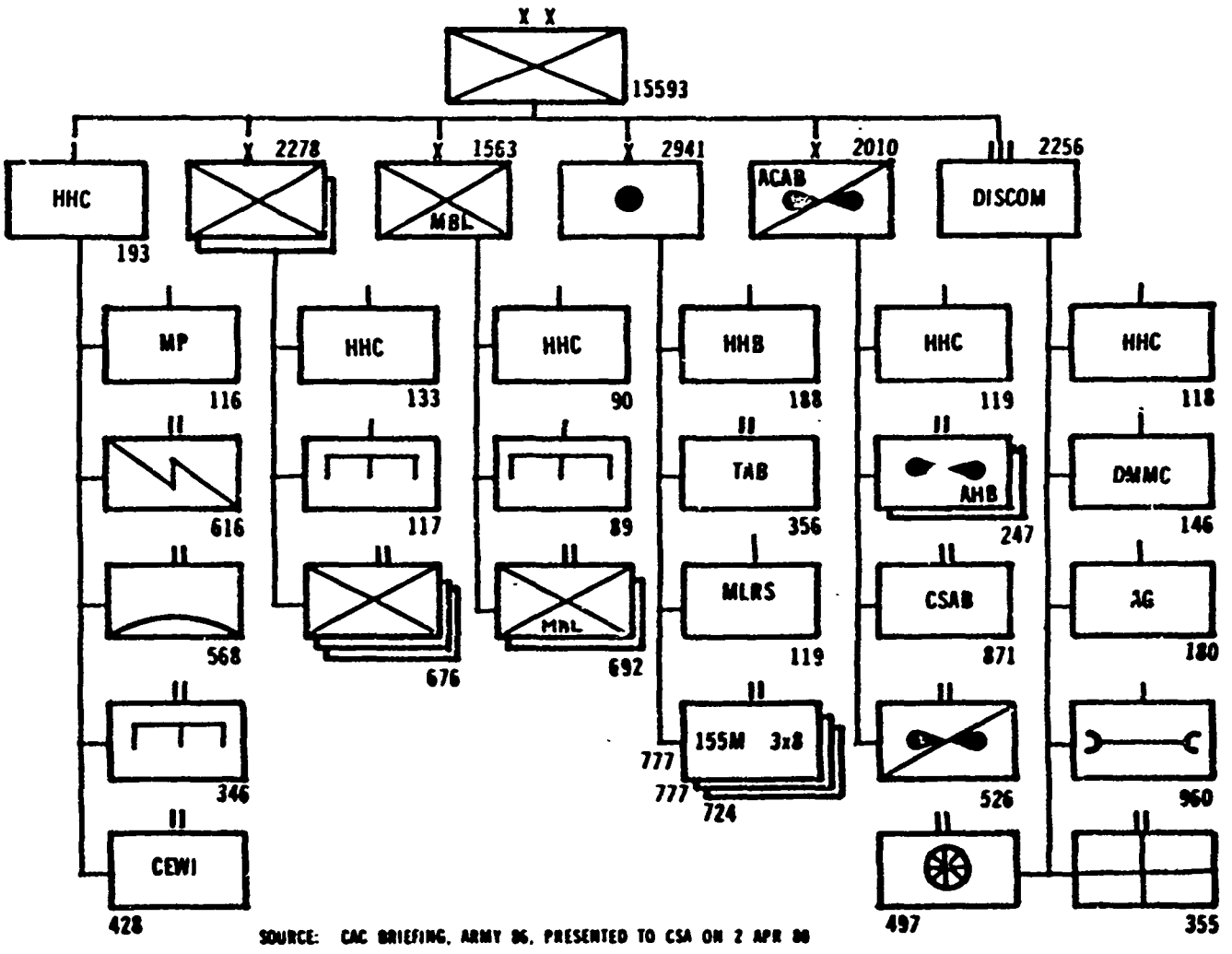
Battle Support and Reconstitution. The task force at Fort Lee was directed to design a "conventional" division support command (DISCOM) based on functional battalions. CAC meanwhile designed an alternative DISCOM employing composite brigade support battalions similar to those of the heavy division. Starry endorsed a conventional DISCOM of 2,256 personnel on 18 March for presentation to General Meyer. It included a 3-company medical battalion of 355; a maintenance battalion of 960 with headquarters and light maintenance, heavy maintenance, and missile support companies; a supply and transport battalion of 497 with supply and services, transportation motor transport, and nuclear-biological-chemical companies; a division materiel management center of 146; an adjutant general company of 180; and a headquarters and headquarters company of 118 personnel.

Mobility-Countermobility-Survivability. The mobility-countermobility-survivability concept initially proposed an engineer battalion of 440 personnel consisting of a headquarters and headquarters company and two general support engineer companies, together with 130-man engineer pioneer companies organic to the infantry brigades. One general support engineer company was dropped from the battalion design during planning. The organization presented on 3 April was a 346-man engineer battalion with a headquarters and headquarters company of 78, engineer support company of 98, and an engineer company of 170. The brigade engineer companies were reinforceable with divisional platoons.

Intelligence, Surveillance, Target Acquisition. The intelligence, surveillance, target acquisition planners started with a minimal combat electronic warfare/intelligence (CEWI) battalion design of 280 personnel. But the battalion was increased by 70 by a decision of 6 March when the smaller structure failed to show the capabilities desired. Some 78 more spaces were added to accommodate the array of systems envisioned for this division organization. Presented to the Chief of Staff of the Army on 3 April was a 428-man CEWI battalion about 50 men smaller than that of the heavy division, with general support, direct support, and service companies. The battalion exercised operational control over the special electronic mission aircraft company of the ACAB.

Command-Control-Communications. A 460-man signal battalion was first envisioned, but planners settled on a strength of 616 to accommodate this organization's advanced systems. The signal battalion would provide digital message switching, multichannel tactical satellite communications, and data through an advanced position location and information distribution system. There was no change to the 116-man MP company developed earlier.

CHART 4 - INFANTRY DIVISION DESIGN (4 APR 1980)



SOURCE: CAC BRIEFING, ARMY 86, PRESENTED TO CSA ON 2 APR 80
(SECRET INFO USED IS UNCLASSIFIED)

The division headquarters and headquarters company was designed at strength of 193 personnel.

Planners believed that the light division design of 15,593 presented to General Meyer on 3 April 1980 offered the strategic and tactical mobility required and that it could effectively fight and survive in battle situations for which it was designed. (Chart 4). It had strong anti-armor capabilities and electronic warfare potential. Though some 1,800 men smaller than the H-series infantry division current in 1980, it was appreciably stronger in anti-armor weapons, artillery, multiple launched rocket systems, helicopter lift, and attack helicopter strength.

But when General Meyer reviewed the design, he thought that it failed to meet the requirements of its operational concept. Specifically, it lacked the combat power to be effective in the conditions that could be expected in central Europe, that is -- it could not delay against heavy forces in open terrain. Nor was it sufficiently mobile. The built-in imbalance in mobility between the single mobile and two non-mobile infantry brigades was noted. In addition, the proposed strength (15,600) was too high. The Chief of Staff of the Army rejected the April design of the light division.

The Third Design

The Army 86 planners now set about their third try at drawing up the formula of concept, technology, and limited numbers that would produce leanness, mobility, and anti-armor might. Were these aims of design compatible? Could a truly light division effectively oppose heavy armor? Did the mission in fact set the light division planners an impossible task? Anyone working on the project might have felt at this point that he was running repeatedly against a stone wall.

On 7 April, General Starry issued new instructions which reflected the dilemma and which relaxed design precepts for antiarmor capability and survivability somewhat. Also, consideration was to be given to augmenting the division to tailor it for its differing contingencies. Starry wanted the whole air defense picture reviewed -- that which was organic to the infantry division and that which corps and the Air Force provided. He asked how feasible it would be to mix 105-mm. and 155-mm. artillery in the DIVARTY. The DISCOM's support of the brigades was to be reexamined. Finally, Starry ordered study of the feasibility of a stronger type of maneuver unit for the division. On 18 April, General Richardson directed further that the task forces work out ideas for tailoring the division's organizations and elements specifically for the central European mission. He directed a similar effort for Mideast contingencies, which might also be expected to see enemy use of armor.[25]

Starry approved an amended concept for use in design of the light division, which was disseminated on 30 April. The division's dual mission

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(1) Msg, 7 Apr 80, Cdr TRADOC to distr, subj: Army 86 Command Guidance. (SECRET -- Info used is UNCLASSIFIED) (2) Msg 182020Z Apr 80, Cdr CAC to distr, subj: ID86 Command Guidance.

remained the same. New was that the expected contingencies included those of the Rapid Deployment Force type.[26] This emphasis implied a more mobile division with perhaps increased challenges. As before, against light forces it had to be able to attack, defend, delay, disrupt, and conduct operations in rear and urban areas. Against heavy forces, it had to be able to attack, defend, or delay in close terrain, and to delay in mixed and in open terrain. It had to be able to conduct extended operations when reinforced and have the capability to engage the enemy at long range. It had to be able to establish and expand a security area, conduct operations out to 100 kilometers from a lodgement, and use its tactical mobility in ways that increased the effectiveness of its weapons and reduced the division's vulnerability.[27]

The 12,000-Man Alternative Division

On 30 April, Starry also directed the task forces to design an alternative light division of 12,000 men to compare with the structure to result from their continuing main effort. The 12,000-man alternative was to be a 2-brigade division of mobile infantry brigades, each with 3 assault battalions and an antitank battalion. The assault battalions were to be completely mobile, with 3 assault companies and 2 antitank companies each, and they would employ nine-man squads in high mobility multipurpose wheeled vehicles (HMMWV) with a mixture of portable antiarmor weapons and cannon. The antitank battalions each would feature eleven-man squads in 2 infantry companies and HMMWV-mounted TOW missiles in 2 antitank companies. Division airlift would be sufficient for 2 infantry companies by organic air and 1 by organic truck. Other division organizations would be redesigned to fit the two-brigade force. Both a combination of 155-mm. and 105-mm. howitzers and a 105 complement only were to be examined for the alternative small division. Corps "packages" for artillery and for combat support as well as special force tailoring were to be considered in designing the two-brigade alternative.[28]

CAC issued further instructions for the 12,000-man alternative division in early May, keeping the ACAB at about 2,080 with 2 attack helicopter battalions, a reconnaissance battalion, and a combat support aviation battalion with 2 support aviation companies. The air defense complement was set at 125, consisting solely of a STINGER battery. CAC outlined a DIVARTY

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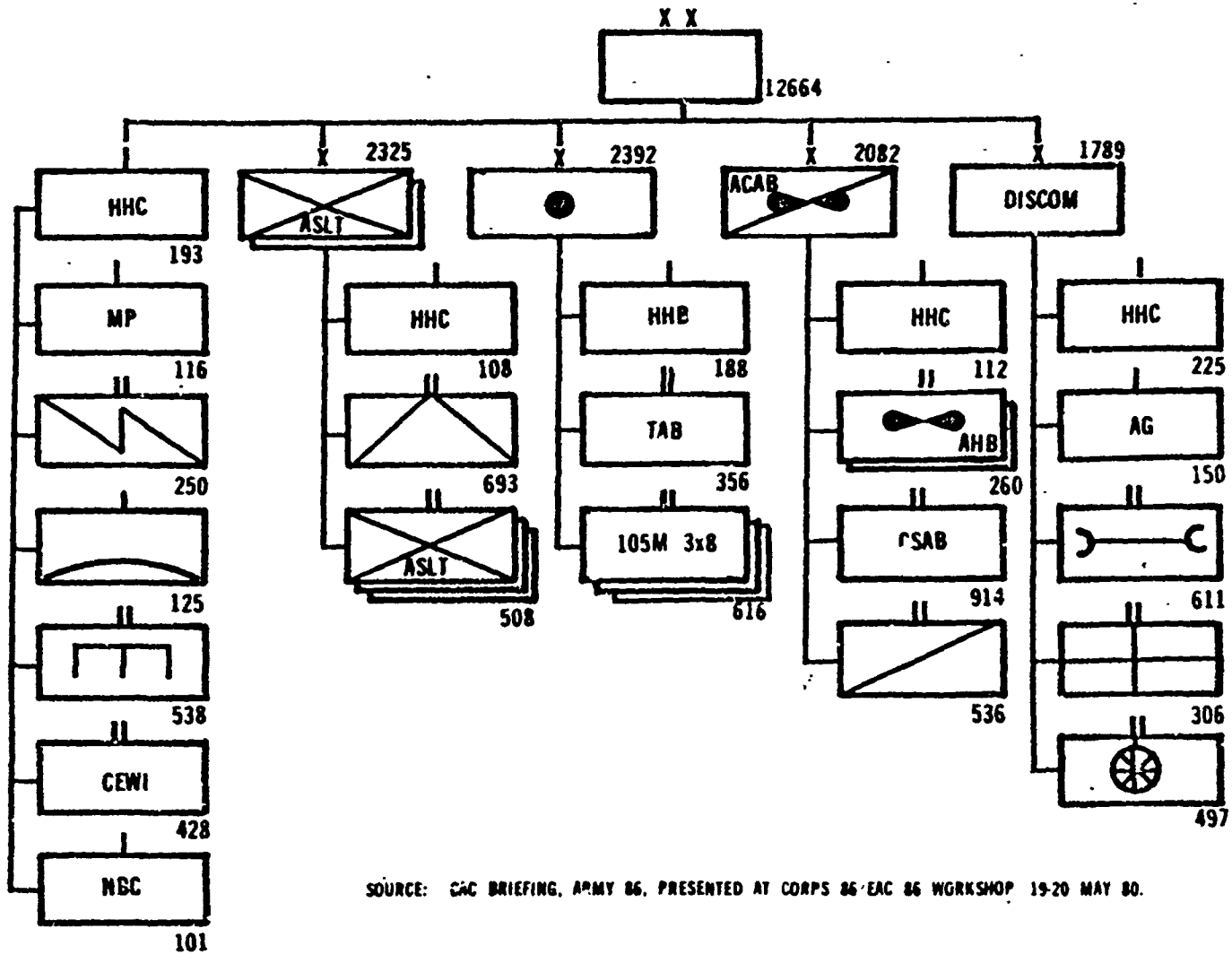
26 This term and the contingency force it suggested developed out of changes in Carter Administration policy during early 1980 in response to the continuing Iranian crisis and the Soviet invasion of Afghanistan in December 1979. On 1 March 1980, Hq, Rapid Deployment Joint Task Force was established under the U.S. Readiness Command with headquarters at MacDill Air Force Base, Fla.

27 Msg 301830Z Apr 80, Cdr TRADOC to distr, subj: Lt Div 86 Study (CONFIDENTIAL -- Info used is UNCLASSIFIED)

28 Ibid. (CONFIDENTAIL -- Info used is UNCLASSIFIED)

CHART 5 - INFANTRY DIVISION 12,000 - MAN ALTERNATIVE (MAY 1980)



SOURCE: CAC BRIEFING, ARMY 86, PRESENTED AT CORPS 86/EAC 86 WORKSHOP 19-20 MAY 80.

of 3 battalions of 105-mm. howitzers.[29] Chart 5 depicts this alternative organization as planners saw it in late May.

The 9th Infantry Division "Test Bed"

Mid-May saw another important step in the development course the light division eventually took. As noted earlier, General Richardson had in January suggested the possibility of using the 9th Infantry Division as a structuring and modernizing vehicle for the light division. Planning by the Department of the Army toward this eventuality was active through the early part of the year, and on 15 May the Department of the Army announced a summer study of a high technology division to be executed by the Army Science Board.

The study aim was to determine if the effectiveness of the 9th Infantry Division could be increased in the next three years by using it as an experimental laboratory or "test bed" for the divisional incorporation of advanced military technology. Changes to increase killing power (especially antitank) and to improve electronics, survivability, tactical mobility, and strategic deployment, were some of the focuses of interest.

The Army Science Board's summer study was the beginning of what became the 9th Division "high technology test bed" -- the vehicle the Department of the Army chose to test the operational and organizational concepts of Infantry Division 86. The light division ACAB was an early candidate for testing.[30]

Planning of the Third Design Continues

The Field Artillery Center meanwhile had been reexamining the DIVARTY structure in the main light division effort. In mid-April, TRADOC had told the interdiction-suppression task force planners to review comprehensively their design and its deployment and support ramifications and to determine the feasibility of mixing 105 and 155-mm. howitzers. On 29 May, planners briefed General Meyer on this analysis. He approved their recommendations to keep the M198 155-mm. towed howitzer as the infantry division' direct support weapon. He also directed that the light divisions be structured to have a dual 155-mm. and 105-mm. capability. The infantry division might employ 105s in certain contingencies.[31]

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29 Msg 071630Z May 80, Cdr CAC to distr, subj: Inf Div 86.

30 (1) Msg 151630Z May 80, HQ DA to distr, subj: Army Sci Board Summer Study - High Technology Dir. (2) Msg 101630Z Jun 80, DA to Cdrs DARCOM, TRADOC, and FORSCOM, subj: ACAB for the 9th Inf Div.

31 (1) Msg 031545Z Jun 80, Cdr USAFAC&S, Ft Sill to Cdr TRADOC and Cdr CAC, subj: Lt Inf Div Arty 86 Org. (2) Msg 132045Z Jun 80, Cdr USAFAC&S, Ft Sill to Cdr TRADOC and Cdr CAC, subj: Clarification of CSA Decision on Lt Div Arty.

On 6 June, planners held their first major review since early April. As approved by General Starry, the light division now looked different in several elements. Planners made the division far more mobile by giving it 2 mobile infantry brigades mounted in eleven-man wheeled squad carriers with automatic cannon armament, and one airborne-airmobile infantry brigade. At 2,283 personnel, a mobile brigade commanded 3 mobile battalions of 692, an engineer company of 117, and a headquarters and headquarters company with a scout platoon.

The airborne-airmobile brigade, at 1,485, fielded 2 battalions of 676 men and a headquarters and headquarters company with a scout platoon and a truck transport element. These battalions were standard with those of the 2 mobile brigades except for their lack of squad carriers. The ACAB, at 2,035, remained as previously approved but with one less combat support aviation company — reducing divisional aircraft to 146. A special squad vehicle was to be considered for the ACAB's reconnaissance squadron. Some corps aviation packages were planned, including additional attack craft and more lift companies for airmobile operations.

Planners designed the DIVARTY to field two 155-mm. battalions of 3 batteries of 8 to support the two mobile brigades, and a 105-mm. battalion with 2 batteries of 8 to support the airborne-airmobile brigade. The single general support battery of 9 MLRS launchers, the target acquisition battalion, and headquarters and headquarters company saw no change. In the conventionally organized DISCOM, now about 100 smaller, the headquarters and headquarters company, division materiel management center, medical battalion, and supply and transport battalion stayed essentially as previously approved. The maintenance battalion, reduced to about 800, would require a "package" of corps support — a ground support equipment maintenance company.

The engineer battalion at 333 also remained essentially unchanged since April, though the function of water production was transferred to the supply and transport battalion under the DISCOM. Air defense consisted of one 213-man STINGER battery, and the clear need for corps augmentation was recognized. The combat electronic warfare-intelligence battalion at 428 remained as previously structured, as did the MP company at 116, the signal battalion at 616, and the division headquarters and headquarters company.

The light division structure on the boards in early June totalled 14,835 personnel despite the weakened air defense, maintenance, and other organizations. Planners were under no illusion that the division could effectively delay against enemy armor on open terrain as guidance demanded. Confronting the dilemma, General Starry told the task forces that the division was not designed for this purpose.[32]

There were other concept concerns and amendments. The division was to be capable of fighting dismounted in mountain and jungle operations

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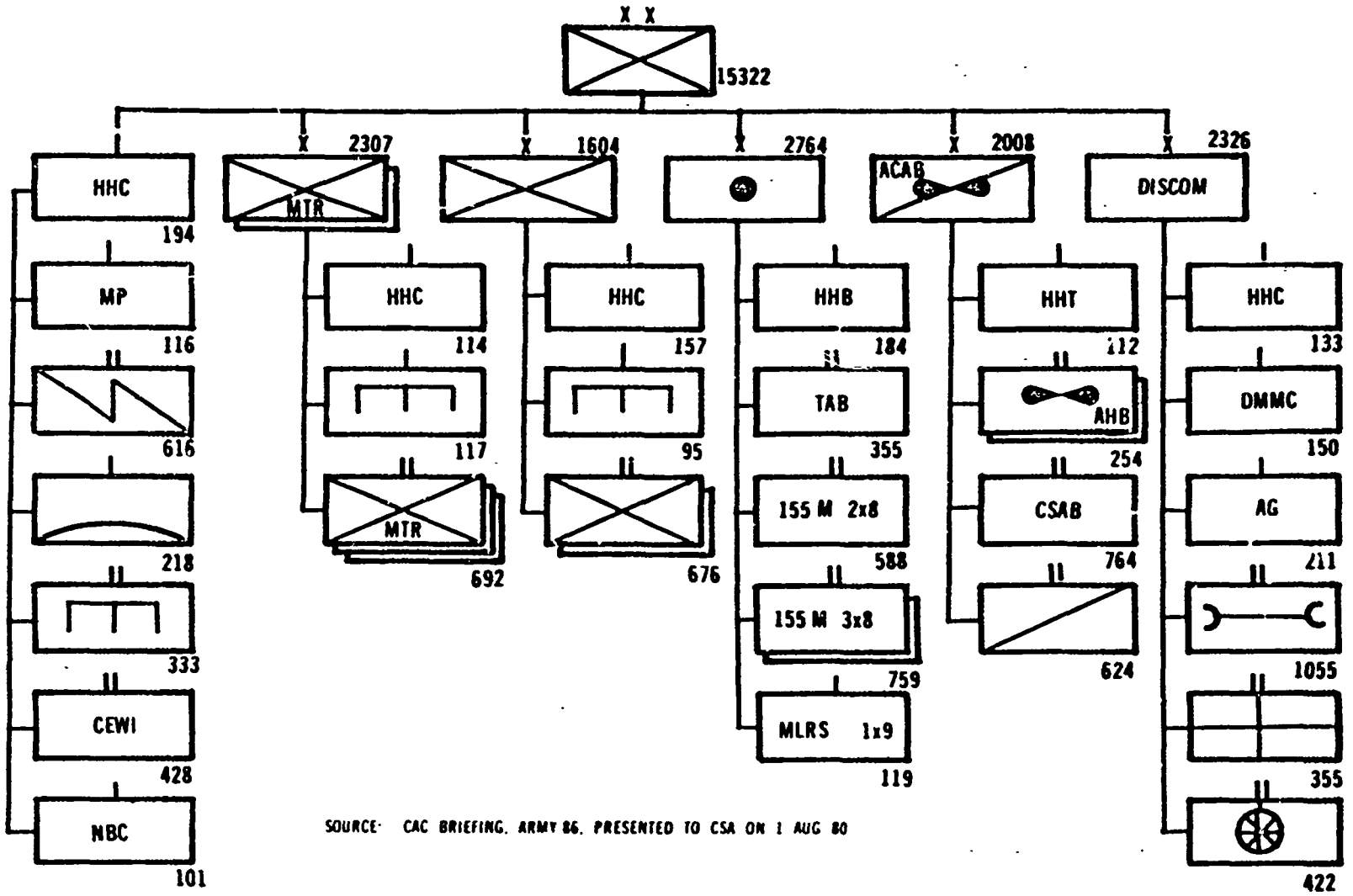
(1) Msg 101515Z Jun 80, Cdr CAC to distr, subj: ID 86 6 Jun 80 IPR Results. (2) Msg 210200Z Jun 80, Cdr CAC to distr, subj: ID 86 Concept Modification.

CHART 6 - INFANTRY DIVISION DESIGN (1 AUGUST 1980)



SOURCE: CAC BRIEFING, ARMY 86, PRESENTED TO CSA ON 1 AUG 80

-- with proper tailoring. Inclusion of the airborne-airmobile brigade would require further revision of the division's operational concept. Responsibilities for the brigade were spelled out. Its capabilities would include establishment of lodgements, raiding outside a lodgement, and in the forward deployed mission, serving as ground infantry.[33]

Through late June and July 1980, the task forces refined the organizations of the third version for planned final presentation to General Meyer on 1 August. There were several changes in these summer weeks. On 30 June, CAC informed the task forces that the airborne requirement was deleted from the 2-battalion brigade -- now airmobile only. On 11 July, at the urging of Engineer School planners, General Richardson added an organic engineer company to the airmobile brigade, standardizing this feature for all three brigades. Richardson also directed restoration of the division maintenance battalion to 1,055 men to accommodate the ground support equipment function. In addition, final nomenclature changes retitled the two mobile brigades, motorized. and the airmobile brigade, infantry.[34]

Analysis of the light division organizations and their capabilities was extensive. The organizations presented on 1 August were supported by analytical comparisons with the current infantry division (C-series) in indirect firepower, direct anti-personnel firepower, anti-BMP[35] and anti-tank firepower, air defense, and electronic warfare. The TRADOC analysts also made analytical studies of mobility and strategic deployability and the issues of survival against various enemy arrays of combat force.

General Meyer Rejects the Third Design

On 1 August, planners briefed to General Meyer an Infantry Division 86 structure 15,322 strong (Chart 6) as part of the general Army 86 presentation of that date. It offered improvements over the C-series division in tactical mobility, strategic deployment, survival, and anti-BMP firepower. It was comparable in anti-personnel and indirect firepower and in electronic warfare.[36]

The Chief of Staff of the Army did not approve the light division design of 1 August. It had undeniable weaknesses and problems. The

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33 Ibid.

34 (1) Msg 301700Z Jun 80, Cdr CAC to distr, subj: ID 86 Airmobile Bde. (2) Msg 301400Z Jun 80, Comdt Engr Sch to Cdr CAC, subj: Engr Requirement, Airmobile Bde, ID 86. (3) Msg 141330 Jul 80, Cdr CAC to distr, subj: Inf Div 86.

35 BMP: the Soviet standard infantry fighting vehicle

36 CAC Briefing, Army 86, presented to CSA on 1 Aug 80.

structure had no significant air defense and no bridging or minefield breaching equipment. A capacity to delay against enemy armor on open terrain was inarguably absent. General Meyer also felt that the organization was ambiguous about the need for, or role of, a light tank or assault gun. Also, the dual gun capability built into the DIVARTY had no clear delineation of dual support. Combat service support requirements such as postal service, clothing exchange, and replacement processing were lacking.

The Department of the Army on 5 August reiterated General Meyer's objections as well as those received from other major Army commands. This critique faulted the division's operational and organizational concepts for a lack of standardization in many details with the concepts of the heavy division. Thus, the 1 August structure had organic brigade engineer companies (while the heavy division did not), but lacked the heavy division's brigade support battalions. The infantry division had no bridging, required a corps air defense unit for support, and fielded only one battery of general support artillery. There were, in addition, two types of infantry battalions in the division. Each of these features should vary between heavy and light divisions, the Department of the Army advised, only when a logical improvement to operations could be shown or cogent reasons dictated.[37]

On 1 August, Meyer directed design of another light division structure which he would discuss in concept during a visit to Fort Monroe on 11 August. The division's dual missions — to fight in contingency areas while having utility in central Europe (including delay in open terrain) -- were reiterated. The light division was to be standardized to the maximum extent possible with the heavy division. It had to be stronger in air defense and anti-tank power, and its tactical and strategic mobility had to be improved. Meyer said force packaging — that is, the dedication of corps units to division functions -- was not an adequate substitute for building the required strengths into the division. He stressed implementation of the Army Science Board recommendations and the design into the division of new technology at every point possible, though he directed the use of existing helicopters and trucks, rather than a new set of wheeled vehicles.

Significantly, Meyer also directed on 1 August that the size of the light division be determined by the capabilities it had to have, not the other way around. Here was the release from the dilemma of attempting to design a light division lightly manned but heavy in combat power.[38]

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37 Msg 051458Z Aug 80, DA to Cdr CAC, subj: Inf Div 86 Alternatives.

38 Ibid.

The Fourth Design

New Guidelines

Plans for the fourth version took form on General Meyer's visit to TRADOC headquarters on 11 August 1980. Meyer suggested that the light division have 9 or 10 battalions, and he did not share the objection of the Department of the Army staff a week earlier to two infantry battalion types. Seven or eight battalions were to be mobile infantry. Two were to be equipped with a protected, air-transportable vehicle anti-armor - assault system able to defeat the T-72 tank. The light division had the mission of killing tanks and light armor -- he made that clear -- as well as its traditional missions.

There was considerable discussion about the required antiarmor assault vehicle needed to defeat types of tanks that might be found in non-Soviet armies in "contingency" areas of the world. The conclusion was that the arguments for this requirement had to be consistent with those being made for requirements against similar tanks facing NATO. The best required combination for the two missions, in the near term, was judged to be an assault vehicle mounting a cannon, and a companion vehicle with a missile system. The long term solution would be to develop, if possible, a single rapid firing system that could be mounted on a light vehicle.

Meyer directed that infantry or "foxhole" strength be at least 2,200 men, with 3 rifle companies to the battalion. He restored the ACAB's much disputed second helicopter lift company and directed a review of the air defense structure. In the engineer function, digging capability, mobility, and countermobility all were to be strengthened and organic bridging added.

On 13 August, General Starry relayed Meyer's instructions and told planners to study an antiarmor protected assault system in detail. The issue, he said, was to get as good a light weapon as possible fielded in the next 5 to 6 years. CAC had in the meantime started the Infantry Center on a requirements document for this system. Standardization was to be stressed in division design, Starry reiterated, despite opportunities for unique arrangements and organizations.[39] On 25 August, CAC assigned the task forces to various tasks arising from the 11 August decisions. These included description of maintenance and support and strategic lift requirements of the dual-gunned DIVARTY concept, and study of a standard CEWI battalion for Division 86 and Infantry Division 86.[40]

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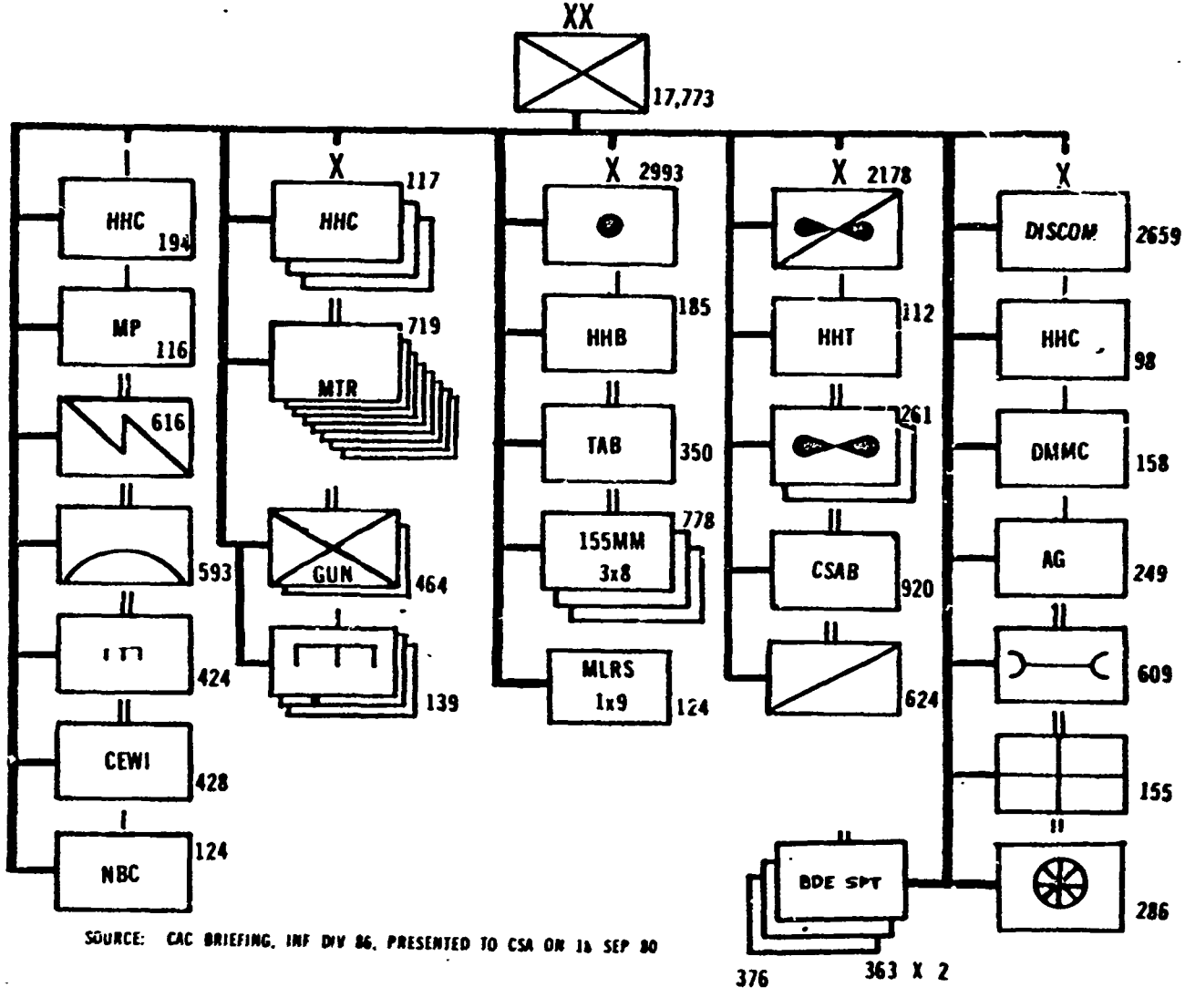
39 (1) CAC Briefing, Inf Div 86, presented to CSA on 18 Sep 80. (2) Msg 071600Z Aug 80, CAC to Inf Cen, subj: Assault Gun MENS. (3) Msg 131900Z Aug 80, Cdr TRADOC to distr, subj: Army 86 Briefings to CSA, 1 Aug 80, 11 Aug 80.

40 (1) Msg 251400Z Aug 80, Cdr CAC to distr, subj: ID 86 and Contingency Corps Conference 8 Sep 80. (2) DF Cmt 2-ATCG, COL Frederick M. Franks, Jr., to Hist Ofc, 27 Oct 81, subj: Army 86 Hist Monograph, Vol. II.

CHART 7 - INFANTRY DIVISION 86 THE LIGHT DIVISION (18 SEPTEMBER 1980)



SOURCE: CAC BRIEFING, INF DIV 86, PRESENTED TO CSA ON 16 SEP 80

Table 2 - TARGET SERVICING WEAPONS DIVISION COMPARISON

	9th Inf Div	C-Series Inf Div	Inf Div 86
Direct Fire Cannon (25-mm.)	0	64	422
M60A1 Tank	66	0	0
XM1 Tank	0	66	0
Mobile Protected Gun	0	0	114
TOW Missile	144	208	128
Dragon/IMAAW Missiles	216	216	512
Advanced Attack Helicopter	0	39	50

Source: TRADOC Bfg, Inf Div 86, presented to General Meyer, CSA, 18 Sep 80.

Infantry Division 86

On 18 September, TRADOC presented and recommended the fourth and final design for Infantry Division 86 to General Meyer for approval. Stronger, larger, at 17,773 personnel, presenting "foxhole strength" of 2,376, the division strength was increased over the earlier designs in virtually all its major organizations. It was standardized to a degree with the heavy division. With 8 motorized infantry and 2 mobile protected gun battalions, it fielded the combat power to execute contingency operations worldwide and to conduct armor-delaying and other NATO missions (Chart 7). Detailed charts with personnel strengths, lists of major weapons and equipment, and characteristics of the new organizations, are at Appendix D.

Target Servicing. With strength of 719 each, the 8 motorized infantry battalions fielded 3 three-platoon rifle companies 123 strong, an anti-tank company with 16 TOW missile launchers, and a headquarters and headquarters company containing a scout platoon and a platoon of 6 improved 81-mm. mortars. The eleven-man infantry squads, 3 to the platoon, were to be mounted in a light armored wheeled combat vehicle (LAWCV) with automatic cannon, 13 vehicles to the company and 39 to the battalion. The scout platoon would be equipped with 8 high mobility multi-purpose wheeled vehicles (HMMWV) mounting cannon. Rifle squads resembled the weapons squads of current infantry organization. The rifle company employed the mobile arms room concept.

At strength of 464 each, the 2 mobile protected gun (MPG) battalions each fielded 4 MPG companies and a headquarters and headquarters company with scout and mortar platoons identical to those of the motorized battalions. Each MPG company had 3 platoons, each with 4 MPG vehicles. A company would field 13 MPGs, a battalion, 58, and the division, 116. Three larger 139-man engineer companies were organic to the 3 brigades. Brigade headquarters and headquarters companies stayed about the same, at 117 personnel.

In the air cavalry attack brigade, restoration of the second lift company in the combat support aviation battalion strengthened the ACAB to a complement of 2,178 men. There was little other change from the previous design. Headquarters and headquarters troop remained the same at 112, as did the 624-man cavalry squadron of 2 ground and 2 air troops -- identical with its heavy division counterpart. The two attack helicopter battalions at 261 men each fielded three attack companies of 7 attack and 4 scout helicopters, thus were standard with those of the heavy division. The 920-man CSAB likewise was standard with its heavy division counterpart except for its additional lift company of 15 utility helicopters. The helicopter complement of 161 numbered 15 more than that of the heavy division ACAB.

Redesigned, the maneuver battalions provided notably stronger anti-tank and anti-personnel direct firepower and a decided gain in tactical mobility. Analytical findings reflected the increase in effectiveness. Table 2 provides a weapons count comparison between Infantry Division 86, the Infantry division current in 1980 (9th Infantry Division), and the C-series infantry division.

Table 3 - SIGNAL BATTALION EQUIPMENT INFANTRY DIVISION 86

Control	Terrestial	Tactical Satellite
5 Position Locating Recording System/Joint Tactical Information Distribution Systems	7 AN/TTC-42	13 Single Channel (MSC-65)
5 AN/MSC-31	47 AN/TRC-113	5 Multi-channel (TSC-85)
4 Communications Nodal Control Centers (TSQ-111)3		
3 Corps Computer Centers (TSQ-111)		
3 Modular Tactical Communication Centers		

Source: TRADOC Bfg, Inf Div 86, presented to General Meyer, CSA, 18 Sep 80.

Specific equipment recommendations came out of the Army Science Board summer study. The recommendations supported the selection of many of the contemplated new and advanced equipment items. These included the mobile protected gun, LAWCV with cannon, HMMWV, the advanced attack helicopter's laser HELLFIRE missile, TOW and DRAGON night vision sights, low-cost night vision goggles, the improved TOW, the IMAAWS-VIPER, a rifleman's assault weapon, and a new squad radio. The board judged several other items such as body armor to be potentially adaptable.

Counterfire and Interdiction. For the division artillery, the final design standardized all three direct support 155-mm. towed howitzer battalions at 3 batteries of 8 -- a total of 72 howitzers for the division. The direct support battalions were 778 strong, raising DIVARTY strength to 2,993. The headquarters and headquarters battery at 185, target acquisition battalion at 350, and the nine-launcher MLRS general support battery, at 124 personnel, saw no major change.

The 105/155 dual gun flexibility for contingency operations was retained. Like its heavy division counterpart, the DIVARTY was primarily responsible for close support of the division's maneuver elements and for counterfire. Analytical scores reflected a considerable increase in indirect firepower over that of the current infantry division. The strong target acquisition battalion employed 3 mortar locating and 2 artillery locating Firefinder radars and other advanced systems to pinpoint enemy assault and follow-on echelons. All these systems were integrated with the division's intelligence, surveillance, target acquisition network.

The DIVARTY incorporated recommendations of the Army Science Board. They included recommendations for a nuclear capability and "smart munitions," tactical fire direction system, battery computer system, position location reporting system, a direct link from fire support teams to battery, and a full battalion rather than a battery devoted to target acquisition. Other recommendations were seen to have potential. These included a wheeled chassis and a tungsten XM74 penetrator for the MLRS and various improvements to the Copperhead round.

Command-Control-Communications. The signal battalion, unchanged at 616 from the earlier design, fielded functional companies for command operations, forward communications, and signal support operations, and performed the same functions as did its heavy division counterpart. Table 3 lists the battalion's major equipment. Several advanced systems indorsed by the Army Science Board were included in battalion equipment. These items included the position location reporting system, directional antennas, the steerable null antenna processor, a full NESTOR communications security system, and low-cost protection against the effects of electromagnetic pulse.

The C3 planners foresaw the addition of significant manpower-saving advanced technology after 1986. These future systems might include modular tactical communications centers for the division main command post, DIVARTY, and division support command; millimeter wave radio and fibre optic cable links in the division main command post; and digital circuit switching for the division area.

The MP company, also unchanged from earlier planning, did the same things as its heavy division counterpart. In the division rear area, it provided circulation control, coordinated the collection and evacuation of enemy prisoners of war, and supplied security for the CEWI battalion. In accordance with the division concept, such traditional division MP tasks as convoy security, passage of lines, rear area combat, motor patrolling, and prisoner of war evacuation, all fell to the brigade scout platoons.

Air Defense. The inadequacy of STINGER teams alone to provide air defense for the division was not disputed, and when the Chief of Staff of the Army lifted the strength ceilings in August 1980, planners restored the needed improved CHAPARRAL missile and light air defense guns. With strength of 593, the air defense battalion fielded a CHAPARRAL-STINGER battery of 188, 3 light gun - STINGER batteries of 98 each, and a headquarters and headquarters battery of 111. This structure, providing the division with 18 light air defense guns, 12 improved CHAPARRALS, 66 STINGERs, and 8 forward area alerting radars, accorded with Army Science Board recommendations.

Mobility-Countermobility-Survivability. The severely limited engineer capabilities of earlier designs were repaired with the 424-man engineer battalion of September 1980. Among its major equipment were 4 medium girder bridges and mine-laying and mine-clearing capabilities. The three 139-man engineer companies organic to the brigades provided direct support. Numerous items of equipment had been recommended by the Army Science Board. Of these, the important universal engineer tractor was adopted along with the Unimog combat engineer excavator and water purifying equipment.

The nuclear-biological-chemical company, remaining separate under the division, was raised to 124 personnel. This strength allowed for four 21-man decontamination platoons manning a total of 24 decontamination apparatuses, and a fifteen-man survey and smoke platoon operating 12 smoke generators. The ACAB cavalry squadron provided reconnaissance for nuclear, biological, and chemical defense.

Intelligence, Surveillance, Target Acquisition. The combat electronic warfare-intelligence battalion, at 428, was not increased. It fielded general support, direct support, and service companies and employed a considerable amount of sophisticated new equipment. Like the heavy division's CEWI battalion, it provided intelligence for direct battlefield use. It centralized management of electronic warfare and intelligence, surveillance, target acquisition, including coordination of the "shoot, jam, and listen" functions. The battalion's all-source analysis center furnished intelligence analysis and controlled the sensors. Through operational control of the special electronic mission aircraft company, the CEWI battalion would provide data to the division from the airborne QUICK FIX and SOTAS systems. Army Science Board items incorporated included applique and expendable jammers, radio direction finding manpacks, and scanning equipment.

Battle Support and Reconstitution. Major changes were made in the division support command as planners implemented the heavy division

concept of brigade support battalions for each of the 3 brigades. Each brigade support battalion contained maintenance, supply, and medical companies. The DISCOM's maintenance, supply and transport, and medical battalions were decreased accordingly. Planners made slight adjustments to the division materiel management center and the adjutant general company. Several support functions remained available only by augmentation. These included clothing exchange and bath, graves registration, decontamination of patients, and personnel replacement.[41]

TRADOC recommended approval of the 17,773-man structure as the objective Infantry Division 86 design for the 7th, 9th, and 25th Infantry Divisions. Rapid completion of requirements documents with the aim of accelerated acquisition of the new equipment was also recommended, as well as start on a transition plan. TRADOC noted the most pressing equipment needs -- the light armored wheeled combat vehicle, the mobile protected gun, the light air defense gun, and the combat engineer excavator.

General Meyer approved the 17,773-man division on 18 September 1980 for planning and testing. He did not authorize programing at this time. Many of the division concepts and organizations were scheduled for testing by the 9th Infantry Division. Meyer also decided on several related specifics. He directed TRADOC to review use of combat vehicles for transport of the infantry battalions. He wanted the use of non-combat vehicles to be considered, as well as the feasibility of pooling the battalions' transportation at brigade or division. But Meyer directed continued work on the proposed LAWCV requirements document. He also directed a reexamination of the use of mortars in infantry companies. Finally, he ordered a close look at the brigade engineer companies in the 9th Infantry Division testing.[42]

The results of the strategic deployability review study were presented on 18 September. Essentially, the light division had three sets of deployment requirements according to mission and phase of operations. These were employment against armor forces, contingency employment against light forces, and employment in assault. These were measured out in terms of C-141 flights. The study recommended restricting outsized loads to a strict minimum, use of as few different types of vehicles as possible, and maximum use of trailers. Operational suggestions were to pre-position division stocks, emphasize fast shipping, have aircraft self-deply, and rely heavily on "smart munitions" and advanced technology generally.[43]

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41 CAC Briefing, Inf Div 86, presented to CSA on 18 Sep 80.

42 (1) Msg 021600Z Oct 80, Dep Cdr TRADOC to distr, subj: Results of ID86/Conting Corps 86 CSA Bfg, 18 Sep 80. (2) MFR DACS-DC, DA Ofc of the Chief of Staff, 22 Sep 80, subj: Lt Div 86 and Contingency Corps.

43 CAC Briefing, Inf Div 86, presented to CSA on 18 Sep 80.

The High Technology Test Bed

In the meantime, planning moved forward for use of the 9th Infantry Division as the "high technology test bed" (HTTB) for test of Infantry Division 86 concepts. TRADOC was instructed to set up a small test group at Fort Lewis which would work under the HTTB test director, Maj. Gen. Howard F. Stone, commander of the 9th Division. Under TRADOC, the Combined Arms Center would sponsor and evaluate the projects selected. The Army's materiel developer, the U.S. Army Materiel Development and Readiness Command, as well as FORSCOM, which commanded the 9th Division, had central roles in the high technology and test endeavor and the three commands drew up a memorandum of understanding which took effect on 8 October 1980.[44]

On 15 October 1980, planners from the three major commands met at TRADOC headquarters to study a list of prospects for HTTB testing. On 21 October, the commanders of the major commands met and approved eight recommended items for evaluation at Fort Lewis during FY 1981-82. These included three equipment items -- the Unimog, squad wheeled carrier, and company mortars. Tests of five organizations and concepts were scheduled -- the brigade engineer company, anti-armor company, cellular command post, command-control-communications and intelligence, and the major units of the air cavalry attack brigade.

On 5 November 1980, CAC assigned proponency for the various organizations and evaluations to the TRADOC Army schools involved. The HTTB test group became operational at Fort Lewis that month. By the end of the year, the Department of the Army had approved a table of distribution and allowances for the test organization, and review of the test plan was underway at the Combined Arms Center. Toward FY 1981 HTTB funding, the Department of the Army provided $1.8 million to start operations. Testing costs were expected to be in the neighborhood of $6. million for FY 1981 and $15. million for FY 1982. First evaluations were scheduled to begin in conjunction with a 9th Infantry Division field training exercise in May 1981.[45]

In December 1980, the light division design, though conditionally approved, lacked firm commitment by the Department of the Army. Its dilemmas -- dual heavy and light missions imposed upon a light division structure, and the heaviness in materiel implicit in a highly mobile, high-technology division whatever its strength -- were not yet fully solved.

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Memorandum of Understanding between FORSCOM, DARCOM, and TRADOC, subj: The 9th Inf Div High Technology Test Bed, s/MG John W. McEnery, CofS, FORSCOM, 18 Aug 80; BG William H. Schneider, CofS DARCOM, 8 Oct 80; MG John B. Blount, CofS TRADOC, 25 Aug 80.

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(1) Semiannual Hist Repts, ODCSCD Plan/Air Land Dir, Apr - Sep 80, (CONFIDENTIAL -- Info used is UNCLASSIFIED) and Oct 80 - Mar 81 (UNCLASSIFIED) (2) Ltr ATCD-ZXA, MG Carl E. Vuono, DCSCD to distr, 20 Jan 81, subj: Status of Current Actions. (Both CONFIDENTIAL -- Info used is UNCLASSIFIED) (3) Msg 051707Z Nov 80, Cdr CAC to distr, subj: 9th Inf Div HTTB Proponency.

Motorized infantry -- any mobility in fact -- exacted high support costs. Nor had the airmobility and airborne aspects of light infantry combat been included to influence the concepts and organizations of Infantry Division 86 to any significant degree. These two division types were scheduled for separate study during 1981.

It also became clear to planners in 1980 that, for the immediate future, no significant selections of high technology permitting reduced manning would be available. The high technology solution lay more distant in time, and it entailed risk and commitment. Thus, the light division design at the close of 1980 faced the likelihood of further change.

Chapter III

CORPS 86 - THE HEAVY CORPS

When General Meyer approved Division 86 in principle along with the formal start of the other Army 86 projects on 18 October 1979, planning to develop the heavy corps, Corps 86, was already well underway. Planners had presented the sketch of a combined corps and division battlefield concept at the Division 86 workshop of late August 1979.[1] The TRADOC commander sent the study directive for Corps 86 to his deputy at the Combined Arms Center, General Richardson, on 16 August, and CAC published a first draft of the Corps 86 study plan on 1 October.

Plans and Change of Plans

The aim of the Corps 86 Study was to develop the most combat effective organization for the Army's heavy corps, one that would integrate new and advanced weaponry and equipment, operational concepts, and human resources. Like its constituent heavy divisions, the NATO-oriented corps faced the general problem of an enemy superior in numbers and with sophisticated equipment. As with Division 86, certain planning factors were all-important -- the new generation of weapons and equipment, the increased stress of modern battle, weapon complexity and the training challenge, and affordability.

The specific objectives of the Corps 86 Study as set forth in August were to develop the corps missions and operational concepts, set its manning and equipment limits and ceilings, and develop a "type" corps. All possible changes in missions and functions and the attendant transfer of personnel and equipment between corps and division were to be examined. Methods to determine the changes required when the corps varied the number and type of its divisions and its area of operations were to be developed. The study would develop the division "slice" needed from the corps to permit a heavy division to operate independently. Finally, the transition from current corps to Corps 86 was to be outlined.

The expected threat in light of which Corps 86 was to be developed was consistent with that of Division 86. Corps 86 was to be structured to fight on the European "integrated" battlefield -- that is, battle including nuclear, biological, or chemical operations. Unlimited air superiority on either side was excluded. Development assumed production of the corps equipment on schedule.

The directive called for development of a basic 4-division heavy corps totaling 140,000 -- that is, a corps structure 60,000 strong commanding

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[1] For a short description, see Romjue, Division 86, p. 103 ff. (CONFIDENTIAL -- Info used is UNCLASSIFIED)

Table 4 - CORPS 86 TASK FORCE ASSIGNMENTS

Battlefield Functions	Task Leader	Principal Corps Organizations	Proponent
Intelligence, Surveillance, and Target Acquistion	BG Teal	CEWI Group, Airborne Inf Ranger Co	Intel Cen Arm Cen, FA Cen CAC, Inf Cen
Interdiction	MG Merritt	FA Bde, FA Bns, Corps Arty HHB	FA Cen
Reconstitution, Battle Support, Force Movement	MG DeHaven	HQ COSCOM, Med Bde, Ammo Gp, Spt Gp (S&S Bn, Maint Bn, Acft Maint Bn), P&A Bn, Petro Bn, Repair Parts Supply Units Postal Det, Avn Units, Truck Units, Terminal Units, Movement Control, Band	Log Cen AHS, Ord Cen, QM Sch, Admin Cen, Trans Cen
Command-Control-Communications	BG(P) Walker	HHC Corps, Sig Bde, MP Units, Civ Affairs Units, Mil History Units, Rear Area Ops Cen, Corps Cmd Ops Cen	CAC Sig Cen, MP Sch IMA
Target Servicing	LTG Richardson	Armd Cav Regt, ACAB, Ranger Bn, RACO Force	CAC Arm Cen, Inf Cen
Counterfire	MG Merritt	(Normally a division function)	FA Cen
Air Defense	MG Oblinger	ADA Group, ADA Bns	AD Cen
Mobility-Countermobility-Survivability	MG Kelly BG Watson	Engr Units NBC and Smoke Units	Engr Cen Chem Cen

Source: (1) Ltr ATZLCA-FS, LTG W. R. Richardson to distr, 31 Dec 79, subj: CD Study Plan: Corps 86. (2) Ltr ATZL-CA-FS, CACDA to distr, 4 Jun 80, subj: CD Study Plan: Corps 86, Change #2.

four 20,000-man heavy divisions. This composition and strength were later revised, as were other features of the early plans. Development would start with a corps consisting of Division 86 objective divisions and current H-series non-divisional corps units employing 1986 equipment -- the familiar "C-series" version of these organizations. The final objective corps organizations were to be derived from operational concepts for those corps missions for which the divisions did not have the primary responsibility. Thus, operational concepts were sought for the corps' employment of its maneuver elements, the covering force battle, interdiction against enemy second echelon forces, rear area combat operations, allocation of combat support, combat service support to the divisions, control and execution of the air-land battle, reconstitution, and nuclear operations. In addition, an overall corps concept would be written, together with concepts for the ten critical battlefield functions. Planners expected at this point to develop and present the corps organizations in the detailed format of automated unit reference sheets.

Just as Division 86, the corps project would harness the 10-function BDP approach and employ the same functional task forces. The project also shared the same distribution of responsibilities between TRADOC Headquarters, the Combined Arms Center, the centers and schools, and other TRADOC elements. Early plans called for formal phases -- formulation, development, and evaluation and synthesis -- punctuated by large workshops and with a final presentation to the Chief of Staff of the Army scheduled for December 1980.[2] Table 4 details the Corps 86 organizations for which each Army 86 task force had responsibility. Colonel John Greenway oversaw the Corps 86 Study along with the other Army 86 studies at Fort Leavenworth. The Corps 86 project officers there were Lt. Col. Del Campbell and Major Keith Reed. Lt. Col. Lowell Bittrich served as study monitor at TRADOC Headquarters until succeeded in April 1980 by Maj. Pete Cahill. Lt. Col. Edward Walker assumed Cahill's duties in July 1980.

In the hundreds of tasks involved in developing a modernized heavy corps, several stood out. Colonel Greenway detailed them for General Meyer on 18 October. There would be a focus on four items -- covering force operations, rear area combat operations, the second echelon battle, and air-land operations. Lesser concerns, but important too, were nuclear-biological-chemical questions, unit resiliency, and the interactions of combat service support, communications, and intelligence systems from division to corps to echelons above corps.[3]

The extensive plan of study for Corps 86 just discussed was to be significantly changed by two decisions of General Meyer at the 1979 Army Commanders Conference on 29 October. Meyer directed that Corps 86 be finished six months sooner -- by summer 1980. Secondly, he directed the

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2 Ltr ATCD-AN, General Donn A. Starry to Cdr USACAC, 16 Aug 79, subj: CD Study Dir: Corps 1986.

3 CAC Briefing, Division 86, presented to CSA on 18 Oct 79. (CONFIDENTIAL -- Info used is UNCLASSIFIED)

Table 5 · CORPS 86 STUDY OBJECTIVES

1. Identify the interactions of all division and corps functional systems and the critical interactions of corps and EAC functional systems -- particularly in command-control-communications, intelligence, air defense, and logistics. Possible exchanges of missions, functions, and assets between division, corps, and EAC are to be examined.

2. Develop the Corps 86 missions and operational concepts, including interrelationships with divisions and critical interrelationships with EAC.

3. Develop a type corps to fight the covering force and rear area battles, provide command and control for the main battle, allocate air-land resources, and logistically support all its elements. Design the covering force, rear area combat operations force, interdiction force, and those organizations essential to performing the critical functions of command-control-communications, intelligence, air defense, and logistics.

4. Describe the corps structure as it develops over time. Starting with the forward deployed units, describe the units that arrive by D+30, D+60, D+90, and D+180, and the interrelationships, interactions, and command-control-communications involved.

5. Plan the transition from the current corps organization and concepts to Corps 86.

Source: (1) Ltr ATZLCA-FS, LTG W. R. Richardson to distr, 31 Dec 79, subj: Cmbt Dev Study Plan: Corps 86. (2) Ltr ATZL-CA-FS, CACDA to distr, 6 Jun 80, subj: Cmbt Dev Study Plan: Corps 86, Change #2 revised the original intervals stated in Objective 4 (M+10, M+30, M+60, M+90).

Table 6 - CORPS 86 PERSONNEL CEILINGS BY BATTLEFIELD FUNCTION (January 1980)

Battlefield Function	Personnel Ceiling (Excluding Divisions)
Intelligence, Surveillance, and Target Acquisition	2,400
Interdiction, Counterfire	10,500
Force Movement	4,300
Reconstitution, Battle Support	24,000
Command-Control-Communications	7,500
Target Servicing	7,000 (+ RACO Force)
Air Defense	(See note)
Mobility-Countermobility-Survivability	10,500
	66,200

Note: Air defense artillery ceiling not yet established.

Source: Ltr ATZLCA-FS, CACDA to distr, 10 Jan 80, subj: Cmbt Dev Study Plan: Corps 86, Change #1.

development of a "maturing" corps as it would build up over a period of several weeks or months. To depict a maturing corps, it would also be necessary to portray a maturing theater army as well. The decision thus signalled a more extensive study of Echelons Above Corps 86. General Meyer's late-October decisions greatly altered plans for the Corps 86 Study. Planners were compelled to shorten and compress their work radically and generally to forego the extensive analytical phases earlier planned.[4]

As planning proceeded through late 1979, there were further developments. An important directive that came out of the Army Commanders Conference required development of doctrine for use of tactical nuclear weapons upon "release" -- that is, immediately upon a decision by the national command authority. This subject had a communications aspect of critical importance. The Department of the Army told TRADOC to work out the critical problems with the Department of the Army Offices of Deputy Chief of Staff (DCS) for Operations and Plans and DCS for Personnel, as well as with the U.S. Army Communications Command.[5] On 21 December, CAC distributed a draft troop list for the Corps 86 organizations. It provided personnel ceilings by battlefield function and by type of corps unit. Ten days later, CAC published the completed Corps 86 study plan.[6]

As stated on 31 December 1979, the study objectives (Table 5) took note of the need for clear depiction of Corps 86 relationships and interactions with Division 86 and Echelons Above Corps. The objective of describing the corps as it developed over time was now added -- from mobilization day at intervals up to M-day plus 90 days. Planners soon substituted D-day for M-day. D-day signified the day of attack by the forces of the Warsaw Pact across international borders. The period of the corps buildup was eventually extended to D plus 180 days.

Personnel ceilings by battlefield function were issued, totaling about 66,000 for the corps exclusive of its divisions (Table 6). The study plan emphasized additional considerations -- the U.S. Air Force role and joint-service and combined (or Allied) operations including the corps' possible command of allied divisions in addition to both heavy and light U.S. divisions. As with the other Army 86 studies, a special task force for the human dimension at the Administration Center at Fort Benjamin Harrison, Ind. addressed the human factors aspect of the organizations.

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4 Greenway Interview, 21 Jul 81.

5 Ltr DACS-DMC, LTG J. R. McGiffert, Dir of the Army Staff to General Donn A. Starry, Cdr TRADOC, 10 Dec 79, subj: 1979 Army Cdrs Conference. (FOR OFFICIAL USE ONLY -- Info used is not protected)

6 Ltr ATZLCA-FS, CAC to distr, 21 Dec 79, subj: Corps 86 Troop List (Draft). (SECRET -- Info used is UNCLASSIFIED) (2) Ltr ATZLCA, LTG W. R. Richardson to distr, 31 Dec 79, subj: Cmbt Dev Study Plan: Corps 86. Draft plans had been published on 1 October and 30 November.

Planners additionally hoped to identify any potential improvements that could be made to the current heavy corps in the near term. The major workshops were now set for March and May 1980, TRADOC approval of an objective corps in June, review by the Chief of Staff of the Army in July, with evaluation proceeding to the end of the year. Development of a light version of Corps 86 was projected to follow.

General Meyer's decision to develop a maturing corps immediately raised the need for an extended "warfighting" scenario. As they drew up the scenario, planners incorporated in it a number of the major doctrinal ideas that General Starry had been pressing in the TRADOC operational concepts and training literature. Thus, the scenario reflected the air and land aspects of battle, integrated nuclear and chemical operations, the offensive flavor of "not avert defeat, seek victory," and a very short warning of attack. In this form the warfighting scenario gained Department of the Army approval for the structuring of Corps 86, though TRADOC and Department of the Army planners were not eye to eye on the short-warning and some other features. By necessity, the warfighting scenario was executed comparatively quickly, and could not provide the same depth of evaluation to Corps 86 as the analytical vehicles of Division 86 had to that study the year before.[7]

Extensive force structure trade-off analysis similar to that of Division 86 had been planned, but on second thought was found less applicable to the corps structure. In any case, time did not permit its use and it was dropped from the methodology. Force and program impact assessment, however, remained an indispensable tool to assess the affordability of the proposed structures and equipment. Logistic consumption rates for divisional and nondivisional combat units of the corps had been prepared during the Division 86 project. On 1 January 1980, consumption data for nondivisional combat support and combat service support units were also supplied.[8] Programed resources for Corps 86 were projected at $713,000 in TDY costs and $277,000 in contract costs.[9]

On 30 January, General Richardson announced firm details of the changed plans. The objective corps structure was to be completed and presented to General Meyer in July 1980. Richardson outlined a new schedule based on small planning meetings. Operational concepts were to be refined by 6 March, when they and an initial corps structure were to be reviewed. A single major workshop was now scheduled -- for early May.[10]

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7 Greenway Interview, 21 Jul 81.

8 Incl 9, "Logistic Planning Factors and Cmbt Dev Study Plan, Corps 86, 1 Jan 1980," to Corps 86 Study Plan.

9 Incl 10, "Resources for Corps 86/88 Study," to Corps 86 Study Plan.

10 Msg 301402Z Jan 80, Cdr CAC to distr, subj: Corps 86 Methodology.

Shortening the project effectively eliminated plans to prepare automated unit reference sheets for the corps organization by mid-1980, and troop lists were substituted. Meanwhile, CAC developed a list of the new materiel programed and expected to be operational in corps units by 1986. The list included many of the new divisional weapons as well as corps systems such as the CH-47D medium lift helicopter.[11] Threat information for the Corps 86 planners was published on 28 February.[12]

The Corps 86 organizations, as well as those of EAC 86, were to be presented in two versions — "required" and "constrained." This method eventuated from a genuine concern felt by the Army 86 planners. General Meyer had told General Starry that the studies should give him the organizations that were required for corps and EAC to fulfill their functions. General Meyer would decide what was affordable. But worried about subsequent percentage or across-the-board cuts of such "required" organizations, the TRADOC planners also developed and presented smaller "constrained" versions having their own organizational integrity. In the end, Meyer would approve the required organizations, but the Department of the Army's Total Army Analysis process would indeed make use of the constrained versions.[13]

Defining the Corps

The Corps 86 project was far less an exercise in structuring than were either of the division projects. The real heart of the corps effort was the operational concepts. It was the corps that carried out the central tasks of air-land operations and interdiction and attack of the second echelon. But these and other corps concerns still raised many development issues.

Definitions of the Corps 86 operational concepts were sufficiently well along for preliminary review by the end of February 1980, and were presented at a Corps 86 - Echelons Above Corps conference held at Fort Leavenworth on 6 March. The March conference revealed much work yet to be done, and the guidance issued by CAC on 12 March reflected the many-sidedness and complexity of corps design.

CAC emphasized that the enemy second echelon was a paramount concern that Corps 86 planners had to keep constantly in mind. In the air support aspect of target servicing, CAC wanted the planners to explore and

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11 Ltr ATZLCA-FS, [illegible] distr, 20 Feb 80, subj: New Systems for Corps 86. (CONFIDENTIAL -- Info used is UNCLASSIFIED)

12 Ltr ATZLCA-FS, CAC to distr, 28 Feb 80, subj: Threat for Corps 86. (SECRET -- Info used is UNCLASSIFIED)

13 (1) Msg ATCD-P/ALD, Cdr TRADOC to distr, 7 Apr 80, subj: Army 86 Command Guidance. (SECRET -- Info used is UNCLASSIFIED) (2) Greenway Interview, 21 Jul 81.

compare the U.S. Marine Corps and the Soviet air support request systems with that of NATO. The need for a self-contained armored cavalry regiment and a corps force dedicated to rear area combat operations were reiterated. Corps aviation units needed to be standardized. The idea of corps employment of a ranger battalion was discarded, but use of airmobile forces in the attack remained a possibility in corps design at this point.

Corps air defense planners were told to complete a picture of air defense artillery from the forward edge of the battle area back to the communications zone and to mesh all the air defense relationships and concepts. The corps artillery functions of counterfire and interdiction presented major challenges and were at this juncture far from defined.

CAC instructed the mobility-countermobility-survivability task force to consider nuclear-biological-chemical and smoke operations fully and to spell out the functions, locations, and communications requirements of each NBC unit. There were many unresolved issues in the reconstitution, battle support, and force mobility areas -- many revolving around transportation, stockage, and forward positioning of supplies. More attention was needed to the subjects of field repair of disabled tanks and other major weapon systems and to the concept of hasty or mass burials in the expected short, intense war.

In the all-important command-control-communications area, work had yet to be done with the military police and civil affairs concepts and with the issue of nuclear release. CAC wanted several other C3 matters examined, including the critical nuclear option. In the intelligence realm, a graphic outline of the intelligence, surveillance, target acquisition organizations was needed.[14]

The "building-up" dimension of Corps 86 from D-day to D plus 180 days has been noted. Briefing General Meyer on the several Army 86 projects on 3 April 1980, planners outlined the "maturing" corps and theater, pointing up the root basis of the whole concept in the actuality of fighting the war. As previously noted, the envisaged Corps 86 - EAC 86 scenario contemplated a short warning of attack, an "integrated" battlefield upon which chemical and tactical nuclear weaponry were very likely options, a major NATO counterattack, defeat of the enemy's assault forces and delay of his second echelon. The SECRET "warfighting" scenario was presented in detail.

The Corps 86 planners saw their task to be to ensure that the Corps 86 troop lists met these scenario requirements, supported the Division 86 requirements, and reflected the emerging operational concepts, and that they meshed with the concepts and organizations of Echelons Above Corps. Out of the Corps 86 project would come not only the requisite corps design, concepts, and troop lists, but a time-phased force development list suited to the maturing corps, and a revised doctrinal manual of corps operations -- FM 100-15.[15]

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14 Msg 121600Z Mar 80, Cdr CAC to distr, subj: 6 Mar Corps 86 Workshop - Results/Taskings.

15 CAC Briefing, Army 86, presented to CSA on 3 Apr 80. (SECRET -- Info used is UNCLASSIFIED)

The Corps 86 Concept

By May 1980, a comprehensive picture had emerged. It was presented at the scheduled corps-EAC workshop which convened during 19 - 20 May at Fort Leavenworth. The workshop was widely attended by the major Army commands and the Department of the Army staff and by the TRADOC center and school commanders. Deliberations of the corps portion focused on the operational concepts so far developed[16] and on the corps organizations to be in place at D-day to D plus 30 days. Planners presented required and constrained organizations. Corps 86 at the D-day stage was a 3-division corps and it was this stage that the workshop considered. Planners would move on to the 5-division corps subsequently. Not counting the divisions, organizational totals were about 95,000 for the required corps force and somewhat over 60,000 for the constrained force.

Planners stated the Corps 86 mission in detail. As part of a NATO force, the corps had to defeat enemy air and land forces in the corps area of responsibility. The Corps 86 operational concept was keyed to the Warsaw Pact doctrine of a war of attack in echeloned mass. This doctrine emphasized momentum and continuous combat on a battlefield on which enemy use of chemicals and tactical nuclear weaponry had to be reckoned with and met in kind, subject to U.S. executive and NATO decisions. In the battle, the corps had to sustain 3 to 5 divisions, 1 or 2 armored cavalry regiments, and strong forces dedicated to rear area security, as well as its other sustaining and supporting elements.

In the constricted confines of West Germany, a country the size of the State of Oregon, there was little ground to safely yield, and corps operations emphasized a forward defense strategy. Planners saw the zones of the tactical battlefield in the familiar terms of the corps rear area, division rear area, main battle area and, beyond the forward edge of the battle area, the covering force area extending to a line that planners coined the forward line of own troops, or FLOT. We have already seen the distinction that planners drew for division and brigade commanders between areas of influence and interest. This distinction, they also applied to the corps. The corps commander's view out beyond the FLOT into a "deep battle area" extended much farther -- an area of influence of 150 kilometers and an area of interest of 300 kilometers.

The general responsibilities of the corps commander were to command the divisions and corps troops, allocate his other units, coordinate the air-land battle, coordinate operations with Allies, integrate all U.S. and Allied sensor data, and protect the rear area. His more specific responsibilities were described as, to "see" the enemy second echelon army, attack the follow-on echelons out to 72 hours beyond the FLOT, provide near instantaneous information to his units, and sustain and reconstitute assigned and designated forces.

Operational concepts for the corps non-divisional units were spelled out. The corps target servicing organizations other than the

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16 Revised Operational Concept, Corps 86, 7 Apr 80.

divisions were an armored cavalry regiment, attack helicopter units, and rear area combat operations forces. Some thought was also being given to corps Special Forces units at this time. In the defense, these organizations defended from the covering force area to the corps rear area. In the offense, they operated to destroy the enemy force, to give forward and flank security, to follow and support, and to operate across the FLOT.

The role of the armored cavalry regiment as covering force for the corps was critical -- the divisions lacked any divisional equivalent, their cavalry elements being limited to reconnaissance. Thus, the corps covering force, in the defense, reported on enemy units and their supporting artillery to the corps. It acted to force enemy assault forces to attack in deployed formations. It shaped the battle through deception, counterattack, and the spacing of enemy units in time, distance, and strength. It employed tactical air when available. In the main battle area, the armored cavalry regiment helped weight the battle, acted as an economy of force organization and as a corps reserve. In the rear, it could act as a rear area combat operations force. In the offense, the covering force screened from the enemy any information about the corps main body. It shaped the battlefield through deception and attack and might employ tactical air.

Planners envisaged a required armored cavalry regiment covering force of about 4,600 men. It would consist of three 3-troop armored cavalry squadrons, a combat aviation squadron, a 155-mm. artillery battalion, a STINGER air defense battery, an engineer company, a combat electronic warfare-intelligence company, and support units. Cavalry troops of 2 tank platoons, 2 scout platoons, and a mortar section of improved 81-mm. mortars were envisaged. The aviation squadron encompassed 2 aero reconnaissance troops, 3 attack helicopter companies, and a support aviation company. The Armor Center at this point proposed another, much stronger ACR of almost 6,000 men, with a combined arms battalion, a 4-troop armored cavalry squadron, DIVAD guns, and other additions.

A dedicated rear area combat operations (RACO) force was another critical corps feature, given the enemy's ability to disrupt rear area operations with airborne, airmobile, or other troops. Unity of command was essential here, and a mobile, brigade-sized force armed with a variety of anti-helicopter, anti-armor, and other weapons was imperative. This had been a conclusion of the RACO study of 1979. Planners proposed a brigade of about 4,600 men with 2 mechanized infantry battalions, 1 infantry battalion, a self-propelled 155-mm. artillery battalion, a cavalry troop, and organic support and engineers. Another proposal was a 3,400-man straight-infantry brigade supported by 105-mm. artillery. The RACO brigade had to be available on D-day. A Reserve Component organization was a possibility.

The Corps 86 aviation concept endeavored to give the corps commander the capability to influence the battle with attack helicopters and with support helicopters for command control, air logistics, and troop lift. The concept also called for support to the divisions -- with attack craft, and air logistics and troop lift helicopters. For functional efficiency, the concept stressed separation of fighting and supporting aircraft and was compatible with the Division 86 aviation concept.

Planners recommended a required aviation force consisting of a 3-battalion air attack brigade about 1,000 strong with 125 helicopters and a combat aviation group of 2,200 men and 208 helicopters (including 72 CH-47D medium lift craft). The air attack brigade provided command-control-communications. It could act to block, reinforce, or counter-attack. It reinforced the division ACABs. It conducted flank attacks on second echelon forces. It contained and destroyed forces in the corps rear area, and it raided the enemy rear. The combat aviation group, containing combat aviation, medium helicopter, and general support aviation battalions, planned and conducted airmobile and air assault operations. It could airlift one maneuver battalion. It provided air logistics to corps and divisions. It provided command control aircraft for the corps and aerial observer aircraft for corps artillery. Planners also presented a corps aviation force constrained to 2,000 personnel and about 240 aircraft.

The operational concept advanced for artillery encompassed interdiction, counterfire, target servicing, indirect fires, and suppression of enemy air defense by corps artillery and by the corps' other artillery armed units. The concept also named corps artillery as the corps alternate headquarters. The integrated battlefield was a significant doctrinal change, and the concept required an integration of all means of ground and air attack -- conventional, nuclear, chemical, and electronic warfare. It imposed major demands -- not only interdiction, joint suppression of enemy air defense, nuclear operations, but reorganization for combat during battle, operations in sustained combat, ammunition and logistical responsibilities, communications, and fire support for rear area security.

Artillery planners envisaged a required corps artillery of about 12,500 to support a 3-division corps. The corps artillery was divided into 4 brigades and fielded 6 battalions of 8-inch howitzers, 6 of 155-mm. howitzers, 4 of multiple launched rocket systems, 3 of LANCE missiles, and a corps target acquisition battalion. Planners recommended a corps artillery, constrained to 10,500 men, that eliminated half the 155-mm. battalions.

The Corps 86 planners described corps command-control-communications as the direction and control of military forces, including communications control, information gathering, and proper staffing. The C3 emphases were those of the larger concept -- the integrated battlefield, attack of the second echelon -- as well as the traditional tasks of maintaining the initiative, skillful allocation of combat power, rapid concentration of combat support and combat service support. Survivability was another watchword. Command post organization received special attention. Because the Corps 86 concept had expanded the corps planning horizons in ways already noted, a required corps headquarters and headquarters company of over 300 personnel was proposed.

Corps communication, employing automatic switching and other advanced concepts, and systems resistant to enemy electronic countermeasures, had to tie in efficiently with division and systems above the corps to facilitate a reliable flow of command and coordination orders. The system also had to furnish an alternate means of communication for subordinate units whose communications were disrupted. It allowed for dispersed command

posts. Planners established a corps command communications system requiring a signal brigade of about 4,200 personnel. A brigade constrained to 100 fewer personnel was also presented.

The military police aspect of corps C3 was particularly vital since MP strength and roles were sharply reduced in Division 86. The corps operational concept enumerated the following duties -- circulation control and security of U.S. vehicles; personnel, materiel, and refugee control; limited rear area combat operations; security to convoys and ammunition shipments of high priority; evacuation of enemy prisoners of war from brigade areas and operation of a POW holding area; operation of a U.S. prisoner detention facility; and, of course, law enforcement. The concept required an increased reliance on local foreign forces. Planners proposed a required MP group of about 2,400 men with 3 MP area battalions and 1 MP guard battalion. This force provided for 1 MP company to the division, 8 MP companies for combat support to the corps area, and 2 guard companies. A constrained MP group of about 2,260 was presented.

The rear area protection concept placed the responsibility for this function on the corps commander, and proposed a coordinating force of 81 personnel. A small civil affairs unit of 94 men was proposed for liaison and coordination with local civil authorities.

Collection and reporting of targeting information and intelligence in near instantaneous time was the focus of the operational concept of intelligence, surveillance, and target acquisition (ISTA). Centralized management of the ISTA and electronic warfare systems and organizations was necessary to fulfill this aim. The general function was broken down into several major tasks -- intelligence preparation of the battlefield, target development, situation development, collector management, electronic warfare, operations security support, and support of counter-C3. The corps intelligence, surveillance, and target acquisition were an integral part of the division-to-national Army system. The concept made intelligence and electronic warfare organic and responsive to the corps commander. It drew on wider sources and disseminated information to combat units in the field in near instantaneous time. Long-range reconnaissance patrols were an additional feature of the concept at this point in the planning.

The ISTA concept united former separate organizations and functions in a combat electronic warfare-intelligence (CEWI) group under the corps. Planners presented a required CEWI group of 1,900 personnel with operations, tactical exploitation, and aerial exploitation battalions. The operations battalion included a corps all-source analysis center. Aerial equipment included advanced surveillance systems -- the Quicklook and Guardrail -- examples of a host of advanced equipment the CEWI group would employ.

The air defense concept called for a short-range air defense group to protect the corps rear, divisional control of the division's short-range air defense, interrelated division-corps-EAC command control systems, an array of air defense systems whose capabilities complemented each other, and centralized direction but decentralized authority to engage enemy aircraft. A required air defense artillery group, 1,150 strong, was

proposed and would consist of a DIVAD gun - STINGER battalion and an improved CHAPARRAL battalion. This force of 24 DIVAD guns, 36 CHAPARRALs, and 90 STINGERs could protect 60 to 70 percent of corps rear area organizations and systems.

Similar to its Division 86 counterpart, the Corps 86 mobility-countermobility-survivability concept stressed flexible forward operations, mobility equal to that of the unit being supported, and regular association with that unit. Division-corps-EAC engineer coordination was close. The operational concept drew on the recent Engineer Family of Systems Study and on a combat-to-support balance study. It also drew on engineer assessments of the V and VII Corps in Europe, and on REFORGER 79. Planners believed that a division's engineering workload required (in addition to its organic engineer battalion) the following corps support -- 3 corps combat engineer battalions, 1 corps combat heavy battalion, an equipment support company, and 2 bridge companies. A significant doctrinal change was the transfer of water production from engineer units to the logistics organizations.

Planners recommended a required 12,300-man engineer brigade of 3 engineer groups. Each group commanded 2 bridge companies, a combat support company, 3 combat engineer battalions (wheeled), and a heavy engineer battalion. A constrained brigade of about 5,700 personnel was presented, eliminating the group headquarters and 11 of the battalions. In the required organization a D-day strength of 8,200 was established — to rise to 12,300 men by D plus 30 days.

The Corps 86 battle support, reconstitution, and force mobility functions encompassed operational concepts for fuel and ammunition resupply and several other logistics tasks. The general support concept emphasized commodity orientation and forward support. An ammunition transfer point was established in each brigade of the division for high tonnage and high usage items. There was a fourth transfer point in each division area for ammunition support. Major weapon resupply would be by general support unit into the division area. Temporary burial sites were envisaged for battle fatalities. Maintenance support was forward oriented and focused on key weapon systems. Transportation support stressed rapid movement around the battlefield and sustained services. Postal and financial services were consolidated by corps, and all financial records eliminated from the theater. Medical support was in the hands of non-divisional elements, with evacuation by ground and air ambulances. The corps provided one combat support hospital and two evacuation hospitals.

The required corps support command (COSCOM), to support a 3-division corps, was 45,000 strong, consisting of 3 support groups, an ammunition group, a transportation brigade, 3 petroleum supply battalions, a medical brigade, a personnel and administration battalion, a financial services unit, and units for materiel management, and explosive ordnance disposal. Each support group, about 8,900 strong, contained a graves registration battalion, supply and service battalion, missile support battalion, two direct support maintenance battalions, a general support combat vehicle maintenance battalion, a communications-electronics maintenance battalion, a ground support equipment maintenance battalion, a wheeled vehicle

maintenance battalion, and an aviation maintenance battalion. The constrained COSCOM version had about 26,000 personnel, with general reductions in nearly all organizations and severely diminished capabilities.

The nuclear-biological-chemical - smoke concept stressed a corps self-sufficient in these capabilities. The avoidance of contamination -- through smoke screening, unit dispersion, good reconnaissance, impermeable covers, and other measures -- was a leading principle. Decontamination by stages -- removing major contaminated items first, completing the job as time permitted -- was another feature of the concept. Chemical weapons would be incorporated into the overall fire and maneuver plan. The corps provided decontamination and smoke services to corps and division areas. Planners recommended a 3,000-man NBC brigade, providing a NBC battalion and a motorized smoke battalion for the corps rear, and a NBC battalion and a mechanized smoke battalion for the division areas.

The air-land planning group presented its concept for coordinating tactical air support. This operational concept was based on current joint doctrine and on procedures developed in NATO. All air operations were jointly planned and coordinated. Of the several types of air operations, offensive air support was most pertinent to the air-land battle. It encompassed distinct operations -- close air support, battlefield air interdiction, and tactical air reconnaissance. Air missions to support the corps and its divisions were apportioned by the joint force commander in consultation with his subordinate land and air commanders. Thus, he apportioned attack aircraft for offensive air support to his Army component commander and air interdiction and counterair to the Air Force component commander. The Army component commander passed on his allocation to the corps commander, who then decided how to apply the sorties at his disposal. His decisions went back through a tactical air control center for action.

The air-land operational concept explained the planning lines, including the FLOT, used in these operations. Offensive air support missions employed the A-10 aircraft. Since the air battle had many aspects in which the Army was uninvolved, Air Force decisions determined when the A-10s were releasable to support ground operations. Various air sortie procedures were outlined, including a concept called "time block flow" in which pre-planned sorties were released during the block of time requested by the corps commander, with final target information provided to pilots as they approached the contact point.[17]

The Corps Takes Shape

The Corps 86 concepts presented at the workshop of 19 - 20 May did not entirely satisfy General Starry. He found that many of the operational concepts needed more clarity. They needed tightening up.

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17 Army 86 Task Force Briefings presented to Corps 86/EAC 86 General Officer Workshop, 19 - 20 May 80, Ft Leavenworth, Kan. (CONFIDENTIAL — Info used is UNCLASSIFIED)

Some were not properly delineated from EAC concepts. Starry issued detailed instructions on 20 May, further elaborated by a message to the task forces ten days later.

The TRADOC commander told planners to depict a "generic" corps and to describe the NATO adaptations later. Exact responsibilities for chemical and nuclear operations and airspace management still had to be set forth. The Corps 86 concept had to say more clearly that the battle against the enemy's assault and follow-on forces began immediately upon the outbreak of hostilities -- whether a corps covering force was in deployment or not.

Starry wanted a clear concept for economy of force operations that the corps normally conducted, described in terms of space and distance. The concept had to treat use of the covering force as the first echelon of defense and it had to treat the battle transition from covering force to main battle area forces. Normally, the corps would command the covering force, which would employ a representative array of corps firepower including air cavalry attack units, sensors, and multiple launched rocket systems.

Regarding rear area combat operations, a dedicated separate RACO force was needed without question. But these responsibilities of the commanders in the rear (including those of the equivalent of the old field army service area) had to be clarified. There had to be more clarity, too, about United States vs. German responsibilities in both corps areas in NATO, Starry said. Organic artillery for the RACO force was at issue, and he directed study of whether the corps artillery should provide it. The enemy threat to the corps rear area, organic air defense in relation to brigade and corps, C2 and its communications requirements, and employment of a SOTAS ground battalion were other RACO issues that needed a hard look and more clarity. The operational concept needed to be developed in terms of forces, fires, and command control. Planners were to consider a force in place on D-day, and a Reserve Components brigade with its command-control-communications in place on D-day.

In the corps target servicing concept, the concept and purpose of the armored cavalry regiment still seemed unclear. General Starry told planners to clarify the established need and requirements for an ACR dedicated to economy of force, security, and reconnaissance operations. Artillery, air defense, and combined arms in the ACR needed a closer look.

The field artillery concept had yet to be filled out and division and corps roles clarified. Starry also directed a focus on requirements for target acquisition units and the problems of adequate sensors. The air defense concept of units organic to the corps was accepted, but Air Force responsibilities in the air defense concept still had to be defined.

The aviation concept needed more attention to the issue of separating the fighting from the supporting helicopters. The TRADOC commander wanted a clear statement of the corps aviation requirement. The organization should be developed according to how many helicopters and aviators would realistically be available.

Starry believed a clear-cut operational concept for headquarters operations still to be lacking for the CEWI group. He ordered a better depiction of requirements. As advised by one of the TRADOC schools, the Institute for Military Assistance, he eliminated the idea of long-range reconnaissance patrols. Linguistic requirements needed attention in the CEWI organization. In the C3 concept, Starry found that headquarters "layering" was a problem in combat support and combat service support -- especially concerning group headquarters.

In other matters, Starry directed continued close work with the U.S. Air Force Tactical Air Command on the joint second echelon interdiction and joint second echelon air defense and other projects. He saw the corps smoke concept and organizations as still too weak. This was crucial since smoke missions had been eliminated from Division 86 with the clear understanding that the corps would pick up these missions. Corps decontamination operations still were inadequate. The nuclear-biological-chemical realm needed more investigation.

Projected strengths for the required corps organizations were issued as the project went into its final stage. Starry set a ceiling of 62,150 personnel to support a 3-division force at D plus 30 days and 96,000 to support 5 divisions at D plus 180 days. In the maturing corps, the fourth and fifth divisions arrived between the thirty-fifth and fiftieth days, one being a light division.[18]

During May 1980, the TRADOC Deputy Chief of Staff for Doctrine, Brig. Gen. Don Morelli, critiqued the Corps 86 operational concept and on 4 June sent his thoughts to General Richardson and the planners at Fort Leavenworth. The critique was fairly comprehensive, and only a few points will be noted here. Morelli found that the concept failed to make clear distinctions in use of Army 86 conceptual terms, clouding some portions. The concept needed more attention to the "time" view of the battlefield and better delineation of enemy follow-on echelons in terms of time intervals. It needed more specifics about the nuclear weaponry that would be available by 1986. Reconstitution and battle support seemed confused in the concept. The NBC portion was deficient. General Morelli attempted to enforce a more precise and consistent use of the conceptual terminology of Army 86.[19]

Most of the Corps 86 organizations were put in order during early June, and considerable effort went into clarifying the operational concept. General Starry approved the Corps 86 operational concept -- subject to resolution of final details by General Morelli -- together with most of the corps organizations at the Army 86 review held during 16 - 17 June.

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18 (1) Msg 302400Z May 80, Cdr TRADOC to distr, subj: Corps 86/EAC 86 Guidance. (2) MFR ATCS-H, TRADOC Historical Ofc, 23 May 80, subj: Corps 86/EAC 86 General Officer Workshop, 19 - 20 May 1980, Ft Leavenworth.

19 Msg 041500Z Jun 80, Cdr TRADOC to Cdr CAC, subj: Corps 86 Operational Concept.

Approving the concept of operations of the armored cavalry regiment, Starry directed several changes. He increased the aero-reconnaissance troops from 2 to 3 in number and changed their title to air cavalry troops. Attack helicopter companies were reduced from 3 to 2. The RACO brigade concept was approved. Keeping the Reserve Component option open, Starry told the Combined Arms Center to work with the U.S. Army Reserve and National Guard to determine their capabilities to deploy RACO brigades in the first fifteen days of mobilization. He approved the corps aviation concept, retaining the medium lift CH-47 units in the corps aviation brigade.

The interdiction concept was approved at the June review, including the corps target acquisition battalion. Starry approved the air defense concept, adding 338 personnel for the SHORAD battalion dedicated to support Infantry Division 86. The air defense electronic warfare system previously considered for corps air defense organizations was deleted. Starry directed the Air Defense School to examine air defense C2 relationships further. The ISTA concept and the constrained CEWI organization were approved. Starry approved the C3 concept and organizations, but with increases in the signal organizations. The MP concept and organizations were approved, along with the engineer and NBC organizations. Starry deferred approval of the combat service support structure pending resolution and integration of the combat to support study by the Logistics Center.[20]

In July, General Starry provided General Meyer the Corps 86 operational concept completed that month, along with the organizational structure in its "required" version. The required force substantially exceeded what the Army 86 planners believed to be an affordable corps, and the smaller constrained version of the corps -- reasonably close to 1986 programed authorizations -- was also provided.[21]

Changes to the Operational Concept

The operational concept of Corps 86 published in July 1980 corrected and clarified the objectionable points that had come to light in the preceding months.

The general concept put stronger emphasis on the necessity for the commander to think in the space-time terms required to defeat enemy forces in contact before the arrival of his follow-on forces. The commander had to divide his time between the area of the battlefield he needed to influence immediately, and the farther distant area of interest. Of course, times and distances varied according to factors of mobility, mission, enemy, terrain, and weather, and troops available. But useful general guidelines for commanders' areas of influence, by level of command, could be stated:

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20 Msg 241600Z Jun 80, Cdr CAC to distr, subj: 16 - 17 Jun Army 86 IPR - Results/Taskings.

21 Ltr ATCD, General Donn A. Starry to General E. C. Meyer, 1 Aug 80, subj: Army 86.

Level of Command	Time	Approximate Distance Beyond Forward Line of Own Troops
Battalion	0 - 3 hrs	5 km.
Brigade	0 - 12 hrs	15 km.
Division	0 - 24 hrs	70 km.
Corps	0 - 72 hrs	150 km.
EAC	72+ hrs	150+ km.

Guidelines for commanders' areas of interest were as follows:

Level of Command	Time	Approximate Distance Beyond Forward Line of Own Troops
Battalion	0 - 12 hrs	15 km.
Brigade	0 - 24 hrs	70 km.
Division	0 - 72 hrs	150 km.
Corps	0 - 96 hrs	300 km.
EAC	96+ hrs	Out to 1000 km.

In this battle view, there had to be constant emphasis on attacking deep echelons early in order to delay, disrupt, or destroy them while simultaneously fighting the assaulting forces. The corps responsibilities here were more extensive and deeper than the division's. The corps operated against the deep defensive echelons, reserves, and reinforcing forces, and interdicted second echelon divisions of the first echelon armies.

The corps directed the air-land battle and provided security in the rear area. It integrated information from all sensor and other intelligence. It sustained and reconstituted forces operating with the corps. The corps worked with local civilian and paramilitary support organizations.

When defending, the corps conducted operations to destroy assaulting enemy echelons. Operations were simultaneously conducted to break up the mass, slow the momentum, and disrupt the enemy's ability to conduct continuous operations. When attacking, the corps sought to destroy or bypass forward enemy defenses, to move rapidly into the enemy rear to destroy command control, logistics, and other "soft" targets, and reserves. In the defense, dispersal in depth was a watchword against the enemy's likely use of tactical nuclear and chemical weapons. In the attack, multiple routes to the objective, and concentration on arrival, were the maxims.

In the changing mood of increasing public support for effective measures to enable the U.S. Army to win in battle, the corps concept of 1980 reflected a new directness about tactical nuclear and chemical operations -- both of which had figured in Warsaw Pact planning for a long time. The planning, coordination, and employment of tactical nuclear and chemical weapons were to be integrated with maneuver tactics.

The corps was the principal headquarters for nuclear fire planning. If cleared by the national command authority, the corps might use nuclear

weapons to disrupt follow-on echelons or, if necessary, to destroy first echelon divisions as an economy of force measure in order to mass forces for an attack elsewhere. In the attack, nuclear weapons could be used to create gaps for maneuver, destroy enemy reserves, obstruct areas in order to restrict enemy movement, and to disrupt enemy electronic operations with bursts calculated to energize the effects of electromagnetic pulse.

Chemical weapons used together with tactical nuclear or conventional weapons, or both, might be employed to disrupt follow-on echelons. But primarily, they were defensive in nature. Their best use was to deny the enemy rapid passage through an area or to channel or interrupt or stop his approach. First use of chemical weapons by U.S. forces remained excluded.

The operational concept document gave detailed concepts for each of the Army 86 functional battlefield tasks as they applied to corps operations. Most of these we have already noted,[22] but some points had since been clarified or elaborated and bear mention here.

The corps C2 system gave the commander the organization, facilities, and procedures to execute his many battle and support responsibilities. The deputy corps commander was generally responsible for operating the corps command post system, rear area security, and for essential corps links with critical support elements outside the corps. Normally, three command posts were established -- the tactical command post from which the commander directed the battle; the main command post with staff elements keyed to seeing the battle, allocating resources, control of the second echelon battle, force planning, and positioning of combat service support; and the rear command post, concerned with sustaining the force and reconstitution.

Placing a premium on survivability, the C2 concept called for dividing the command posts into dispersed functional cells for command, alternative command, current operations, battle coordination, operations support, intelligence, and fire support. Corps communications stressed redundancy, and this was achieved by use of several systems of the TRI-TAC group such as automatic switching of telecommunications, SINCGARS radios equipped with communications security devices, and single-channel tactical satellite communications.

The intelligence, surveillance, and target acquisition concept took pains to sharpen the difference between the two categories of information important to combat commanders -- combat information and intelligence. Combat information was raw data that could be passed directly to units without interpretation, analysis, or integration with other data. Intelligence encompassed all data requiring some form of validation, integration, and comparison with other data or analysis before use. The clear distinction helped ensure immediate access for combat commanders.

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22 See above, pp. 67-72.

Covering force operations were clarified. Tactically self-contained, the covering force operated to provide the main body (the divisions) with warning time, reaction time, maneuver space, and information. Its mission was to develop the situation early and defeat enemy thrusts where possible. The corps provided and usually controlled the covering force. In the defense, it operated between the line of enemy contact backward to the forward edge of the battle area. Aggressive action by the covering force could force the enemy to concentrate, deploy, and reveal his location, direction, and strength. The covering force then passed through the main battle area, and the main body took up the battle.

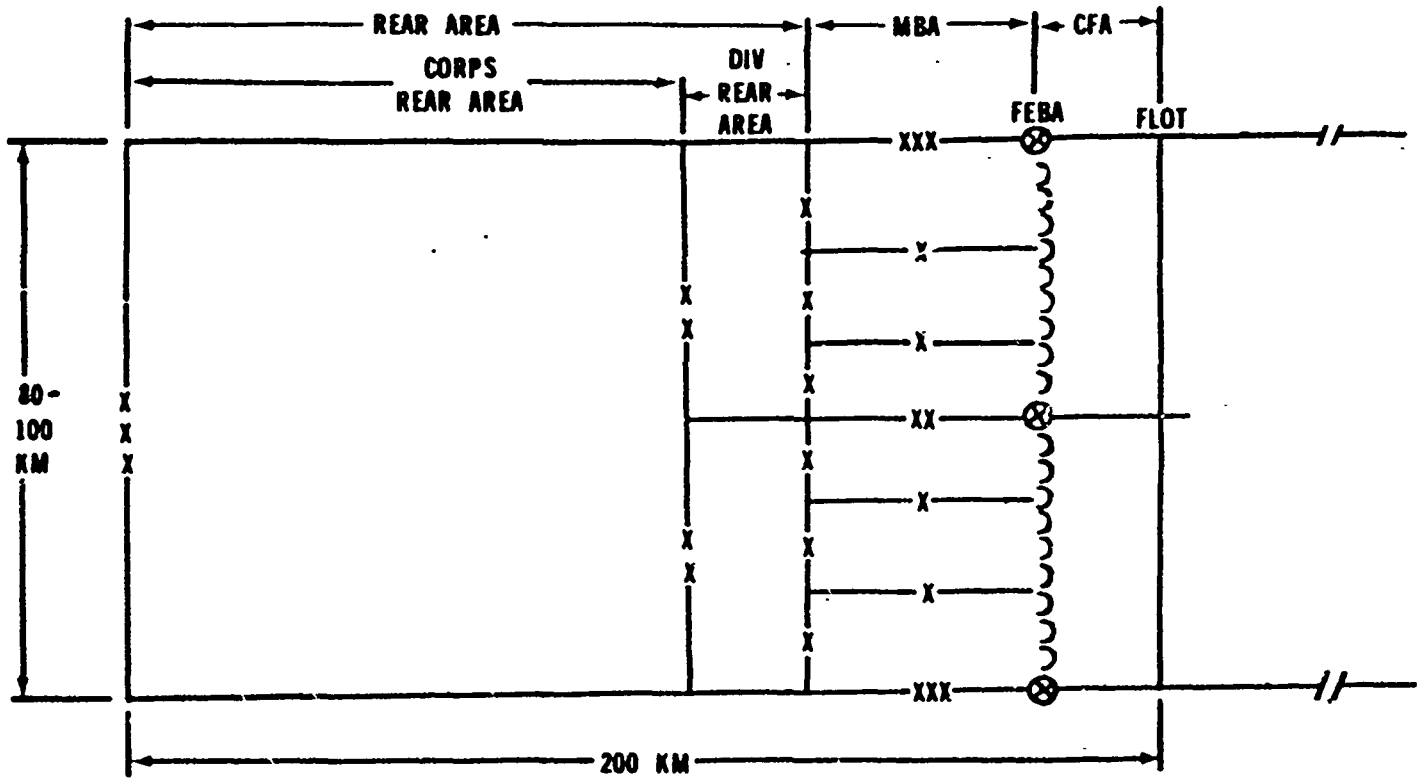
Normally, the covering force was to be organized around tank-heavy battalion task forces and regimental cavalry and might include attack helicopters, field artillery, air defense, and engineer units. The corps determined whether it or the division organized the covering force. Cavalry squadrons from the corps armored cavalry regiment and divisional units typically made up the covering force. In the offense, the corps ACR might act as the covering force without reinforcement, but normally would be reinforced.

The interdiction concept depended strongly on U.S. Air Force tactical aircraft in accordance with the types of missions and procedures previously detailed, but also included Army cannon, rockets, and missile systems. As a general principle, the weight of tactical air forces was to go to attacking follow-on echelons, once the enemy had begun his main attack. During offensive operations, the weight of tactical air striking force would be used against enemy reserves. Army and Air Force planning and operations were integrated at the corps level. The Army element provided, interpreted, and exchanged information, and coordinated and requested air support. The Air Force element executed the immediate and pre-planned air support. This air-land coordination took place through the Air Force air support operations center at the corps, the air liaison officer at division, and the tactical air control party system. Corps airspace management was handled by the corps air traffic control unit. Coordination procedures were also established for second echelon air defense.

The air defense concept stressed passive air defense measures such as hardening, dispersing, and concealing, as well as active air defense. Destruction of enemy air facilities, early detection of enroute enemy planes, and integration and central management of the corps air defense net were stressed. Basically, the corps air defense artillery protected the corps rear area, reinforced divisional air defense artillery, and provided air defense to covering forces.

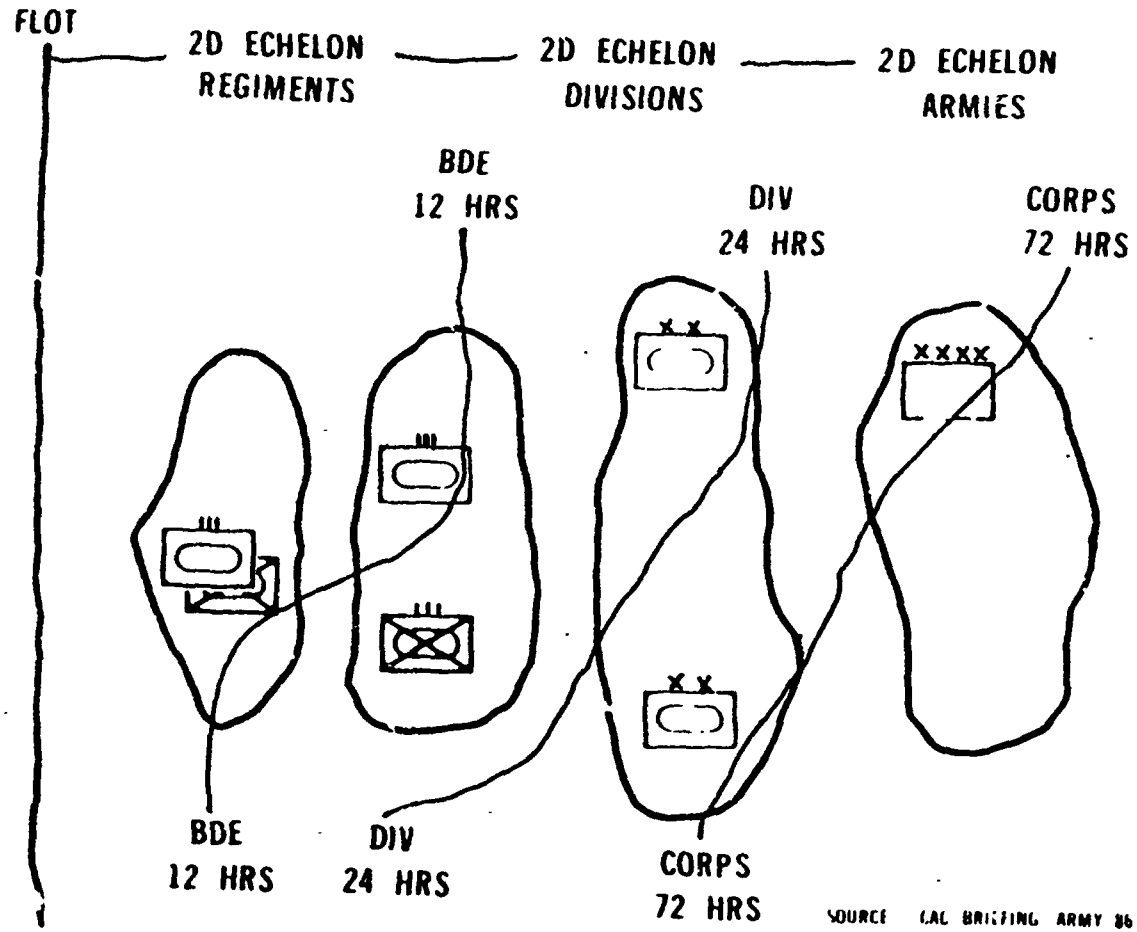
The reconstitution concept was related more specifically to units whose combat losses or damages had rendered them ineffective. Recovery measures were clarified and enumerated. They included the reestablishment of the unit's command control, damage assessment, security procedures, emergency medical procedures, damage control, battlefield recovery evacuation, and repair of damaged equipment. The concept employed survey and reconstitution teams. Repair and replacement of key systems and supplies were stressed.

CHART 8 - THE CORPS AREA



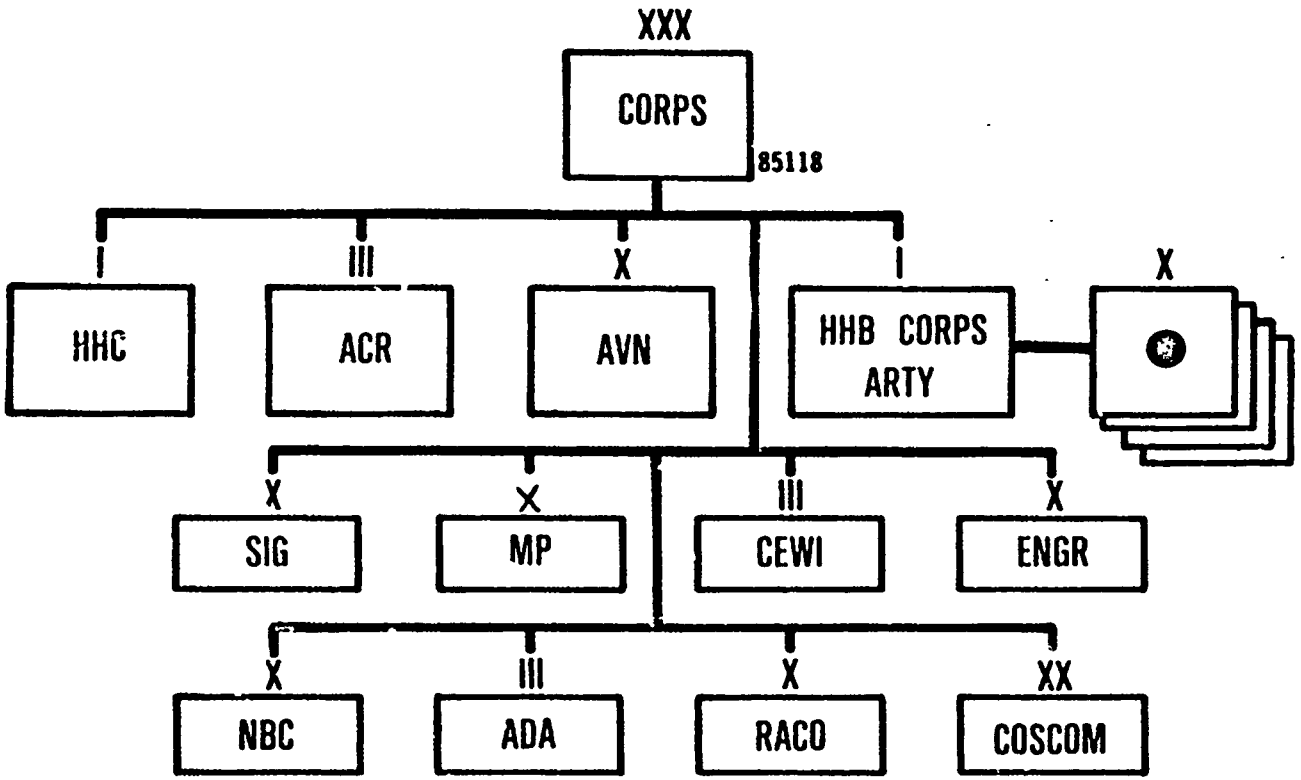
SOURCE: CAC BRIEFING, ARMY 86, PRESENTED TO CSA ON 1 AUG 80

CHART 9 - AREAS OF INFLUENCE OF BRIGADE, DIVISION, AND CORPS COMMANDERS



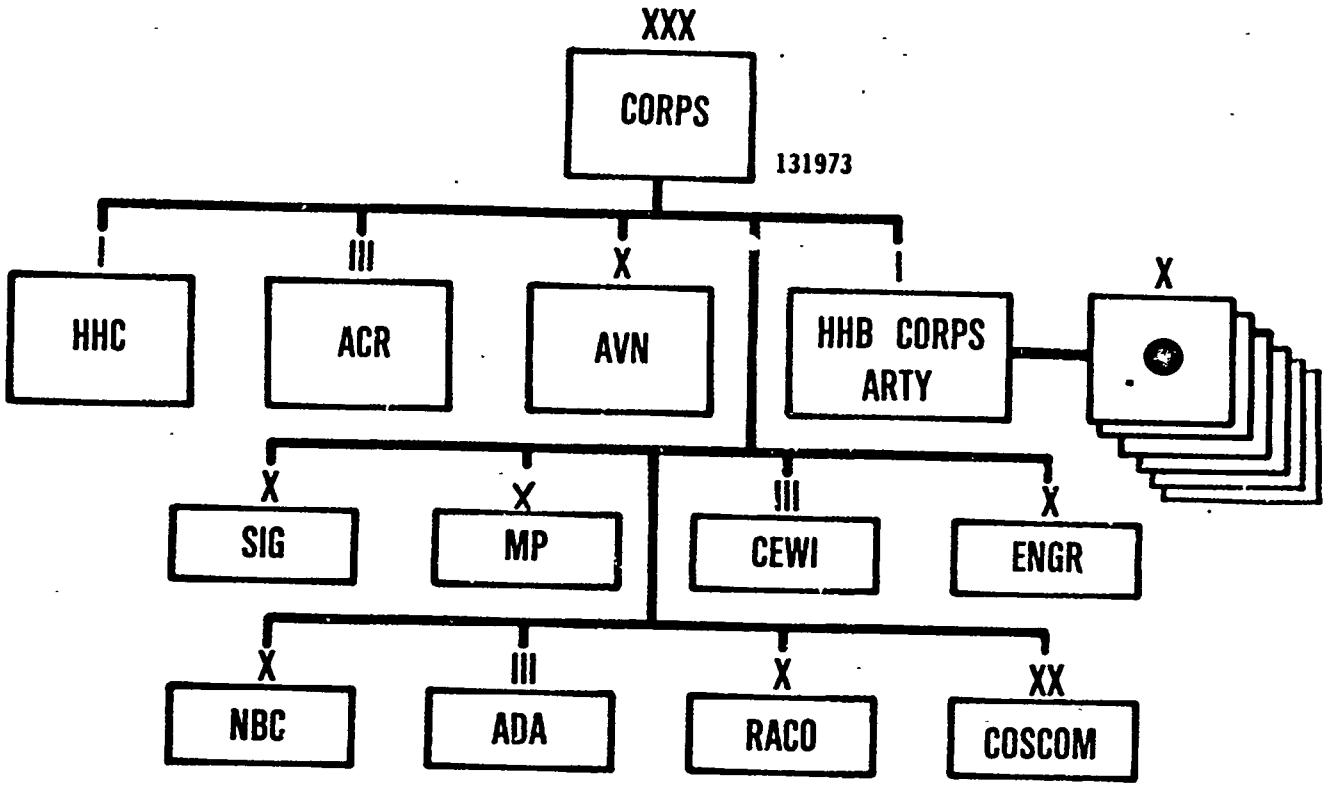
SOURCE CAC BRIEFING ARMY 86
PRESENTED TO CSA ON 1 AUG 80

CHART 10 – CORPS 86 D-DAY REQUIRED FORCE D-DAY TO D+ 30 DAYS



SOURCE. CAC BRIEFING. ARMY 86
PRESENTED TO CSA ON 1 AUG 80

CHART 11 – CORPS 86 REQUIRED FORCE D+60 TO D+180 DAYS



SOURCE: CAC BRIEFING, ARMY 86, PRESENTED TO CSA ON 1 AUG 80.

Rear area combat operations, directed by the corps commander, were managed and coordinated by the corps rear area operations center in the G3 section. The rear area operations center dealt with major attacks by enemy airmobile or airborne units or ground units of battalion or regimental size, as well as with sabotage and terrorist activities and lesser incursions. The divisions planned and directed this combat function in their own rear areas. To keep the corps area secure, the corps would use the dedicated RACO brigade, pre-positioning the brigade's battalions near likely trouble spots. The rear area operations center used support teams to coordinate rear area combat operations with the other corps units in the rear. The RACO brigade could be committed as a single large force or by battalion according to the seriousness of the incursion. Minor disruptions would ordinarily be dealt with by MP units or local forces. The corps provided artillery support to the RACO brigade.[23]

Meyer Approves the Objective Corps

The objective corps was presented to General Meyer for approval on 1 August 1980. It was structured to support three to five divisions, an armored cavalry regiment, an aviation brigade, and a RACO brigade. Briefers presented the maturing corps in two stages — the force for D-day to D plus 30 days, and the force for D plus 60 to 180 days. Chart 8 provides a theoretical outline of the corps area. Chart 9 gives a rough representation of the corps, division, and brigade commanders' areas of influence in terms of time.

The corps force required from the outbreak of hostilities through the first month numbered 85,118 personnel (Chart 10). A constrained force of 59,750 was presented. These and the following strengths do not include the corps' divisions. Briefers presented a mature corps 131,973 strong (Chart 11). Its constrained counterpart was put at 97,286 personnel. Designed for operations in NATO, the objective corps could be modified for action elsewhere. Detailed charts noting characteristics and deficiencies of the Corps 86 organizations are at Appendix E.

The corps headquarters and headquarters company, designed for cellular operations and with its rear area operations center cell in the G3 section, was established at 258 personnel on D-day, rising to 349 when filled out between D plus 60 and 180 days.

The armored cavalry regiment, at full strength on D-day, numbered 4998 and fielded 3 cavalry squadrons, each with 3 cavalry troops and a tank company. Cavalry troops had both scout and tank platoons, and the ACR fielded 129 main battle tanks and 108 cavalry fighting vehicles. There were fire support elements and fire support teams with ground laser locator designators in each squadron. The ACR's artillery was a self-propelled battalion of 3 batteries of eight 155-mm. howitzers. Its air defense was

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(1) Incl 3, "Corps 86 Operational Concept, July 1980," to ltr AFCD, General Donn A. Starry to General E. C. Meyer, 1 Aug 80, subj: Army 86. (2) For a full statement of the operational concept, see TRADOC Pam 525-5, US Army Operational Concepts, The Air Land Battle and Corps 86, 25 Mar 81.

stronger than earlier conceived, with 12 DIVAD guns as well as STINGER missiles. The ACR's aviation battalion included 26 attack helicopters, along with 26 scout and 18 utility helicopters. There were organic engineer, CEWI, and NBC companies.

The Corps 86 planners established a consolidated corps aviation organization, the aviation brigade (here, the constrained, not the required, version was presented) would number 2,124 personnel in the first 30 days, rising to 3,028 when filled out. The initial organization could field a general support aviation battalion and 3 attack helicopter battalions. Between D plus 60 and 180 days, the aviation brigade would expand to include a medium helicopter battalion and a combat aviation battalion and a total of 321 aircraft. This strong air brigade could meet all envisaged corps needs and provide the required attack, troop lift, and logistics support to the divisions.

Corps artillery was established 10,149 strong for the first 30 days, rising to full strength of 14,483. As with corps aviation, the corps artillery changed as it matured, beginning with 3 artillery brigades and 3 LANCE battalions, then picking up 2 additional brigades and a multiple launched rocket system battalion. The first 3 artillery brigades fielded two 8-inch battalions of 3 batteries of 8, a 155-mm. battalion of 3 batteries of 8, and a multiple launched rocket system battalion of three 9-launcher batteries. The remaining two artillery brigades were weaker by one 8-inch battalion. Corps 86 artillery thus fielded a total of eight 8-inch battalions, five 155-mm. battalions, and six multirocket battalions, together with its target acquisition battalion, LANCEs, and artillery aviation. The configuration allowed for an artillery brigade in support of each division. All together, corps artillery put in the field 192 8-inch pieces, 120 155-mm. howitzers, and 162 MLRS launchers.

The signal brigade, with 4 area battalions, would grow from 4,131 in the first month to 5,085 in final form. The MP group, at 1,800 initially and rising to 2,146, provided 11 companies in 3 battalions.

The CEWI group was 1,666 strong at D-day and rose to an eventual full strength of 1,812. Some deficiencies remained. It could provide communications and electronics intelligence coverage less than 12 hours out of 24, and it had only a limited capability to serve the aerial Quicklook and Guardrail systems. But it did provide considerable support to the divisions in targeting information and intelligence by covering sensor gaps and by weighting the attack or defense.

The corps engineer brigade rose in strength as it matured, from 7,076 to 13,512. Units were structured in accordance with the Revised Engineer Active Force Study -- as had been the units of Division 86. By concept, the engineer brigade commander was the corps engineer, and there was a central headquarters for all engineer functions. With three groups, the brigade provided 12 combat engineer battalions (half of which were mechanized), 3 heavy combat engineer battalions, 3 bridge companies, and 3 combat support equipment companies. The organizations remained deficient in several capabilities -- construction of fighting positions, building and reducing obstacles, and laying and breaching minefields.

The air defense artillery group matured from a battalion-sized force of 627 personnel in the initial period to a 1,488-man group between D plus 60 and 180 days. The organization was limited to high priority defense when filled out, and there was no all-weather, short-range air defense capability. Besides a combined gun - STINGER battalion and an improved-CHAPARRAL battalion, the air defense artillery group contained a SHORAD battalion for support of a corps light division.

The nuclear-biological-chemical brigade consisted of a NBC battalion and a partially mechanized smoke battalion. Operating in the corps rear area, a NBC reconnaissance company located and marked contaminated areas. The NBC company followed up to decontaminate. More than half of the smoke companies were mechanized. The brigade was deficient in strength for both functions, however. For example, it could provide only about 50 percent of the needed smoke screens for division and corps, and smoke service to the divisions was on a mission basis.

The corps support command, 25,471 strong on D-day reached 45,571 in final configuration. Its features have been previously noted. Deficiencies remained in major functions -- maintenance and supply, ammunition support, transportation, petroleum support, medical services, personnel and administration, explosive ordnance disposal, and graves registration.

The RACO brigade was established at 2,792 personnel by D plus 30 days. It consisted of 3 motorized battalions and an organic engineer company and cavalry troop.

TRADOC recommended that Corps 86 be approved as the heavy corps for deployment on the European battlefield and recommended the start of transition planning for those corps units that would require restructuring.[24] On 1 August, General Meyer elected to approve the required force for force planning as the Corps 86 base design for NATO deployment. The constrained force design was kept as a tool for programing. The corps air defense remained doctrinally unresolved, and Meyer directed on 1 August a complete review of air defense command control from division through EAC. But the Chief of Staff of the Army was satisfied with the corps design presented. He directed the preparation of transition plans for those corps units requiring restructuring. The ACR, RACO brigade, ADA group, and NBC brigade were the major units requiring transition planning. Most other corps units were not substantially changed. Unlike the division organizations, many of the corps organizations were not dependent on the new wave of equipment and weaponry. Meyer at this time also directed the separate development of a leaner light corps for employment with the light division and capable of defeating Soviet or other forces in a Mideast contingency.[25]

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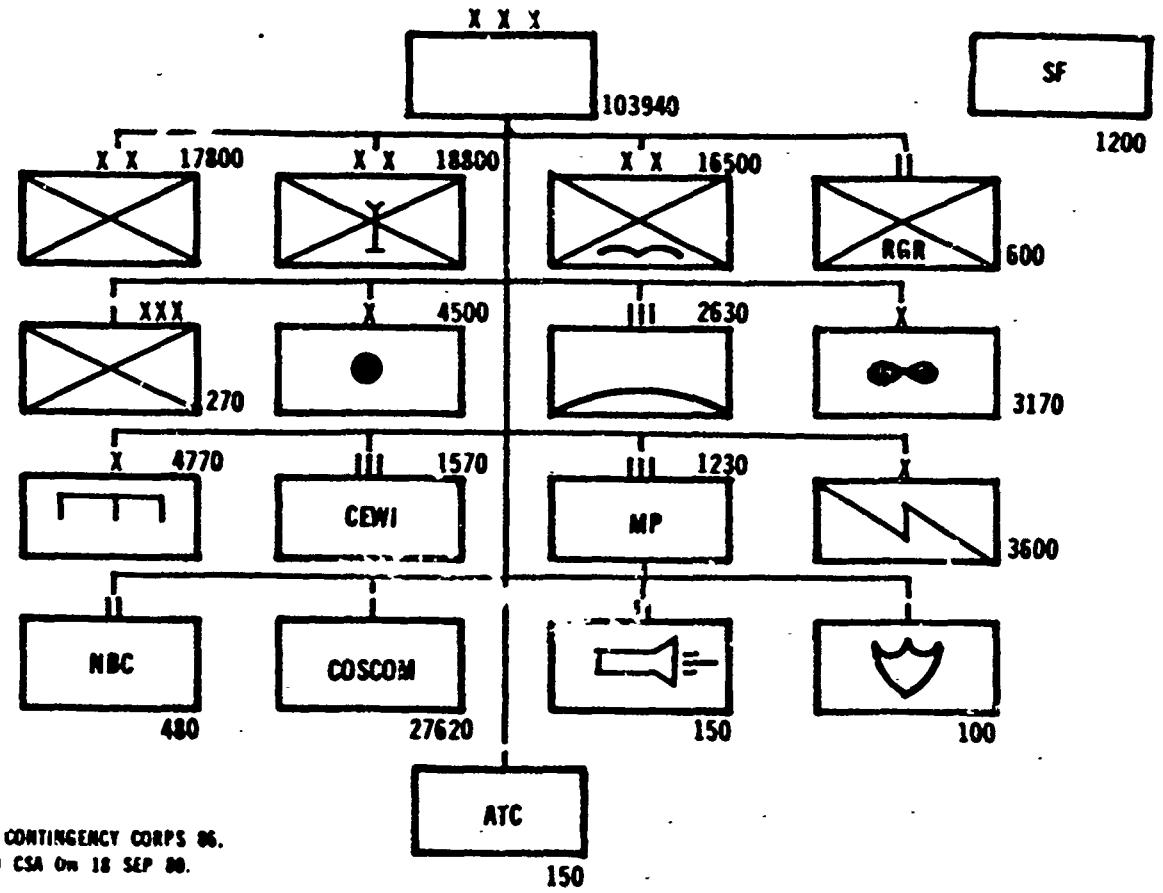
24 CAC Briefing, Army 86, presented to CSA on 1 Aug 80.

25 (1) Msg 131900Z Aug 80, Cdr TRADOC to distr, subj: Army 86 Briefings to CSA, 1 Aug 80, 11 Aug 80. (2) MFR, TRADOC Historical Ofc, 5 Aug 80, subj: TRADOC Staff Meeting, 5 Aug 80. (3) DF ATCD-ZX, DCSCD to Chief of Staff, 14 Aug 80, subj: DCSCD "Hot Items."

CHART 12 - CONTINGENCY CORPS 86 PRELIMINARY DESIGN



SOURCE: CAC BRIEFING CONTINGENCY CORPS 86. PRESENTED TO CSA On 18 SEP 80.

Planning for a Contingency Corps

General Meyer's directive on 1 August 1980 for development of a light corps to support Infantry Division 86 operations started action on yet another Army 86 project. At the 11 August conference at Fort Monroe, this idea developed into a proposal for a contingency corps. Corps 80, just completed, was to be examined for elements adaptable to contingency areas. Planners also intended to look at a Mideast heavy-light corps study of 1973[26] and review the XVIII Airborne Corps structure. Meyer thought that a contingency corps of about 100,000 men including its three divisions was about right.

In the weeks following the 11 August meeting, a preliminary concept of a self-sustaining contingency corps, focusing on a 60 to 90-day deployment in desert and mountain terrain, was prepared. An important consideration in view of the increasing military activity of the Soviet Union beyond the borders of its satellites, was that armored and technologically proficient forces could not be excluded from the contingency corps planning. In addition, it seemed apparent that, though contingency corps design had to be light in combat service support, the likelihood of local support would be questionable at most.

On 18 September 1980, Army 86 planners briefed the concept of the contingency corps in outline and proposed a structure. They spelled out three basic requirements. The contingency corps had to be capable of rapid deployment worldwide to protect U.S. interests. It had to be capable of defeating Soviet or other forces in a short, violent conflict. It had to sustain itself from forward or sea bases with a minimum of combat service support. Planners saw other important design considerations. The contingency corps required establishment of a lodgement. It needed to be compatible with joint task force operations. It would depend heavily on the U.S. Navy and Air Force. It had to take full advantage of 1986 technology.

A 3-division contingency corps of just over 100,000 men and split almost evenly between combat and support strength, was outlined (Chart 12). Besides establishment of an effective contingency corps structure, complex deployment analyses lay ahead. At the least, these analyses would involve sea shipment and air lift; time phasing; special ammunition, rations, water, and other requirements; as well as joint task force and echelons above corps requirements.[27]

General Meyer approved the contingency corps structural outline on 18 September for development and analysis, setting its completion for

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26 Rept, Heavy/Light Corps Middle East (HLC-ME) Evaluation, July 1974. (SECRET -- Info used is UNCLASSIFIED)

27 (1) DF ATCD-ZX, DCSCD to Chief of Staff, 14 Aug 80, subj: DCSCD "Hot Items." (2) Msg 251400Z Aug 80, Cdr CAC to distr, subj: ID86 and Contingency Corps Confer. 8 Sep 80. (3) CAC Briefing, Contingency Corps 86, presented to CSA on 18 Sep 80.

June 1981. He directed examination of the contingency corps based on a scenario without use of pre-positioned stocks. When the organizations were firm, he wanted the structure examined in other scenarios, too -- in particular, Korea and Southeast Asia -- in order to confirm its utility worldwide.[28]

For planners at the Combined Arms Center, the contingency corps idea raised obvious questions. Was a light corps suitable for Mideast deployment? Could the strategic airlift and sea lift that was projected for 1986 sustain the contingency corps? Could it be realistically sustained without forward bases and pre-positioned stocks? What were the major support considerations with respect to echelons above corps and the base in the continental United States?[29]

At the close of 1980, Army 86 planners were examining these and other questions as they prepared a concept statement for the contingency corps, for development in 1981.

Like its constituent heavy divisions, Corps 86 was a carefully thought out fighting organization. The operational maneuver rooted in its concepts -- disruption and attack of the enemy second echelon simultaneously with defeat of the enemy assault -- was an important contribution to military theory at the operational level. Like the heavy division, too, Corps 86 embodied a consensus among planners that the Army would face the mid- and late-1980s with a sound and strong corps.

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28 (1) MFR DACS-DC, Ofc of the CSA, 22 Sep 80, subj: Lt Div 86 and Contingency Corps. (2) Msg 021600Z Oct 80, Dep Cdr TRADOC to distr, subj: Results of ID86/Contingency Corps 86 CSA Bfg, 18 Sep 80.

29 Msg 022220Z Oct 80, Cdr CAC to DA, subj: Corps Conference Issue Paper.

Chapter IV

ECHELONS ABOVE CORPS 86

While the impetus for the corps and division studies of Army 86 was generated by the modernizing demands of materiel and doctrine, the Echelons Above Corps 86 Study arose out of the need to establish an efficient theater framework for these redesigned fighting forces. It was undertaken also to fill doctrinal problems that had existed above the corps since the early 1970s.

The Echelons Above Corps (EAC) Study confronted the gaps in doctrine left by Department of the Army decisions that had eliminated four Army headquarters above the corps between 1973 and 1976. Acting on the recommendations of the Echelons Above Division Study approved by the Chief of Staff of the Army in 1973, the Department of the Army had that year abolished the next headquarters above corps, the field army, along with the field army support command. Extending this consolidating trend, the Department of the Army had by 1976 eliminated the theater army support command and its subordinate materiel command as well.

We have already seen how the elimination of the field army complicated Air Force - Army close air support procedures. But this was only one of many effects. The combat service support responsibilities of the eliminated commands devolved during this period in great part upon the corps. Thus, the two corps in Europe came to stock their own 30 days of supplies and to do their own general support maintenance. Predictably, such changes hampered the corps' mobility, and U.S. Army, Europe had found it necessary to act to ameliorate the effects of these changes. USAREUR adjusted its combat service support so that the theater army command stocked the 30 days' supplies (the corps stocked 10) and performed about 35 percent of the corps' required maintenance. USAREUR also undertook a peacetime solution to the doctrinal void by establishing the 21st and 7th Support Commands to back up the Central and Northern Army Groups in Germany.[1]

The essential task of the EAC Study -- the fourth major effort of Army 86 — was to prepare operational concepts and organizations to define and structure the bridge between the sustaining base in the continental United States and the forward deployed corps and divisions of USAREUR. Theater army was the current type headquarters performing this function. It occupied and controlled the theater communications zone -- the area forward from the ports to the corps rear boundary.

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[1] Study Rept, Echelons Above Corps (EAC - Phase I), USACAC, 15 Aug 80, 6 vol. (hereinafter: EAC Ph I Rept), Vol. IV. This report was printed and distributed by ltr ATCD-AM, TRADOC to distr, 19 Dec 80, subj: Final Rept, Echelons Above Corps Study (EAC), Phase I.

Getting Started

The issue of how to do the EAC Study came up immediately upon General Meyer's decision on 29 October 1979.[2] Army echelons above corps did not share the division's and corps' battlefield functions. Mainly involved instead were logistics and management -- not combat -- issues. Colonel Greenway and the Leavenworth planners did not see how the schools and functional task forces of Army 86 could, as organized, effectively execute the EAC 86 Study with its markedly different emphases. After some discussion, General Starry and General Richardson agreed that the answer was a separate study group.[3]

General Meyer assigned TRADOC the study on 29 October at the Army Commanders Conference, and on 15 November, when the annual TRADOC Commanders Conference convened at Fort Benning, Starry directed establishment of the EAC study group at Fort Leavenworth. He subsequently requested the necessary funding, which Meyer approved. A total of $125,000 was eventually allocated. During December, General Richardson began to form up a small study group at Fort Leavenworth. Initial meetings were held on 18 December and 8 - 9 January based on a preliminary directive from the Department of the Army. Pending issuance of the final directive in late February, the Department of the Army on 11 January formally approved launching the study.[4]

Meanwhile, TRADOC's detailed EAC directive was completed and Starry sent it to Richardson on 21 January. Brig. Gen. Fred F. Woerner was named director of the EAC study group, assuming his duties on 24 January. The Combined Arms Center published the study plan on 19 February, and two days later the Department of the Army distributed its formal directive for the project.[5]

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2 See above, pp. 60, 63.

3 Greenway Interview, 21 Jul 81.

4 (1) Ltr DACS-DMC, LTG John R. McGiffert, Dir of the Army Staff, to General Donn A. Starry, Cdr TRADOC, 10 Dec 79, subj: 1979 Army Commanders Conference. (FOR OFFICIAL USE ONLY -- Info used is not protected) (2) Ltr DAMO-RQS, MG Fred K. Mahaffey, Dir of Rqmts. DA ODCSOPS to distr, 17 Dec 79, no subject. (3) Ltr ATZLCA-EAC, LTG William R. Richardson, Cdr CAC to distr, 19 Feb 80, subj: CD Study Plan: Echelons Above Corps (Phase I). (4) Memo ATCD-P/ALD, LTC Bittrich to BG(P) Vuono, 19 Dec 79, subj: EAC Study. (5) Msg 111530Z Jan 80, DA to distr, subj: EAC Study.

5 (1) Msg 281750Z Jan 80, Cdr CAC to distr, subj: EAC Study. (2) Ltr ATCD-AN, General Donn A. Starry to Cdr USACAC, 21 Jan 80, subj: CD Study Dir: EAC for the 1980-1990 Decade (EAC 86). (3) Ltr ATZLCA-EAC, LTG William R. Richardson to distr, 19 Feb 80, subj: CD Study Plan: EAC (Ph. I). (4) Ltr DAMO-RQS, MG J. C. Pennington, The Adj Gen to distr, 21 Feb 80, subj: Echelons Above Corps (EAC) Study.

Table 7 - ECHELONS ABOVE CORPS 86 STUDY OBJECTIVES

1. Develop a concept for EAC.

2. Define the relationships between and among the deployed corps, the theater organizations and CONUS organizations, and define the functional responsibilities of EAC organizations.

3. Define, on a functional basis, the principles to be used in tailoring EAC organizations to meet selected theater requirements as a basis for modification of allocation rules.

4. On the basis of these principles, establish the organizational design.

5. Describe the theater as it matures from M-day to D+180.

6. (Phase II of the study will develop detailed organizations, a transition plan, and cost and training implications.)

Source: Ltr ATZLCA-EAC, LTG W. R. Richardson to distr, 19 Feb 80, subj: CD Study Plan: EAC (Ph I).

What purpose would the study fulfill? The EAC Study had as its aim to verify that the Army in the field, within which the new divisions and corps would fight and be supported, was doctrinally and organizationally congruent with the fighting force. The objectives of the first phase, listed in Table 7, were oriented to laying the doctrinal groundwork and establishing the EAC structure for the central European theater. Contexts were the integrated battlefield, joint and combined operations, and a theater maturing over a period of 180 days. Initial planning sought an EAC structure constrained to what was affordable to support two corps. In late February, however, this provision was expanded to examination of a structure to support full theater requirements.

Several limitations were established. The operational concepts were to be developed within the context of joint and combined operations in NATO's central region. Concepts and organizations had to be responsive to no more than a brief warning of Warsaw Pact attack, and to an intense, short initial-war phase followed by a prolonged period of buildup.

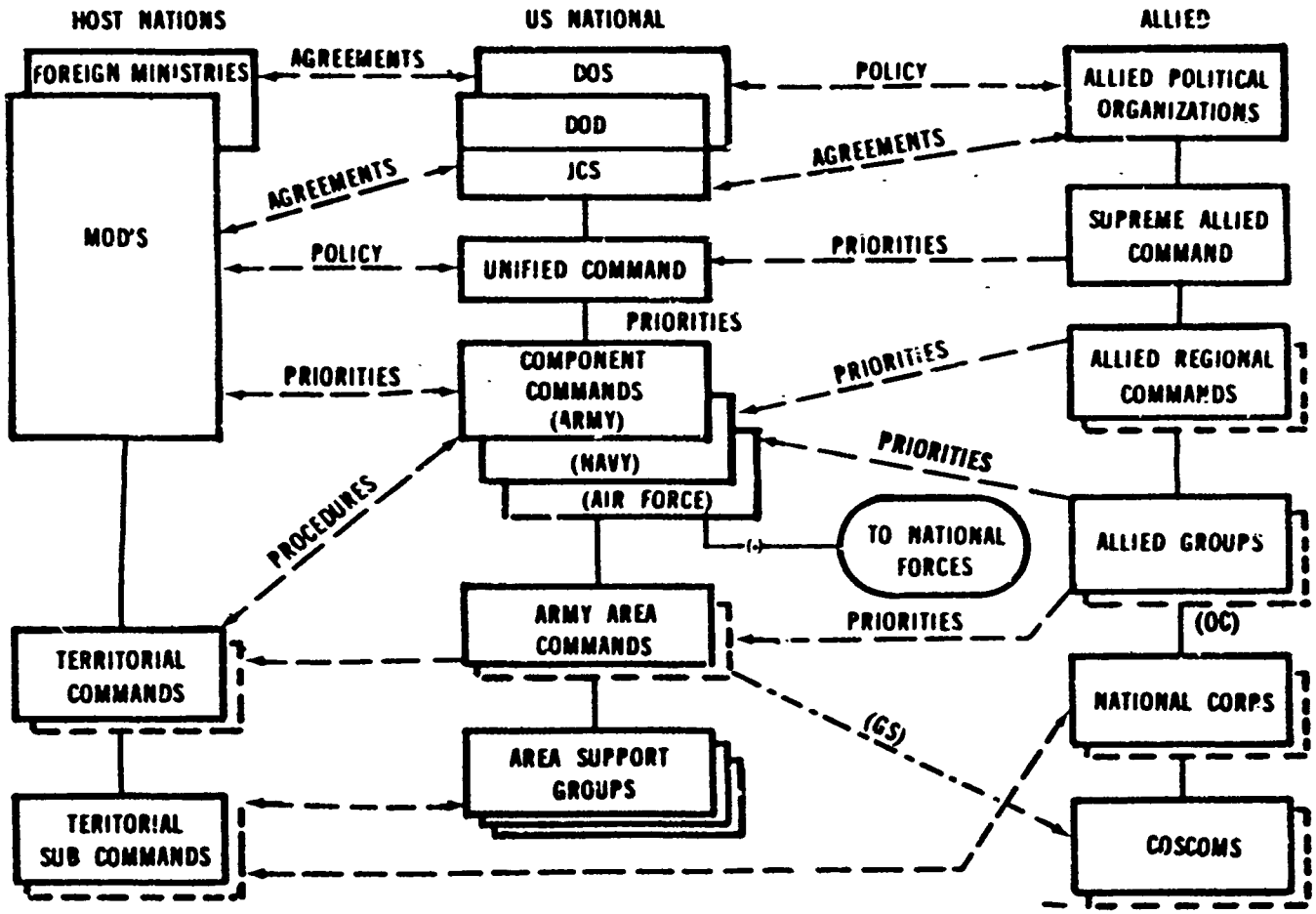
The TRADOC planners made a number of assumptions. Echelons Above Corps would support primarily the U.S. contingents of the NATO force. But the U.S. Army would count on local support to a prudent degree. It was expected that the developmental EAC materiel would perform as predicted and would be delivered on time. The planned quantities of these materiel systems, as spelled out in the Program Objective Memorandum, were not an arbitrary constraint. The EAC concepts were also dependent on the continued wartime functioning of the U.S. Army Material Development and Readiness Command, the Military Traffic Management Command, the Defense Logistics Agency, and the U.S. Joint Communications System.

Other assumptions were that local governing authorities in Europe would remain intact, and that almost all the Army civilian workforce in Europe would be evacuated, hence unavailable. Finally, organizations within echelons above corps would be designed based on requirements to support the corps, but not to cover corps deficiencies.

As with the other Army 86 studies, TRADOC directed and monitored the progress of EAC 86, whose director reported to the Combined Arms Center commander. Under CAC, the EAC group prepared the study but was free to, and did, call on the aid of the Department of the Army staff, the major Army commands, and on Colonel Greenway's Leavenworth group, the Army 86 network at the TRADOC centers, schools, and test and analytical activities. A network of points of contact was set up for this purpose. The functional orientation of the Battlefield Development Plan was adapted to the special tasks of theater army in the communications zone. Division of the study group into six cells reflected the major Army functions in this zone — air-land, combat service support, command control, communications, engineer and nuclear-biological-chemical matters, and intelligence. The study group cells were manned as follows:

Air-Land	COL Charles D. McGaw LTC Joseph P. Daugherty
Combat Service Support	COL Frank W. Hackley (Log Cen) LTC Norman E. Love (Log Cen)

CHART 13 - THEATER ORGANIZATION FOR COALITION WARFARE



SOURCE: EAC STUDY GROUP BRIEFING, EAC OVERVIEW, PRESENTED TO CORPS 86 EAC 86 WORKSHOP, 19-20 MAY 86 (CONFIDENTIAL INFO USED IS UNCLASSIFIED)

	LTC Pierre D. Labat (Trans Cen) MAJ Gerry A. McCee
Command Control	LTC Jackson Hoagland, Jr.
Communications	LTC Lynn B. Knisely (USACC)
Engineer	LTC Louis E. Stout CPT William R. Taylor (Engr Cen)
Intelligence	MAJ Hugh S. Wallace

General Woerner was aided throughout the project by Lieutenant Colonels Phillip G. Shepherd and Philip L. Dorsey, who acted as his executive officers; by Lt. Col. Jack E. Walker as project historian; by Maj. Randolph S. Young, III in Special Forces matters, and Lt. Col. David H. Smith for Reserve Component issues. Lt. Col. Lowell Bittrich, Maj. Pete Cahill, and Lt. Col. Edward Walker served successively as project monitors at TRADOC headquarters.

TRADOC's directive set a completion date of 30 June 1980 for the first phase of EAC. CAC would then absorb the second phase work from the study group. Although the second phase was initially set to end by the close of 1980, later decisions deferred any such rapid completion.

The study group briefed the Chief of Staff of the Army on plans as they were shaping up on 25 January 1980 and five days later briefed the TRADOC commander. During 4 - 8 February, the group met to develop basic concept statements, subsequently staffing them to the centers, schools, and major commands. General Richardson provided them to General Starry in late February. Further work followed through mid-March, and on 20 March, Starry approved the statements for expansion into operational concepts for EAC. Development of an EAC troop list began in March. General Meyer was again briefed on the status of the study at the general review of Army 86 held on 3 April.[6]

Maturing the Concepts

The major EAC workshop was held during 19 - 20 May 1980 at Fort Leavenworth in conjunction with the Corps 86 workshop. The study group presented a picture of EAC, its functions, operational concepts, and organizations in considerable detail. General Woerner tentatively called the command he was defining by its current title -- theater army.

It was at the theater level that most of the considerations bearing on coalition warfare came into play, and a brief sketch of the allied relationships in Europe is required here. Chart 13 depicts the

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6 (1) Ltr ATZLCA-EAC, LTG W. R. Richardson to distr, 19 Feb 80, subj: CD Study Plan: EAC (Ph I). (2) Ltr ATZLCA, LTG W. R. Richardson, Cdr CAC to Cdr TRADOC, n.d., subj: Ltr of Transmittal, Concept Statements for EAC. (3) Msg 031500Z Apr 80, Cdr CAC to distr, subj: EAC Study.

links and relationships of the U.S., allied, and local military commands in the theater.

The Supreme Allied Command commanded and controlled all the allied regional commands, translating allied strategic policy into military plans and objectives. The Allied Regional Commands exercised command and control over the principal allied and land commands. This headquarters relied on the national or unified commands in the theater to ensure that these forces were capable of executing their NATO missions. The Allied Army Groups had operational command of national tactical ground forces. The Allied Army Groups relied on the national theater army component service commands to ensure execution of the NATO missions. The U.S. Theater Unified Command commanded the U.S. component services and coordinated their efforts in support of U.S. units. This command controlled reinforcement operations, and expanded lines of communications, provided logistical support to U.S. units, directed intelligence functions, controlled custody and release of nuclear and chemical weapons, executed single integrated operational plans, coordinated special warfare operations and command-control-communications countermeasures, and controlled the evacuation of noncombatants.

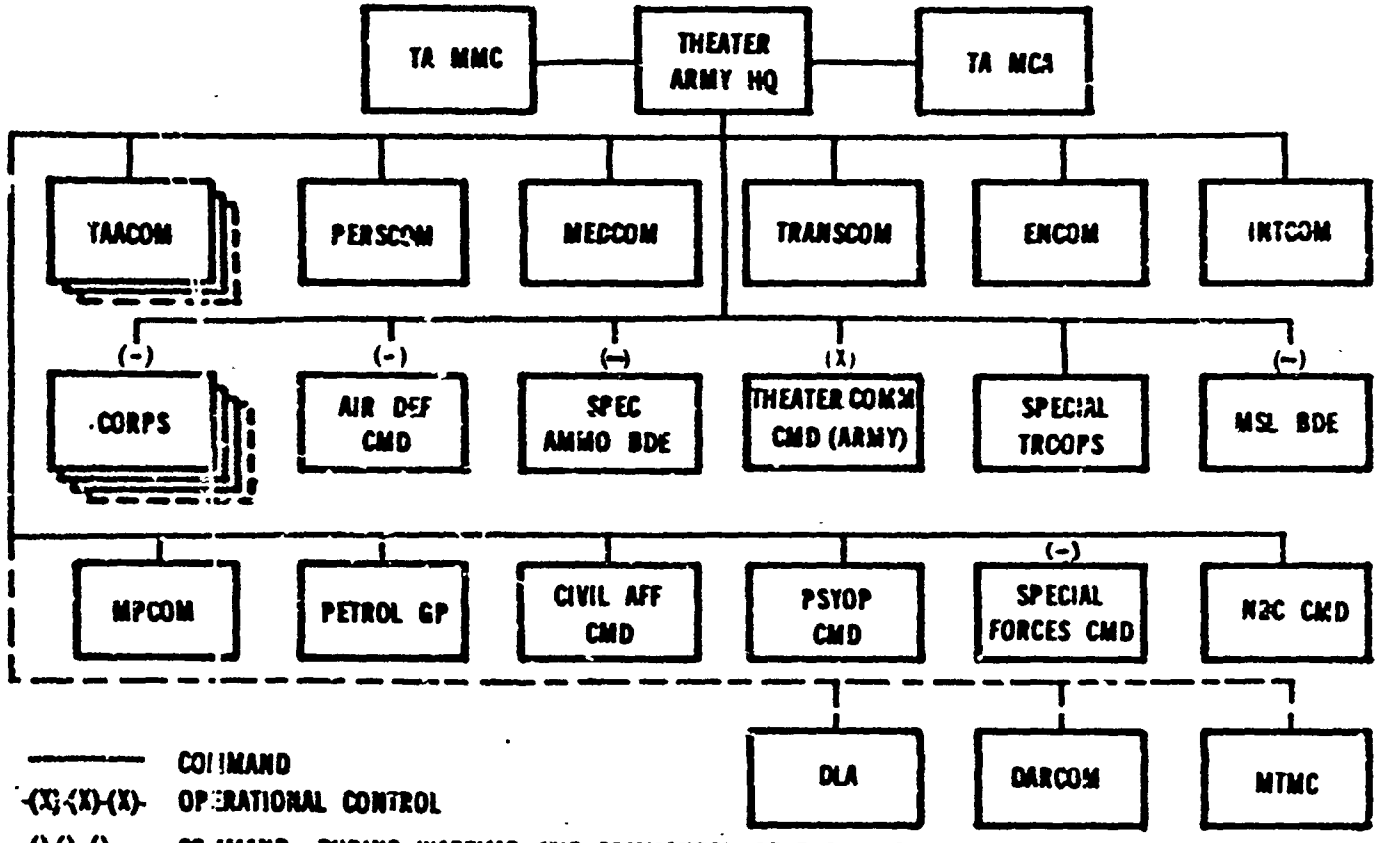
How did the U.S. theater army component -- the focus of the EAC 86 Study -- fit into the network? Primarily, it provided combat support and combat service support to U.S. and selected allied forces in the theater. It also received, equipped, and prepared arriving U.S. Army units. It exercised command control over combat units before their assignment to NATO forces. It provided assistance in rear area protection to local forces. It had, in addition, various responsibilities in communications, noncombatant evacuation, repair, and tactical nuclear support. The theater army commanded the military forces which implemented these responsibilities. It planned the military support of political objectives in the theater. It was, in sum, responsible for creating the support for tactical victory.

Theater army's responsibilities encompassed an enormous range of individual functions than can only be summarized here. They will be noted in detail in their finished form as the EAC operational concepts and organizations presented for approval in August 1980.

In summary, theater army provided the basic support services of administration, supply, transportation, maintenance, construction, and field services. The theater army provided support for medical and health services, military police support, and civil-military services. It had intelligence and communications functions and was responsible for troop-related services such as personnel, finance, chaplain, postal, and legal matters. Finally, theater army executed the functions of facilities engineering, property acquisition and disposal, and topographical engineering.

General Woerner and the EAC study group presented outlines for the major EAC concepts and force structures at the May workshop in both the constrained and required version -- for D-day and D plus 30 days.

CHART 14 - ECHELONS ABOVE CORPS 86 THEATER ARMY ORGANIZATION (WARTIME)



SOURCE: EAC STUDY GP EFG, EAC OVERVIEW PRESENTERTED TO CORPS, 86/EAC86 WORKSHOP, 19-20 MAY 88 (CONFIDERTIAL - INFO USED IS UNCLASSIFIED).

Chart 14 depicts the basic theater army organization envisaged, based on a combination of area and functional commands.[7]

General Starry was not wholly satisfied with the EAC concepts presented at the May workshop. Seeing theater army as almost totally a support command, not an operational command, Starry was concerned that operational missions were being built in by the EAC planners, particularly in intelligence. Also, the general concept seemed to propose the theater army as both area command and support command.

In sum, the EAC concepts needed much clarification. They had to describe more clearly what the organizations actually did. The EAC responsibilities were expressly logistical, administrative, and support to the corps and division combat units. Headquarters layering in the EAC had to be kept to a minimum. Starry urged continuing attention to a constrained force structure.[8]

The TRADOC commander's critique touched on real problems. The EAC group had, as he noted, not yet fully sorted out organizations, functions, and concepts. The expressly support nature of this command level had perhaps not been fully grasped. But theater army presented a command level of enormous complexity. The area-support split mirrored the reality of dual purposes that this rear-area congeries of organizations to some degree actually had. In the final analysis, the objection to the area-support split would disappear, as the concept of each theater army organization and function achieved clearer definition.

On 27 May, General Woerner reiterated the Starry guidelines and outlined the work remaining -- a sharper delineation of the operational concepts and theater army organizations, and expansion of structuring beyond D plus 30 days to the D plus 60, 90, and 180-day stages. Required, programed, and constrained versions of organization troop lists were to be developed for each stage, and the forces' Active Army component, Reserve Components, and unmanned remainder were to be spelled out.[9]

General Starry issued further guidelines to the EAC group on 30 May, including personnel strength ceilings. He stated the heart of the EAC task, and he directed that it be placed at the base of a clear operational concept. The heart of the EAC task and the role of theater army was to apportion forces to the deployed corps and to arrange support

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EAC Study Group Briefings, EAC 86, presented to Corps 86/EAC 86 Workshop, Ft Leavenworth, Kansas, 19 - 20 May 80.

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(1) MFR ATCS-H, TRADOC Hist Ofc, 23 May 80, subj: Corps 86/EAC 86 General Officer Workshop, 19 - 20 May 1980, Fort Leavenworth. (2) Msg 272100Z May 80, Cdr CAC to distr, subj: EAC Study. (3) Greenway Interview, 21 Jul 81.

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Msg 272100Z May 80, Cdr CAC to distr, subj: EAC Study.

forces so that they could support the corps according to the priorities the operational commander set. Starry reiterated his concern about layering, and told the study group to determine what requirement existed for the theater army's subordinate area commands. He limited the military component of theater army to 120,000 personnel at D plus 30 days and to 200,000 at D plus 180 days. This structure was to support 3 corps and 12 divisions at the 30-day mark and 5 corps and 23 divisions at 180 days.[10]

The EAC planners had complied with this guidance and finished most of their work by the time of the Army 86 general review noted in earlier chapters that convened on 16 - 17 June 1980. Final TRADOC directives, provided on 24 June, covered several further points. They involved transfer of 2,200 smoke troops from EAC to the corps, incorporation of a combat service support unit replacement structure into EAC, more work on replacement operations, intelligence organizations consistent with a unified intelligence concept, and other changes.[11]

Structuring Echelons Above Corps

As the EAC concepts were clarified and became firm, the EAC organizations were adjusted and completed. In their force structuring task, planners had first intended to use results of the Total Army Analysis - 86 process as a basis. But this did not prove feasible when, several weeks into their project, they were redirected to construct an organization based on the integrated battlefield and on the short-warning, warfighting scenario already noted in the previous chapter. They did, however, extrapolate from the TAA-86 procedure where they could. As the EAC force was developed and strength estimates became available, it was determined that the required EAC force would not be affordable, and constraints were imposed. As we have seen with the Corps 86 project, constrained and required EAC versions were designed in parallel.

The EAC constrained force encompassed Active Army, Army Reserve, and Army National Guard components and a sizable unmanned remainder. The EAC required force encompassed these components and, in addition, local allied support forces, which the planners counted on being available. Which units were to be Active Army and which, Reserve Components, was determined generally as follows. Those EAC units that had to be available and already deployed on D-day and units whose proficiency depended on continual training had to be Active Army units. Units not required in the theater in the first thirty days in most cases could be drawn from the Reserve Components.

The composition of the EAC force structure, in both the required and constrained versions, was outlined for the maturing theater's five

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10 Msg 302400Z May 80, Cdr TRADOC to distr, subj: Corps 86/EAC 86 Guidance.

11 Msg 241600Z Jun 80, Cdr CAC to distr, subj: 16 - 17 Jun Army 86 IPR - Results/Taskings.

time periods in three ways -- for the theater as a whole, by function, and by individual branch. Troop lists were used, but where new units were developed, modified unit reference sheets, and in some cases, automated unit reference sheets, were employed.

Local allied units contributed significantly to the EAC force. The majority were combat service support, combat support, and engineer and chemical units in line with signed agreements with the German Army. The theater army was dependent on them to a high degree at D-day and to a considerable degree even when the theater had matured. But while large, dependence was selective, tolerable in some types of support -- transportation, for instance. The EAC planners had to assume that the negotiated support would be forthcoming, in line with the agreements.[12] Yet dependency on local allies was an object of concern to the Department of the Army, and could by no means be considered a closed case at the end of the first phase of the EAC Study.

A special group of EAC units was set apart as special mission forces. These units were either those that supported U.S. personnel assigned to SHAPE Headquarters, or were under direct NATO control, or were nuclear warhead custodial units supporting other nations. This group of EAC units totalled 10,809 personnel.

When completed, the EAC planners believed that their effort had yielded a reasonably accurate description of the required force and an initial statement to work with of the constrained force. They recognized the dependence of their structures -- which were slated for an integrated battlefield -- upon the experience of conventional battle. Force structure trade-off analysis of the organizations was not attempted to any degree. The heavy reliance on local allied support was a factor hard to analyze. No gaming to test the validity of the force designs was conducted. Refinement of the EAC structure lay ahead in the second phase of the study.[13]

Concepts and Organizations

On 1 August 1980, General Woerner and his planners presented the completed operational concepts and structures of EAC 86 to the Chief of Staff of the Army in detail. The required and constrained theater army organizations were prepared for each time interval of the maturing theater but were presented only for D-day and D plus 180 days.

The Operational Concept of Echelons Above Corps

The fundamental requirement of the echelons above corps structure was seen to be to support the fighting forces in a way that permitted tactical commanders to focus their full attention on the battle. The EAC task was complex. Since many different allied chains of command were involved,

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12 Greenway Interview, 21 Jul 81.

13 EAC Ph I Rept, Vol. I, Exec Summary, 15 Aug 80.

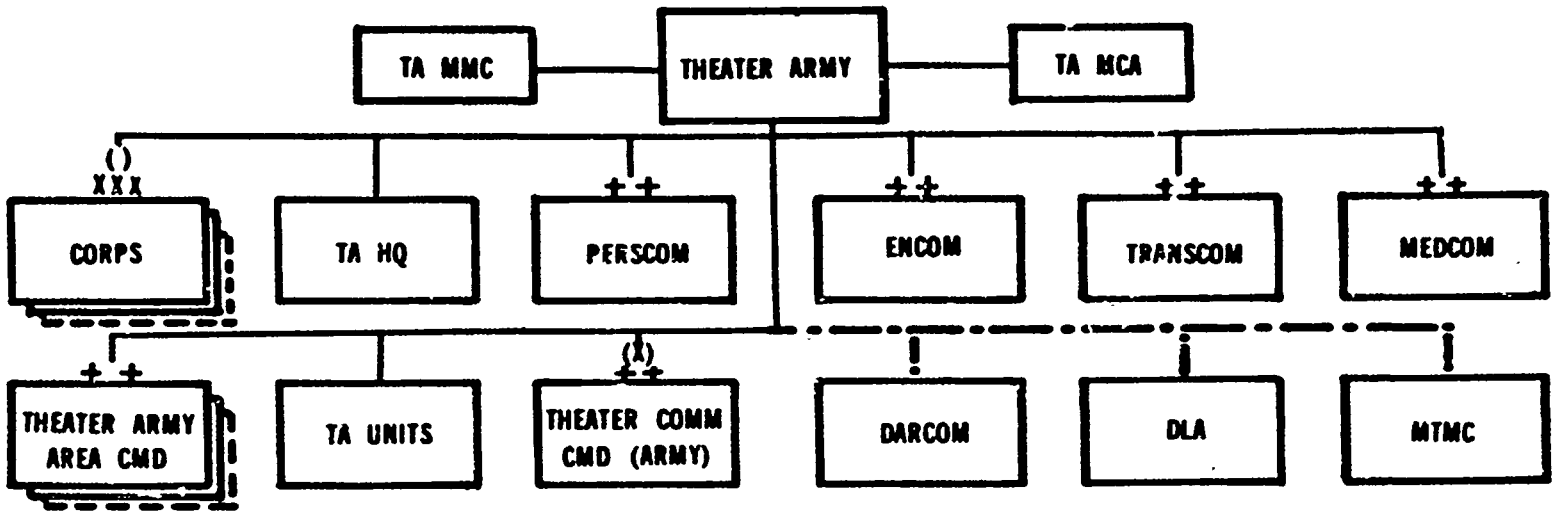
support to U.S. units operating as parts of an allied force would be a steady requirement. This was in addition to the normal variety of combat support and combat service support -- to U.S. Army corps in the combat zone; to Army units of all types in the communications zone; and to arriving units that had to be received, equipped, and transported to their various destinations. In addition, rear area protection, though a responsibility of local authorities, required considerable coordination.

To do these things, a command control headquarters -- theater army -- was established for all U.S. Army units in the theater. Its mechanisms permitted retaining command while turning over operational control of units to an operational chain of command. The command control headquarters also provided command control of combat support and combat service support forces from the corps' rear boundaries to the ports. These forces gave support to the combat forces as determined by the operational commanders. The command control system coordinated the use of the communications zone with the nation involved. The command control structure facilitated long-range planning, centralized management, and decentralized execution.

The theater army operated directly from a command post located in the communications zone. It was organized into small, dispersed cells. The theater army commander operated from a command cell, from which he commanded subordinate organizations and directed staff operations. The deputy theater army commander operated from the operations support cell and directed combat support operations of engineers, communications and electronics, and Army aviation, as well as selected combat service support including most supply and maintenance, recovery and evacuation, and transportation operations. The staff in the operations support cell also operated the theater army materiel management center and the theater army movements control agency. They coordinated local allied affairs, managed civil-military cooperation, and directed rear area combat operations. They provided primary staff supervision to the theater army area commands, transportation command, engineering command, theater communications command, nuclear-biological-chemical command, petroleum group, psychological warfare comman and civil affairs command. The theater army deputy chief of staff for personnel operated the service support cell and directed administrative service, individual replacement, field service, and health service operations, with staff supervision over the personnel command and the medical command. The theater army deputy chief of staff for operations operated the unit augmentation cell and was responsible for troops arriving in the theater. The DCS for intelligence operated the intelligence and electronic warfare cell, which included an all-source analysis center. The DCS for logistics operated the theater army materiel management center and theater army movements control agency.

The theater army structure provided the requisite EAC headquarters located in the communications zone. It was a planning and coordinating headquarters, managing its support functions through a flexible combination of area-oriented support commands and functionally specialized organizations. Assignment of some general support and most direct support activities in the communications zone to the theater army area commands (TAACOM) permitted the functional commands to concentrate on support of combat operations.

CHART 15 - ECHELONS ABOVE CORPS 86 THEATER ARMY AT D-DAY



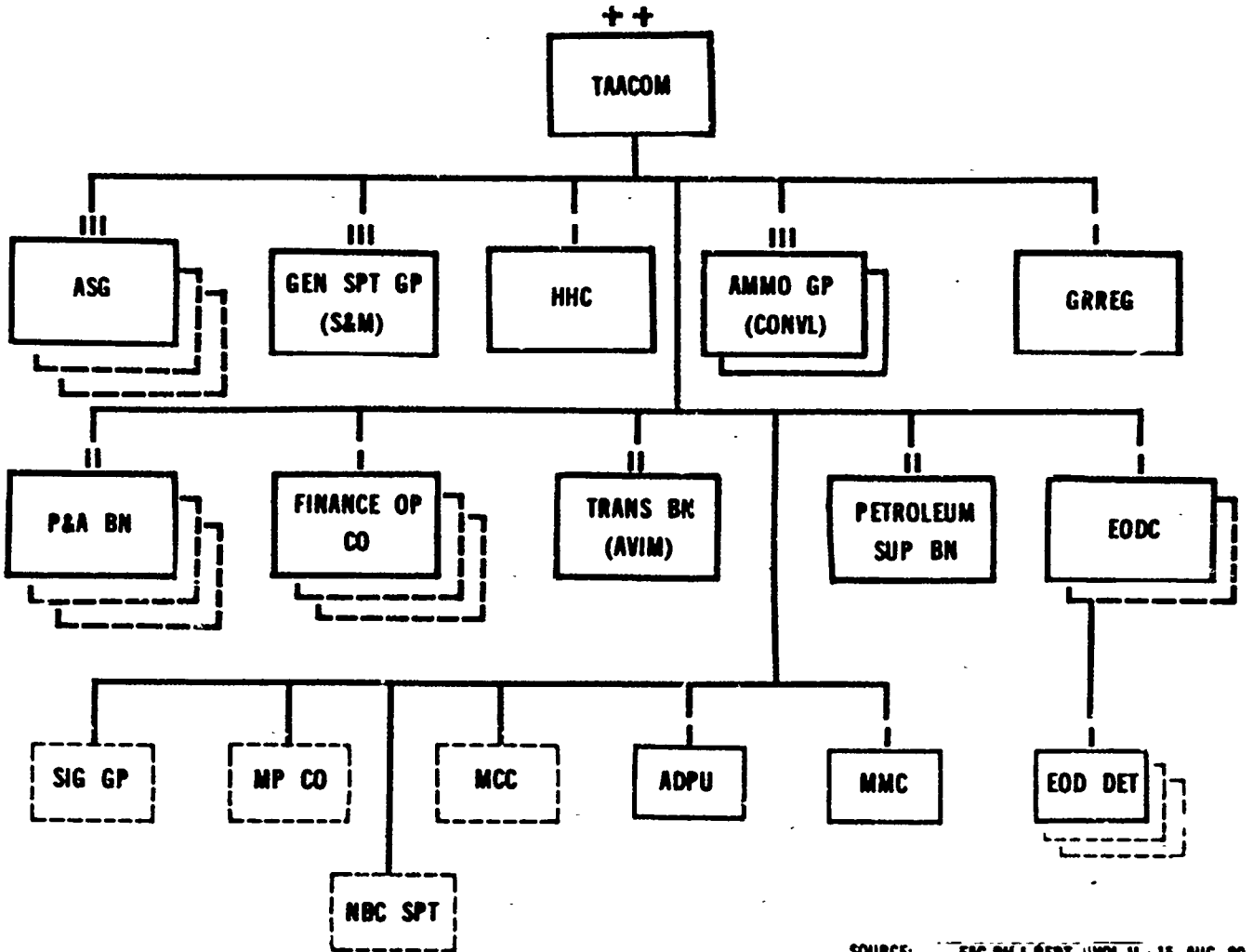
AIR DEFENSE	MISSILE
CIVIL AFFAIRS	NBC
SPECIAL AMMO	PETROLEUM
INTELLIGENCE	PSYOP
MILITARY POLICE	SPECIAL FORCES

LEGEND:

- ——— COMMAND
- — (X) — OPERATIONAL CONTROL
- ——— RELATIONSHIP TO BE DEFINED BY THEATER WHOLESALER MOU/MOA
- —(•)—(•)— COMMAND LESS OPERATIONAL CONTROL

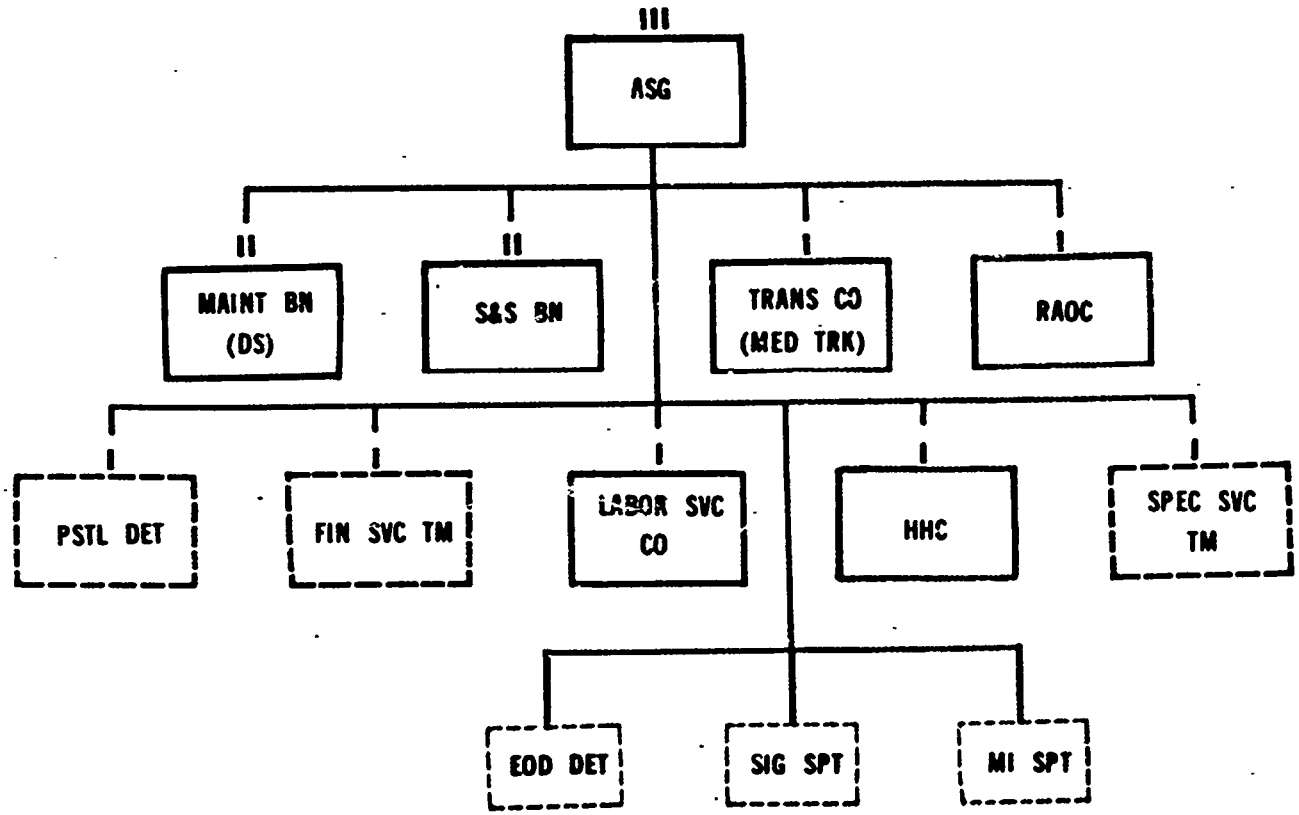
SOURCE. EAC PH I REPT, VOL I, 15 AUG 80.

CHART 16 - ECHELONS ABOVE CORPS 86 THEATER ARMY AREA COMMAND



SOURCE: EAC PH I REPT. VOL II ; 15 AUG 80.

CHART 17 - ECHELONS ABOVE CORPS 86 AREA SUPPORT GROUP



SOURCE: EAC PH I REPT. VOL II, 15 AUG 80.

At D-day, the theater army would resemble the structure depicted at Chart 15.

The theater army materiel management center was the nerve center of most supply and maintenance operations. It provided centralized management for the decentralized activities of the TAACOMs. It was the prime link for supply and maintenance with the sustaining base in the United States. The theater army movements control agency managed transportation equipment throughout the theater in coordination with its NATO counterpart, the Agency for Coordination of Transportation in Central Europe.

Essentially, the major functional commands of theater army in the communications zone -- the personnel, engineer, transportation, and medical commands -- provided general support to both the combat and communications zones. Further, within the communications zone, the medical command provided area health service support, and the engineer command provided direct support in map supply and real property maintenance.

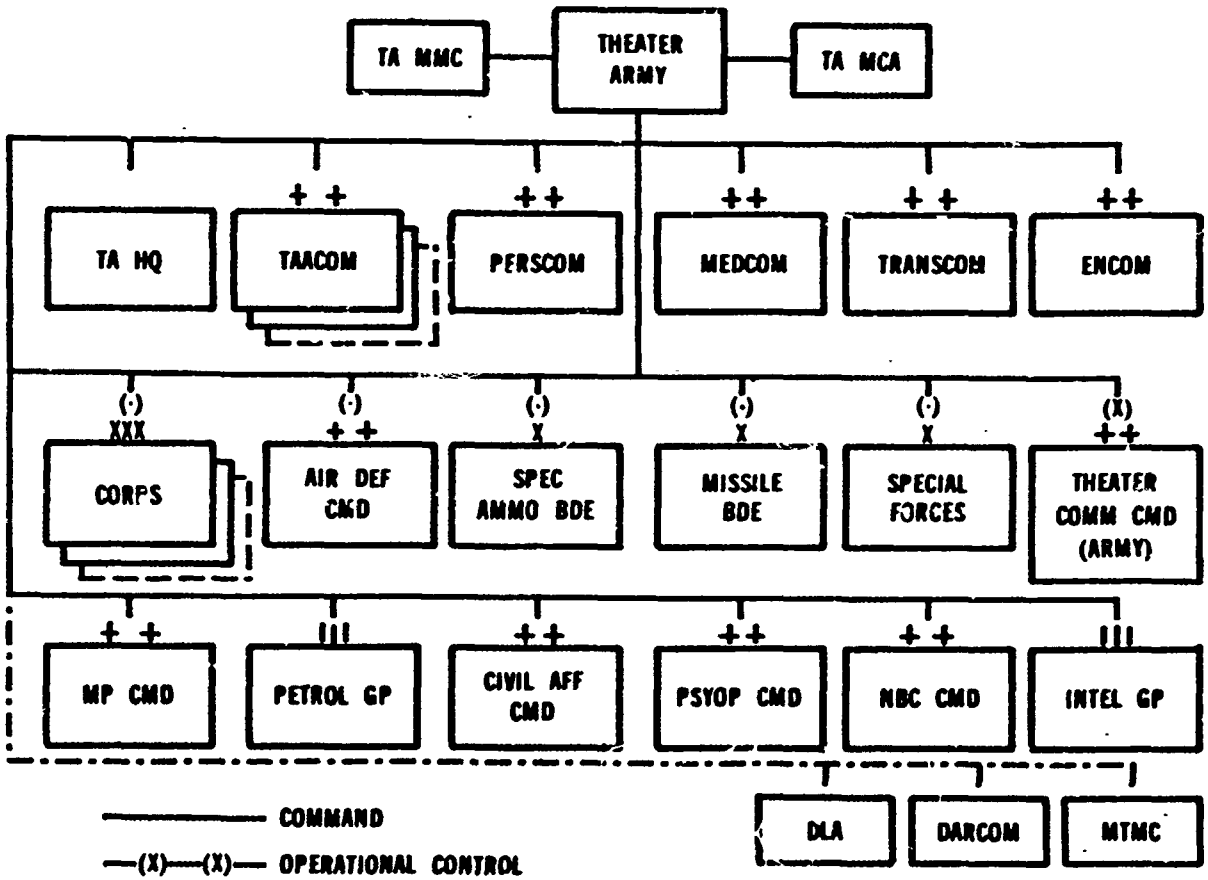
The area commands (TAACOMs) (Chart 16) controlled the units that provided direct support (except for medical, communications security, and map supply), area emergency warning, and rear area protection in the communications zone. The area commands also provided general support in supply, maintenance, and services to units in and passing through the communications zone and provided this support to units in the combat zone when required. Two TAACOMs were envisaged, each tailored to the requirements of its area. A larger TAACOM was to support Central Army Group, and a smaller TAACOM would support Northern Army Group.

The doctrinal changes introduced by the EAC 86 TAACOM included provision of commodity-oriented general support maintenance, communications security general support maintenance, chemical ammunition supply, and the addition of automatic data processing general support maintenance. Also new was the TAACOM's receipt and equipping of arriving units.

There were many inadequacies in the TAACOM. Even when the theater was fully matured and manned, it still had an inadequate general support base, rendered inadequate direct support for units in the communications zone, and provided inadequate personnel and administration, and finance and explosive ordnance disposal support. The D-day constrained TAACOM could not adequately receive and equip arriving units.

Subordinate to the TAACOMs, the area support groups employed operating units to provide direct combat service support (excepting ammunition, communications security, map supply, and medical support) for the area commands and other designated forces in the communications zone (Chart 17). The area support groups were assigned areas of responsibility according to the density of military units and materiel to be supported, and according to political boundaries and terrain. Normally, one group was assigned to a TAACOM for every 15,000 to 30,000 troops to be supported in the communications zone.

CHART 18 - ECHELONS ABOVE CORPS 86
THEATER ARMY AT D+180 DAYS



SOURCE: EAC PH I REPT, VOL I, 15 AUG 80.

With military operations well underway, theater army expanded to its mature form, as shown at Chart 18. Further functional commands were established. These included a special ammunition brigade and a missile brigade, Special Forces, and separate commands and groups for air defense, theater communications, military police, petroleum supply, civil affairs, psychological operations, nuclear-biological-chemical, and intelligence.

Communications

Communications requirements for echelons above corps were served by command and area communications systems. The command system linked theater army with its major subordinate commands, corps, separate divisions, and allied commands. The area system linked with the corps area system and provided common-user service to U.S. Army units in the communications zone. Both the command and area systems linked with the NATO and the worldwide Defense communications systems. Under theater army, the communications command provided internal support to the headquarters of the unified, theater army, area, and functional commands, and to the special ammunition brigade. Air defense and Special Forces units had their own organic signal units. NATO command control was exercised through a separate communications system. The corps had direct access to the continental United States through the Defense communications system for messages of high precedence, and this was new. The concept provided for provision of a signal unit for command control of arriving units underway to the combat zone.

Detailed charts reflecting the required force for the mature theater for the theater communications command and the other major elements of EAC are at Appendix F. Communications at D-day were deficient in several areas, including joint communications, and internal communications for the area commands and functional commands. At 180 days, the joint communications system would still be inadequately supported.

Intelligence

The intelligence concept contained major doctrinal changes. The concept featured a joint Army - Air Force - Navy theater intelligence center, the establishment of which would require joint decision. Under the operational control of the U.S. unified command, the joint service center managed intelligence collection above the corps and provided NATO commanders a coordinated United States view of the battlefield. The theater intelligence center's Army component was an all-source analysis center, or ASAC, with an automated data system that was interoperable with the U.S. corps and division ASACs and with the analysis systems of the other U.S. services. U.S. Army intelligence elements, located at allied commands and equipped with automated systems, facilitated a mutual intelligence exchange and gave NATO commanders quick access to integrated intelligence. The concept emphasized the principles of timely integration from all sources, a unified intelligence system from the division to the national level, and a system designed for war.

In responding to the intelligence needs at echelons above corps, the concept used an interim operational and organizational substitute prepared by USAREUR and the U.S. Army Intelligence and Security Command as a stepping stone. It provided for command control of the intelligence organization through a group headquarters. It provided all-source analysis,

intelligence support to the NATO commands, and liaison to allied intelligence and police organizations. Collection means were by agent, signal equipment, and imagery. The concept also included interrogation, exploitation of documents and materials, and counterintelligence.

Air-Land

Air-land operations in the central region of Europe were a combined responsibility of the allied forces — except air lift, where the responsibility was national. Interdiction capabilities at echelons above corps consisted of U.S. Air Force aircraft and the PERSHING nuclear missile, the latter under the operational control of SHAPE. Theater army air defense units came under the operational control of area or regional air defense commanders designated by the combined force commander. U.S. Army air defense units not organic to corps or divisions were assigned to the theater air defense command. Tactical control of air defense artillery units was through the allied air force control and reporting centers and sector operations center. Tactical information was passed to an air defense artillery group operations center and to the battalion operations center. A secure digital data and voice system linked all air defense artillery units and the allied air force control agencies.

Air lift services by the U.S. Air Force for the Army were spelled out. These were divided among deployment, employment, logistic support, and aero medical evacuation. Army aviation support to theater army provided aerial logistics, command control, radio relay, messenger service, radiological survey, and additional air ambulance service. An airspace control authority was designated by the combined force commander. In the central region, the designee was the Commander, Allied Air Forces Central Europe, who also commanded area air defense.

Planners established an air defense command employing the new medium-range and long-range PATRIOT missile as well as short-range air defense systems. Though a considerable portion of this force was projected to be operating on D-day, it did not provide the amount of protection needed for critical rear locations and concentrations.

All EAC air traffic control units were assigned to the theater communications command and were placed in direct support of various tactical units. Command control was exercised through the organic air traffic control group.

Engineer Operations

There were four major engineer operations at echelons above corps. These included combat engineering; construction support to the Army, other U.S. Armed Services, and allies within the communications zone, as well as to the corps when needed; real property maintenance in the communications zone; and topographic support throughout the theater. The engineer operational concept did not call for changes to current doctrine in the European theater. The concept for administering real property maintenance, however, related specifically to that theater. Control of facilities engineering was decentralized to the theater army area commands.

The engineer force had severe D-day deficiencies. It could not perform repair of Army facilities and had only a ten percent airfield repair capability. It could offer no support to air defense artillery, no ammunition port construction, and no fuel pipeline construction and repair. At D plus 180 days, the engineer command was still restricted in certain construction and restoration capabilities.

Combat Service Support

The combat service support concept anticipated an initial war-phase supported by pre-positioned stocks and allied sources and by air lift from the United States. Once the sea lanes were open, the forces in Europe would be sustained by sea.

Centralized materiel management by theater army was to be provided by the theater army materiel management center. Centralized control of transportation movements was the responsibility of the theater army movements control agency. The theater army area commands, or TAACOMs, provided the full range of combat service support except for medical and map supply. The TAACOMs took care of area supply, maintenance, services, and backup logistical support to the corps. Other support from the theater army was provided by its specialized functional commands. The "wholesaler" commands -- DARCOM, the Defense Logistics Agency, and the Military Traffic Management Command -- provided specialized support. Reliance on automatic data processing in combat service support had become heavy by the 1970s, and this equipment was vulnerable to disruption and destruction. The concept consequently, allowed for sufficient back-up automatic data processing equipment.

The combat service support structure had to serve a very rapid buildup of forces. Logistics planning factors by daily requirement for class of supply are at Appendix D.

Supply. The theater army materiel management center managed critical items of supply. The area commands provided supply to the communications zone, with backup support to the corps. The Defense Logistics Agency was the wholesaler in the theater for susbsistence supplies, working through the materiel management center. Resupply of critical items and repair parts was from the United States by air. A constant 30-day sustaining level of supplies was planned, once supply by sea was operating.

Conventional Ammunition. The theater army area commands, under central management by the materiel management center, supplied conventional ammunition and replenished expended corps stocks. Storage, maintenance, and supply of chemical ammunition were provided by a chemical ammunition unit organic to the area command's conventional ammunition groups.

The concept employed theater storage areas and corps storage areas. Ammunition was to be "throughput," bypassing intermediate points to points as far forward as possible. Direct support ammunition companies from EAC supplied the ammunition supply points in the division rear. General support companies operated the corps storage areas and the theater storage area.

Maintenance. The EAC materiel management center controlled the maintenance of critical items. Besides direct and general support maintenance for conventional materiel, support in maintenance was also provided for Army aircraft, airdrop equipment, and communications security and automatic data processing equipment. General support maintenance was commodity-oriented for the major types of equipment, a doctrinal change that made the general support maintenance units more flexible in support of the corps. DARCOM did the rebuilding of major equipment and did specialized types of maintenance such as for test measurement diagnostic equipment.

Field Services. Services provided in the theater army included graves registration, laundry, clothing exchange, and bath support. The Defense Logistics Agency provided property disposal services as required. Provision was made to obtain bakery products locally.

Bulk Petroleum. The petroleum group under theater army provided for centralized control of bulk POL products for all U.S. forces in the theater. The group commander served on the theater army staff as the logistics systems manager for bulk petroleum. The group provided theater-wide distribution, sharing the central European pipeline system for movement and distribution of fuels into the communications zone and corps rear areas. Sharing the pipeline represented a departure from previous reliance solely on a U.S. operated system.

Special Ammunition. The combat service support concept employed a special self-contained ammunition brigade for supply of nuclear munitions. During wartime, it was under NATO command for support of both U.S. and allied corps. It provided full support to the concerned units. In addition, the brigade's assigned missile support battalion provided resupply and maintenance to communications zone units.

Transportation. The intensive European road, waterway, and rail networks made U.S. forces heavily reliant on transportation services of the NATO countries involved. The theater army movements control agency provided centralized movement control. The theater army's transportation command emphasized container cargo and minimal transloading. The Military Traffic Management Command provided ocean terminal support.

Medical. The medical command provided theater-wide medical support and services to the communications zone. A type of hospital adaptable to different missions replaced four former types of communications zone hospitals. A medical logistics control group and a medical brigade were added to the communications zone, improving command control and operational efficiency. These changes, together with a reorganized clearing company, medical group, and medical battalion, provided for timely reconstituion of command control in the combat zone and efficient medical support. But hospital size and evacuation and reconstitution capabilities still fell short of adequate even after 180 days.

Administration. Personnel and administration support for theater army was in the hands of the EAC personnel command. This organization processed individual, group, and crew replacements. The concept called for a replacement system in place -- with filler personnel arriving from

the United States -- on D-day. The personnel command also provided postal services and other administrative support to the communications zone and the corps. Finance services in the Army 86 theater were extremely limited. At outbreak of war, pay to troops in theater would be suspended, their pay either being held in the United States in accrual or sent to banks. Casualty reporting was rendered more efficient by automated processes.

Military Police

MP operations were conducted on both an area and a functional basis under centralized MP command control. Area support included circulation control; security for special ammunition, theater headquarters, certain convoys, and critical facilities; minor rear area combat operations; and law enforcement. Functional support involved enemy prisoner of war evacuation, U.S. prisoner confinement, and U.S. Army Criminal Investigation Division Command activities. Theater MPs coordinated with the corps for enemy POW evacuation, with local authorities for the various area missions, and with Army authorities in the United States for criminal investigative activities. The concept contained two doctrinal changes -- the transfer of POW and U.S. prisoner confinement responsibilities from the personnel command, and consolidation of most MP missions under a central MP headquarters subordinate to theater army.

Civil Affairs

The civil affairs operational concept made provisions for both command and governmental support. The aims were to minimize civilian interference with battle operations, obtain the fullest possible local support, augment essential civil services, and take care of liaison with governments of the countries involved. Command support concepts envisaged units attached to senior headquarters to advise commanders about their legal obligations to the civil populace and about gaining local assistance and cooperation. Government support concepts came into play when local government broke down and required support to maintain essential services.

Psychological Operations

The concept for psychological operations encompassed several functions. Tactical aims were served by operations targeted against enemy soldiers and hostile civilians, while strategic psychological operations, directed against hostile or neutral populations, served U.S. war aims. Operations focusing on enemy POWs and civilian internees had objectives of reorientation, gaining cooperation, and gathering intelligence. Still other operations supported the civil affairs command objective of gaining the cooperation of friendly civilian populations.

Nuclear-Biological-Chemical and Smoke Operations

The nuclear-biological-chemical and smoke concept encompassed the employment of chemical weapons; defense against all three categories of weapons if used by the enemy; and tactical use of smoke. First use of toxic chemical weapons and any use of biological agents by the United States were prohibited by national policy. However, the concept allowed

for U.S. Army use of chemicals as a supporting weapon if permitted by the national command authority, subject to direction by the SHAPE commander.

Chemical units provided decontamination and reconnaissance for NBC effects and agents to units located in the communications zone. For the entire theater, they identified chemical and biological agents and provided impregnated clothing. Smoke generation units provided smoke for screening and operations involving deception in the communications zone. Doctrinal changes were the centralization of command control of NBC units in the communications zone under theater army, and equipment decontamination by NBC units.

Deficiencies in this area were considerable. At D-day, there would be no NBC reconnaissance, no dedicated means to impregnate clothing, and only limited capabilities in decontamination and large-area smoke screens. At D plus 180 days, large-area smoke capabilities remained limited.

Automation

The EAC Study recognized the trend toward more and more automated equipment. The trend would reach an advanced stage in the 1990s, when military computers and the integrated tactical communications system would be fully fielded. Automation throughout the 1980s was expected to remain oriented to individual functions.

Rear Area Protection

Rear area protection in the communications zone was designated a responsibility of local allies. The responsibility was split between two separate tasks. Rear area combat operations included all actions required to prevent, neutralize, or destroy enemy attacks on units, activities, and installations in the rear area. Area damage control included measures taken before and after nuclear attack or other unconventional attacks, or following a natural disaster, to avoid and reduce their effects and re-establish the lines of combat service support. The basic intent of rear area protection was to maximize the capabilities of combat support and combat service support units to support the fighting forces and to defend against incursions into the rear area without assistance from the combat forces.

No EAC units dedicated to rear area protection alone were envisaged. Control was concentrated on the local allied territorial command. U.S. Army units were expected to be so employed only for short periods. The concept put a premium on preparedness. U.S. rear area responsibilities were invested in the theater army commander, who delegated tasks to the theater army area commands. The TAACOMs used rear area operations centers and worked through their subordinate area support groups.

Special Forces

The Special Forces concept at echelons above corps encompassed two traditional roles. Units would deploy deep behind enemy lines to conduct guerrilla warfare, subversion, and sabotage. Detachments would

also recruit, equip, train, and advise indigenous guerrilla bands. Special operations were a second activity, consisting of gathering information on enemy targets and other activity, as well as attack or recovery missions by detachments behind enemy lines. New in this operational area was the direct support of U.S. corps.

In sum, the concept for U.S. Army organization at echelons above corps provided for centralized planning and coordination by a theater army headquarters, and decentralized execution by a combination of subordinate, area-oriented and functional organizations. The flexibility of this concept permitted the organization to increase with the demands of the theater. Mechanisms were built in for effective command control, interaction with local allies, and responsive support to the corps and divisions. General Woerner and his planners believed that the required force they had designed represented the force necessary to meet the challenge in central Europe. They recommended that the EAC operational and organizational concepts be approved for design of a theater army. They recommended approval of the required force for force planning. They also recommended that the structure be refined and that the necessary tables of organization and equipment be developed in the study's second phase.

Woerner and the EAC group put the D-day required EAC force at 185,874. It would consist of 60,259 U.S. Active Army personnel and another 61,011 personnel provided by local allies, with a shortage of 64,604 personnel -- about 35 percent of the whole. The required force at D plus 180 days reached 421,404, including 75,315 Active Army, 123,681 from the Reserve Components, and 109,397 local allies, with over 100,000 of the requirement unfilled.[14]

General Meyer Approves Echelons Above Corps 86

General Meyer approved, on 1 August 1980, the EAC concepts for the design of a theater army. Significantly, he approved -- for force planning -- not the constrained force, but the required force, and directed its refinement into TOEs during the second study phase, to be followed by transition planning.

The Chief of Staff of the Army found two EAC areas still deficient. He ordered a general review of all ammunition support requirements of echelons above corps. Second, he directed a complete review of air defense doctrine and structure from division up to the highest command level of air

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14 (1) CAC Briefing, Army 86, presented to CSA, on 1 Aug 80. (2) EAC Ph I Rept, Vol. I: Exec Summary. (3) Figures include 41,100 local forces at D-day and 54,263 at D+180 to man the European Transportation System and 2,440 local personnel at D-day and 3,000 at D+180 days to support the Central European Pipeline System.

defense in order to delineate clearly the functions and linkages of all air defense organizations, including airspace management and Air Force - Army linkages.[15]

The study group finished the Phase I final report rapidly following General Meyer's approval of the EAC concepts and organizations on 1 August. General Richardson sent the draft report to General Starry for approval on 25 August. It was staffed within TRADOC Headquarters during September and October and approved and distributed on 19 December 1980.[16]

Approval of EAC Phase I signalled the start of planning for Phase II to refine the concepts and organizations, prepare the way for transition to the theater army of 1986, and ready the operational concepts for publication in the new doctrinal manual, FM 100-16, Echelons Above Corps.

Although the Phase I effort had established a good basis for EAC doctrine and organization, there were numerous unfinished issues ahead for the Phase II planners. These were varied and defy easy summary, but among them were the survivability of cellular command posts in tactical nuclear and chemical war, airspace management, NATO logistics, maintenance issues, the emergency burial concept, the ramifications of continuous combat operations, air defense, and various other logistical, organizational, aviation, and joint-forces matters. The whole area of local allied support still needed much attention. It was cause for concern that there was a 50 percent dependency on local support at D-day and that this dependency still exceeded 25 percent at 180 days.

Completing the first phase of the EAC Study, the Combined Arms Center turned its attention to the study plan for the second phase. The late-1980 focus of Army 86 planners on contingency situations outside Europe led to the widening of the EAC effort into this area, also. At the close of 1980, CAC planners had begun the refinement of the force structure of echelons above corps for employment in the NATO theater.[17]

The Echelons Above Corps 86 Study was a constructive endeavor in more than literal ways. Perhaps the most important contribution that its

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15 (1) Msg 131900Z Aug 80, Cdr TRADOC to distr, subj: Army 86 Briefings to CSA, 1 Aug 80, 11 Aug 80. (2) Fact Sheet for TRADOC Cdrs Confer 1980, DCSCD/ATCD-PP, 15 Sep 80.

16 (1) Ltr ATZLCA-EAC, LTG W. R. Richardson, to Cdr TRADOC, 25 Aug 80, subj: Letter of Transmittal, Draft Final Report, Echelons Above Corps Study (Phase I). (2) DF ATCD-PP, DCSCD to distr, 15 Sep 80, subj: Draft Final Report, Echelons Above Corps Study (Phase I). (3) Ltr ATCD-AM, HQ TRADOC to distr, 19 Dec 80, subj: Final Report, Echelons Above Corps Study (EAC), Phase I.

17 (1) Msg 161300Z Sep 80, CAC to distr, subj: EAC Study Transition. (2) Ltr ATZL-SWI-H, LTG William R. Richardson to General Donn A. Starry, Cdr TRADOC, 25 Mar 81.

planners made was to delimit and set clear the theater army's strict role of supporting the corps and divisions. Yet theater army had in past wars had operational functions as well. In World War II, these had been extensive. How did the immensely complex theater level of command operate in wartime? The study gave answers that General Starry characterized as solid ones.[18] Certainly, the EAC 86 concept and organizational approached as closely as could any peacetime design to the unpredictable patterns of variables present in the multi-service and multi-national realm of theater army in wartime.

The Army 86 designs approved by the Chief of Staff of the Army in August and September 1980 constituted a reorganization that was remarkable in several ways. The conscious intent of the Army 86 planners had been to let operational ideas or concepts determine organization, not vice-versa. This intent succeeded. The organizations were to a large degree products of the doctrinal ideas that they would employ. Army 86 was secondly the achievement of a wide circle of Army planners rather than an imposed super-idea. This was important because it raised Army 86 from the mass of good but shelved studies to an effort that was widely endorsed.

While a command-wide project of the Training and Doctrine Command, Army 86 derived in great part from the ideas of TRADOC's commander between 1977 and 1981, Donn Starry. General Starry brought to the Army 86 Studies the immediacy of corps command in Europe and infused the early effort with the leading ideas upon which the heavy division and corps were constructed. Army 86 also embodied the vision and energy of his superior. To the Army Chief of Staff, General Meyer, General Starry attributed the success of the greater task of developing Army 86 as a whole and securing institutional and Congressional acceptance of the historic modernization effort.[19]

In the decade ahead, the prospect of serious challenges to American security interests was apparent. Fore these challenges, the planners of Army 86 had prepared with insight and care.

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18 MFR, TRADOC Historical Office, 29 Jul 81, subj: Historical Office Interview with General Starry, 29 Jul 81.

19 Ibid.

Appendix A
ARMY 86 BATTLEFIELD FUNCTIONS
3 December 1979

1. Target Servicing. The task of neutralizing and/or destroying threat forces within line of sight which are capable of firing their primary weapon system on friendly forces. Targets include tanks, combat vehicles, ATGM and dismounted infantry. Subtasks included are maneuver, target acquisition (by means integral to the target servicing system), battle control, target processing, target attack, and target attack assessment. Implied is the requirement to secure and hold terrain when necessary in order to service targets. Target servicing may also include the employment of supporting weapons such as mortars, field artillery, tactical aircraft, and electronic jammers as they contribute to the direct fire battle.

2. Counterfire. The task of suppressing, neutralizing or destroying, by means of friendly indirect fire systems which are capable of firing their primary weapons on friendly forces. Targets include enemy mortar, cannon, missile and rocket systems, air defense, associated C3, target acquisition and support systems. Subtasks included are maneuver, target acquisition (by means integral to the counterfire system), battle control, target processing, target attack, and target attack assessment.

3. Interdiction. The task of disrupting, neutralizing and/or destroying threat forces beyond line of sight not capable of firing their primary weapon systems on friendly forces and other threat forces not directly participating in the direct fire battle. Targets include first echelon units not directly participating in a direct fire battle, second echelon regiments and other second echelon units. Subtasks included are maneuver, receiving target information, battle control, target processing, target attack, and target attack assessment.

4. Air Defense. The task of destroying, nullifying or reducing the effectiveness of enemy air assets including fixed wing, helicopter and missiles. Subtasks included are maneuver, target acquisition (by means integral to the air defense system). target processing, target attack, and target attack assessment.

5. Mobility, Countermobility, and Survivability. The task of altering the battlefield -- terrain and atmosphere -- to enhance survivability, to impede enemy movement and to enhance friendly movement. Subtasks included are position fortification, decontamination, emplacement of barriers and obstacles, and overcoming natural and manmade obstacles.

6. Battle Support. The task of providing to committed forces those critical supplies and services essential to the successful conduct of combat operations. Subtasks included are resupply of ammo and POL, medical services, graves registration, battlefield recovery and repair, and control of these activities.

7. Reconstitution. The task of timely regeneration of the force, in terms of people, organization, command structure, and materiel, during and in preparation for battle and the sustainment of the force through the provision of necessary administrative and logistic services. Subtasks included are resupply of all classes of supply, evacuation, recovery/maintenance, health services, personnel management, sustaining services and those extraordinary measures taken to quickly restore a depleted unit to an acceptable level of combat effectiveness by critical item and critical personnel replacement.

8. C3. The task of timely command decision-making by analyzing information, assessing the situation, insuring accurate information distribution and directing and controlling the force during combat operations. Subtasks included are monitoring the enemy and friendly situation, planning and replanning, estimating, deciding and providing for operations security.

9. ISTA (Intelligence, Surveillance, and Target Acquisition). The tasks of gathering and providing timely information regarding the disposition and intent of threat forces to the command decision-making process and directly to specific users. Integral to the ISTA task is the function of managing intelligence assets and conducting counter C3 operations. Subtasks included are target development, situation development, weather and terrain analysis, and dissemination of timely information.

10. Force Movement. The task of preparing for and executing the rapid movement of troops and supplies about the battlefield to concentrate combat power at critical times and places. Subtasks included are coordination, planning, movement, and control.

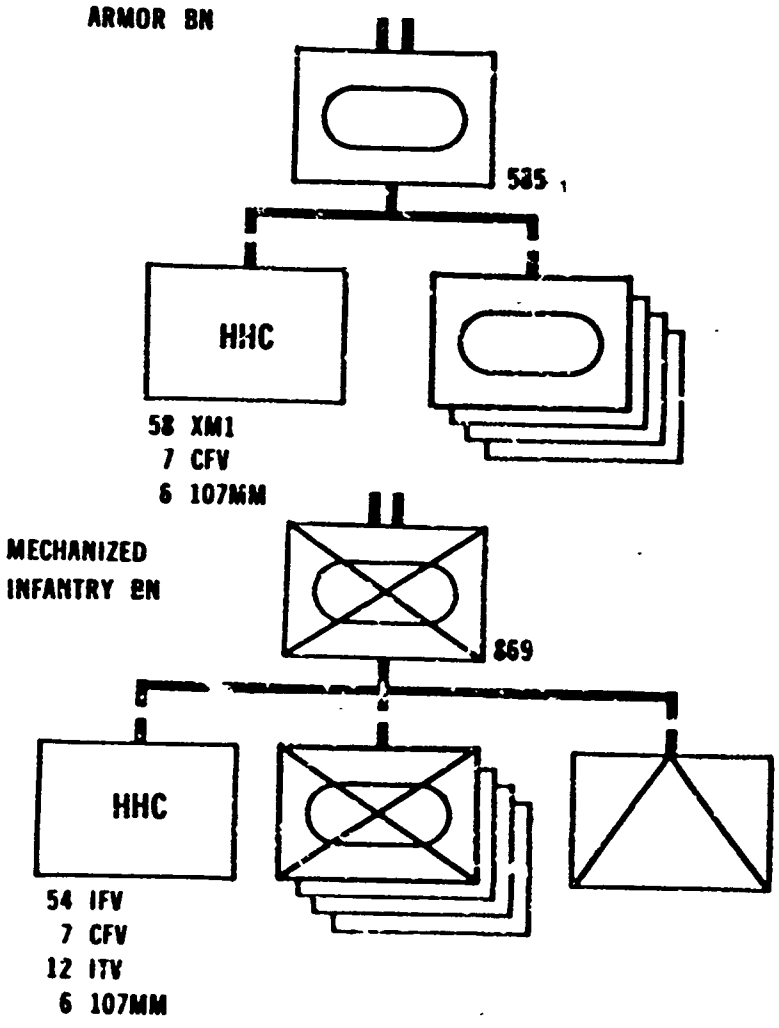
Source: Msg 032024Z Dec 79, Cdr TRADOC to Cdr CAC, subj: Battlefield Functional Technology.

Appendix B

DIVISION 86 ORGANIZATIONS
(August 1980)

Source: Army 86 Briefing presented to General Meyer, CSA, 1 Aug 80.

CHART B-1 TARGET SERVICING MANEUVER BATTALIONS



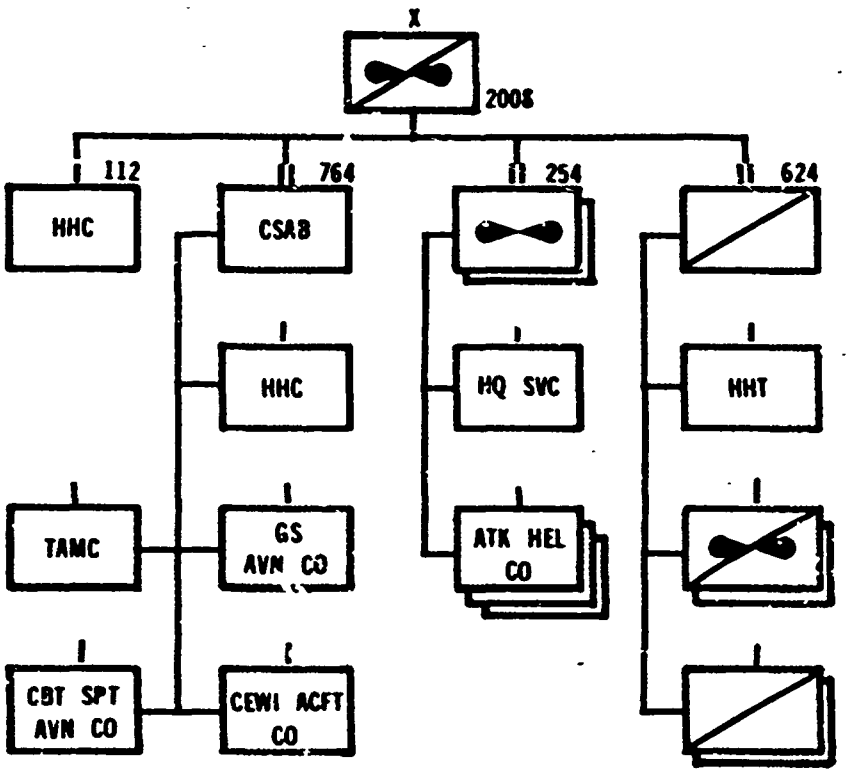
CHARACTERISTICS

- INTEGRATION OF COMBINED ARMS NORMALLY AT BATTALION
- LARGER BATTALIONS—SMALLER COMPANIES AND PLATOONS
- BATTALION STAFF CAPABLE OF CONOPS
- COMMON SUPPORT BASE
- MAINTENANCE CONSOLIDATED IN HQ COMPANIES

DIV 86/H-SERIES COMPARISON

- BN TANKS: 58 vs 54
- TANK COMPANIES: 4 vs 3
- TANKS PER PLATOON: 4 vs 5
- BN MORTARS: 6 vs 4
  (MECH COMPANY MORTARS ELIMINATED)

CHART B-2 TARGET SERVICING AIR CAVALRY ATTACK BRIGADE



50 AH
48 SCT
6 OH
30 UH
12 EH
146 ACFT

CHARACTERISTICS

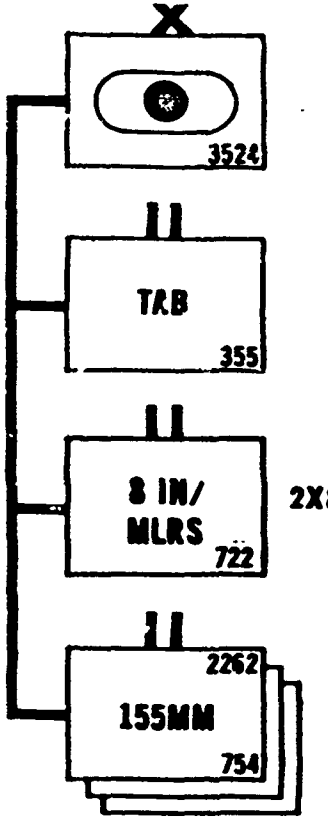
- DIVISION AVIATION CONSOLIDATED
- ORGANIC DS AVIATION MAINTENANCE
- CAVALRY SQUADRON CONTAINS GROUND AND AIR TROOPS
- RECONNAISSANCE AND ATTACK ELEMENTS SEPARATED

DIV 86/H SERIES COMPARISON

- ELIMINATED TANKS FROM CAVALRY SQUADRON
- COMMAND STRUCTURE SIMILAR TO COMBAT ARMS ORGANIZATION

CHART B-3

COUNTERFIRE/INTERDICTION DIVISION ARTILLERY



DTAB	WEAPONS
3 TPQ-36	72 155
2 TPQ-37	16 8"
3 FAMAS	9 MLRS
5 PADS	
5 RPV	
30 PPS-15	

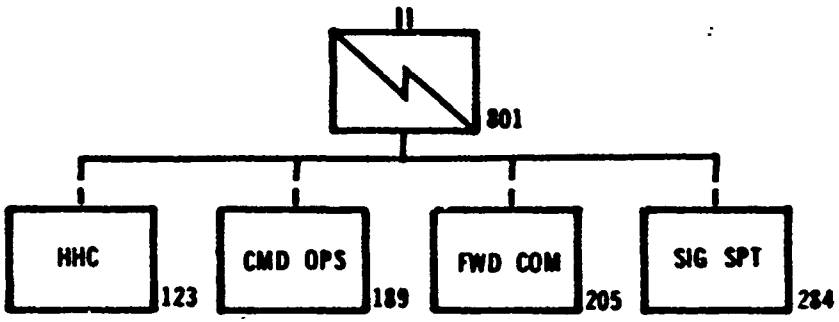
CHARACTERISTICS

- DIVARTY PRIMARILY RESPONSIBLE FOR COUNTERFIRE AND SUPPRESSION OF IMMEDIATE ASSAULT ECHELON
- TARGET ACQUISITION TO LOCATE ASSAULT AND FOLLOW-ON ECHELONS INTEGRATED WITH DIVISION ISTA NETWORK
- INCREASED GENERAL SUPPORT ARTILLERY
- INCREASED AMMUNITION HAUL CAPABILITY IN SERVICE BATTERIES

DIV 86/H-SERIES COMPARISON

- 8" TUBES: 16 vs 12
- DTAB: BATTALION vs BATTERY

CHART B-4 COMMAND, CONTROL, COMMUNICATIONS SIGNAL BATTALION



CONTROL	TERRESTRIAL	TACSAT
5 PLRS/JTIDS NCU	11 TTC-41	15 SC (MSC-65)
9 TSC-76	41 TRC-145	3 MCHAN (TSC-85)
4 TGC-30	19 TRC-113	3 MCHAN (TSC-93)
4 MSC-31		

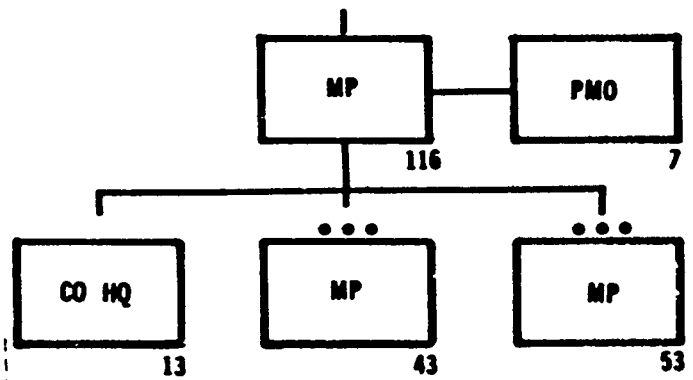
CHARACTERISTICS

- ADDITIONAL FM RETRANSMISSION
- IMPROVED HF RADIO
- IMPROVED TACSAT CAPABILITY
- FIVE NET CONTROL UNITS FOR OPERATING PLRS/JTIDS HYBRID

DIV 86/H-SERIES COMPARISON

- ELIMINATED AUDIO-VISUAL SUPPORT

CHART B-5 COMMAND, CONTROL, COMMUNICATIONS MILITARY POLICE COMPANY

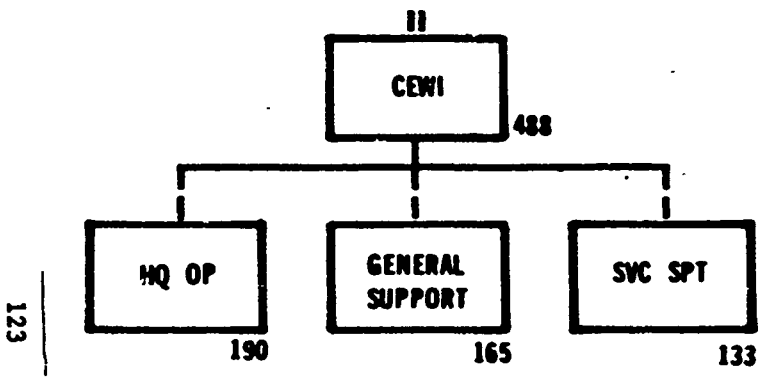


- MP'S PROVIDE IN DIVISION REAR:
  - -CIRCULATION CONTROL
    - CONTROL POINTS
    - MSR PATROL
    - STRAGGLER CONTROL
  - -EPW/CI CONTROL
    - OPERATE DIV COLLECTING POINT
    - COORDINATE EVACUATION FROM DIV
  - -CEWI SECURITY

DIV 86/H SERIES COMPARISON

- BRIGADE SCOUT PLATOONS:
  VS MP DS PLATOONS:
  - -CONVOY SECURITY
  - -PASSAGE OF LINES
  - -RACO
  - -MOTOR PATROLLING
  - -EPW EVACUATION
  - -RIVER CROSSING

CHART B-6 INTELLIGENCE, SURVEILLANCE, TARGET ACQUISITION COMBAT ELECTRONIC WARFARE - INTELLIGENCE BATTALION



2 TRAILBLAZER
6 TACJAM
1 SOTAS PGS
5 SOTAS SGS
3 TLQ-17A

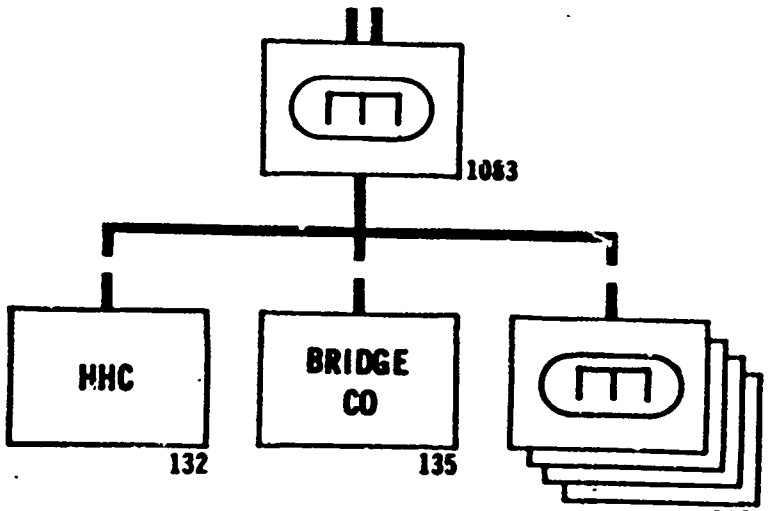
CHARACTERISTICS

- INTELLIGENCE PREPARATION OF THE BATTLEFIELD
- CENTRALIZED MANAGEMENT OF EW AND ISTA
  - -SHOOT - JAM - LISTEN COORDINATION ASSETS
  - -ASAC PROVIDES INTELLIGENCE ANALYSIS AND SENSOR C^2

DIV 86/H-SERIES COMPARISON

- INCREASED CAPABILITIES
  - -QUICKFIX 6 vs 3
  - -SOTAS A/C 6 vs 0
- GROUND SURVEILLANCE RADARS IN DTAB

CHART B-7 MOBILITY, COUNTERMOBILITY, SURVIVABILITY ENGINEER BATTALION



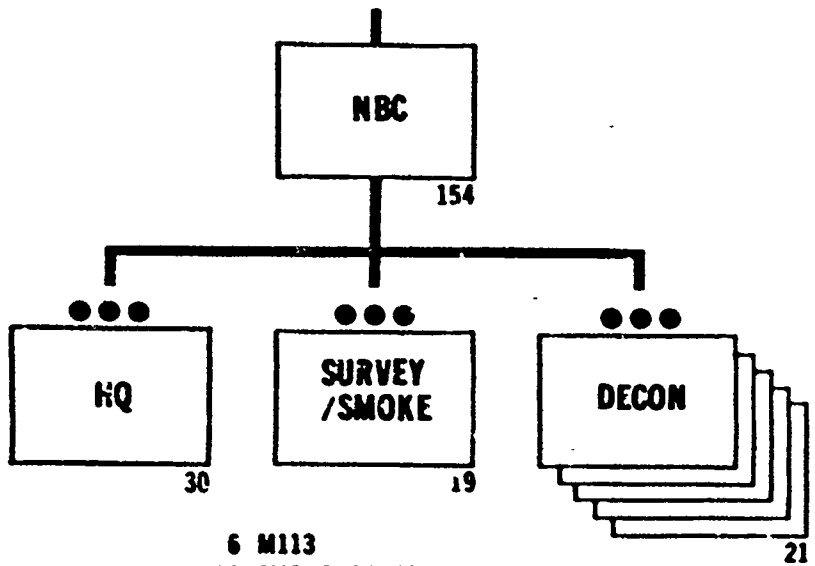
CHARACTERISTICS

- EQUIPMENT INTENSIVE
- ENGINEER SUPPORT FOCUSED FORWARD IN BRIGADE AREAS WITH EQUIPMENT AT THE LOWEST POSSIBLE LEVEL
- MOBILITY EQUAL TO THAT OF SUPPORTED UNIT
- DOERS NOT ADVISORS

DIV 86/H-SERIES COMPARISON

- AVLB'S LOCATED IN DS ENGINEER CO vs TANK BNS
- RIBBON BRIDGE 144 vs 214 METERS
- PROVIDES ASSISTANT BRIGADE ENGINEER

CHART B-8 MOBILITY, COUNTERMOBILITY, SURVIVABILITY NUCLEAR BIOLOGICAL CHEMICAL COMPANY



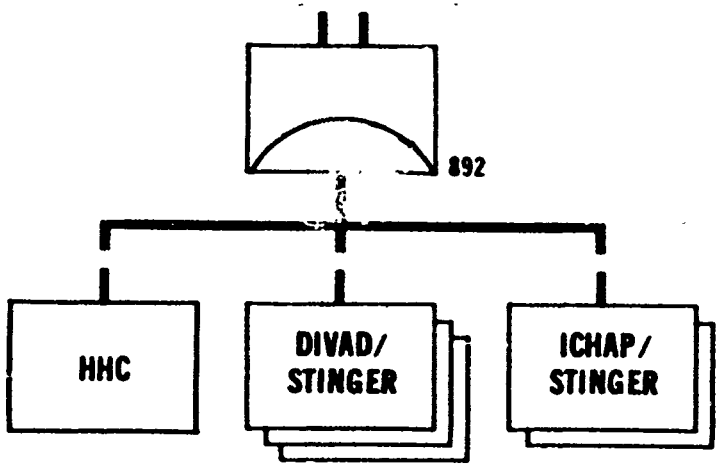
CHARACTERISTICS

- A SEPARATE COMPANY WITHIN DIVISION TROOPS
- NBC RECON PROVIDED BY CAVALRY SQUADRON
- NBC COMPANY PROVIDES IMMEDIATE DECON OF —
  - — *ESSENTIAL EQUIPMENT*
  - — *PERSONNEL*

DIV 86/H-SERIES COMPARISON

- ADDED SMOKE SUPPORT CAPABILITY
- INCREASED DECONTAMINATION CAPABILITY: 15 APPARATUS vs 9 APPARATUS

CHART B-9 AIR DEFENSE ARTILLERY BATTALION



36 DIVAD
24 ICHAP
73 STINGER TMS
8 FAAR

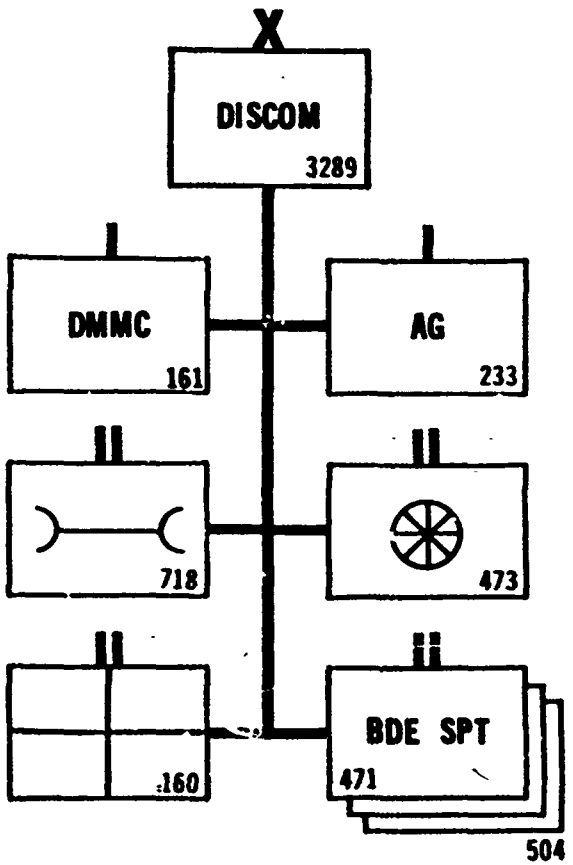
CHARACTERISTICS

- ONE 12-GUN DIVAD/STINGER BATTERY IN DIRECT SUPPORT OF EACH BRIGADE
- TWO 12-LAUNCHER I-CHAP/STINGER BATTERIES GENERAL SUPPORT IN DIVISION REAR
  - POSSESSES ORGANIC SENSING CAPABILITY
- THE SHORAD C^2 SYSTEM PROVIDES TIMELY AIR BATTLE MANAGEMENT

DIV 86/H-SERIES COMPARISON

- AIR DEFENSE GUNS: 36 vs 24
- CENTRALIZED STINGER TEAMS

CHART B-10 BATTLE SUPPORT DIVISION SUPPORT COMMAND



- **BRIGADE SUPPORT BATTALIONS:**
  - *MAINTENANCE, SUPPLY, MEDICAL COMPANIES*
- **INCREASED EFFECTIVENESS**
  - *ORGANIC HET CO*
  - *POL TANKERS FORWARD*
  - *ATP IN BSA AND DSA*
  - *WATER SUPPLY AND DISTRIBUTION IN SAME UNIT*
  - *MEDICAL HOLDING CAPABILITY IN DSA*
  - *MAINTENANCE SUPPORT TEAMS TO EACH COMBAT BN*
- **AUGMENTATION**
  - *CEB*
  - *GRREG*
  - *PATIENT DECON*
  - *PERSONNEL REPLACEMENT*

Appendix C
PROSPECTIVE LIGHT DIVISION EQUIPMENT

COUNTERFIRE/INTERDICTION

Funded Procurement
- M198 155-mm. Towed Howitzer
- Position and Azimuth Determining System
- Battery Computer System
- Field Artillery Meteorological Acquisition System
- Forward Observer Vehicle
- COPPERHEAD Cannon Launched Guided Projectile
- General Support Rocket System
- High Mobility Multipurpose Wheeled Vehicle

Under Development - No Procurement
- Heavy Expanded Mobility Tactical Truck[a]
- Tactical Fire Direction System (Equivalent)[b]
- Heavy Expanded Mobility Ammunition Trailer[a]
- Sense and Destroy Armor Projectile[bc]
- FIST Vehicle

No Program
- Azimuth Determining System[b]

AIR DEFENSE

Funded Procurement
- STINGER or STINGER Post
- Improved CHAPARRAL with FLIR Post
- Forward Area Alerting Radar
- High Mobility Multipurpose Wheeled Vehicle

Under Development - No Procurement
- Product Improved VULCAN[b]
- Air Defense Electronic Warfare System
- SHORAD Command and Control System[b]
- Precision Guided Munitions Countermeasure System[b]
- Passive Surveillance System[b]

No Program
- Lightweight Air Defense Gun[bc]

BATTLE SUPPORT - RECONSTITUTION

Funded Procurement
- 5000-Gal Fuel Semitrailer
- Tactical Dual Purpose Container Transporter Semitrailer
- Division Level Data Entry Device
- Biological Detection and Warning System

Under Development - No Procurement
- Combat Service Support System Replacement
- Standard Army Ammunition System Level 4
- Heavy Expanded Mobility Tactical Truck and Ammunition Trailer
- Heavy Equipment Transporter System
- Commercial 3/4 and 5/4 Utility and Cargo Trucks
- Manportable Smoke Generator[bc]

No Program
- Lightweight Decontamination System[bc]
- Air Transportable Trailer for Division Data Center[b]
- Fighting Vehicle Systems Carrier[b]

TARGET SERVICING

Funded Procurement
- Cavalry Fighting Vehicle
- M1 Tanks
- Improved TOW Vehicle
- Blackhawk Utility Helicopter
- Lightweight Company Mortar System
- Improved 81-mm. Mortar
- Platoon Early Warning System
- VIPER Antitank Weapon
- Squad Automatic Weapon
- Advanced Attack Helicopter
- Ground Laser Locator Designator
- High Mobility Multipurpose Wheeled Vehicle

Under Development No Procurement
- Multipurpose Lightweight Missile System[bc]
- Armored Combat Vehicle Technology Program[abc]
- Laser Target Designator
- Advanced Heavy Antiarmor Weapons System[b]
- Advanced Medium Antiarmor Weapons System[bc]
- Guided Antiarmor Mortar Projectile[bc]

No Program
- Heavy Machine Gun Cal. .50[b]

MOBILITY-COUNTERMOBILITY-SURVIVABILITY

Funded Procurement
- Area Denial Artillery Munition
- Remote Antiarmor Mine System
- Surface Launched Fuel Air Explosive
- Universal Engineer Tractor[a]
- Ground Emplaced Mine System
- Modular Mine Pack System
- Vehicle Mounted Road Mine Detector

Under Development - No Procurement
- Silent Lightweight Electric Energy Plants
- C[illegible] Viper Mine Clearing Line [illegible][b]
- [illegible] Neutralization System [illegible]
- Off [illegible] Mine [illegible] System[b]
- Underwater [illegible] Mine[b]
- Airborne [illegible] System[b]
- Explosive Foxhole Digger[illegible]

No Program
- Portable Antipersonnel Mine Detection System[b]
- Light Armored Vehicle Launched Bridge System[bc]
- Combat Emplacement Excavator[bc]
- Combat Obstacle Vehicle[abc]

INTELLIGENCE-SURVEILLANCE-TARGET ACQUISITION

Funded Procurement
- AN/PPS-15 Ground Surveillance Radar
- AN/MSQ-103 Team Pack Radar Detector
- QUICKFIX with DF (AN/ALQ-151) Jammer
- TRAILBLAZER (AN/TSQ-114) Jammer
- Automatic Ground Transportable Emitter Location - Identifier System (AN/TSQ-109)
- Stand-off Target Acquisition System
- All-Source Analysis System
- FIREFINDER (AN/TPQ-36 and 37) Radars
- Remotely Piloted Vehicle

Under Development - No Procurement
- Manpack Radio Direction Finding System[b]
- Technical Control and Analysis Center-Division[b]
- Expendable ECM Devices[b]
- Remotely Monitored Battlefield Sensor System
- Advanced Scout Helicopter[b]

No Program
- Field Artillery Squad Acquisition System[b]
- Passive Artillery Locating System-Ground[b]

COMMAND-CONTROL-COMMUNICATIONS

Funded Procurement
- Position Location Reporting System
- NAVSTAR Global Positioning System
- Modular Record Traffic Terminal
- Tactical Satellite Communications
- SINCGARS Radio
- Unit Level Switchboard
- Short Range Wide Band Radio
- VIPER Antitank Weapon
- Transceiver Multiplexer TD 1288
- Transceiver Multiplexer TD 1289
- Steerable Null Antenna Processor
- Quick Erectable Antenna Mast
- Improved High Frequency Radio
- Small Transceiver Unit
- Directional VHF Log Periodic Antenna System
- High Mobility Multipurpose Wheeled Vehicle

Under Development - No Procurement
- Tactical Operations System (Equivalent)
- Mobile Subscriber Equipment[b]
- Position Location Reporting System/Joint Tactical Information Distribution System Hybrid[c]
- 30-mm. Chain Gun
- Squad Automatic Weapon
- 40-mm. Grenade Machine Gun[b]
- Digital Burst Communications
- Mini-Laser Range Finder

No Program
- Armbrust[b]

Notes:
- a Exceeds C-141 airlift capacity
- b High program risk
- c Potential for quantum improvement in operational effectiveness

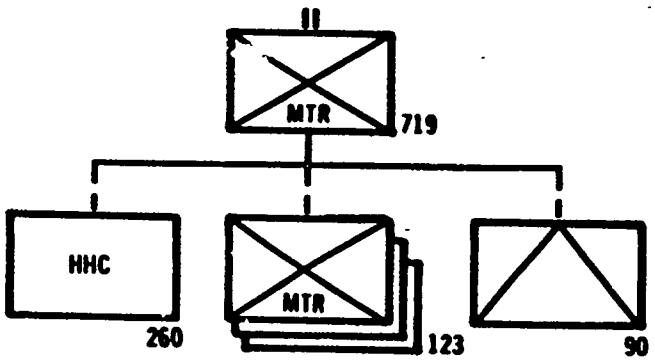
Source: Ltr ATZLCA-FB, CAC to distr, 8 Jan 80, subj: New Equipment for [illegible]

Appendix D

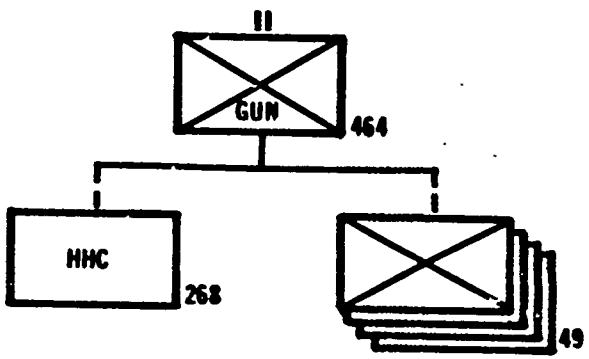
INFANTRY DIVISION 86 ORGANIZATIONS
(September 1980)

Source: CAC Briefing, Inf Div 86, presented to CSA on 18 Sep 80.

CHART D-1 INFANTRY DIVISION 86 MOTORIZED INFANTRY BATTALION AND MOBILE PROTECTED GUN BATTALION



39 LAWCV W/CANNON
6 MORT 181
8 HMMWV W/CANNON
16 TOW
42 IMAAW



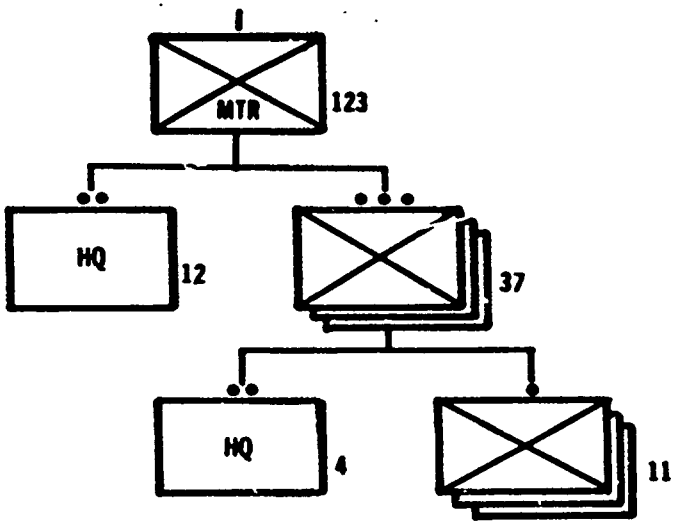
58 MPG
6 MORT 181
8 HMMWV W/CANNON
6 IMAAW

CHARACTERISTICS

- MOTORIZED INFANTRY BN
  - -- BN MORTAR AND SCOUT PLATOONS IN HHC
  - -- 3 RIFLE COMPANIES
  - -- TOW COMPANY

- MOBILE PROTECTED GUN
  - -- BN MORTAR AND SCOUT PLATOONS IN HHC
  - -- 4 MPG COMPANIES

CHART D-2 INFANTRY DIVISION 86 INFANTRY COMPANY



131

4 LAWCV
W/CANNON

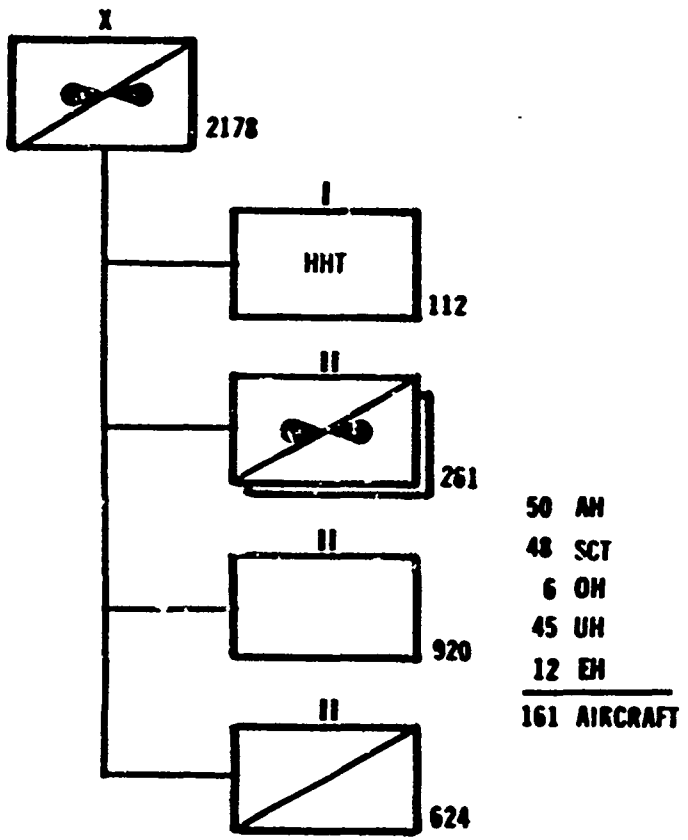
SL

TL	TL
MG	IMAAW
R	R
M203	M203
SAW	SAW

CHARACTERISTICS

- MOBILE ARMS ROOMS CONCEPT
- VERSATILE
  - DEFEATS DISMOUNTED TROOPS OR ARMOR FORCES
  - OPERATE IN ANY TYPE TERRAIN
- RIFLE SQUADS RESEMBLE WEAPONS SQUADS

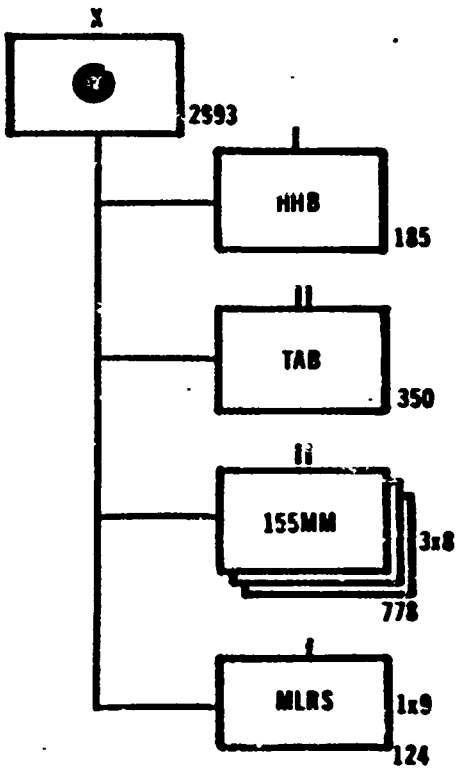
CHART D-3 INFANTRY DIVISION 86 AIR CAVALRY ATTACK BRIGADE



CHARACTERISTICS

- DIVISION AVIATION CONSOLIDATED
- DS AVIATION MAINTENANCE ORGANIC
- RECONNAISSANCE AND ATTACK ELEMENTS SEPARATED
- CSAB -- TWO LIFT COMPANIES
- CAVALRY SQUADRON
  - -- TWO AIR TROOPS
  - -- TWO GROUND TROOPS

CHART D-4 INFANTRY DIVISION 86 DIVISION ARTILLERY

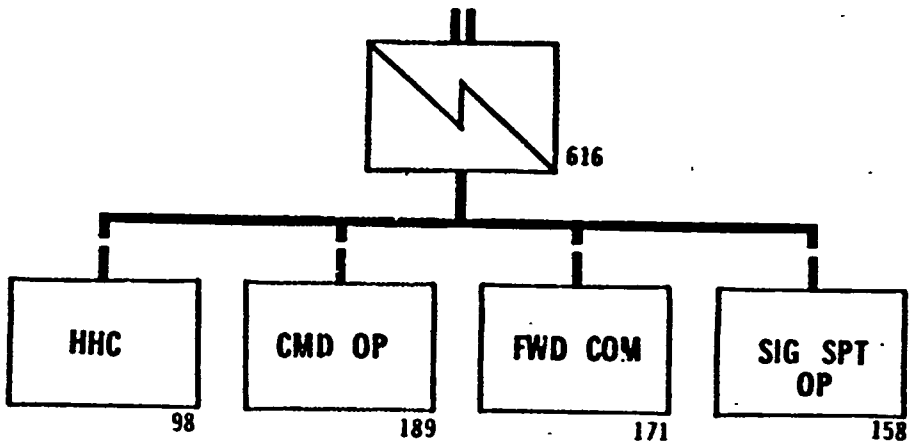


DTAB	WEAPONS
3 TPQ-36	72 M-198
2 TPQ-37	9 MLRS
3 FAMAS	
5 PADS	
5 RPV	
30 PPS-15	

CHARACTERISTICS

- DIVARTY PRIMARILY RESPONSIBLE FOR CLOSE SUPPORT OF MANEUVER ELEMENTS AND COUNTERFIRE
- TARGET ACQUISITION LOCATES ASSAULT AND FOLLOW-ON ECHELONS, SYSTEMS ARE INTEGRATED WITH DIVISION ISTA NETWORK
- 105/155 DUAL GUN FLEXIBILITY
- INCREASED INDIRECT FIREPOWER

CHART D-5 INFANTRY DIVISION 86 SIGNAL BATTALION

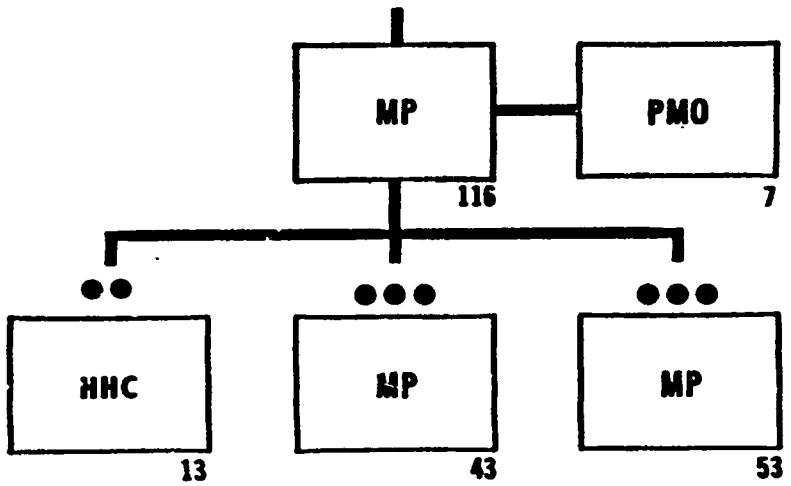


CONTROL	TERRESTRIAL	TACSAT
5 PLRS/JTIDS NCU	7 TTC-42	13 SC (MSC-65)
5 MSC-31	47 TRC 113	5 MCHAN (TSC-95)
4 CNCE (TSQ-111)3		
3 CCC (TSQ-111)		
3 MTCC		

CHARACTERISTICS

- PERFORMS SAME DIVISION FUNCTIONS AS DIVISION 86
- LESS MANPOWER DUE TO ADVANCED TECHNOLOGY (POST 86)
  - -- MODULAR TACTICAL COMM CTR FOR DIV MAIN, DIVARTY & DISCOM
  - -- MILLIMETER WAVE RADIO/ FIBER OPTIC CABLE LINKS IN DIV MAIN
  - -- DIGITAL CIRCUIT SWITCHING FOR DIV AREA

CHART D-6 INFANTRY DIVISION 86 MILITARY POLICE COMPANY

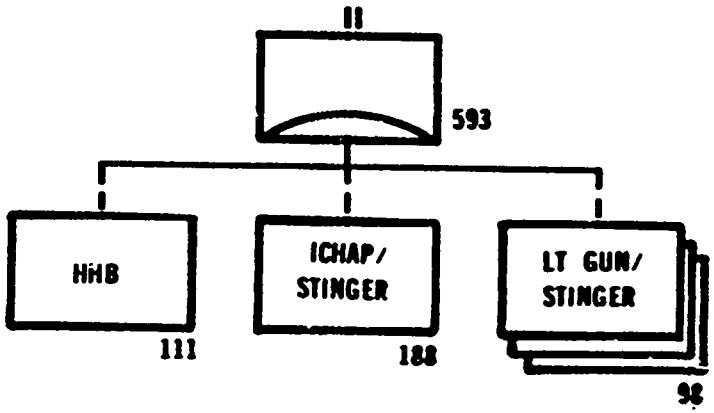


31 HMMWV
13 40MM MG

CHARACTERISTICS

- PERFORMS SAME DIVISION FUNCTIONS AS DIVISION 86
- MP'S PROVIDE IN DIVISION REAR:
  - *CIRCULATION CONTROL*
    - *CONTROL POINTS*
    - *MSR PATROL*
    - *STRAGGLER CONTROL*
  - *EPW/CI CONTROL*
    - *OPERATE DIV COLLECTING POINT*
    - *COORDINATE EVACUATION FROM DIV*
  - *CEWI SECURITY*
- BRIGADE SCOUT PLATOONS vs MP DS PLATOONS:
  - *CONVOY SECURITY*
  - *PASSAGE OF LINES*
  - *RACO*
  - *MOTOR PATROLLING*
  - *EPW EVACUATION*
  - *RIVER CROSSING*

CHART D-7 INFANTRY DIVISION 86 AIR DEFENSE ARTILLERY BATTALION



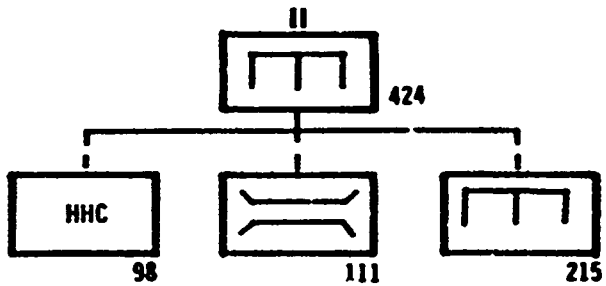
136

18 LT GUN
12 ICHAPARRAL
66 STINGER
8 FAAR

CHARACTERISTICS

- ONE GUN/STINGER BATTERY IN SUPPORT OF EACH BRIGADE
- ONE ICHAP/STINGER BATTERY
  - -- GS IN DIVISION REAR
  - -- POSSESSES ORGANIC SENSING CAPABILITY

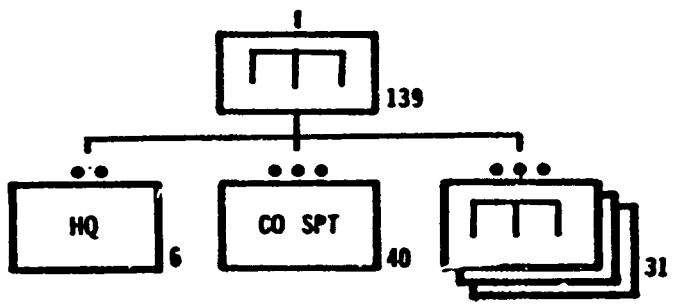
CHART D-8 INFANTRY DIVISION 86 ENGINEER BATTALION & COMPANY



53 5T DUMP TRK
15 CEE
11 UET

4 MGB SETS
4 GEMSS
2 MICLIC

137



12 5T DUMP TRK
9 CEE
7 UET
2 MICLIC

CHARACTERISTICS

ENGINEER BN

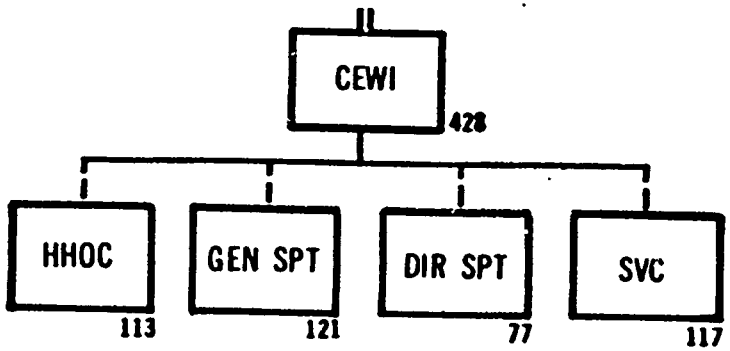
-- CONTAINS BRIDGE COMPANY
-- PROVIDES MINE LAYING CAPABILITY
-- PROVIDES MOBILITY, COUNTERMOBILITY, SURVIVABILITY CAPABILITY

ORGANIC BRIGADE ENGINEER COMPANY

-- PROVIDES DS MOBILITY, COUNTERMOBILITY, SURVIVABILITY CAPABILITY TO MANEUVER BRIGADES
-- PROVIDES ASSISTANT BRIGADE ENGINEER
-- PROVIDES MINE CLEARING CAPABILITY - MINE CLEARING LINE CHARGE

CHART D-9

INFANTRY DIVISION 86 COMBAT ELECTRONIC WARFARE INTELLIGENCE BATTALION



3 TEAMPACK
1 TRAILBLAZER
6 TACJAM
5 SOTAS SGS

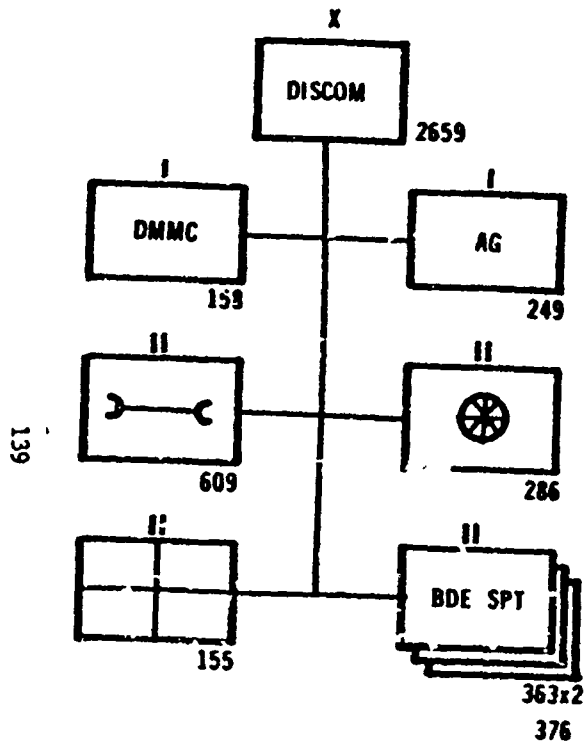
1 SOTAS PGS
3 TLQ-17A
3 TLQ-32
9 MANPACK

CHARACTERISTICS

- PERFORMS SAME DIVISION FUNCTIONS AS DIVISION 86
- INTELLIGENCE PREPARATION OF THE BATTLEFIELD
- CENTRALIZED MANAGEMENT OF EW AND ISTA
  - -- SHOOT-JAM-LISTEN COORDINATION ASSETS
  - -- ASAC PROVIDES INTELLIGENCE ANALYSIS AND SENSOR C^2
- CEWI, AVIATION COMPANY PROVIDES
  - -- QUICKFIX
  - -- SOTAS
- ALL CEWI SYSTEMS ARE WHEEL MOUNTABLE

CHART D-10

INFANTRY DIVISION 86 DIVISION SUPPORT COMMAND



CHARACTERISTICS

- BRIGADE SUPPORT BATTALIONS
  - MAINTENANCE, SUPPLY, MEDICAL COMPANIES
- INCREASED EFFECTIVENESS
  - AMMUNITION TRANSFER POINTS IN BRIGADE SUPPORT AREAS
  - WATER SUPPLY AND DISTRIBUTION IN SAME UNIT
  - MAINTENANCE SUPPORT TEAMS TO EACH COMBAT BN
- AUGMENTATION
  - CLOTHING EXCHANGE AND BATH
  - GRAVES REGISTRATION
  - PATIENT DECONTAMINATION
  - PERSONNEL REPLACEMENT

Appendix E

CORPS 86 ORGANIZATIONS
(August 1980)

E-1 Armored Cavalry Regiment, D-Day to D+180 Days

E-2 Aviation Brigade, D-Day to D+30 Days

E-3 Aviation Brigade, D+60 to D+180 Days

E-4 Corps Artillery, D-Day to D+30 Days

E-5 Corps Artillery, D+60 to D+130 Days

E-6 Signal Brigade, D-Day to D+180 Days

E-7 MP Group, D-Day to D+30 Days

E-8 MP Group, D+60 Days to D+180 Days

E-9 Combat Electronic Warfare - Intelligence Group, D-Day to D+180 Days

E-10 Engineer Brigade, D-Day to D+30 Days

E-11 Engineer Brigade, D+60 to D+180 Days

E-12 Air Defense Artillery Battalion, D-Day to D+30 Days

E-13 Air Defense Artillery Group, D+60 to D+180 Days

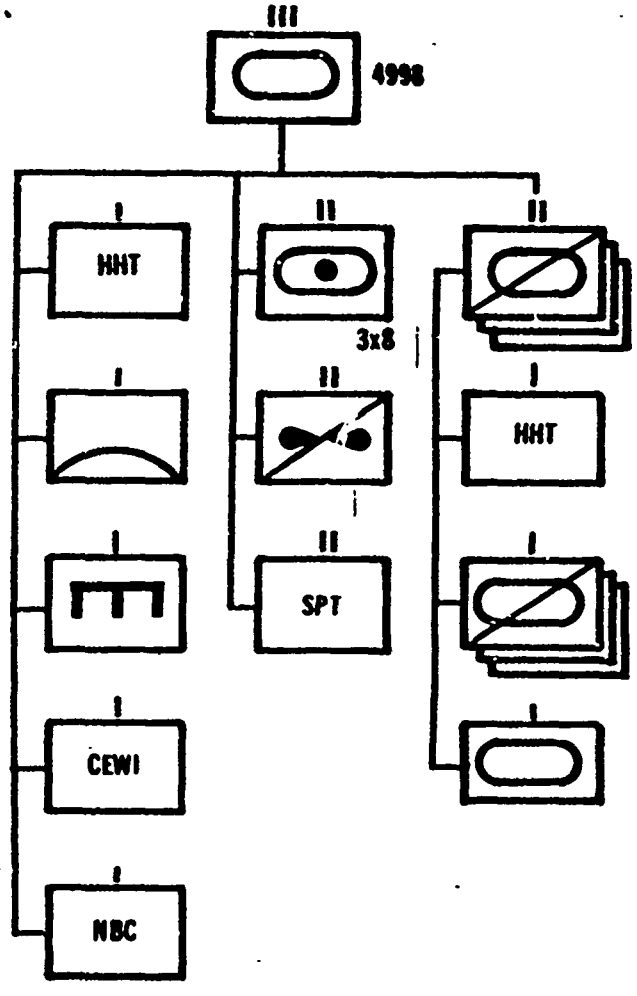
E-14 Nuclear-Biological-Chemical Brigade, D-Day to D+180 Days

E-15 Corps Support Command, D-Day to D+30 Days

E-16 Corps Support Command, D+60 to D+180 Days

Source: CAC Briefing, Army 86, presented to CSA on 1 Aug 80.

CHART E-1 CORPS 86 ARMORED CAVALRY REGIMENT, D - DAY TO D+180 DAYS



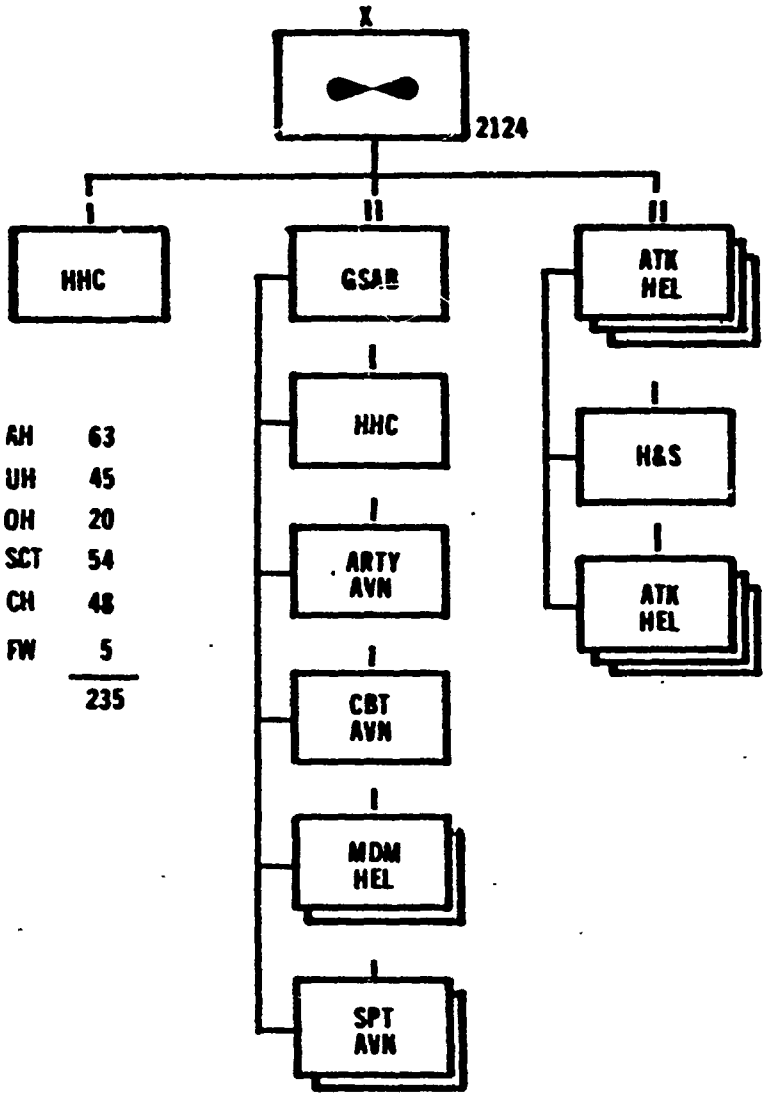
CHARACTERISTICS

- SELF CONTAINED
  - — COVERING FORCE
  - — ECONOMY OF FORCE
- STD SCT/TK PLTS IN CAV TRPS
- ARTY CONSOLIDATED INTO BN
- FSEs/FISTs w/GLLDS EA SQDN
- AIR DEF BTRY (GUN-STINGER)
- CEWI CO
- NBC CO

MAJOR EQUIPMENT

CFV	108	AH	26
MBT	129	SCT	27
DIVAD	12	UH	18

CHART E-2 CORPS 86 AVIATION BRIGADE D-DAY to TO D+30 DAYS



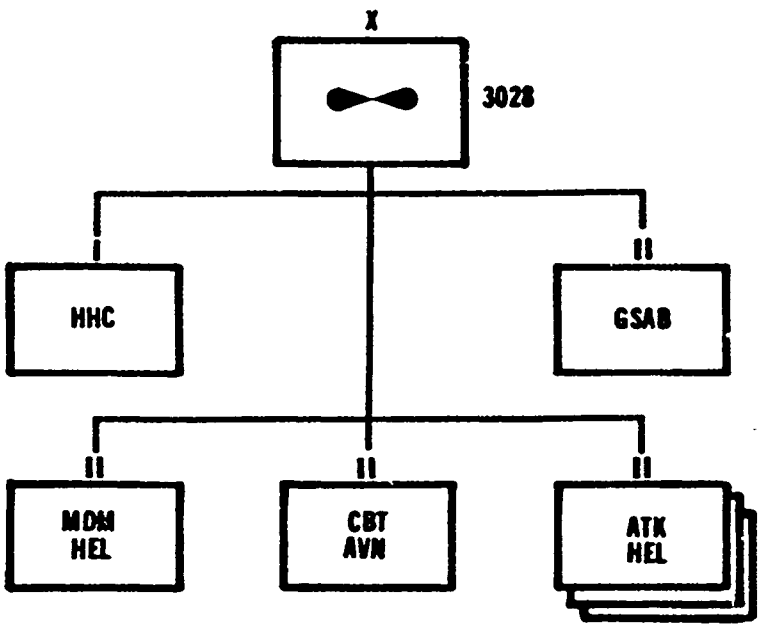
CHARACTERISTICS

- INTERNAL SEPARATION OF FIGHTERS AND SUPPORTERS
- FA AVN CO ADDED
- CMD & CNTL ACFT CONSOLIDATED

SHORTFALLS

- TWO CBT AVN CO'S
- ONE MDM HEL CO

CHART E-3 CORPS 86 - AVIATION BRIGADE, D+60 TO D+180 DAYS



AH	63
OH	30
CH	72
UH	87
SCT	64
FW	5
	321

CHARACTERISTICS

- TWO CBT AVN CO'S ADDED - BN
- ONE MDM HEL CO ADDED - BN
- ONE SPT AVN CO ADDED

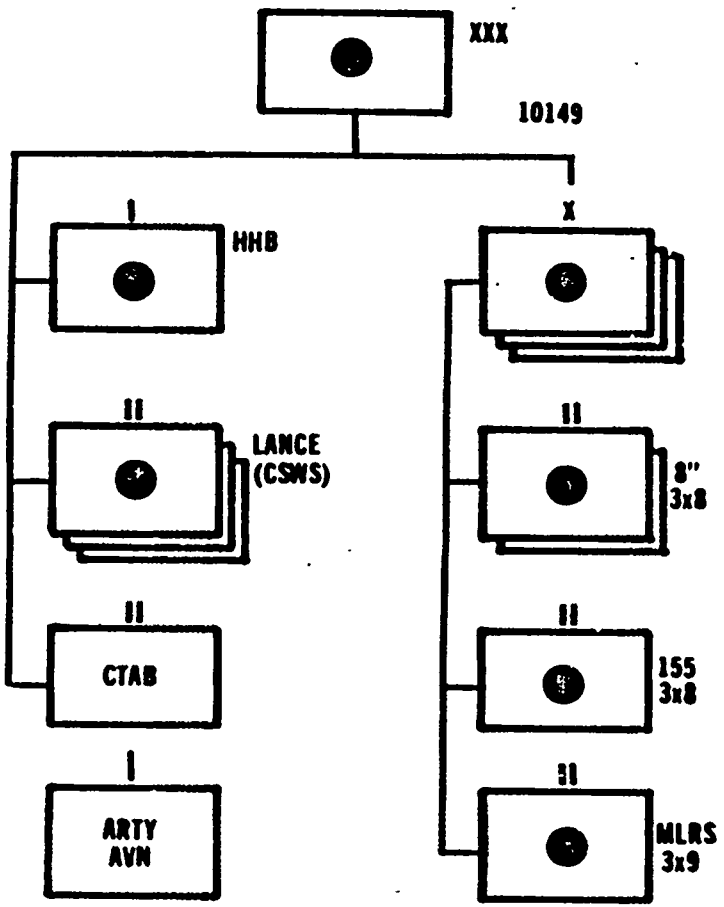
SHORTFALLS

- NONE—MEETS ALL REQUIREMENTS

DIVISION SUPPORT

- ATTACK HELICOPTERS
- TROOP LIFT
- AIR LOGISTICS

CHART E-4 CORPS 86 CORPS ARTILLERY, D-DAY TO D+30 DAYS



CHARACTERISICS

- HHB CORPS ARTY ADDED
- CTAB ADDED
- DEDICATED FAAO AIRCRAFT

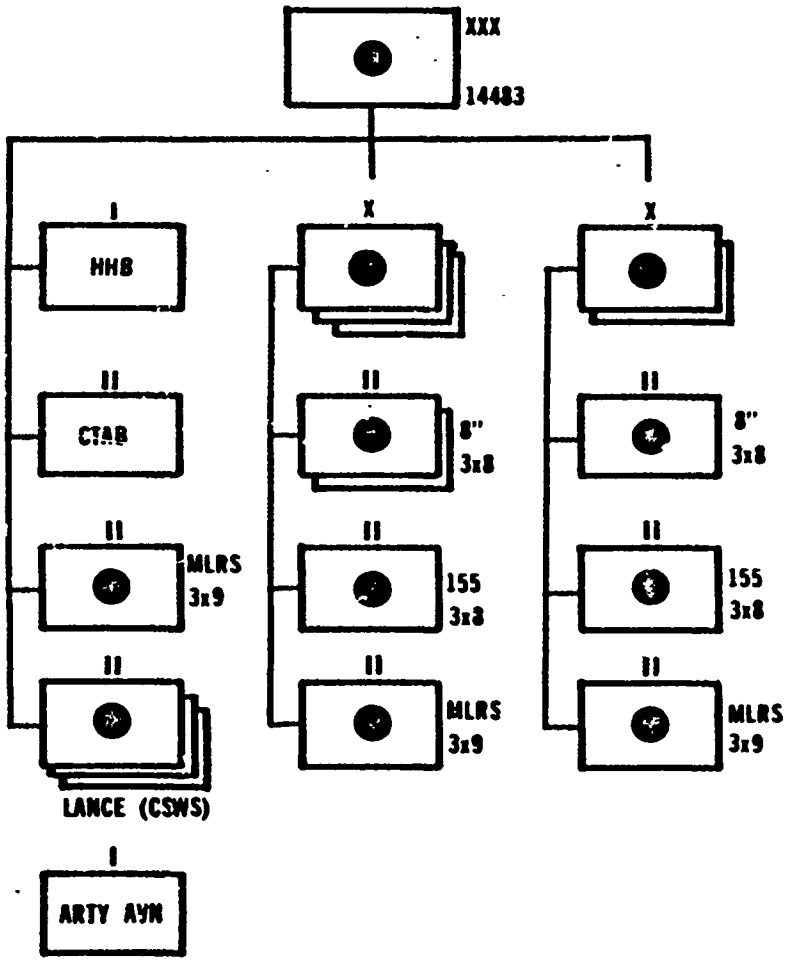
SHORTFALLS

- ONE BDE HQ
- THREE 155 BNS
- ONE MLRS BN

DIVISION SUPPORT

- ONE ARTILLERY BDE

CHART E-5 - CORPS 86 CORPS ARTILLERY D+60 TO D+180 DAYS



CHARACTERISTICS

- TWO BDE HQ ADDED
- TWO 8" BNS ADDED
- TWO 155 BNS ADDED
- THREE MLRS BNS ADDED

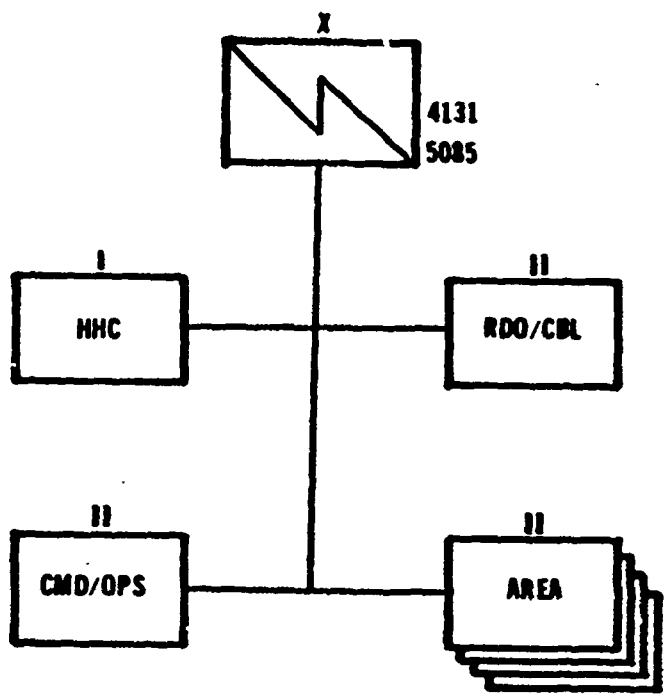
SHORTFALLS

- ONE BDE HQ (LANCE)
- TWO 8" BNS (4TH & 5TH DIVS)
- FIVE 155 BNS
  (CFA OFFENSE)
  (REINF MBA)

DIVISION SUPPORT

- ONE ARTILLERY BDE

CHART E-6 CORPS 86 SIGNAL BRIGADE D DAY TO D+180 DAYS



CHARACTERISTICS

- OPERATES CORPS COMMAND COMMUNICATION SYSTEM
- OPERATES CORPS AREA COMMUNICATION SYSTEM
  12 NODE 16 NODE
- PROVIDES DEDICATED ASSETS FOR ALT CORPS HQ AT CORPS ARTY
- AUTOMATIC SWITCHING
- TIE-IN TO DCS COMMUNICATION SYSTEM

SHORTFALLS

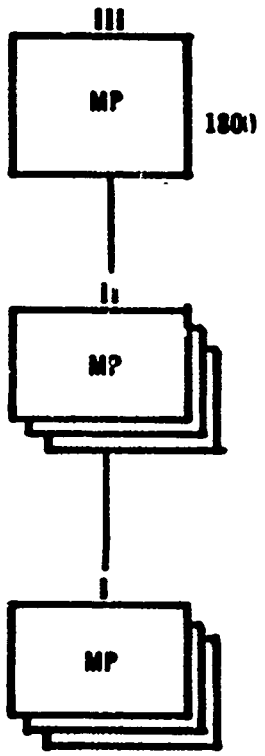
- CORPS TACSAT COMMAND NET
- AUDIO VISUAL SUPPORT FOR CORPS AND DIVISIONS

DIVISION SUPPORT

- COMMAND AND AREA COMMUNICATIONS ACCESS

CHART E-7

CORPS 86 MP GROUP D-DAY TO D+30 DAYS



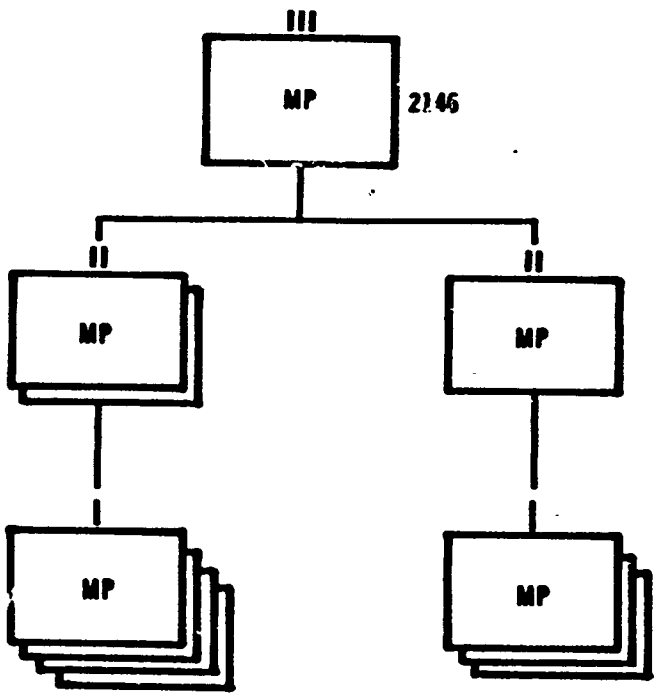
CHARACTERISTICS

- SECURITY AND CONTROL OF MSR
- SUPPORT TO DIVISIONS
- RACO

SHORTFALLS

- EPW CAPABILITY
- US PRISONER DETENTION FACILITY CAPABILITY

CHART E-8 CORPS 86 MP GROUP D+60 TO D+180 DAYS



CHARACTERISTICS

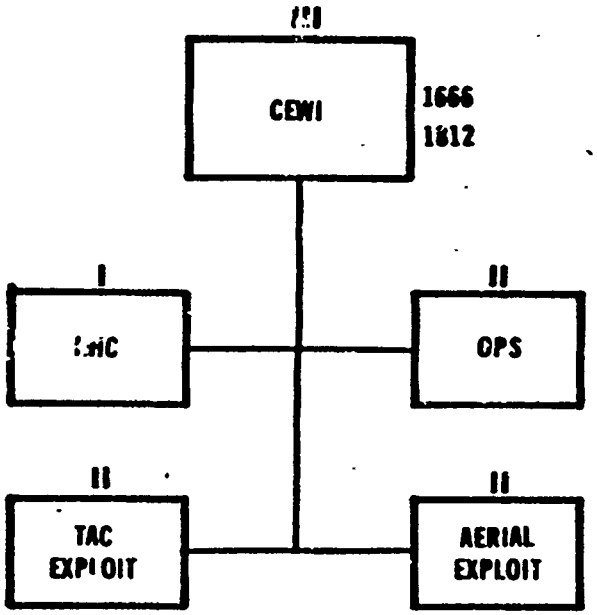
- SAME

SHORTFALLS

- EPW CAPABILITY
- US PRISONER DETENTION FACILITY CAPABILITY
- DIVISION SUPPORT
- DIRECT SUPPORT TO DIVISIONS SITUATION AND MISSION DEPENDENT

CORPS 86 COMBAT ELECTRONIC WARFARE INTELLIGENCE GROUP, D-DAY TO D+180 DAYS

CHART E-9



CHARACTERISTICS

- SINGLE INTEGRATED CORPS ISTA COMMAND
- INTERFACE WITH TOTAL ARMY SYSTEM DIVISION TO NATIONAL AGENCIES
- AUTOMATED SYSTEM FOR CORRELATION AND DISSEMINATION

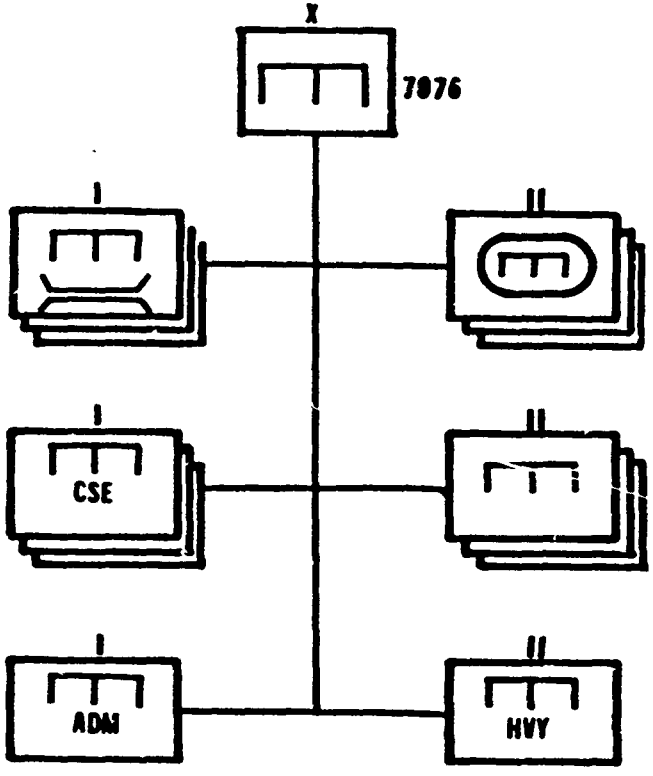
SHORTFALLS

- COMINT COVERAGE LESS THAN 12 HRS/DAY
- ELINT COVERAGE LESS THAN 12 HRS/DAY
- LIMITED SURGE CAPABILITY FOR QUICKLOOK AND GUARDRAIL

DIVISION SUPPORT

- TARGETING INFORMATION AND INTELLIGENCE
- COVER SENSOR GAPS
- WEIGHT THE ATTACK OR DEFENSE

CHART E-10 CORPS 86 ENGINEER BRIGADE D-DAY TO D+30 DAYS



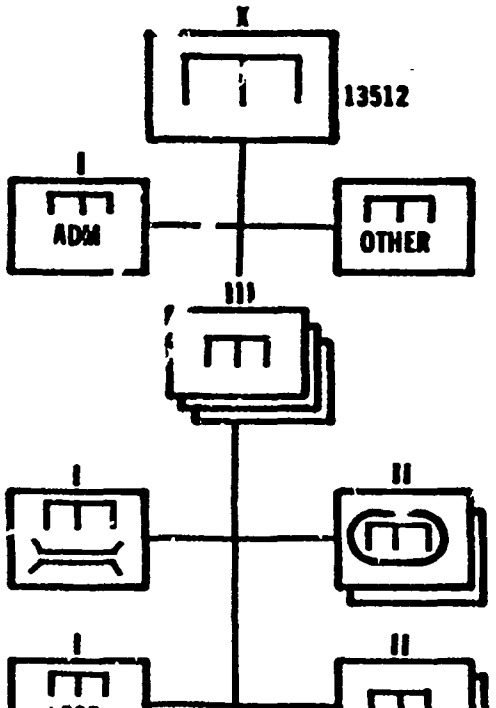
CHARACTERISTICS

- UNITS STRUCTURED IAW REAF STUDY
- BDE CDR IS CORPS ENGINEER
- CENTRAL HQ FOR ALL ENGINEER FUNCTIONS

SHORTFALLS

- MBA
  - —30% FIGHTING POSITIONS AND STRONG POINTS
  - —30% OBSTACLES CONSTRUCTION AND REDUCTION
  - —33% MINEFIELD LAYING AND BREACHING
- DIV AND CORPS REAR AREAS
  - —LOC MAINT OR REPAIR
  - —AIRFIELD REPAIR
  - —PROTECTIVE POSITIONS
  - —C^3/LOG FACILITIES PROTECTION

CHART E-11 CORPS 86 ENGINEER BRIGADE D+60 TO D+180 DAYS



CHARACTERISTICS

- SAME

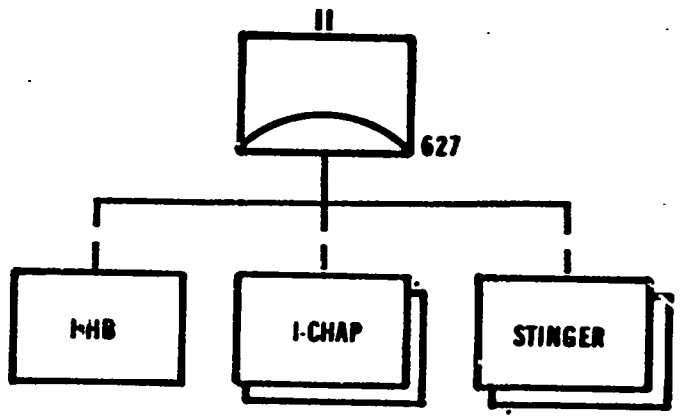
SHORTFALLS

- MBA
  - -20% FIGHTING POSITIONS AND STRONG POINTS
  - -20% OBSTACLES CONSTRUCTION AND REDUCTION
  - -30% MINEFIELD LAYING AND BREACHING
- DIV AND CORPS REAR AREA
  - -80% PROTECTIVE POSITIONS
  - -LOC MAINT OR REPAIR
  - -AIRFIELD REPAIR
  - -C3/LOC FACILITIES PROTECTION

DIVISION SUPPORT

- CBT ENGR BN (M)
- CBT ENGR BN
- CBT SPT EQUIP CO
- BRIDGE CO

CHART E-12 CORPS 86 AIR DEFENSE ARTILLERY BATTALION D-DAY TO D+30 DAYS



CHARACTERISTICS

- ADDITION TO CORPS FORCE
- OPERATES IN CORPS REAR
- FOLLOWS AADC RULES

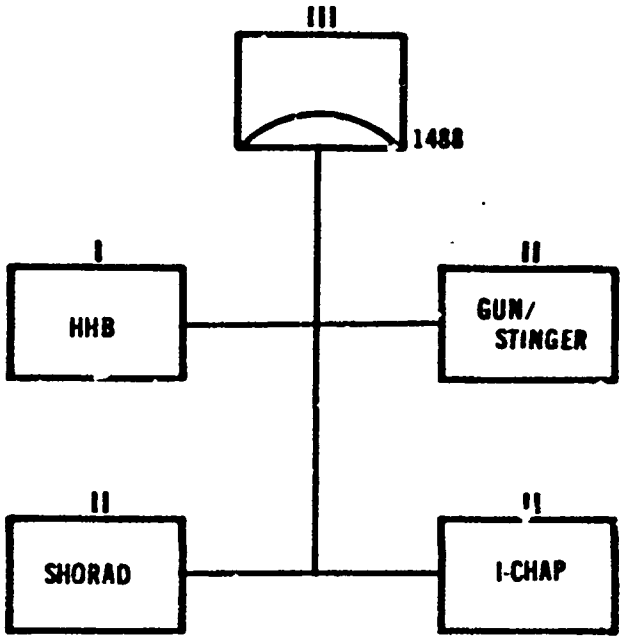
SHORTFALLS

- DEFENSE OF HIGH PRIORITY ASSETS ONLY
- ALL WEATHER SHORAD CAPABILITY

DIVISION SUPPORT

- NONE

CHART E-13 CORPS 86 AIR DEFENSE ARTILLERY D+60 TO D+180 DAYS



CHARACTERISTICS

- ICHAP BN WITH 6 I-FAAR
- GUN/STINGER BN
- ID SHORAD BN ADDED

SHORTFALLS

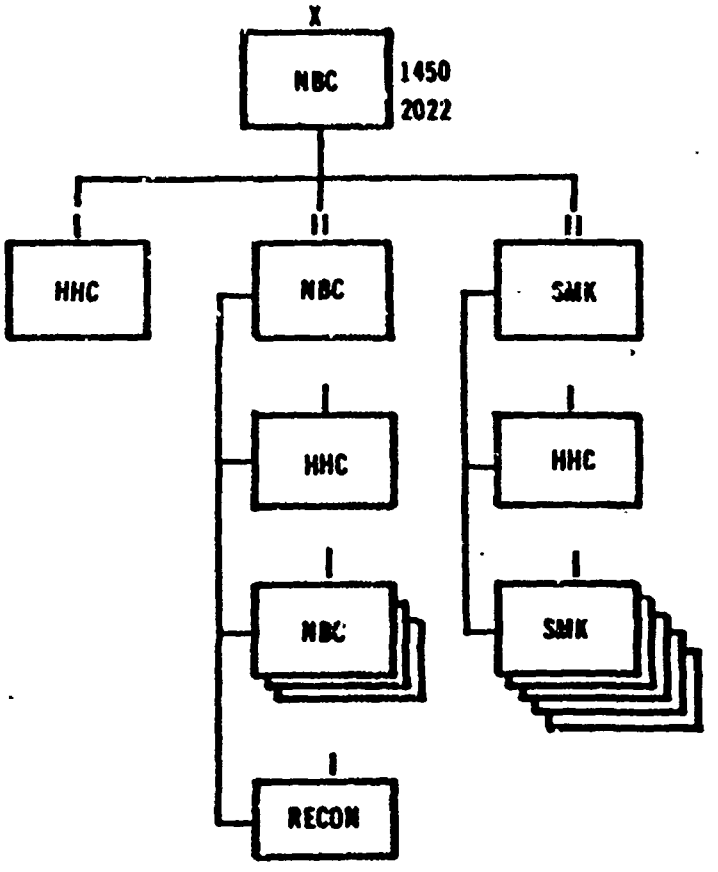
- DEFENSE OF HIGH PRIORITY ASSETS ONLY
- ALL WEATHER SHORAD CAPABILITY

DIVISION SUPPORT

- INFANTRY DIV SHORAD BN

CORPS 86 NUCLEAR - BIOLOGICAL - CHEMICAL BRIGADE D-DAY TO D+180 DAYS

CHART E-14



CHARACTERISTICS

- NBC COMPANIES (CORPS REAR)
  - —MOUNTED IN WHEEL VEHICLES
  - —PERFORM DECONTAMINATION ONLY
- RECON COMPANY (CORPS REAR)
  - —MOUNTED IN WHEEL VEHICLES
  - —LOCATES AND MARKS CONTAMINATED AREAS
- SMOKE COMPANIES
  - —3 MECHANIZED
  - —2 WHEEL

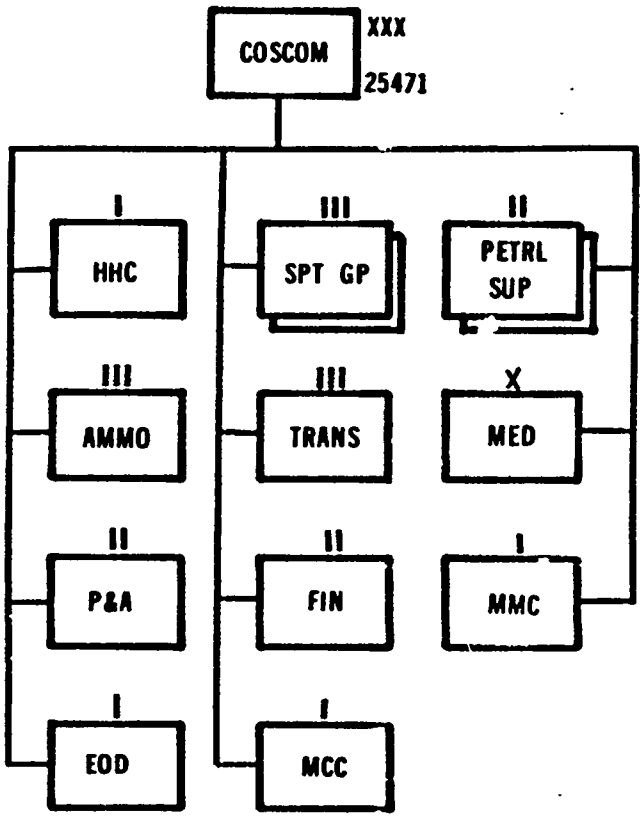
SHORTFALLS

- 25% CORPS REAR AREA DECON
- DECON SUPPORT TO DIVISION
- 50% SMOKE CAPABILITY IN DIV AND CORPS AREAS

DIVISION SUPPORT

- SMOKE SUPPORT ON A MISSION BASIS

CHART E-15 - CORPS 86 CORPS SUPPORT COMMAND D-DAY TO D+30 DAYS



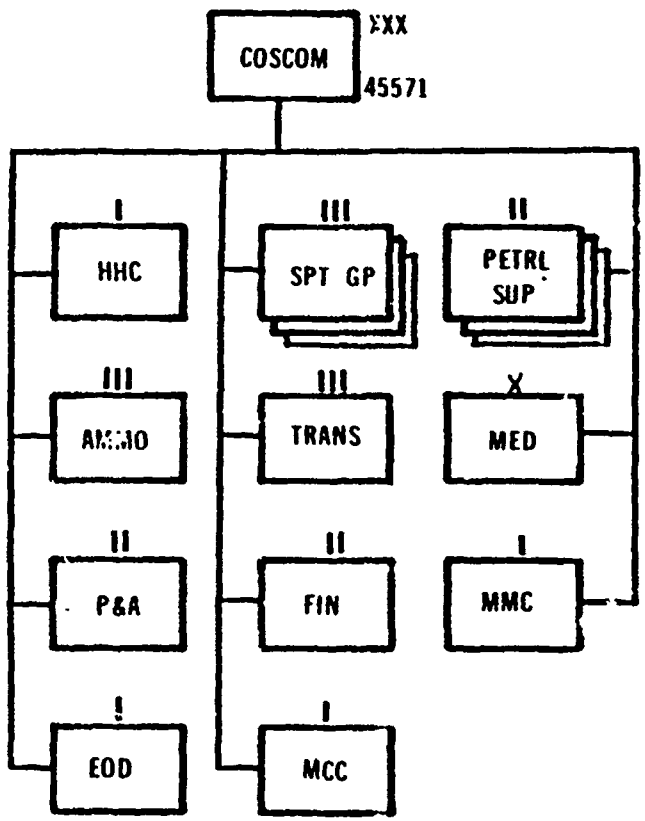
CHARACTERISTICS

- RESTRUCTURED GENERAL SPT ORGANIZATIONS
- AMMUNITION TRANSFER POINTS INCORPORATED
- CONSOLIDATION OF ALL POSTAL AND FINANCE AT CORPS

SHORTFALLS

- MAINTENANCE AND SUPPLY
- AMMUNITION
- TRANSPORTATION
- PETROLEUM SUPPLY
- MEDICAL
- PERSONNEL AND ADMIN
- EOD
- GRAVES REGISTRATION

CHART E-16 - CORPS 86 CORPS SUPPORT COMMAND D+60 TO D+180 DAYS



CHARACTERISTICS

- RESTRUCTURED GENERAL SPT ORGANIZATIONS
- AMMUNITION TRANSFER POINTS INCORPORATED
- CONSOLIDATION OF ALL POSTAL AND FINANCE AT CORPS

SHORTFALLS

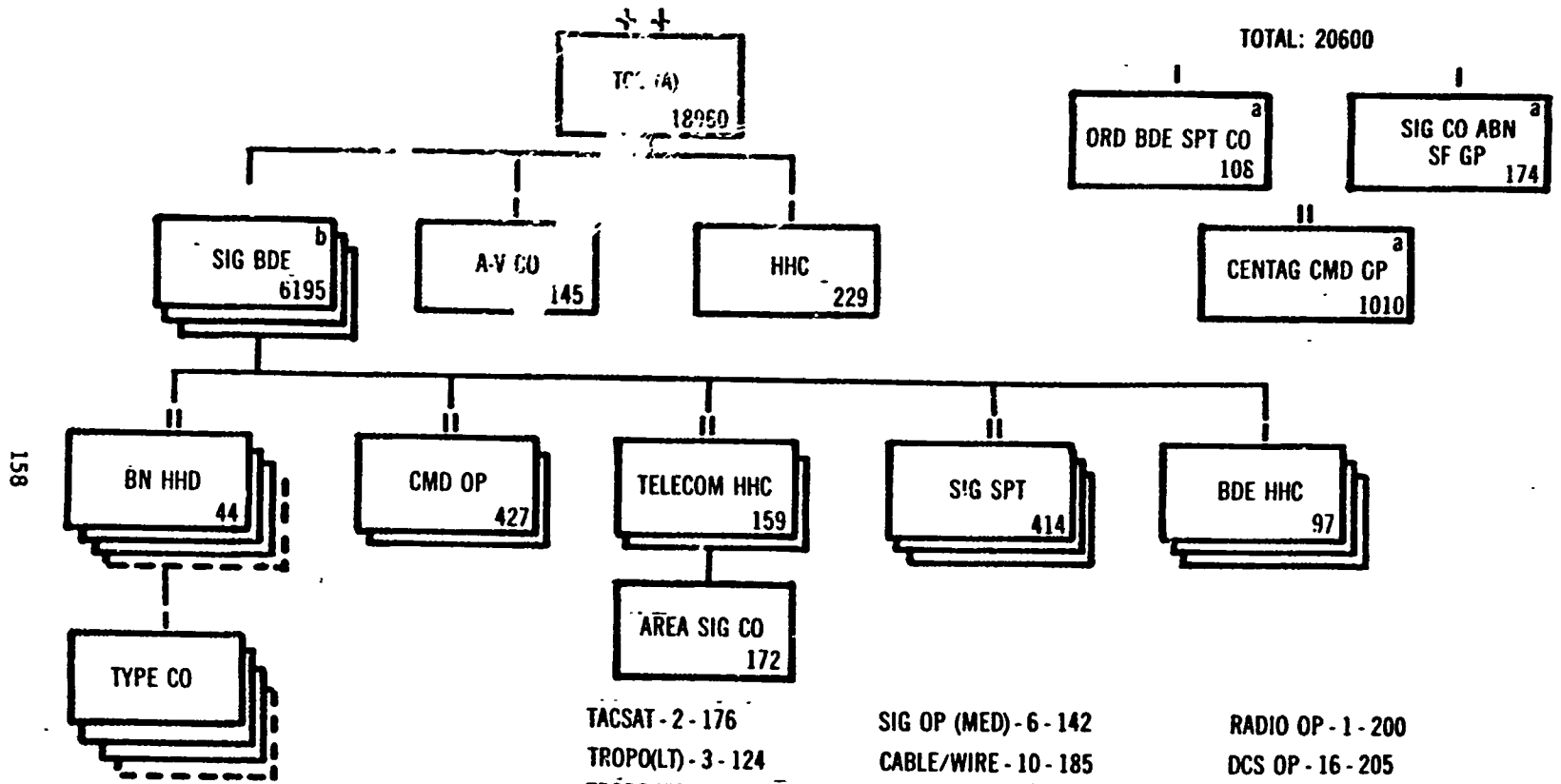
- MAINTENANCE AND SUPPLY
- AMMUNITION
- TRANSPORTATION
- PETROLEUM SUPPLY
- MEDICAL
- PERSONNEL AND ADMIN
- EOD
- GRAVES REGISTRATION

Appendix F

ECHELONS ABOVE CORPS 86 ORGANIZATIONS
(August 1980)

Source: Echelons Above Corps Phase I Report, Volumes II, III, and IV, 15 Aug 80.

CHART F-1 — ECHELONS ABOVE CORPS 86
THEATER COMMUNICATIONS COMMAND



a - NOT PART OF TCC(A); STRENGTH INCLUDED IN TOTAL (20600).

b - SIGNAL BRIGADE TASK ORGANIZED WITH THE TYPE OF BATTALIONS AND COMPANIES SHOWN.

CHART F-2 — ECHELONS ABOVE CORPS 86

INTELLIGENCE GROUP

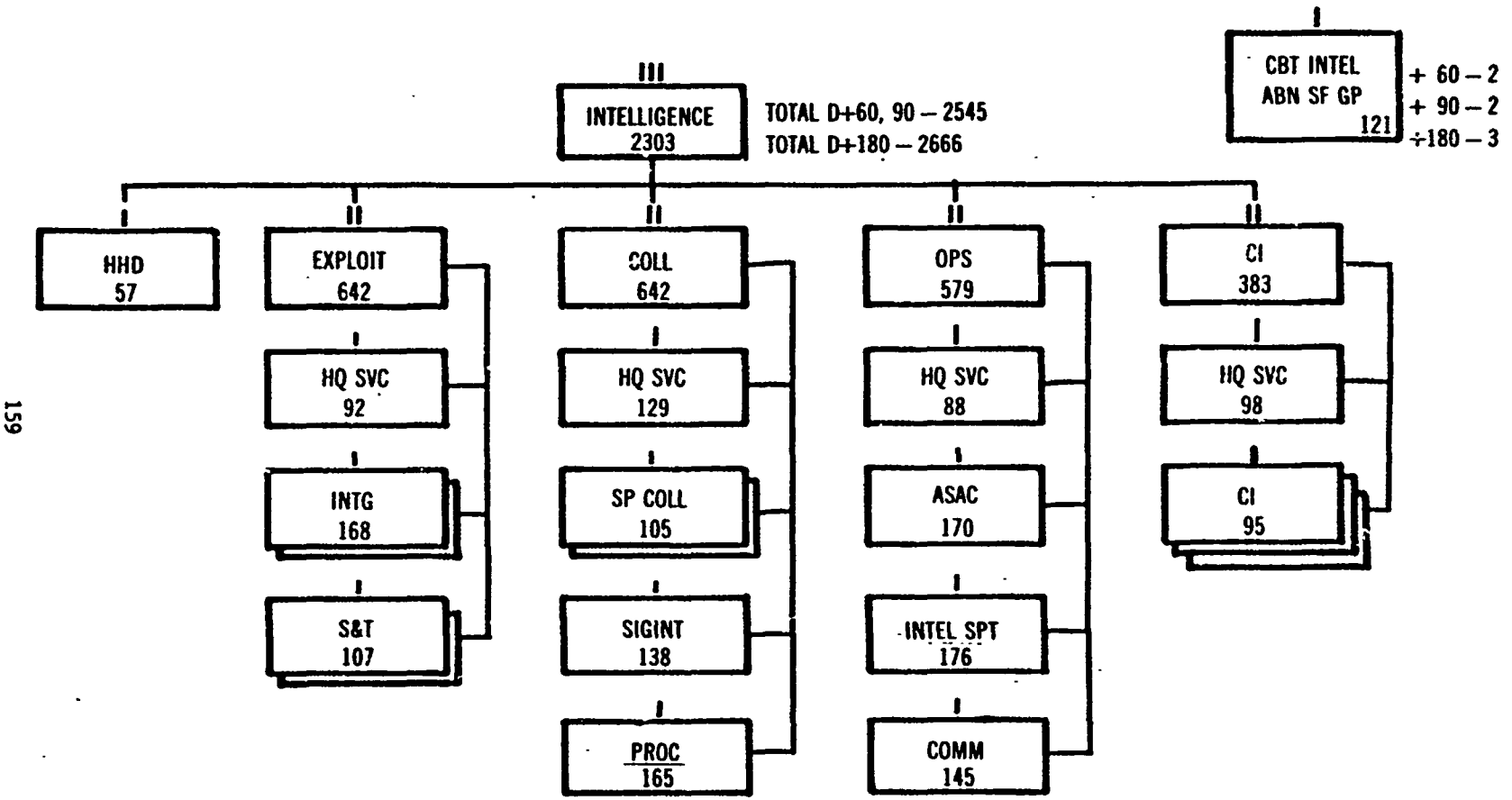


CHART F-3 — ECHELONS ABOVE CORPS 86

AIR DEFENSE COMMAND

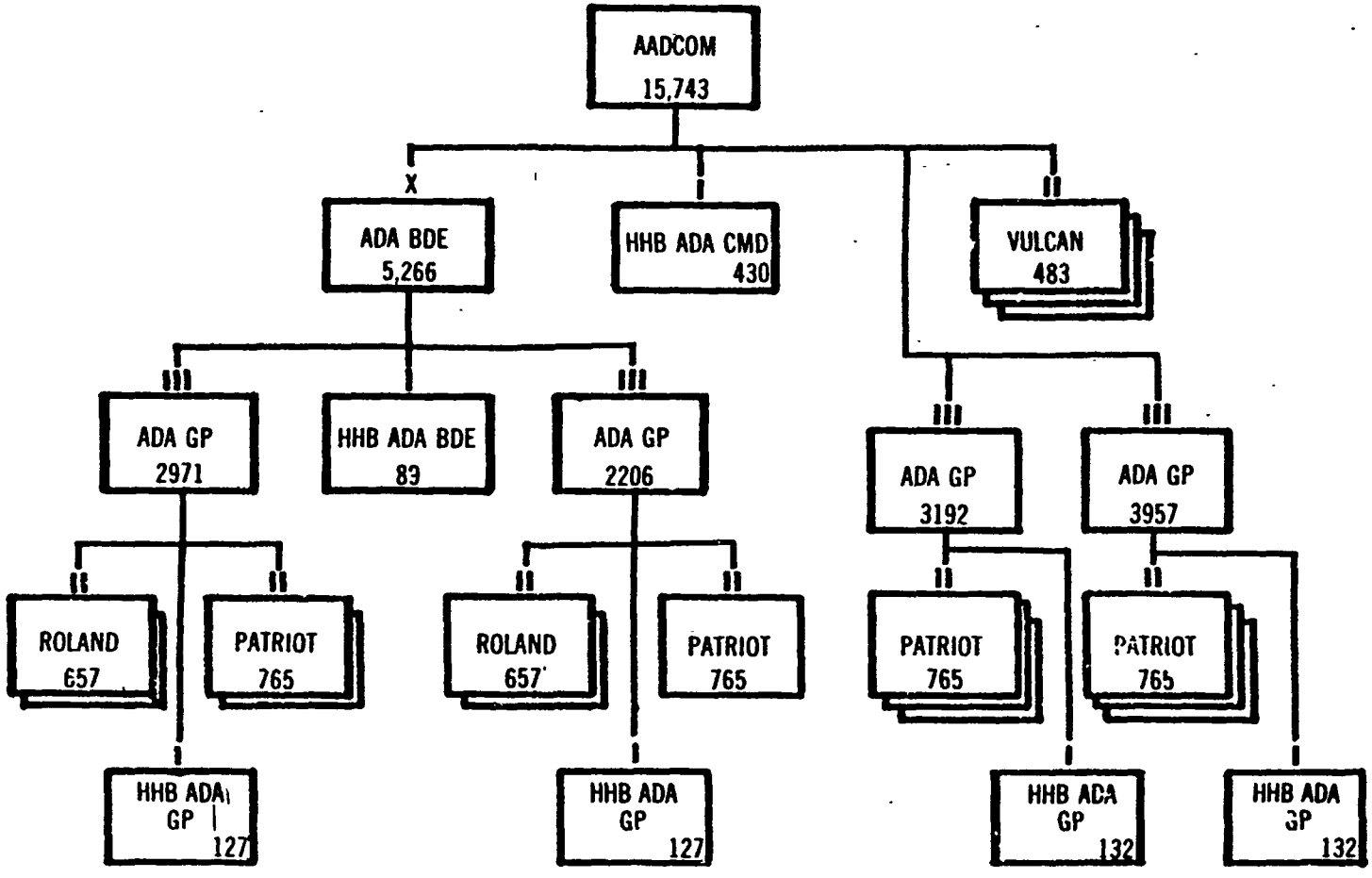


CHART F-4 — ECHELONS ABOVE CORPS 86

AIR TRAFFIC CONTROL GROUP

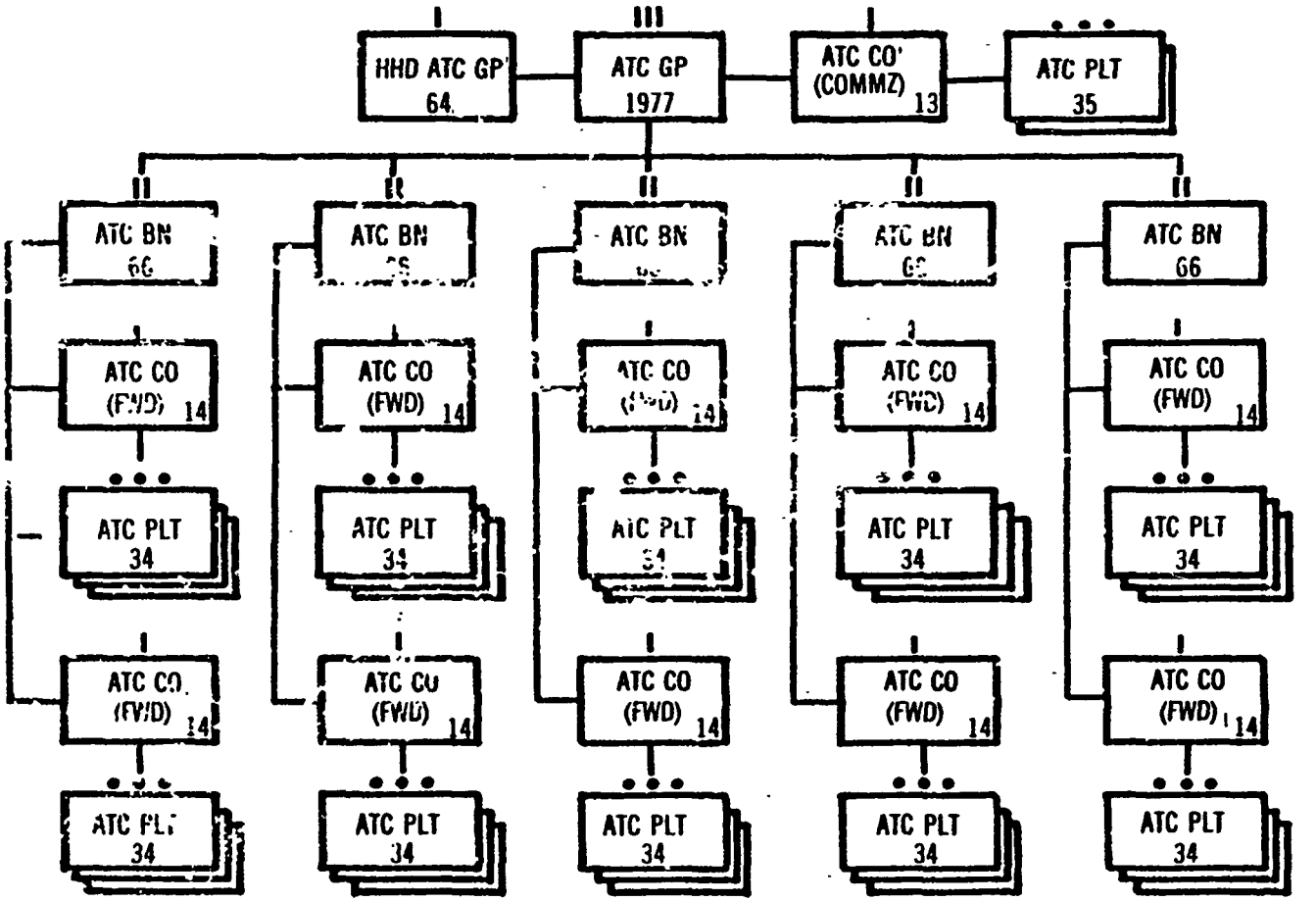


CHART F-5 — ECHELONS ABOVE CORPS 86

THEATER ARMY AVIATION

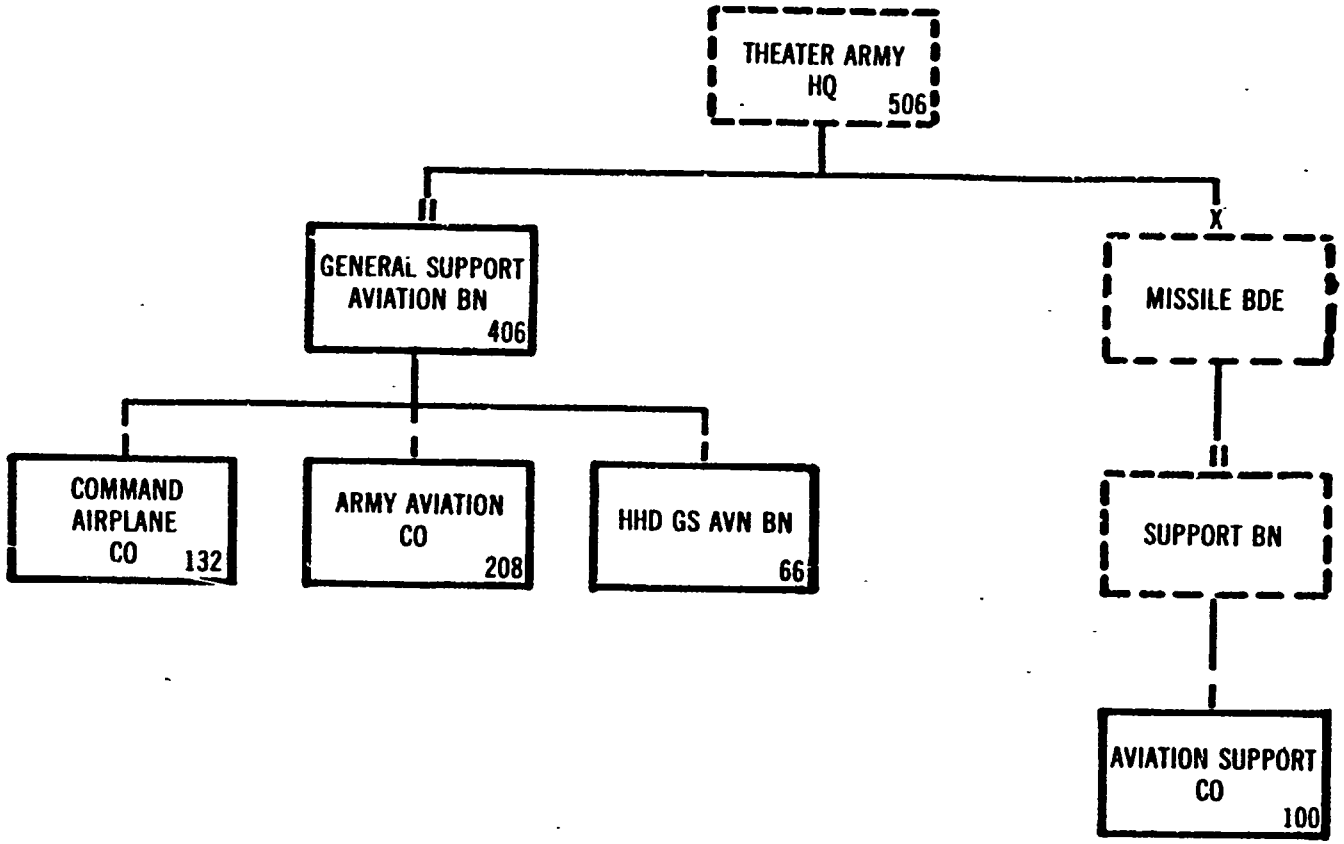


CHART F-6 — ECHELONS ABOVE CORPS 86
ENGINEER COMMAND

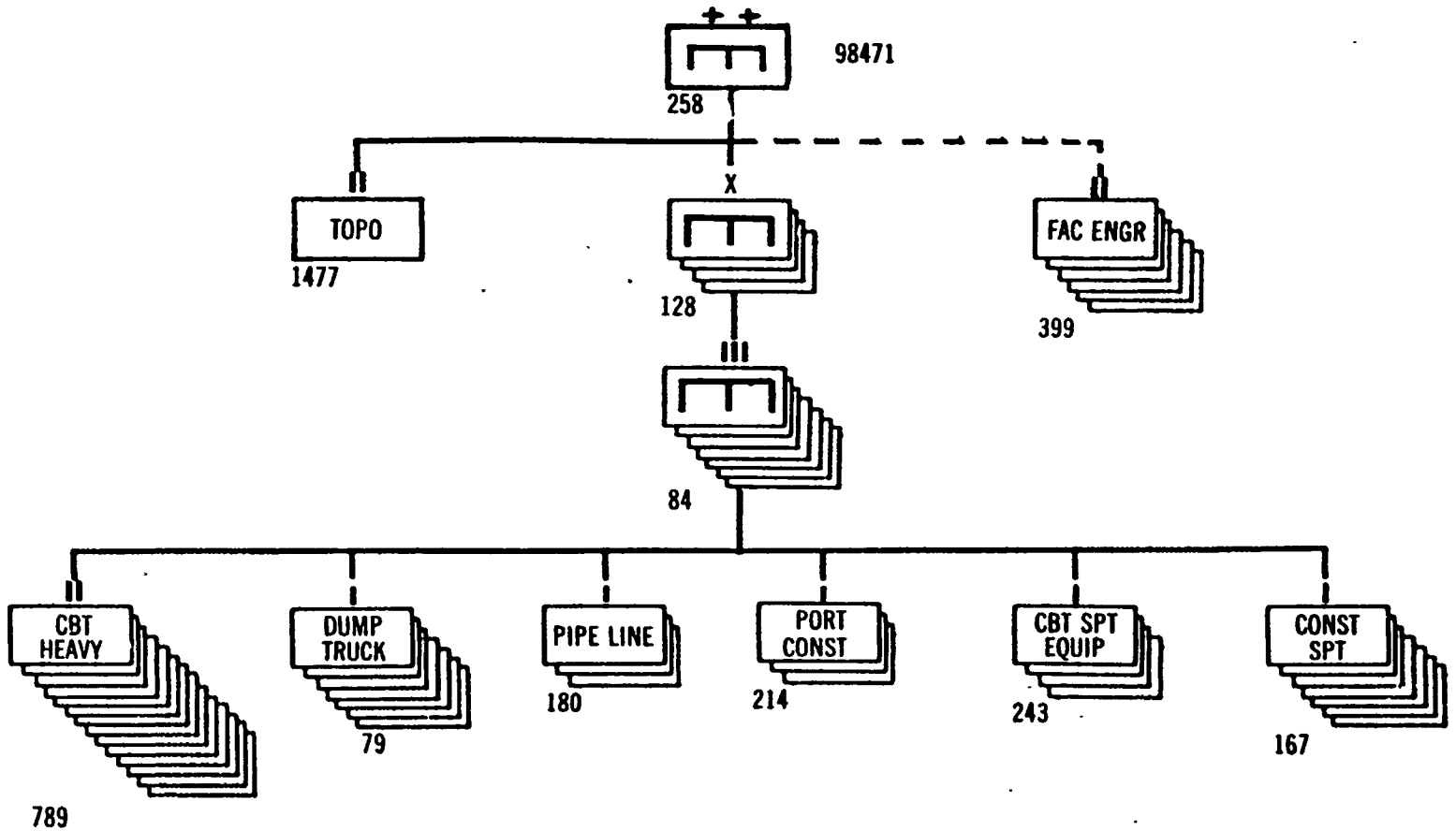


CHART F-7 — ECHELONS ABOVE CORPS 86
PETROLEUM GROUP

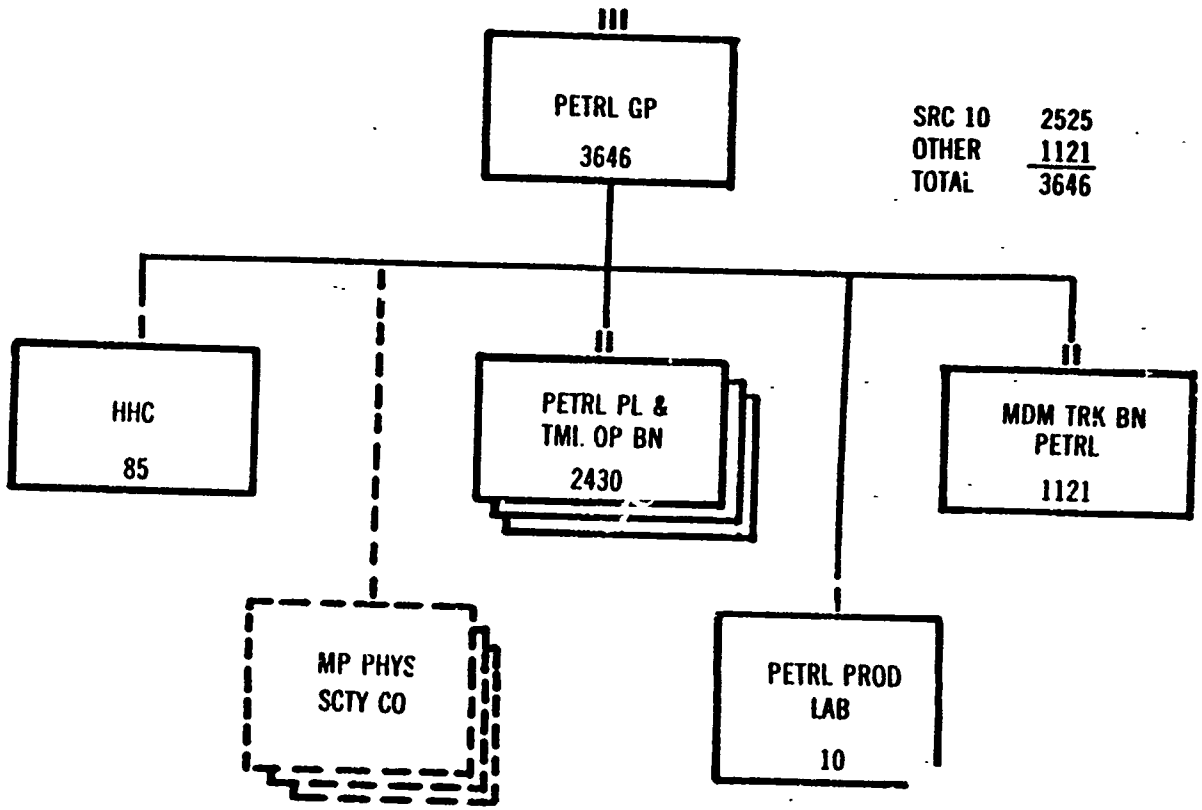


CHART F-8 — ECHELONS ABOVE CORPS 86
SPECIAL AMMUNITION BRIGADE

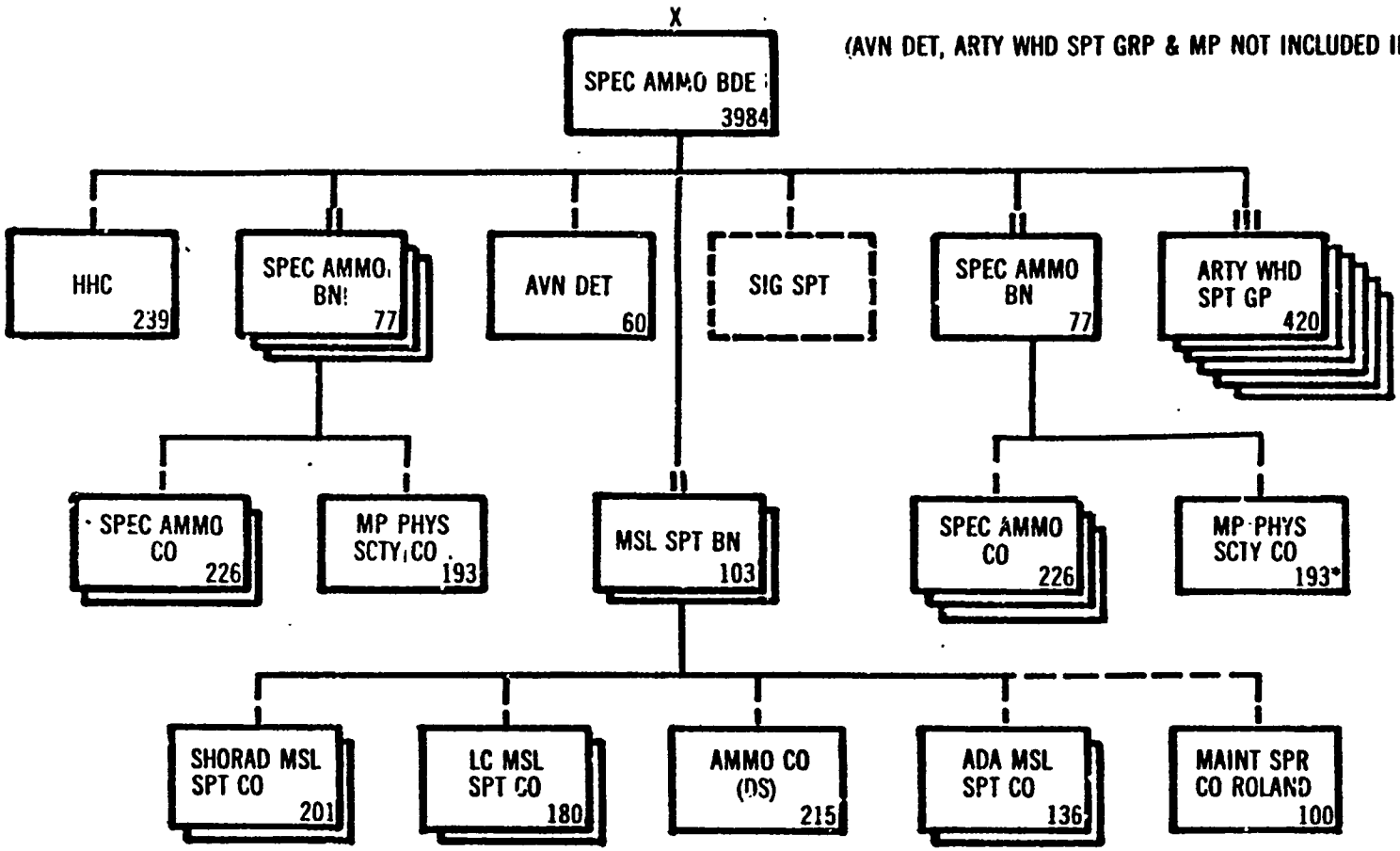
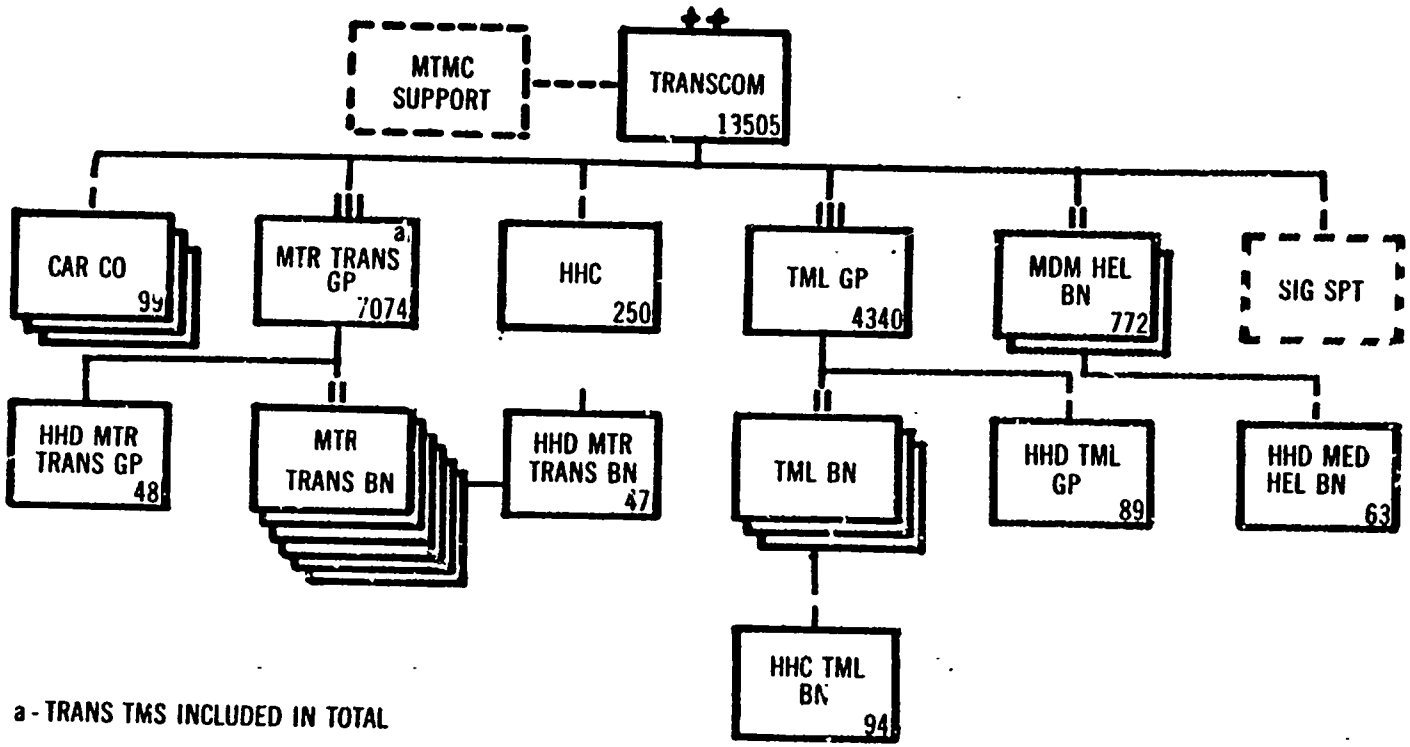


CHART F-9 — ECHELONS ABOVE CORPS 86
TRANSPORTATION COMMAND



a - TRANS TMS INCLUDED IN TOTAL

CHART F-10 — ECHELONS ABOVE CORPS 86

MEDICAL COMMAND

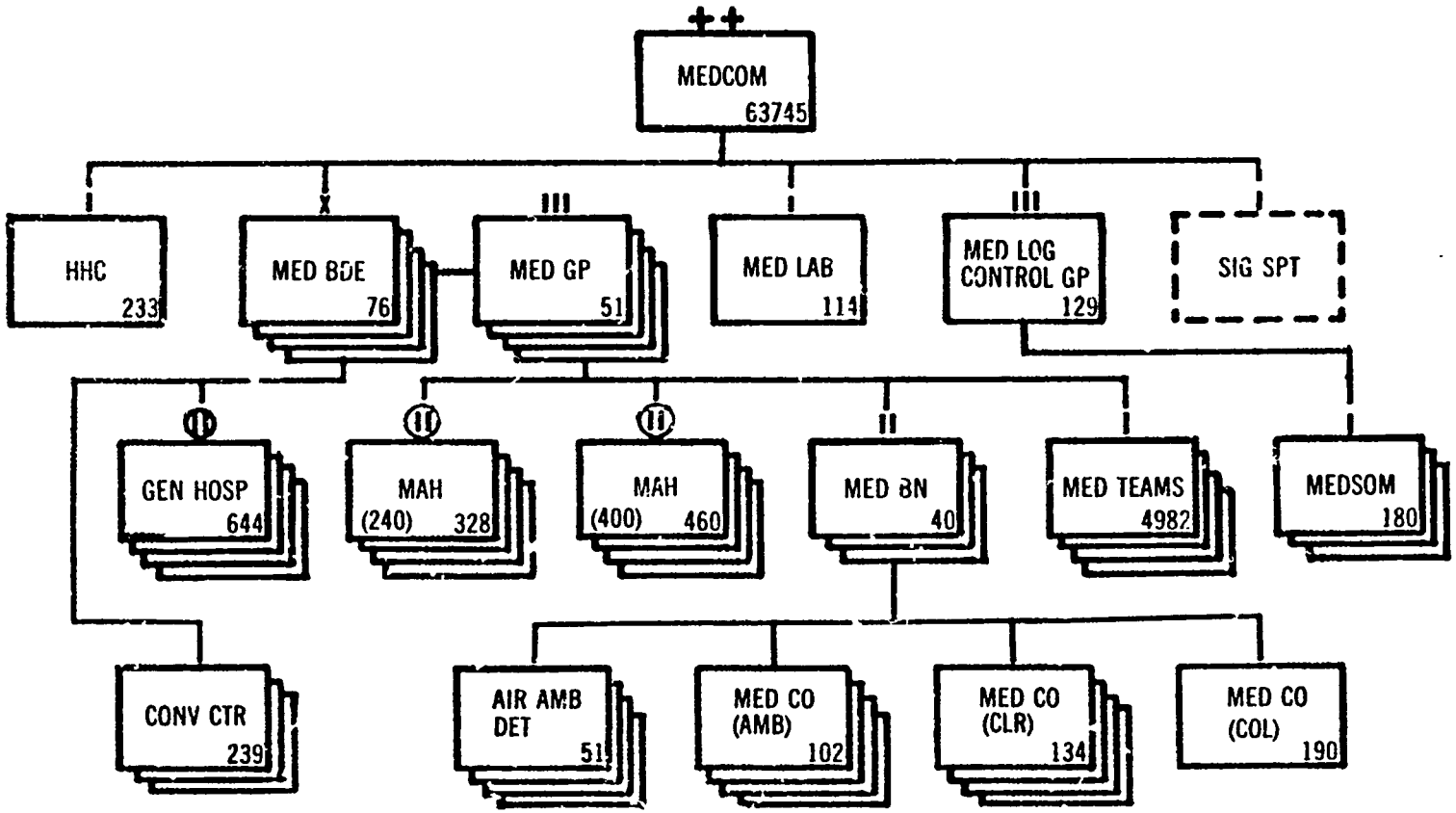


CHART F-11 — ECHELONS ABOVE CORPS 86 PERSONNEL COMMAND

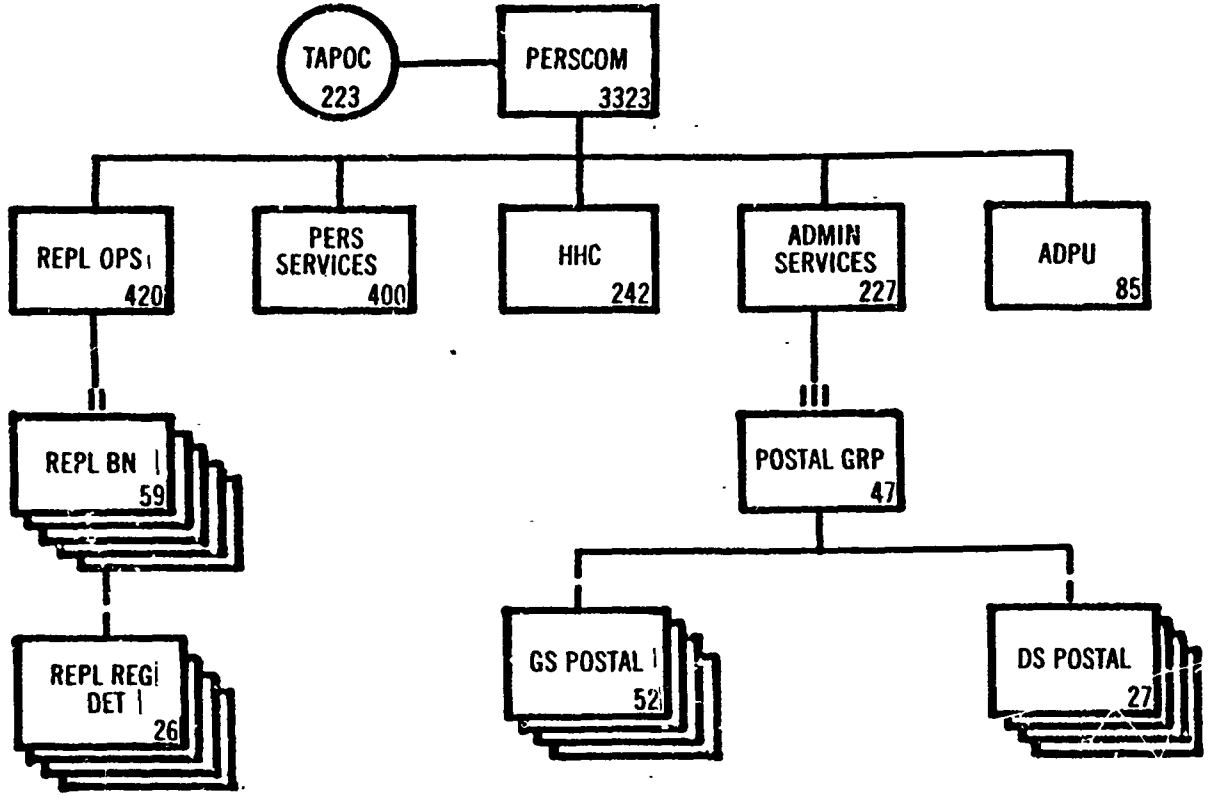


CHART F-12 — ECHELONS ABOVE CORPS 86

MILITARY POLICE COMMAND

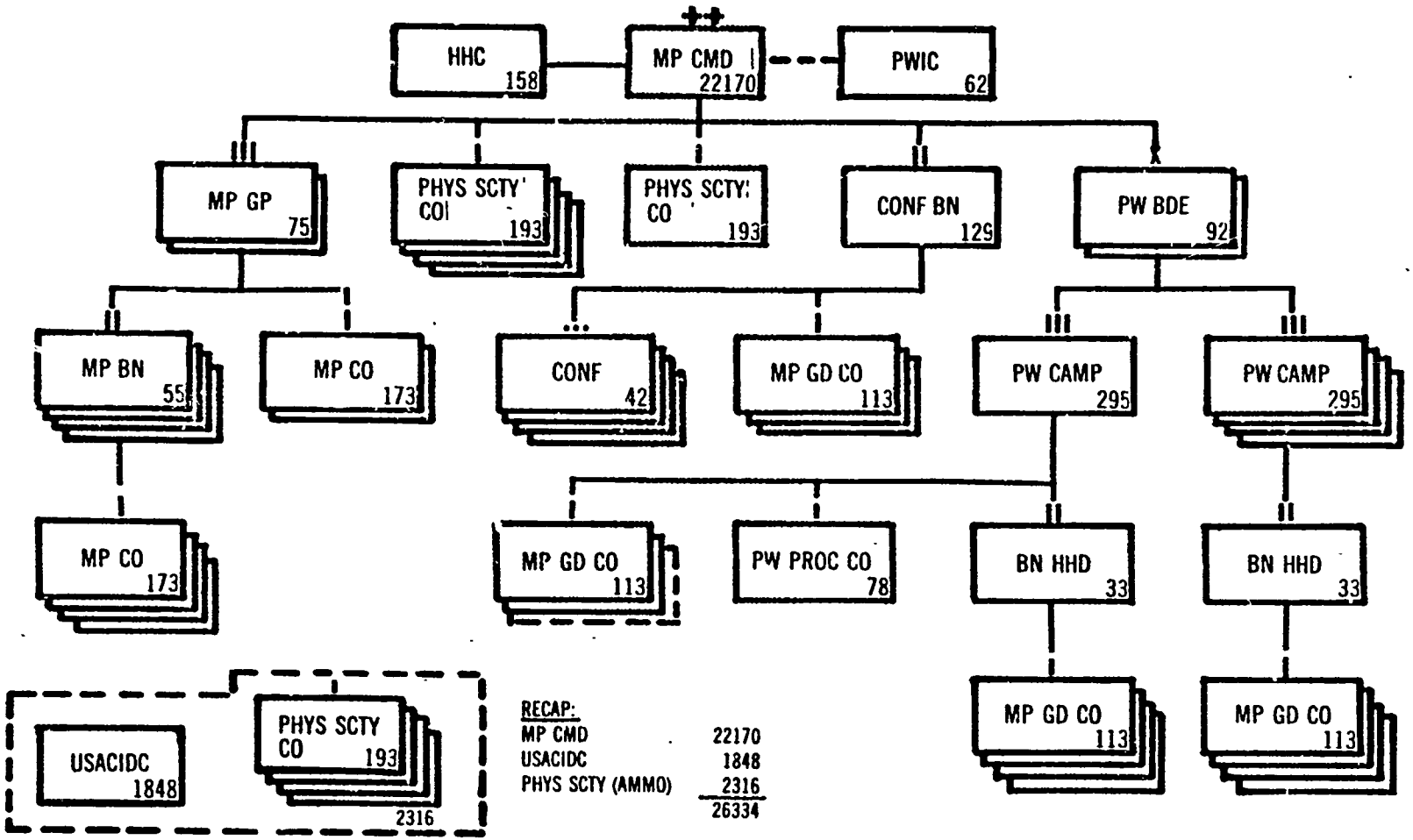


CHART F-13 — ECHELONS ABOVE CORPS 86
CIVIL AFFAIRS COMMAND

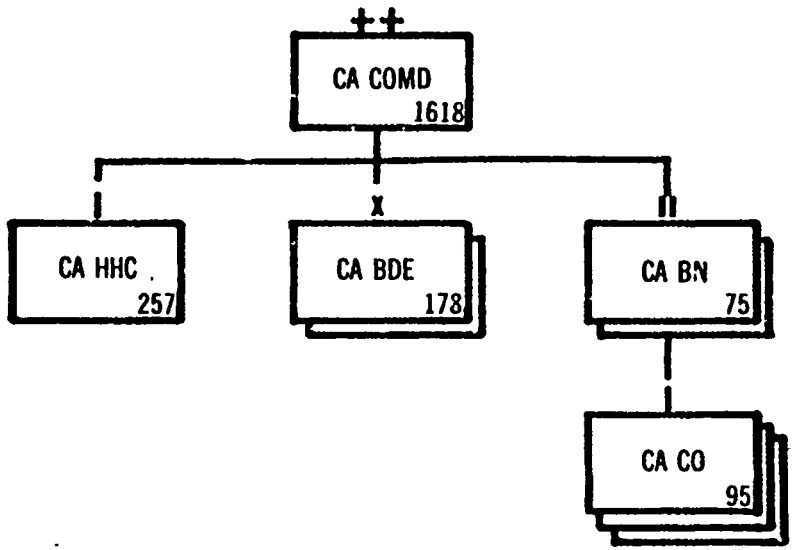
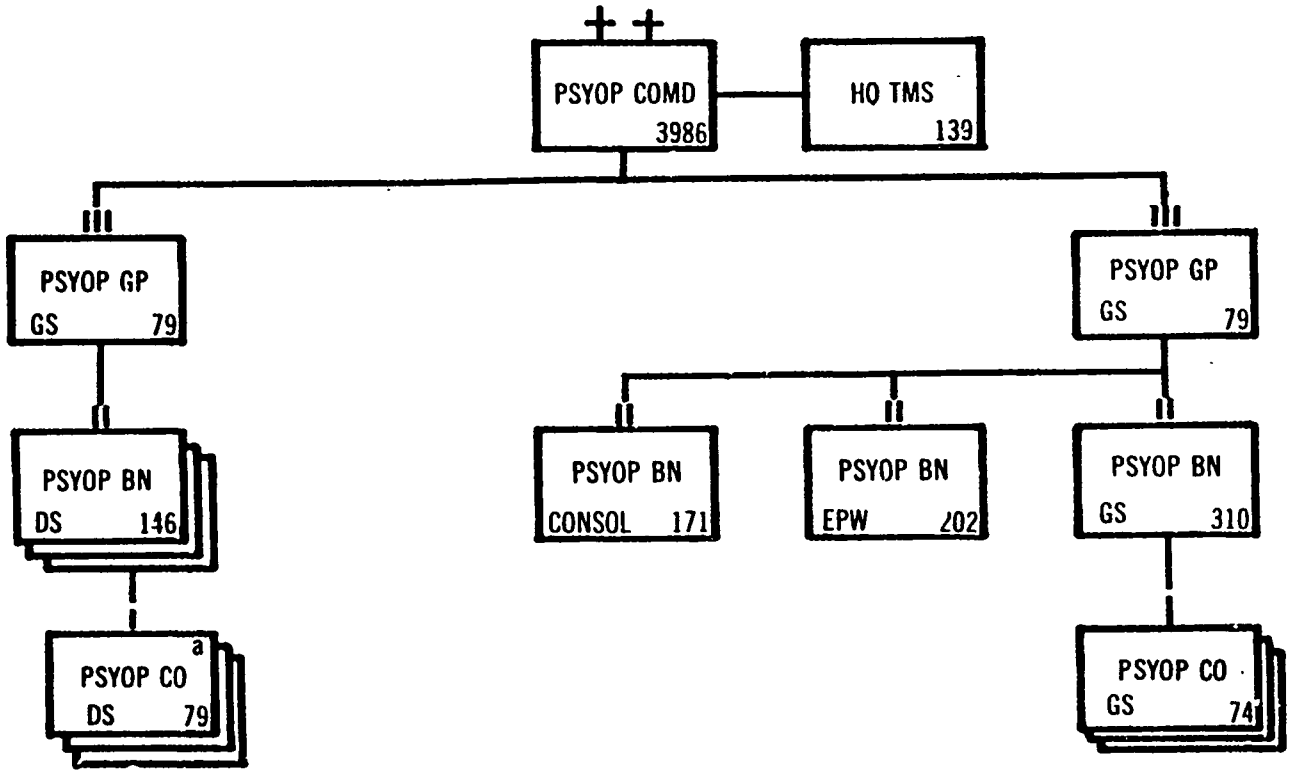


CHART F-14 — ECHELONS ABOVE CORPS 86
PSYCHOLOGICAL OPERATIONS COMMAND



a - TWENTY-THREE DS COMPANIES TO DIVISION SUPPORT, THREE TO SPECIAL FORCES.

CHART F-15 — ECHELONS ABOVE CORPS 86
NUCLEAR-BIOLOGICAL-CHEMICAL FORCE

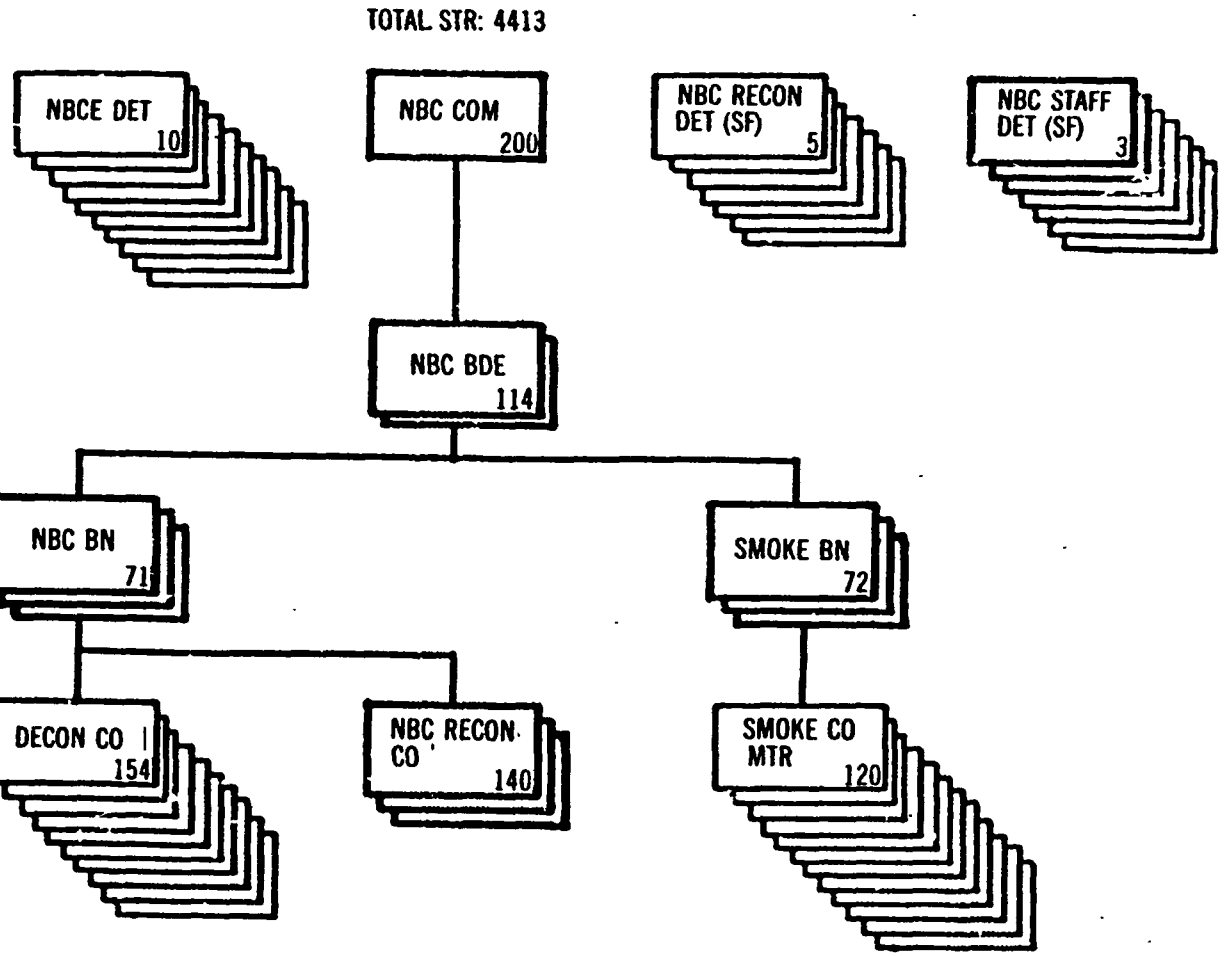
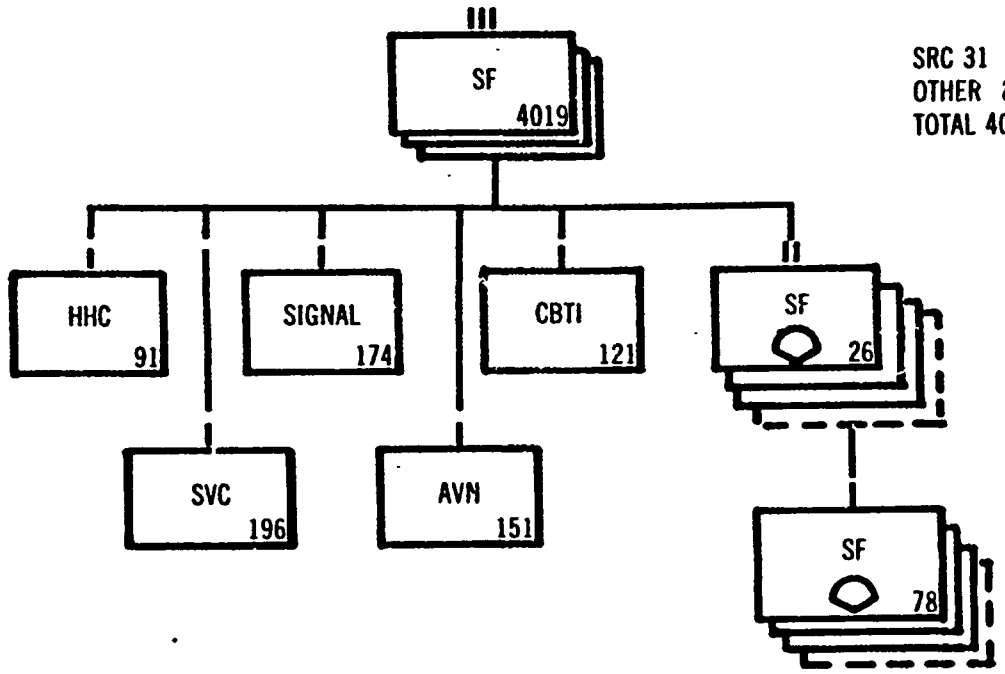


CHART F-16 — ECHELONS ABOVE CORPS 86

SPECIAL FORCES



SRC 31 3134
OTHER 885
TOTAL 4019

Appendix G

LOGISTICS PLANNING FACTORS
DAILY CONSUMPTION BY CLASS OF SUPPLY

Class I	Subsistence	4.61 lbs per man per day	
Class II	General Supplies and Equipment	6.83 lbs per man per day	
Class III	Petroleum (pkgd)	1.28 lbs per man per day	
Class III	Petroleum (bulk)	2-8 million gallons per day for a type corps	
Class IV	Construction Materials	8.5 lbs per man per day	
Class V	Ammunition	Div 86	4,545 short tons per day
		Inf Div 86	2,801 short tons per day
		Armd Cav Reg	684 short tons per day
		Brigade	900 short tons per day
		Abn Div	2,000 short tons per day
		Armd Div[a]	3,450 short tons per day
		Mech Div[a]	3,450 short tons per day
		Inf Div[a]	2,800 short tons per day
Class VI	Personal Demand Items	.61 lbs per man per day	
Class VII	Major End Items	29.13 lbs per man per day[b]	
Class VIII	Medical Materiel	.35 lbs per man per day	
Class IX	Repair Parts	3.07 lbs per man per day	

Notes: a H-series divisions
b Gross planning figure

Source: EAC Study Rept, Phase I, 19 Dec 80, Vol. III. Figures reflect data compiled for the Administration - Logistics Systems Program Review, U.S. Army Logistics Center, Ft Lee, Va., Feb 1980.

LIST OF ACRONYMS AND ABBREVIATIONS

AADC	area air defense commander
AADCOM	Army air defense command
Abn	airborne
A/C	aircraft
ACAB	air cavalry attack brigade
ACAS	air cavalry attack squadron
Acft	aircraft
ACR	armored cavalry regiment
AD	air defense
ADA	air defense artillery
Admin	administration
ADPU	automatic data processing unit
Aff	affairs
AG	adjutant general
AH	attack helicopter
AHB	attack helicopter battalion
AHS	Academy of Health Sciences, U.S. Army
Alt	alternate
Amb	ambulance
Ammo	ammunition
ARCSA	Aviation Requirements for the Combat Structure of the Army
Arm	armor
Armd	armored
Arty	artillery
ASAC	all-source analysis center
ASG	area support group
Aslt	assault
ATC	air traffic control
Atk	attack
ATP	ammunition transfer point
AURS	automated unit reference sheet
A-V	audio-visual
AVIM	aviation intermediate maintenance
AVLB	armored vehlicle launched bridge
Avn	aviation
Bde	brigade
BDP	Battlefield Development Plan
Bfg	briefing
Bn	battalion
BSA	brigade support area
C2	command control
C3	command-control-communications
CA	civil affairs
CAC	U.S. Army Combined Arms Center
CACDA	U.S. Army Combined Arms Combat Developments Activity
Cav	cavalry
Cbt	combat
CD	combat developments
Cdr	commander
CEB	clothing exchange and bath

Cen	center
CENTAG	Central Army Group
CEV	combat engineer vehicle
CEWI	combat electronic warfare-intelligence
CFA	covering force area
CFV	cavalry fighting vehicle
CH	cargo helicopter
CHAP	CHAPARRAL
Chem	chemical
CI	counterintelligence
Civ	civil
Cmbt	combat
Cmd	command
Cntl	control
Co	company
Coll	collection
Comdt	commandant
Comm	communications
Commz	communications zone
Conf	confinement
Confer	conference
Consol	consolidated
Const	construction
Constr	constrained
CONUS	continental United States
Conv	convalescent
Convl	conventional
Coord	coordination
COSCOM	corps support command
CSA	Chief of Staff of the Army
CSAB	combat support aviation battalion
CSE	combat support equipment
CSWS	corps support weapon system
CTAB	corps target acquisition battalion
DA	Department of the Army
DARCOM	U.S. Army Materiel Development and Readiness Command
DCS	Defense Communications System
Decon	decontamination
Def	defense
Det	detachment
Dev	development
Dir	direct, directorate, directive
DISCOM	division support command
Distr	distribution
Div	division
DIVAD	division air defense
DIVARTY	division artillery
DLA	Defense Logistics Agency
DMMC	division materiel management center
DoD	Department of Defense
DS	direct support
DSA	division support area
DTAB	division target acquisition battalion

EAC	echelons above corps
ELINT	electronic intelligence
ENCOM	engineer command
Engr	engineer
EOC	explosive ordnance disposal
EODC	explosive ordnance detachment center
EPW	enemy prisoner of war
Equip	equipment
EW	electronic warfare
Exec	executive
Exploit	exploitation
FA	field artillery
FAAO	field artillery aerial observer
FAAR	forward area alerting radar
Fac	facilities
FAMAS	field artillery meteorological acquisition system
FEBA	forward edge of the battle area
Fin	finance
FIST	fire support team
FLOT	forward line of own troops
FM	frequent modulated, field manual
FORSCOM	U.S. Army Forces Command
FSE	fire support element
FW	fixed wing
Fwd	forward
Gd	guard
GEMSS	ground emplaced mine scattering system
Gen	general
GLLD	ground laser locator designator
GO	general officer
Gp	group
Grreg	graves registration
GS	general support
GSAB	general support aviation battalion
GSRS	general support rocket system
Hel	helicopter
HET	heavy equipment transporter
HF	high frequency
HHB	headquarters and headquarters battery
HHC	headquarters and headquarters company
HHT	headquarters and headquarters troop
Hist	Historical
HMMWV	high mobility multipurpose wheeled vehicle
Hosp	hospital
HQ	headquarters
H&S	headquarters and services
HTTB	high technology test bed
Hvy	heavy
ICHAP	improved CHAPARRAL
ID	infantry division
I-FAAR	improved forward area alerting radar
IFV	infantry fighting vehicle
IMA	Institute for Military Assistance
IMAAWS	infantry manportable antiarmor assault weapon system
Inf	infantry

Info	information
INTCOM	intelligence command
Intel	intelligence
Intg	integration
IPR	in-process review
ISTA	intelligence, surveillance, target acquisition
ITV	improved TOW vehicle
JCS	Joint Chiefs of Staff
JTIDS	joint tactical information distribution system
Km	kilometer
Lab	laboratory
LAWCV	light armored wheeled combat vehicle
LC	land combat
LD	light division
LOC	lines of communications
Log	logistics
Log Cen	U.S. Army Logistics Center
Lt	light
Ltr	letter
MAH	mission adaptable hospital
Maint	maintenance
MBA	main battle area
Mbl	mobile
MBT	main battle tank
MCA	movements control agency
MCC	movement control center
Mdm	medium
Mech	mechanized
Med	medical, medium
MEDCOM	medical command
MEDSOM	medical supply, optical and maintenance
MFR	memorandum for record
MG	machine gun(ner)
MI	military intelligence
MICLIC	mine clearing line charge
Mil	military
MLRS	multiple launch rocket system
MMC	materiel management center
MOD	ministry of defense
Mort	mortar
MOU/MOA	memorandum of understanding/memorandum of agreement
MP	military police
MPCOM	military police command
MPG	mobile protected gun
Msg	message
Msl	missile
MSR	main supply route
MTMC	Military Traffic Management Command
Mtr	motorized
NATO	North Atlantic Treaty Organization
NBC	nuclear, biological, chemical
ODCSCD	Office of the Deputy Chief of Staff for Combat Developments
ODCSOPS	Office of the Deputy Chief of Staff for Operations and Plans

Ofc	office
OH	observation helicopter
Op	operations
Ord	ordnance
Org	organization
P&A	personnel and administration
PADS	position and azimuth determining system
Pam	pamphlet
Pers	personnel
PERSCOM	personnel command
Petro	petroleum
Ph	phase
Phys	physical
PL	pipeline
PLRS	position location reporting system
Plt	platoon
PMO	Provost Marshal Office
POL	petroleum, oils and lubricants
POM	Program Objective Memorandum
POW	prisoner of war
Proc	processing
Prod	products
Pstl	postal
Psyop	psychological operations
PW	prisoner of war
PWIC	prisoner of war information center
QM	quartermaster
R	rifleman
R3	redundancy, resiliency, robustness
RACO	rear area combat operations
RAOC	rear area operations center
Rdo/Cbl	radio/cable
Recon	reconnaissance
Reg	regulating
Reinf	reinforce
Repl	replacements
RPV	remotely piloted vehicle
Rqrd	required
SAW	squad automatic weapon
Sch	school
Sct	scout
Scty	security
SF	Special Forces
SHAPE	Supreme Headquarters Allied Powers Europe
SHORAD	short range air defense
Sig	signal
SIGINT	signal intelligence
SINCGARS	single channel ground and air radio subsystem
SL	squad leader
SLUFAE	surface launched unit, fuel-air explosive
Smk	smoke
SOTAS	standoff target acquisition system
Spec	special

Spt	support
Sqdn	squadron
S&S	supply and services
Std	standard
Sup	support
Svc	servicing, service
TA	theater army
TAA	Total Army Analysis
TAACOM	theater army area command
TAB	target acquisition battalion
Tac	tactical
TACSAT	tactical satellite
TAMC	transportation aircraft maintenance company
TCC	theater communications command
Telecom	telecommunications
TF	task force
Tgt	target
Tk	tank
TL	team leader
Tm	team
Tml	terminal
TOE	table of organization and equipment
Topo	topographical
TOW	tube-launched, optically tracked, wire guided
TRADOC	U.S. Army Training and Doctrine Command
Trans	transportation
TRANSCOM	transportation command
TRI-TAC	Tri-Services Tactical Communications Program
Trk	truck
Trp	troop
UET	universal engineer tractor
UH	utility helicopter
USACC	U.S. Army Communications Command
USACIDC	U.S. Army Criminal Investigation Command
USAREUR	U.S. Army Europe
Vol	volume
Whd	warhead

INDEX

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TRADOC HISTORICAL OFFICE

The TRADOC Historical Office, a separate staff agency aligned under the Chief of Staff of the U.S. Army Training and Doctrine Command, has the mission of assisting the TRADOC Commander to discharge his dual responsibility for the preparation and use of military history, and for the preservation and exhibition of historical properties. That mission is carried out through accomplishment of the following staff and operating functions:

1. Acting as the headquarters proponent and coordinator of military history instruction conducted in professional education programs at TRADOC service schools and Reserve Officers' Training Corps units.

2. Supervision of Army museum operations within the command.

3. Supervision of subordinate command historical programs and activities.

4. Preparation of command history in the form of periodic historical monographs, special historical studies, and Annual Historical Reviews.

5. Maintenance of a repository of selected historical source documentation as the corporate memory of the command, enabling planners and operating officials to apply the lessons of past experience to the resolution of current and future problems in the areas of combat developments, training, and support operations.

6. Provision of historical reference services to the commander, staff, subordinate commands, other agencies, and the public.