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**Army 21 as the U.S. Army's
Future Warfighting Concept**

**A Critical Review of Approach
and Assumptions**

Yoav Ben-Horin, Benjamin Schwarz



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This report discusses an attempt to identify the major problems with the existing Army 21 Interim Operational Concept and suggests an alternative framework for the Army's study of future warfighting concepts. With the current Army doctrine--AirLand Battle--as the baseline, the plausible variations in implementation should be made over the next 10 to 15 years. The objective would be to project an estimate of Army needs and preferences. A long-term exploration effort would extend 30 to 40 years, where projections are necessarily highly speculative. Essentially deductive, this effort would consider a range of visions and would highlight generic developments. The purpose would be to stimulate conceptual thinking by contrasting different concepts, profiting from comparisons and choices between and among them.

Project

R-3615-A

Army 21 as the U.S. Army's Future Warfighting Concept

A Critical Review of Approach
and Assumptions



Yoav Ben-Horin, Benjamin Schwarz

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Prepared for the
United States Army

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40 Years
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PREFACE

This study was conducted at RAND as part of an Arroyo Center project on "Future Warfighting Ideas and Technologies," in the Applied Technology Program. Task One of the project, undertaken for the Deputy Chief of Staff for the U.S. Army Training and Doctrine Command (TRADOC), called for RAND to evaluate the Army 21 Concept and explore variations of it. The results reported here represent an attempt to identify current problems with the Army 21 Concept, as well as to suggest an alternative planning framework for the Army's study of future warfighting concepts. The study should be of interest to Army planners involved in the formulation and consideration of future warfighting concepts.

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EXECUTIVE SUMMARY

This study reports on one of several tasks undertaken by RAND in support of the U.S. Army's effort to develop an operational warfighting concept for the first quarter of the twenty-first century. The task addressed here was to examine and evaluate the foundations of the *Army 21 Interim Operational Concept*¹ through a critical review of its assumptions about the future.

The Army 21 Concept purports to be an evolutionary extension of current Army doctrine, but its most distinctive ideas are quite radical (a noncontiguous battlefield on land, the virtual elimination of the tactical logistical rear, and a dramatic increase in the degree of independence and initiative required of officers). Also, it is not clear whether the purpose of the concept is to provide a blueprint-like projection of the *probable* future to which the Army should commit itself soon, or whether the concept is meant more modestly to serve as a stimulating but noncommittal vision of a *possible* future.

Given such ambiguities in both the substance and the purpose of Army 21, we found it impossible to evaluate the underlying assumptions of the *Army 21 Interim Operational Concept* according to a consistent set of criteria. As a result, this study discusses our attempt to identify the major problems with the existing concept and suggests an alternative framework for the Army's study of future warfighting concepts.

HISTORY

An inquiry into the intellectual and institutional history of Army 21 helped us identify some of the sources of its ambiguities. Although the research does not by any means represent a complete or proper "history" of the Army's efforts on this score, it sheds light on both process and substance and is included for that reason.

Army 21, or rather its direct precursor, AirLand Battle 2000, was first conceived in the late 1970s as a 10-year "blueprint," an estimate of future warfighting needs and preferences that would serve the Army as a follow-on to AirLand Battle (which was then being developed as the U.S. Army's current doctrine). The effort was directed by the

¹For brevity, we refer to the document as *Army 21*, and to the Army 21 Concept in its various drafts generically as Army 21.

Commanding General of TRADOC, General Donn Starry, and his Deputy Chief of Staff for Doctrine (DCSDOC), Brigadier General Donald Morelli. As an integral element of the Concept Based Requirements System (CBRS), the purpose was to produce an "Umbrella Concept" that would, in Morelli's words, "drive the labs." At an early point thereafter, however, it was observed that, given the length of development cycles for major items, a 10-year conceptual projection would not suffice to "get ahead of technology," as enjoined by the CBRS. The time frame was therefore extended to the year 2000.

The concept encountered numerous objections, especially from Europe [Supreme Allied Commander, Europe (SACEUR)] and the Army Staff in Washington, mostly to the effect that it was unacceptable on political grounds and too optimistic regarding technical, budgetary, and organizational feasibility within the given time frame.

Aside from elaborations and additions to fill in major gaps, the response to those criticisms over the years 1982-1986 has been largely semantic: the title was changed (from *AirLand Battle 2000* to *Army 21*); the time frame expanded by a stroke of the pen (to 2025); contiguous warfare was added as, implicitly, a lesser case subsumed by that of noncontiguous warfare; the four S's (Scan, Swarm, Strike, Scatter) were dropped in name; and the "evolutionary" nature of the concept—its roots in and compatibility with current Army doctrine—was repeatedly asserted.

At the same time, authors and proponents of the concept have come to describe it increasingly as an "azimuth" and a "stimulant." In our interviews during the summer of 1986, the case was made to us that the importance of Army 21 lay primarily in the process of future planning that it represents and sets in motion, rather than in its particular projections and prescriptions.

Two factors appear to us to have contributed to this process of dilution of the substance and purpose of Army 21: The first was the change in the leadership of the Army 21 effort. After the departure of General Starry (1981) and the tragic illness of Brigadier General Morelli (1983), the effort first languished and then was assigned (1984-1985) for coordination and revisions to the Combat Developments Directorate at Fort Leavenworth, away from HQ TRADOC and under the direction of a colonel rather than general officers. Thus, within just a few years, institutional memory and understanding of the original logic of the effort were eroded, and Army 21's active proponents were less able to either contend effectively with criticisms from high levels of the Army or to undertake a fundamental reexamination of the concept.

The second factor, in our opinion, is an inherent tension in the objective and nature of the CBRS: If an operational concept is to "drive the labs," its projections must be clear and confident enough to justify commitment (of plans, resources, and training). But to "get ahead" of lengthy development and acquisition cycles, those projections must embrace extended time horizons that render them necessarily uncertain. Thus, when General Starry approved General Morelli's proposal to extend the time frame from about 10 to about 20 years, he did so reluctantly, conscious that they were walking a fine line and "risking . . . nonrelevance."² The concept was then poised at the edge of the proverbial slippery slope. By adding yet another 25 years to the horizon, their successors plunged the concept headlong down that slope.

UNDERLYING ASSUMPTIONS

Evaluating assumptions about the future is an inherently uncertain business. The following is a brief review of the major explicit and implicit assumptions on which the current Army 21 Concept appears to be predicated. The first order of assumptions postulates the value, in principle, of the undertaking. The second order justifies the particular direction chosen. The third order comprises various specific features and "enabling conditions."

1. *It is possible and useful to plan 30-40 years ahead.*
 Assessment: This assumption's validity depends on the degree of precision and detail required for planning, as well as the degree of policy and resource commitment intended. It is more valid for a noncommittal "vision" than for an action-oriented "blueprint" for action.

2. *Technological developments will lead inexorably to further logical extensions of trends (toward maneuver, independent action, and offensive operations) already embodied in AirLand Battle doctrine.*
 Assessment: Not necessarily. Increasing transparency of the battlefield and effectiveness of firepower could just as well portend the ascendancy of the defensive and lead to more attrition and positional warfare rather than more maneuver-oriented warfare.

²Conversation and correspondence with General Starry (Ret.), March-April 1987.

- 3a. *Army 21 maintains a "unity of concept" geographically and across the spectrum of conflict.*

Assessment: Like AirLand Battle (ALB), Army 21 purports to be a generic concept, and as in the case of ALB, the assumption of across-the-board relevance may be unobjectionable at the philosophical level of "Principles of War." Otherwise, however, it is questionable and potentially harmful. Operational Concepts for the Army may be generic, but they are not abstract. Projections of threat, resources, terrain, etc. are all germane to their design and applicability. The Army 21 Concept may be more appropriate to some theaters (such as Southwest Asia and Korea) than to others (such as Central Europe, Libya, or Nicaragua).

- 3b. *The Third World will present increased challenges to the U.S. Army.*

Assessment: Increased force capabilities of potential opponents are, of course, a problem for the United States. But absolute increases in the conventional strength of regional powers do not necessarily translate into relative improvement in their ability to challenge U.S. power. Even when this is the case, the burden of U.S. force projection may rest mostly or wholly on the USAF or USN, rather than the Army.

- 3c. *The Soviet threat can be projected linearly.*

Assessment: Too limiting. Soviet operational concepts may evolve independently and in response to ours. Much depends on the time frame contemplated.

- 3d. *American allies, including major NATO members, will accept Army 21.³*

Assessment: Perhaps they will in Southwest Asia or Korea, but in the foreseeable future this is unlikely in Europe. It would be unreasonable to make the critical case of NATO's Central Front an "exception" to the applicability of the Army's overall operational concept. It is also unreasonable to simply assume that an Army optimized for noncontiguous warfare would still be optimal for the execution of Forward Defense in Europe.

³Although merely implicit in the document itself, this assumption was stated to us explicitly and repeatedly by several of the concept's developers.

- 3e. *Technological feasibility and availability problems will be overcome.*

Assessment: The issue is more likely to be one of budgets and policy (to procure and deploy in sufficient numbers) than one of technical feasibility. On the technology side, the document does not substantially integrate the inputs of the various functional areas so as to indicate priorities within, among, or across them. The single biggest technical "leap of faith" relates to the postulated (but not supported) virtual elimination of the logistical rear.

Unaddressed Issues

Finally, there are three issues that receive inadequate or no attention in the current Army 21 document:

1. *The officer and command and control (C²):* Army 21 is likely to require of the U.S. officer even higher standards of independence and flexibility than those attained by the supposed paragons of these qualities, the German Wehrmacht officers. Can this be achieved in the foreseeable future? How? Ironically, reliance on dramatic advances in technologies of information and communication may pull the Army back toward its traditional inclination to centralize command and control rather than decentralize.
2. *The roles of the USAF and USN:* The potential capabilities of U.S. air or sea power could bear directly on whether the Army could or should have certain roles, and on the optimal choice of operational methods. Although an Army Operational Concept is not the place to examine service roles and missions, it does and should reflect certain assumptions about them. These should be made clear.
3. *The offensive orientation of the concept:* Army 21's vision of noncontiguous battlefields, resulting in "islands of conflict," is the closest approximation on land to naval warfare. Unlike the naval case, however, the *site* of the land battle can sometimes be as important as its outcome. In such cases (notably NATO's Central Front, but also Korea) it would become imperative to transfer the Army 21 battle to the opponent's "backyard" as early and completely as possible. The concept is therefore inherently offensive in a way that AirLand Battle

is not.⁴ Although an Interim Operational Concept is not the appropriate vehicle for a full elaboration of the issues, it would be useful to display awareness of the potentially far-reaching strategic and political implications of an offensive operational orientation.

RECOMMENDATIONS

We suggest an alternative approach to the generation and exploration of future warfighting concepts. The exploration effort would be organized and pursued in two tiers:

1. A *medium-term planning* effort, using the current Army doctrine—AirLand Battle—as the baseline, and extrapolating plausible variations in implementation over the next 10–15 years. Proceeding inductively from the known present to the relatively foreseeable future, the objective would be to project an estimate of Army needs and preferences, an approximate rough “blueprint” which the Army can infuse into the CBRS. It would represent a rough return to the original approach and purpose of General Starry and Brigadier General Morelli. Although some of their specific ideas may have been too ambitious or optimistic for this time frame, their definition of the effort was essentially correct. Also, close involvement by TRADOC’s leadership appears indispensable for an undertaking as ambitious, complex, and potentially controversial as the development of an “Umbrella Concept” for the CBRS.
2. A secondary, *long-term exploration* effort would extend 30–40 years, where projections are necessarily highly speculative. Essentially deductive, this effort would consider a *range* of alternative visions and would highlight generic developments. The purpose would be to stimulate conceptual thinking by contrasting different concepts, allowing Army thinkers to profit from comparisons and choices between and among them. An exploration of potential connections between foreseeable technologies and conceivable concepts may illuminate the comparative robustness of particular concepts and technologies, as well as increase sensitivity to important decision

⁴Following the publication of *AirLand Battle* in 1982, there was some debate about the centrality of the operational offensive. Our interviews with some of the progenitors suggest that disagreements on this score remain. It is our view that a reading of ALB which leaves that question open is a reasonable one, but not so in the case of Army 21.

points that may occur over the long intervals in question. Direct and continuous involvement by TRADOC leadership would probably be less important in this effort than in the former.

To be useful, the Army 21 Concept must be brought off the fence between the medium- and long-term approaches outlined above. In our opinion, the most distinctive and interesting ideas in *Army 21* are the more radical ones such as noncontiguity, extreme decentralization, and dispensing with the tactical rear. It would be best to recognize this openly and see the Army 21 Concept from AirLand Battle, and vice-versa. Uninhibited by present doctrine and political sensibilities, it should then be possible to bring these ideas into sharper focus and use them to design a clear and coherent *futuristic* concept of operations for the U.S. Army. For that longer range exploration, *Army 21* should be *supplemented* by other, contrasting futuristic concepts. For medium-range planning, the concept should be *supplanted* within the CBRS process by evolutionary extensions of approved Army doctrine.

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We gratefully acknowledge the numerous U.S. Army officers, active and retired, who were generous with their time and insights in interviews conducted in the course of this research. In particular, General Donn Starry (Ret.), formerly commander of the U.S. Army Training and Doctrine Command (TRADOC), and Lt. Col. Charles Sanders, of Fort Jackson, reviewed drafts of the study and provided extensive critiques and numerous useful suggestions. Mark Nelsen, of RAND, was patient and helpful in the editing of the paper over several iterations.

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I. INTRODUCTION

Three tasks were undertaken by RAND in support of the U.S. Army's effort to develop an operational warfighting concept for the first part of the twenty-first century:

- Task 1: to examine the underlying assumptions of the Army 21 Concept.
- Task 2: to help the Army determine which technological advances will have the greatest impact on its ability to conduct twenty-first century warfare.
- Task 3: to assist in the development of techniques and procedures that efficiently model future warfighting concepts.

Task 1 was undertaken for the Deputy Chief of Staff for Doctrine (DCSDOC) of the Training and Doctrine Command (TRADOC). The task was composed of two subtasks. The first was to examine the foundations of the *Army 21 Interim Operational Concept*¹ through a critical review of its assumptions about the future, whether explicit or implicit, and to assess whether the concept was logically derived from the fundamental "touchstones" of the Army's Concept Based Requirements System (CBRS): the Army's Roles and Missions; Technology Projections; Projected Threat; Current Doctrine; and Historical Perspectives. The second subtask was to explore and offer potential alternatives to—or variations in the methods, procedures, and structures described in—*Army 21*.

Task 2 was undertaken for the Deputy Chief of Staff for Technology, Planning and Management at Army Materiel Command (AMC). Its purpose was to help the Army determine which technological advances will have the greatest impact on its ability to conduct warfare, under any doctrine, in the early twenty-first century. As part of this study, RAND was asked to examine the future technologies and systems unearthed by the Air Force's Project Forecast II and to identify those that might be relevant to the Army.

Task 3, undertaken for the TRADOC Analysis Center (TRAC) at Fort Leavenworth, was to assist in the development of techniques and procedures for efficiently generating concept variations and searching among them for those that appear most promising.

¹United States Army Training and Doctrine Command, Fort Monroe, Virginia, June 1985. For brevity, we refer to the document as *Army 21*; we refer generically to the Army 21 Concept and its various evolutionary forms as *Army 21*.

Although related, the three tasks were performed independently of each other and were sponsored by different agencies within the U.S. Army. Thus, no substantive or chronological order is indicated by the numbering of the tasks.

To anticipate our overall conclusions, we found that fundamental ambiguities in both the substance and the purpose of the current Army 21 Concept preclude useful answers to the questions posed to us in the two subtasks of Task 1, described above. It is the purpose of this report to detail the inquiry and the reasoning that have led to this conclusion and to suggest an alternative approach to the development of future warfighting concepts, an approach to which we believe RAND can contribute.

The report is divided into four sections. This introduction is Sec. I. Section II presents an inquiry into the history of Army 21 that helped us identify some of the sources of ambiguities in the concept. This is a "selective" history rather than an all-inclusive one, designed to highlight the major forces and changes, as we understand them, that were at work in the evolution of the Army 21 Concept. Section III is our review of the major explicit and implicit assumptions on which Army 21 appears to be predicated and the difficulty of evaluating them according to a consistent set of criteria. In Sec. IV we offer the broad outlines of an alternative approach that may help in the Army's development of future warfighting concepts.

II. HISTORY OF ARMY 21

The history of the Army 21 Concept to date spans fewer than ten years. Less than five years separate the initial publication of its progenitor—*AirLand Battle 2000* (September 1981)—and the current version of *Army 21* (April 1986). Yet the development of the concept has been eventful enough, as well as attended by sufficient changes in personnel, that institutional memory is already eroding. (This is in contrast to the roughly concurrent writing of present Army doctrine, FM 100-5: *AirLand Battle*, under the uninterrupted efforts of Colonel Huba Wass de Czege, Colonel Richard Sinnreich, and others at Fort Leavenworth.)

RAND was not asked to compile a formal comprehensive "History of Army 21," nor has it attempted to do so. But we found it useful to trace the intellectual and institutional history of the concept in at least general outline so as to illuminate some of its ambiguities and tensions. Indeed, ironically, it appears that a lack of institutional memory may itself have contributed to some of these problems.

The evolution of the Army 21 Concept can be divided into five stages:

1. Late 1970s–September 1981: Genesis of the CBRS and *AirLand Battle 2000*.
2. 1982–September 1984: Transition from *AirLand Battle 2000* to first draft of *Army 21*.
3. Late 1984–June 1985: Production of the *Army 21 Interim Operational Concept*.
4. June 1985–April 1986: Production of the revised edition of *Army 21*.
5. April 1986–present: Transition from design phase [(by the Combined Arms Combat Development Activity (CACDA))] to analysis phase (by TRAC).

We next discuss the central themes and events of these five stages.

AIRLAND BATTLE 2000 AND THE CBRS

Three roughly concurrent developments marked the years 1978–1982, a period of intense activity at TRADOC in the area of Army doctrine, under its second commander, General Donn Starry.

The first was the resolution of the debate over "Active Defense" and the writing of the new FM 100-5: *AirLand Battle*. The second was the development of a "concept based materiel acquisition strategy," later to become the Concept Based Requirements System, or CBRS. The third was an effort to project beyond AirLand Battle and develop a warfighting concept that would in effect extend ALB into a foreseeable future. According to General Starry,¹ his and Brigadier General Donald Morelli's² time horizon was initially eight to ten years. This horizon was subsequently extended "toward the year 2000," as *Air-Land Battle in the 90s* and then *AirLand Battle 2000* were written to describe (and prescribe) the future warfighting concept for the Army.

The three developments—*AirLand Battle doctrine*, the CBRS, and the *AirLand Battle 2000* concept—were related in the minds of TRADOC's leaders. The preparation of the first edition of *AirLand Battle* represented the culmination of an almost decade-long period of doctrinal fermentation and debate within the U.S. Army. There was a widespread feeling among promoters of the new doctrine that it represented an overdue return to the right track by the U.S. Army after a prolonged period of Vietnam-era distraction from its primary task (large-scale conventional warfare), followed by a rapid but imperfect "correction," embodied by the FM 100-5 of 1976, *Active Defense*. Having "caught up" intellectually, as it were, it was important not to lose or dissipate the momentum. For General Starry and his subordinates at TRADOC, a particularly frustrating threat to that momentum was represented by the disjunction between evolving doctrinal-operational preferences and the characteristics of the material infrastructure and major systems that were coming on line to support those preferences.

In the late 1970s, the Combat Developments Planning Directorate of TRADOC, in conjunction with the staff of the Army of the Federal Republic of Germany, began to construct a bilateral concept under the direction of Colonel Frederick Franks entitled "Armored Forces 1990s." The original concept was to be a limited study of the future use of armored vehicles; however, with the encouragement of General Starry, Colonel Franks broadened the scope of "Armored Forces 1990s" to consider the development of an "overarching concept" to anticipate materiel development 10 to 15 years in the future. In July 1980, General Starry instructed his Deputy Chief of Staff for Combat Developments (DCSCD) and DCSDOC to develop a "concept based materiel

¹Interviewed by Yoav Ben-Horin, September 1986.

²TRADOC's first Deputy Chief of Staff for Doctrine (DCSDOC), a position created by General Starry in 1978.

acquisitions strategy" for the 1990s and beyond. They resolved to get a handle on technology by "getting ahead of it," that is, by defining the Army's needs at a point sufficiently advanced in the future to allow for the considerable time required by development and acquisition cycles to get there. The strategy was predicated on postulating an overarching operational concept, an "Umbrella Concept" that would describe—and prescribe—the Army's future doctrinal-operational preferences. These would then guide the development and acquisition of materiel, rather than be constrained or determined by industrial-technological developments.

The connection between the "concept based materiel acquisition strategy" and the "Air-Land Battle in the 90s" concept was established at the TRADOC Commanders Conference (30 September to 1 October 1980). At that conference, combat development planners presented the outline of their "concept based materiel acquisition strategy" and stated that the "Air-Land Battle in the 90s" concept was "a necessary and feasible framework" for that strategy. Also at the conference, General Starry announced that TRADOC would, for the first time, concentrate on long-term planning in its combat development efforts. He cautioned, however, that TRADOC's "look over the technical horizon" should, while being imaginative, avoid the world of science fiction.

Early in 1981, *Air-Land Battle in the 90s* was retitled *AirLand Battle 2000* and an outline of the future concept was presented by TRADOC's DCSDOC, Brigadier General Morelli, at a command-wide doctrinal conference in late January 1981. This outline was later elaborated in a letter to all TRADOC commanders in which Morelli stated that the AirLand Battle 2000 concept under development would ultimately "drive the labs." The concept based materiel acquisition strategy, he said, would serve as the mechanism to translate the broad concept of AirLand Battle 2000 into specific requirements for doctrine, force design, training, and materiel. To accomplish this translation, it was necessary to divide the broad general concept into functional categories or "mission areas":

- Close Combat
- Fire Support
- Air Defense
- Combat Support, Engineer, and Mine Warfare
- Intelligence and Electronic Warfare
- Command and Control

- Communications
- Combat Service Support³

Morelli stated that it would next be necessary to write more specific "functional concepts," based on the broad AirLand Battle 2000 concept, for each of the above mission areas. From these eight detailed functional concepts would emerge the specific future materiel, doctrinal, tactical, organizational, and training requirements. Morelli designated eight task forces in the Army's centers and schools to write these specific functional concepts:

Mission Area	Proponent
Close Combat	Combined Arms Center
Fire Support	Field Artillery Center
Air Defense	Air Defense Center
Communications	Signal Center
Command and Control	Combined Arms Center
Intelligence and Electronic Warfare	Intelligence Center
Combat Support, Engineer, and Mine Warfare	Engineer Center
Combat Service Support	Logistics Center

When written, these concepts would be the theoretical foundations of future weapons concepts. Although functional concepts might originate from existing or potential technological capabilities, they would not be connected to specific pieces of materiel; in fact, Morelli asserted that "when you write a concept, you should probably never mention the name of a weapon system or unit organization."⁴

The eight "functional concepts" of AirLand Battle 2000 would be used in preparation of the final Mission Area Analyses. The MAAs

³Two sets of functional categories were already used—the ten battlefield functions of TRADOC's Battlefield Development Plan (BDP) and Army 86 on the one hand, and the materiel-oriented categories of the Department of the Army's Mission Area Analyses (MAA) on the other. TRADOC decided to merge the two functional sets into a single set of eight major functions. See *TRADOC Annual Historical Review, FY 1980*, U.S. Army, Fort Monroe, Virginia, p. 124.

⁴Concepts and Doctrine Conference, 28–29 January 1981, HQ TRADOC. *TRADOC Annual Historical Review, FY 1981*, U.S. Army, Fort Monroe, Virginia, pp. 121–125.

would state materiel, doctrinal, organizational, and training requirements based upon the approved functional concepts. The materiel requirements specified in the MAAs would determine the Army's future materiel acquisition strategy. The requirements, formulated by TRADOC, would then be incorporated into the annual Science and Technology Objectives Guide (STOG). The annual STOG placed science and technology objectives in order of priority for the use of research and development agencies and industry. Thus, as originally conceived, the AirLand Battle 2000 concept would, through the CBRS, state *specific* requirements to the Army's research and development organizations.

Development of the broad or "umbrella" AirLand Battle 2000 concept outlined by Morelli at the January conference proceeded through the first half of 1981 and was approved by Starry on 29 June. TRADOC approved and published the basic AirLand Battle 2000 concept on 4 September, and it was reviewed by the Chief of Staff of the Army, General Meyer, later that month. Through the remainder of the year, the Task Forces developed functional concepts for the eight mission areas and in October the AirLand Battle 2000 concept was provided to the French, British, and German Army staffs for review. In February 1981, the term "concept based materiel acquisition strategy" was changed to "Concept Based Requirements System" (CBRS).⁵ This broader term reflected TRADOC's emphasis on other far-future requirements—training, doctrine, and organization—as well as materiel.

FROM ALB 2000 TO ARMY 21

The purpose of the ALB 2000 concept, as published on 4 September 1981, was to guide future organizational alignments, doctrine, training, and materiel requirements. Its projections were for a period twenty years in the future, an interval permitting the implementation of the Concept Based Requirements System. Such projections, the authors wrote, would "foster the establishment of valid requirements well in advance of traditional development cycles, not only in the U.S. but also in NATO."⁶ In their introduction to the document, the authors concisely described their vision of the future battlefield, its challenges to the Army, and the means necessary to address those challenges:

⁵TRADOC *Annual Historical Review, FY 1981*, pp. 25-27, 125.

⁶"Introduction," *AirLand Battle 2000*, U.S. Army Training and Doctrine Command, Fort Monroe, Virginia, 10 August 1982, p. 1.

We should expect the battlefield of the 21st Century to be dense with sophisticated combat systems whose ranges, lethality, and employment capabilities surpass anything known in contemporary warfare. The airspace over the battlefield will be saturated with aerial and space surveillance, reconnaissance, and target acquisition systems. Air defense weapons will exist to deny the use of these aerial platforms. The conflict will be intense and devastating, particularly at any point of decisive battle, thus making it extremely difficult to determine the exact situation. In such an atmosphere of confusion, command and control will be exceedingly difficult. It appears that no single weapon system can be fielded to cope with the total battle requirements. The battle will be waged with integrated systems of all arms and services. Battlefield mobility will be an absolute essential for success. One other aspect of the future battle is drawn from the growing proliferation of nuclear, chemical, and biological weapons, coupled with the enemy's apparent permissive attitude regarding employment of these weapons. It is imperative that forces plan from the outset to fight dispersed on this "conventional-nuclear-chemical-biological-electronic battlefield."⁷

The authors of *AirLand Battle 2000* separated doctrine into strategic, operational, and tactical levels. At the strategic level, they advocated continued reliance on deterrence, noting that the ability to deploy large numbers of U.S. forces to any area was itself a deterrent. Operational doctrine, the authors stated, stressed the ability to maneuver, to direct maximum strength against the enemy's weakest point. Tactical doctrine sought to use acquisition, targeting, and weapon systems to attack deep into enemy lines and disrupt his timetables and forces to sustain the initiative, exploit success, and guarantee the freedom to act.

The authors of *AirLand Battle 2000* anchored their operational concept in the tenets of the newly emerging AirLand Battle doctrine: agility, initiative, depth, and synchronization. Like AirLand Battle, *ALB 2000* stressed the importance of an offensive spirit, the use of mission-oriented command and control, and the ability to maneuver so as to direct maximum strength against the enemy's weaknesses, thereby disrupting his decisionmaking processes.⁸

⁷*Ibid.*, pp. 1-2. This view of the future battlefield was based largely on work done by TRADOC in the mid-1970s assessing the Yom Kippur War and on an earlier, joint assessment by the Israeli Defense Forces Armor Corps and the U.S. Army's Armor Center at Fort Knox. These studies determined that the following factors would be important or dominant by the end of the century: sophisticated machines, extensive maintenance, a fast battle pace and high lethality, vast distances, a primary reliance on computers and C³ systems and the "integrated, full spectrum battlefield." (See TRADOC *Historical Review, FY 1980*, pp. 23-34.)

⁸*Ibid.*, pp. 9-16.

In several ways, however, *ALB 2000* extended beyond AirLand Battle. The authors of *ALB 2000* added particular emphasis to the concept of time, in the form of "real-time acquisition and prioritization of targets, *near instantaneous decision-making*, rapid dissemination of orders and quick execution of all battle tasks."⁹ They depicted a practically incessant battle that would require continuous pressure on all areas of the enemy's formation. The demands of both offense and defense (in the face of pervasive nuclear, bacteriological, and chemical threats, as well as unprecedented lethality of conventional systems) led the authors to foresee a "frenetic pace" of operations combined with "dispersal" throughout the battlefield. The *ALB 2000* concept would depend on "*decentralized execution* by small, *self-sufficient units*" (emphasis added), for whom a much heightened "battlefield mobility will be an absolute essential." Finally, the authors envisioned a number of small battles or "*islands of conflict*," as Morelli termed them,¹⁰ within a single corps-type battle. Such operations would emphasize "defeating the enemy—not securing terrain," and would "lead to the *absence of a clearly defined front line* . . . the amoeba-like area of influence has a broken, meandering, interrupted trace, and its configuration changes very rapidly."¹¹ The authors realized that the decentralized, maneuver-oriented operational concept which they had described in *AirLand Battle 2000* would place unprecedented demands on future Army leadership. A command and control philosophy based on mission-oriented tactics would "require the development of a new and innovative method of developing the officer and non-commissioned officer corps."¹² In the eyes of Morelli and the authors of *ALB 2000*, these extensions beyond the current AirLand Battle doctrine were logical and even inevitable. The changes in battlefield conditions within the given time frame and the necessary responses to these changes appeared to them clearly and confidently foreseeable.

Throughout late 1981 and early 1982, General Morelli and the doctrine and development staff presented briefings on both AirLand Battle doctrine and the *AirLand Battle 2000* "Umbrella Concept." The briefings were given throughout the Army, the upper levels of the Department of Defense, Congressional circles, and in Europe, at USAREUR, EUCOM, and SHAPE. The functional area concepts were completed in the late summer of 1982 and on 10 August TRADOC published the AirLand Battle 2000 concept together with its fully developed functional area supplements.

⁹*Ibid.*, p. B-5, emphasis added.

¹⁰TRADOC *Annual Historical Review, FY 1980*, p. 25.

¹¹*AirLand Battle 2000*, 10 August 1982, pp. 4-5. Emphasis in the original.

¹²*Ibid.*, pp. 18-19.

We have been unable to obtain documentation related to Army 21 for the period between late 1982 and 26 September 1984, when it was briefed to the Commanding General of TRADOC. This appears to have been a period of relative inactivity, perhaps partly because of the scathing response that General Bernard Rogers, [Supreme Allied Commander, Europe (SACEUR)], accorded General Morelli's briefing in January 1982. The pause may also have been due in part to the tragic illness and death of General Morelli and the retirement of General Starry, effectively removing the driving forces behind the concept, and its highest level support, at precisely the time it encountered its first serious opposition.

A change in the title of the umbrella concept from *AirLand Battle 2000* to *Army 21* was the most obvious development during this period. This change was prompted by the negative reaction to the *AirLand Battle 2000* concept in Europe, which adversely affected the promotion of the Army's current doctrine, *AirLand Battle*, because the two concepts, with their similar names, were often confused. During this period, the "Scan, Swarm, Strike, Scatter" battle sequence was added to the document to more specifically describe and explain the Army 21 concept of operations. It was also decided to change the time frame of Army 21 from 1995-2030 to 2000-2015.¹³

In September 1984, TRADOC Commanding General William Richardson was briefed on the contents of the *Army 21* draft document. He was impressed and wanted it reviewed, revised, and published as soon as possible. Richardson maintained that he did not want *Army 21* to be categorized by specifying it as a particular type of document and that it should be titled simply: *Army 21—A Concept for the Future*. But he stressed that it was important to "get it into the hands of industry soonest."¹⁴

¹³In September 1982, doctrine writers at TRADOC and on the Air Staff began an attempt to combine the major future concept studies of the two services, *ALB 2000* and *Air Force 2000* into a single joint concept. This joint project came to be titled "Focus 21." Focus 21's purpose was to jointly formulate a methodology for employing air and land forces in the twenty-first century, and to integrate Service thinking on long-range problems. While *ALB 2000*'s concept formulation was not to be constrained by consideration of available funding and technology, *AF 2000*'s formulation was to be so influenced. Focus 21, therefore, was intended to be a "realistic" joint warfighting concept.

The Focus 21 concept draft, completed in June 1973, was generally well received by the Army Staff. Air Staff readers, however, viewed the concept as too "revolutionary." Considering this criticism, TRADOC planners believed that a very different approach to joint future planning should be attempted, one that would offer several alternative concepts for possible development. For a comprehensive discussion of the Focus 21 concept draft, see the unpublished "TRADOC Annual Historical Review," FY 1983.

¹⁴*Memorandum for the Record: Army 21 Briefing to CG TRADOC, 26 September 1984*, Lieutenant Colonel Wynn Barton, Plans Directorate. *Memorandum for Col. Shepherd: Army 21 Staffing, 28 August 1985*, Major Ricky Rowlett, Army 21.

PRODUCTION OF THE ARMY 21 INTERIM OPERATIONAL CONCEPT

The task of coordinating the development of Army 21—specifically, the task of writing and revising the document for publication—was assigned to the Combat Development Directorate (CDD) of the Combat Analysis Center (CAC) and its director, Colonel Richard Murray. In February 1985, a revised draft was sent to the Chief of Staff of the Army (CSA). General John A. Wickham, Jr., who in turn asked the Army Studies Group (ASG) to review it. While praising *Army 21* as a “significant achievement” and applauding the cooperation between TRADOC, CAC, and AMC which resulted in the *Army 21* draft, the ASG nevertheless concluded that the draft version had “serious flaws and should not be published.” ASG criticism fell within three main categories. The first related to *Army 21*’s technical projections. ASG asserted that *Army 21* should be given a “longer time horizon.” While it was possible in the laboratory to achieve the technical capability required by the 2015 target date, ASG maintained that the materiel acquisition process and resource constraints would delay fielding such a developed capability until 2030–2050. In addition, ASG criticized the *Army 21* draft for assuming exponential growth in U.S. technology but only straight-line growth in Soviet technology. The second category of criticism was that *Army 21* focused on only a part of the spectrum of conflict and virtually ignored the most likely eventuality, low-intensity conflict and terrorism. ASG’s third concern involved the purpose and nature of the *Army 21* concept itself. *Army 21*, the ASG asserted, was extremely valuable as a “mind expander”—it provided a general vision to help the Army think about the future in innovative and creative ways—but it should not be seen as a prescription. “It [*Army 21*] should be regarded as a general guide for future thought, not a blueprint.”¹⁵ The CSA’s own comments were essentially a reiteration of ASG’s concerns. General John A. Wickham stressed the importance of attaining a consensus in support of *Army 21* within the Army’s leadership and instructed that his concerns as well as those of the Major Commanders be addressed prior to the distribution of the document.

TRADOC also solicited the comments of Lieutenant General Fred Mahaffey, Deputy Chief of Staff for Operations and Plans. Mahaffey had three general concerns, the most fundamental of which was with the basic combat method underpinning the Army 21 Concept: the notion of “islands of conflict” on a nonlinear battlefield. He argued that the most salient features of the Army 21 operational concept—the

¹⁵Memorandum for Chief of Staff, Army. Subject: *Army 21*. Colonel Arnold Schlossberg, Chief, Army Studies Group, 21 March 1985.

relative independence of combat organizations from a tactical rear, the presumed ability to control the air sufficiently to use it at will for extensive combat and support functions over extended distances, and the presumption that land areas would become less important—were not supported by the discussion of trends and the threat in the document. Second, like the CSA and the ASG, Mahaffey was emphatic in stressing that the Army 21 Concept should be regarded as projective rather than prescriptive. While Mahaffey believed that *Army 21* could be of use to industry in orienting their future developments research, he believed it was far too soon for *Army 21* to be the basis for developing precise materiel requirements. Finally, Mahaffey was concerned that *Army 21* would be unacceptable to our European allies. U.S. future warfighting concepts, Mahaffey asserted, should be based on existing agreements between the United States and NATO. Otherwise, “our mind-expanding new ideas run the risk of being rejected at the outset.” Mahaffey’s attitude toward future changes in the Army’s warfighting concepts can be described as cautious, conservative, and slightly skeptical. Although he was not averse to such changes, he believed that they should be made only “when the trends in the threat, our own technology, and our national resources indicate that it is the right thing to do.”¹⁶

Mahaffey was not alone in his concerns regarding European sensitivity to Army 21. The Army had not forgotten SACEUR’s critical response to Morelli’s briefing of *AirLand Battle 2000* in 1982 nor the general European response to that document. In May 1984, Generals Vuono, Moore, and Richardson met and instructed that specific statements be added to the document indicating that, because of the requirements of coalition warfare, the Army 21 operational concept could also be fought on a linear battlefield.¹⁷

General Richardson still believed, as he wrote to the CSA, that it was “essential to focus industry on the Army’s future needs and to begin compressing the materiel development cycle.”¹⁸ Accordingly, he directed the CDD to rewrite the document within 60 days so that it could be sent to the CSA for approval. Emphasis was placed on revising the first four chapters of the document, attempting to ensure that

¹⁶Letter from Lieutenant General Fred Mahaffey, Deputy Chief of Staff for Operations and Plans to General William Richardson, Commander, U.S. Army Training and Doctrine Command, 3 May 1985.

¹⁷Interview with Colonel Richard Murray, Director, Combat Development Directorate (CDD), 11 July 1986.

¹⁸Memorandum for the Record, *Army 21 Briefing to CG TRADOC*, 26 September 1984, Lieutenant Colonel Wynn Barton, Plans Directorate. *Memorandum for Col Shepherd: Army 21 Staffing*, 28 August 1985, Major Ricky Rowlett, Army 21.

logical links existed between discussions of the future geopolitical environment, the Army's future role, the assessment of the future threat, and an explanation of the Army 21 operational concept. The criticism of the CSA and others regarding the fact that the time focus of the document was too short to field the required capabilities was addressed by using the phrase "first quarter of the 21st century" instead of the particular date, 2015, for implementation of the concept. In response to the concern that *Army 21* implied dramatic rather than gradual change, statements were inserted in Chapters One and Five of the revision that the proposals in *Army 21* were evolutionary rather than revolutionary.¹⁹ On the whole, however, the revision consisted of elaboration and specification of points foreshadowed in *AirLand Battle 2000*. The *Army 21 Interim Operational Concept*, first edition, was sent by Richardson to the CSA on 2 June 1985 with a request to distribute the document to industry and Army long-range planners.

The *Army 21 Interim Operational Concept* was a more lengthy and detailed document than its predecessor, *AirLand Battle 2000*. In some sections of the document, such as the one outlining future world political-military trends, the added detail only further elaborated and specified what had been discussed in a more cursory fashion in *AirLand Battle 2000*. In other sections, especially Chapter Four, which described Army 21's operational concept, the document attempted to define precisely ideas which had only been adumbrated in *AirLand Battle 2000*.

Whereas *AirLand Battle 2000* generally described the future battlefield as one in which independent units would be fighting in a non-linear fashion, *Army 21* tried to place that vision of the future battlefield in the context of future technological developments and the Soviet threat. More specifically, it described how the future battle could and should be fought by the U.S. Army. *Army 21* foresaw that technological advances in mobility and firepower, coupled with the Soviets' continued emphasis on such deep attack assets as the Operational Maneuver Group and air assault forces, would enhance their ability to advance rapidly into friendly rear areas and destroy critical targets there. Such capabilities, the authors asserted, would "pose a significant problem to forces which are aligned linearly with traditional, uninterrupted lines of communication" since they would be vulnerable to detection and destruction and to fragmentation from their supply base.²⁰

¹⁹Memorandum for DCSDOC, TRADOC, Subject: CSA's *Army 21 Letter*, Colonel Richard Murray, Director CDD, 14 May 1985.

²⁰*Army 21 Interim Operational Concept*, United States Army Training and Doctrine Command, Fort Monroe, Virginia, 1 June 1985, p. 4-1.

Thus, in order to survive on the future battlefield, *Army 21* asserted that U.S. forces would have to fight dispersed. They would have to be independent and self-supporting, without ground-based lines of communication or main supply routes, thus eliminating the traditional "rear area" at the tactical level. This would allow those forces to continue fighting even if cut off by a maneuvering enemy. While *Army 21* stated that such developments were *necessary* to effectively defeat future Soviet forces, it also emphasized that such developments were *desirable*. Future U.S. forces, the authors maintained, will be self-sustaining, more agile, and better able to conduct independent actions in the enemy's rear area. Technological enhancements in the areas of mobility, command and control, and logistics would permit a great degree of independent action by subordinate organizations. The primary purpose of this style of warfare would be to defeat the enemy by presenting him with offensively oriented actions designed to throw him off balance and desynchronize his operation, not to hold terrain.²¹

To more fully explain future combat operations, the authors described the conceptual battle sequence of *Army 21* forces. At first, commanders at all levels would "scan" the battlefield, employing ground-, air-, and space-based sensors and computer-assisted processing equipment, in order to obtain information regarding critical enemy disposition. After the commander evaluated the recently gathered intelligence, he would maneuver his force into position to engage the enemy. Then forces would "swarm" on the enemy. The authors maintained that this action could be accomplished from dispersed sites using long-range direct and indirect fire systems. Once his forces were positioned, the commander would order a "strike" against the enemy.²² *Army 21* stated that such strikes should concentrate on those targets that "would desynchronize [the enemy's] operations, break his momentum or dissipate his capacity to fight." Striking enemy strengths was to be avoided; "exploiting weaknesses is the goal." Following a strike, forces would rapidly "scatter" to avoid detection and destruction. According to *Army 21*, this battle sequence would be repeated in a relentless process until the enemy was destroyed. It would be fought by a number of dispersed, independent Close Combat Forces within a single corps-type battle.

In *Army 21's* discussion of the future soldier, the authors emphasized a point which had been briefly discussed in *AirLand Battle 2000*. Namely, that on the battlefield of the twenty-first century, the great amount of intelligence data which must be quickly assessed, together with the accelerated pace of battle and the emphasis on

²¹*Ibid.*, p. 4-5.

²²*Ibid.*, p. 4-9.

mission-oriented tactics, would require the future soldier to make rapid decisions and to exercise great mental agility. These requirements would place significant stress on all levels of combat troops. To successfully cope with the new challenges presented to the soldier, *Army 21* proposed that equipment should be designed to replace the fighting soldier whenever feasible through the use of technological innovation and robotics. However, *Army 21* emphasized in a general way the need for effective training. Realistic training, the authors maintained, would make soldiers resistant to the impact of conditions encountered during continuous operations. Since soldiers of the twenty-first century would fight in small, independent units on a dispersed battlefield, training should stress unit cohesion and the "individual's ability to demonstrate initiative, make decisions, and take action without close supervision."²³ *Army 21* stated that training which simulated the operations and concomitant stress of the future battlefield would teach soldiers and leaders the above qualities.

PRODUCTION OF THE REVISED EDITION OF *ARMY 21*

During the summer and fall of 1985, TRADOC solicited and received substantial commentaries on the first edition of *Army 21* from the Army Staff in Washington as well as from General Bernard Rogers, SACEUR. Both reviews were highly critical and overlapped considerably in their skepticism regarding three issues:

1. Uncertainty about the nature and purpose of the document.
2. Applicability of the concept to Europe.
3. Operational soundness of the concept.

Their emphatic objections clearly implied that the changes made in the February 1985 draft document in response to the comments of the CSA, the ASG, General Mahaffey and others did not adequately resolve the confusion and concern attending those issues.

1. Echoing earlier concerns regarding possible confusion over the nature and purpose of the document, the Army Staff maintained that it should include the following:

- An unequivocal statement that future concepts, such as *Army 21*, are neither doctrine nor strategy.
- A stronger statement that the evaluation and refinement process will produce future editions of *Army 21*, and that only at

²³*Ibid.*, p. 6-7.

some future point may a new umbrella concept emerge that can evolve into a new doctrine.

- An unambiguous statement that the current Army 21 Concept is not to be the basis for writing or developing current- and near-term requirements documents.²⁴

In repeatedly requesting that "stronger," "unequivocal," and "unambiguous" statements be added to *Army 21*, the Army Staff implied that the changes made in the document in response to the criticism and comments of the CSA, the ASG, Mahaffey, and others did not adequately resolve the confusion over the nature and purpose of the document.

Like Mahaffey, the ASG, and the Army Staff, General Rogers urged that *Army 21* should be no more than "a conceptual working document."²⁵

2. General Rogers was adamant that "The U.S. Army did considerable damage to allied command Europe by spreading ALB 2000 all over the Western European landscape; please let's not have a repeat performance with *Army 21*." His concern went well beyond public relations. Rogers believed that it was essential to emphasize that *Army 21* was designed for use on a *global* basis and that it needed to be modified in its application in certain areas of the world, such as Western Europe, where the U.S. Army would be fighting a coalition war alongside its allies and adapting its combat methods to coalition and national policies. In the case of Western Europe, Rogers believed that it was essential to emphasize that NATO was a defensive alliance and that forces supporting it must be effective in a defensive role. Therefore, if *Army 21* were to be applied in Europe, it would have to have an explicitly defensive orientation. From this followed a number of specific NATO concerns which, Rogers asserted, had to be understood by the authors of *Army 21* "whether they agree or not":

- NATO would not preempt "no matter what the provocation."
- NATO strategy recognized the value of maneuverable forces, with the counterattack being the essence of a viable defense.
- NATO would pursue the strategy of flexible response and Forward Defense, which dictated the use of the best defensible terrain near the intra-German border (IGB).

²⁴Memorandum to DCSDOC, Subject: HQDA Guidance for Final Revision of *Army 21*, Colonel Raouf Henri Alcala, Chief, Doctrine, Force Design and Systems Integration Division, ODCSOPS, 22 November 1985.

²⁵Letter from General Bernard Rogers, U.S. Army Supreme Allied Commander, Europe to General William Richardson, Commander TRADOC, 26 September 1985.

- NATO political strategy did not permit massive ground offensives east of the border over and above those necessary in counterattacks to reestablish the *status quo ante*.
- NATO drew a very clear distinction between conventional weapons and weapons of mass destruction. There was great concern about NATO political leaders retaining constant, tight control over the use of nonconventional weapons at all times, not only at their initial use. The discussion of the integrated battlefield in *Army 21* could have led Western Europeans to believe that the United States made little or no distinction between conventional and nonconventional weapons.²⁶

3. The Army Staff's misgivings about the soundness of the concept from a purely operational point of view were reflected in its call for elaboration of certain aspects of *Army 21* that appeared particularly counter-intuitive or stressful:

- A clear correlation of the Principles of War in the conceptual articulation of "Scan, Swarm, Strike, and Scatter." Adherence in particular to the Principles of War of mass, simplicity, and unity of command.
- Expanded discussion of rear operations, to include an articulation of how the force will sustain its freedom of action.
- A more explicit description of the manner of ensuring synchronization of deep, close, and rear operations by the *Army 21* forces.

General Rogers' doubts on operational grounds regarding the soundness of *Army 21* were centered on his particular theater of responsibility. He maintained that in Western Europe the enemy would have sophisticated systems and equipment similar to those of the United States, as well as greater combat capability. He believed the *Army 21* battle sequence would not work in the European theater not only because NATO political leaders would reject it, but because it did not match the opponent, the operational environment, or the manner by which Allied Command, Europe (ACE) "*is and must be constrained to defend itself.*"²⁷

Based on CSA's guidance, ASG's review, and most of all on SACEUR's comments, CAC and TRADOC made changes to *Army 21* that were incorporated in the revised version of the document published in April 1976. In addressing the critics' concerns, the newly added Preface stated that:

²⁶ *Ibid.*

²⁷ *Ibid.*, emphasis added.

The value of Army 21 as a concept lies in its broad worldwide applicability for warfighting at the tactical and operational level. *Alliance agreements and other strategic requirements, however, will dictate the degree to which the concept is applied in a given situation.*²⁸

Chapter Four of *Army 21* describing the operational concept was revised to more clearly describe the "Scan, Swarm, Strike, Scatter" combat method in terms of the operational versus the tactical levels of war, the offense versus the defense, high- versus low-intensity conflict, and developed versus undeveloped theaters of operations.²⁹

The preface addressed another of General Rogers' concerns by stating that while Army 21's concept of operations "espoused" offensive action in an effort "to attack and destroy the enemy," such actions did not contradict the defensive strategy of the United States or its allies because *Army 21* was concerned only with the operational and tactical levels of war, not the strategic. It went on to assert that:

Offensive tactics, as a matter of national policy, are employed only after our defensive strategy fails as a deterrent and hostilities have begun. The concept limits its scope to warfighting and avoids discussion of political policy matters or national strategy.³⁰

Finally, the concern that *Army 21* not be viewed as a blueprint for future Army doctrine was addressed in the Preface:

[the] purpose for projecting warfighting well into the future is to set an azimuth for combat developments . . . Doctrine, based on the concept, can evolve gradually and encompass the concerns of sister services and our allies as it is refined.³¹

CURRENT STATUS OF ARMY 21

Following completion of the revised first edition of *Army 21*, the Army asked the Arroyo Center at RAND to undertake the three-task effort of which this report is a part—to assist in the evaluation and further development of the concept. The interviews on which this

²⁸*Army 21*, p. i, emphasis added. Richardson had attempted to allay Rogers' concerns by writing to him on 25 October that a revision of *Army 21* would make clear "the separate and distinct purposes" of *Army 21* and FM 100-5. See letter from William Richardson, Commanding General, United States Army, to General Bernard Rogers, Supreme Allied Commander, Europe, 25 October 1985.

²⁹TRADOC briefing paper describing changes in the *Army 21* document and SACEUR's concerns, untitled, undated.

³⁰*Army 21*, pp. i-ii.

³¹*Ibid.*, p. i.

report is partially based took place in the summer and fall of 1986. In these interviews, authors and promoters of the Army 21 Concept generally described it as "an azimuth" and a "stimulant." The case was made to us that the importance of Army 21 lies primarily in the process of future planning that it sets in motion, rather than in its particular projections and prescriptions. It was also suggested that the operational concept might be more applicable for early use by U.S. forces in an undeveloped theater, such as Southwest Asia, where they would be fighting unconstrained by alliance requirements.

At this point, the Army 21 Concept had been passed from the CDD, where the design and writing had been centered for the past few years, to the TRADOC Analysis Center (TRAC) for analysis and refinement by gaming and modeling. The Studies Advisory Group (SAG), which oversees and directs the development of Army 21, met in Fort Leavenworth on 7 January 1987, with the Commanding Generals of CAC (Lieutenant General Bartlett), TRAC (Brigadier General Robinson), and LABCOM (Major General Cercy), as well as the Deputy Commanding General of AMC (Lieutenant General Skibbie) and the TRADOC DCSDOC (Major General Shoffner) present. It was decided to freeze the writing effort and, at this point, not to produce another revision of the *Army 21* document.

In the spring of 1987, while this report was in preparation, the Army adopted a new framework for future planning: "Architecture for the Future Army."³² It laid out a three-tiered approach:

- AirLand Battle Future—an effort to evolve AirLand Battle 15 years into the future.
- Army 21—an effort to evolve AirLand Battle and potential alternatives 30 years into the future.
- Advanced Concepts—alternative conceptual visions, not necessarily evolutionary, of how the Army might possibly fight in the future.

Although the title Army 21 is retained for the second evolutionary effort, it was made clear that TRADOC now considers the existing Army 21 an advanced concept belonging to the third category.

³²Architecture for the Future Army Letter of Instruction (LoI), from General Carl E. Vuono, Commander, TRADOC, 30 March 1987.

III. ARMY 21 ASSUMPTIONS AND AMBIGUITIES

Our inquiry suggests that *Army 21*, or rather its direct precursor, *AirLand Battle 2000*, was first conceived in the late 1970s as a medium-term "blueprint." This is not to imply that it was to have the detail, precision, or finality of an engineer's plan. Rather, we believe the officers of the Army Studies Group construed the term to mean that *Army 21* was intended to be a simple vision of future Army war-fighting methods to which a practical commitment could be made. Like an architect's plan, it would represent basic design choices and provide an elaborate outline of the structure, leaving many particulars and final details for determination and implementation by an engineer.

Under the active direction of TRADOC Commander General Donn Starry and TRADOC's first DCSDOC, Brigadier General Donald Morelli, the genesis of *AirLand Battle 2000* was integrally tied to General Starry's other major project—the Concept Based Requirements System (CBRS). In line with the perceived imperative of getting a handle on technology by getting ahead of it, the CBRS is predicated on the postulation of an overarching operational concept, the "Umbrella Concept," that will provide the CBRS' foundation and guide the development and acquisition of materiel. *AirLand Battle 2000* was to become the first such "Umbrella Concept." It was supposed to be the Army's best depiction of a medium-term future about which enough was known to warrant specific commitments to a preferred mode of operation.

As noted in Sec. II, Starry and Morelli regarded the evolving *AirLand Battle 2000* as directly related to—indeed, firmly grounded in—*AirLand Battle* doctrine which was then in final development to become the U.S. Army's new FM 100-5. There were probably two reasons for this, one institutional and the other a matter of substantive, doctrinal-operational interpretation and preference. On the first count, it would have been practically impossible for the leaders of TRADOC—even if they were so inclined—to proclaim the forthcoming obsolescence and supersession of an Army doctrine that was only then emerging from a period of intense debate and was widely perceived to signal significant changes and challenges for the Army. Second, Starry and Morelli genuinely regarded ALB 2000 as a logical extension of ALB, apparently because their view of ALB placed such emphasis on offensive operations into enemy territory that there would be no political or strategic leap between it and ALB 2000/*Army 21*, even in

Europe. On the key question of the acceptability to the NATO allies of noncontiguity and an offensive orientation, they expected the allies to be militarily more accommodating in practice than in their public rhetoric.

Starry and Morelli's initial time frame was eight to ten years. They then reluctantly extended it "toward the year 2000," to take account of the fact that the development and acquisition cycle is often considerably longer than eight to ten years.¹ At this point, it appears to us, a certain inherent tension in the CBRS first came into play. The CBRS process is intended to employ a warfighting concept that will determine materiel requirements by "getting ahead of technology"—by projecting operational preferences farther in time than the duration of critical development and acquisition processes. Thus, it is important that those conceptual projections be both clear enough to provide guidance and firm enough to justify substantial commitments of resources. However, the development and acquisition cycles are often so protracted that they require conceptual projections beyond reasonable horizons. Short of somehow dramatically decreasing the length of major development and acquisition cycles, there does not appear to be a neat way to dispel this tension. Instead, the postulated time frame of the ALB 2000 concept was substantially extended. Its projections and assumptions thus almost inevitably became less certain.

General Bernard Rogers' intense negative reaction to ALB 2000, General Starry's retirement, and General Morelli's grave illness occurred in fairly quick succession in 1982-1983. Subsequent development of the concept (now renamed Army 21 to distinguish it from ALB) retained the operational thrust of ALB 2000. It remained a single vision of the future. Its authors repeatedly emphasized its "evolutionary" nature and direct connection to and compatibility with ALB. The current title, "Interim Operational Concept," suggests that if it is validated by TRAC during the next few years, it should then become a 525 "Operational Concept," and presumably step into the role of "Umbrella Concept" for the CBRS. All of which suggests to us the retention of Starry's and Morelli's (and later General Richardson's) intention to move rapidly to the production of a clear and focused Operational Concept that could promptly be acted upon by industry.

But the signals have become mixed, and indications abound that in fact the concept is now represented as a noncommittal vision. As discussed in Sec. II, its recent developers describe it as a "stimulant" and "azimuth." They have effectively suspended disbelief on political and technological issues. Perhaps most significant, the time frame has

¹Interview with General Donn Starry (Ret.), September 1986.

fluctuated so that today it covers a broad and elastic “first quarter of the 21st Century” (and, in the April 1986 version, 2015–2025).

PROBLEMS WITH THE CURRENT ARMY 21 CONCEPT

A reading of the June 1985 and April 1986 drafts of the *Army 21 Interim Operational Concept* raises two fundamental questions. The first has to do with the actual content of the concept. The second pertains to the purpose of this difficult and ambitious effort to look ahead into a fairly distant future.

- **Unclear content:** The four S’s (“Scan, Swarm, Strike, Scatter”), which for years have constituted the heart of the Army 21 Concept, are gone from the April 1986 version. But even in the first edition (June 1985) and previous drafts, these terms were defined so generically that they could conceivably apply to supposedly different concepts such as AirLand Battle or even Active Defense. Also, an idea that appeared to be central to the Army 21 Concept and which would indeed distinguish it in a very important way from Active Defense and AirLand Battle—that of the “noncontiguous battlefield”—is in the April 1986 version qualified by the addition of the “contiguous battlefield” as simply a subsumed case.

This substantive ambiguity results in confusion on the nature of the new concept: Just how “new” is it supposed to be? The claim is made repeatedly throughout various editions and drafts of *Army 21* that it is an “evolutionary” and not a “revolutionary” concept. It purports to be merely a natural and logical development of the Army’s current doctrine—AirLand Battle—facilitated by technological opportunities, contingent on some changes in organization and training of our forces, and mandated by projected changes in the politico-strategic environment. But several of the postulated developments that appear to be essential to the workings of this operational concept, as well as some of its potential consequences, appear to be quite radical even if they are not defined as “revolutionary.” These are at three levels:

- The political level: The idea of deliberate noncontiguity of the battlefield in Central Europe
- The technological and organizational level: The elimination of the tactical logistical rear
- The command and control level: Especially the leadership demands on officers.

• **Unclear purpose:** Directly related to the ambiguity that results from a mix of evolutionary and revolutionary elements in *Army 21* is the question of the very purpose of the concept. Does it constitute a blueprint, however rough, of a specific future to which a commitment is implied or intended? Or is it intended to constitute a plausible but general vision of the future which might usefully serve as a kind of "teaser" and "stimulant" for imaginative conceptual thinking? As we have noted above, the evidence about this is mixed and confusing.

QUESTIONABLE ASSUMPTIONS OF *ARMY 21*

The ambiguities of content and purpose stated above further complicate the inherently uncertain business of evaluating assumptions about the future, to the point that the value of the exercise is dubious. The following is a brief review and assessment of the underlying assumptions implicit and explicit in the current *Army 21* that we have distilled from the document and consider most significant.

The assumptions on which *Army 21* is predicated may be divided into three orders. The first order of assumptions postulates the value, in principle, of the undertaking. The second order justifies the particular direction chosen. The third order comprises various specific features and "enabling conditions."

First order: *It is possible and useful to "plan" 30 to 40 years ahead (to the years 2015-2025 in this case).*

This is a very long term for any Army planner. The validity of such an assumption would therefore depend on the degree of precision and detail required and the degree of policy and resource commitment involved. The assumption would be more valid in the case of a non-committal "stimulating vision" than for a "blueprint" for action, because less detailed planning and policy commitment would be implied or required.

Second order: *Technological developments will lead inexorably to what the current authors of Army 21 regard as extreme logical extensions of trends already embodied in current Army doctrine (AirLand Battle).*

According to the authors of the current *Army 21* document at the Combat Development Directorate, dramatic increases in the transparency of the battlefield (intelligence, communications, and acquisition) and in the effectiveness of firepower (responsiveness, accuracy, and

lethality) will virtually *mandate* more and faster paced movement, wide-ranging and almost incessant offensive maneuver by U.S. ground forces on both enemy and friendly terrain, increased dispersal of land forces with attendant decentralization of command, and considerably higher levels of independence and initiative on the part of Army officers throughout the battlefield.

There are several problems with this assumption: First, extreme "logical extension" of a valid idea or concept may result in something that is neither logical nor an extension of the original concept. Such is the case, in our opinion, with the blurring in Army 21 of the distinctions between the "deep," "close," and "rear" battle operations that are so important in AirLand Battle doctrine. Such may also be the case, on grounds of feasibility rather than pure logic, with the demands for independence and initiative that the Army 21 Concept would place on our officers. A certain high degree of decentralization may have been practical and effective for the currently fashionable paragons of "the operational art," the German Wehrmacht officers of World War II. But it simply does not follow that even more stringent demands for synchronization, in even faster paced and more decentralized operations than the Wehrmacht ever contemplated, will be practical for us.

Second and more important, it is by no means self-evident that the projected technological developments referred to above necessarily mandate the operational consequences deduced by the authors of *Army 21*. For example, movement itself produces a "signature" and generally involves some tradeoff or cost in protection. The same increased lethality of future systems, especially if combined with increased density of forces (the size and basic topographical features constraints of the crucial front in Central Europe are not going to change) could just as conceivably lead to more static rather than more mobile forms of warfare.² Possibly too, those same technological advances, especially if the U.S. Army and its allies lead their opponents in crucial fields, may render a form of warfare similar to today's AirLand Battle, or even the Active Defense of the recent past, more advantageous and promising than ever.

²Colonel R. Sinnreich, former head of the School for Advanced Military Studies at Fort Leavenworth, one of the authors of *AirLand Battle*, has speculated that the greatest operational challenge facing modern armies in a congested battlefield (such as the Central Front in Europe) may be to maintain or recover the ability to maneuver effectively in the face of quantum leaps in the effectiveness of firepower. (Interview with authors, July 7, 1986.) See also Martin Van Creveld, *Military Lessons of the Yom Kippur War: Historical Perspectives*, The Washington Papers #24, 1975, pp. 32-46, in which the author discusses the difficulties that both Arabs and Israelis encountered in trying to maneuver offensively in the 1973 war. He observes (p. 37) that "As usually happens in periods when firepower is on the ascendance, it is the tactical defense that stands to gain the most."

Third order: (a) *Army 21 maintains a "Unity of Concept," geographically and across the spectrum of conflict.*

Like AirLand Battle, Army 21 purports to respond to military challenges to the U.S. Army around the globe. This may be unobjectionable at the most general and even philosophical level of "Principles of War." However, at any other level, this assumption is of questionable validity at best.

The doctrinal stirrings in the U.S. Army in the last 15 years stem in large measure from the (correctly) perceived need to contend with a historically novel situation for the U.S. Army: *numerical inferiority in men and materiel vis-à-vis its main opponent.* (Although this disparity has been true since 1945, the problem was considered mitigated by America's nuclear superiority over the Soviet Union until the late 1960s.) We are therefore compelled to search for effective substitutes for the relative safety, predictability, and often low human cost once afforded us by quantitative resource advantages that are no longer ours. To this end, the Army 21 Concept offers a militarily and politically daring mode of operation. But it is important to remember that we have lost the advantage of size and numbers in only *some* cases, albeit including the single most important one, that of the Soviet Union. It is not at all self-evident that in contingencies involving, say, Syria, Libya, or Nicaragua, the United States should seek radical alternatives to its traditional reliance on massive advantage in resources, technology, and operational range.

In yet other conceivable contingencies in which traditional U.S. advantages and methods may not be appropriate (such as Vietnam in the past and, potentially, the Philippines in the future), it may well be the case that the Army 21 warfighting concept would be similarly inappropriate. To be sure, there are other conceivable and important contingencies, such as in perhaps Southwest Asia and Korea, for which the concept might be suited if it were technically feasible. But it does not follow that it is either necessary or possible to apply any single operational concept across the board of military challenges to U.S. national interests.

Third order: (b) *The Third World will present increased challenges to the U.S. Army.*

By some measures, such as numbers of modern tanks and aircraft, the military capability of many countries throughout the Third World (for example, Syria, with 4000 tanks and 500 modern fighter aircraft) has increased dramatically. While these developments may present problems for the United States, it does not follow that in every case or

even in the preponderance of cases, the U.S. Army faces an increased challenge from these quarters. It is arguable that by many crucial measures of military capability (such as intelligence, electronic warfare, standoff capabilities, and so forth) the gap between the United States and these Third World countries is actually greater than before, and likely to increase further in the foreseeable future. However, these advantages may lie mostly in the realm of Air Force and Navy operations, and provide no useful role for the Army (witness the USAF and USN strike against Libya in early 1986). In those cases where our technological and numerical advantages may not avail us, as in Lebanon in 1983, it may be preferable not to become involved at all, and especially not to insert ground troops in significant numbers.³

Third order: (c) *The Soviet threat can be projected linearly.*

The projected Soviet threat described in *Army 21* is a fairly straightforward projection of the threat confronting us today, with an improved capability to do more of the same things in roughly the same manner. This assumption appears to us to be excessively limiting. The U.S. Army must consider the possibility that its opponents also will introduce substantial changes in their modes of operation, as a result of their own processes of doctrinal evolution or in response to us. Again, much depends on the time frame contemplated.

Third order: (d) *American allies will accept or at least not impede the implementation of this concept of operations.*

An assumption of compatibility or acceptability may be irrelevant in cases such as Southwest Asia, and plausible in others such as Korea. But it is highly questionable in the critical case of NATO and the Central Front in Europe. Indeed, in our opinion it is quite unlikely that our key NATO ally, the Federal Republic of Germany, will in the foreseeable future accept that NATO or the U.S. Army in Europe should operate on the basis of a noncontiguous battlefield, in effect abandoning the commitment to Forward Defense. Our NATO allies are also likely to be extremely concerned about the potential strategic implications of an operational concept that may be regarded (fairly, in our opinion; see our discussion of Unaddressed Issues, below) as inherently offensive.

³This discussion addresses only the external dimensions of the challenges that may face the U.S. Army in the Third World. It does not forecast the actual inclination of U.S. policymakers to use the military as a major instrument of policy in the Third World, nor the propensity to resort to integrated operations under "joint" or "special" headquarters. Such policies may indeed involve the U.S. Army in a greater number of contingencies in the Third World, and on a larger scale, than we might consider objectively necessary or justified.

This assumption is merely implicit in the document itself. But it was often made explicit in our discussions with some of the developers of the Army 21 Concept. Some suggested to us that although key NATO allies would undoubtedly be strongly opposed to such ideas at present, their position might change with time, and that, in any case, the prospect of noncontiguous battle may soon no longer be a matter of choice for us or our allies. Even if the concept is not implementable in Europe, others argued, it should be applicable, and would encounter no such obstacles in other regions of the world where the Army may have to operate (Southwest Asia, Korea).

We find no significant evidence, however, that the Federal Republic of Germany might be close to undertaking or acquiescing in such a dramatic redefinition of its vital interests. Almost anything is possible in the longer term, of course. But the kind of desperation that might drive the Germans to such acquiescence might just as likely lead them to adopt other measures first, such as major increases in the defense budget or a massive Maginot-like fortification of the intra-German border. Such measures might in turn render viable more traditional defensive and terrain-oriented operational concepts.

The possibility that the Central Front in Europe might be the only major exception to the future applicability of *Army 21* would appear to be too large an "exception," especially since it is not safe to assume that an Army optimized for noncontiguous warfare would also be optimal for the execution of some form of Forward Defense in Central Europe.

Third order: (e) *Technological feasibility and availability problems will be overcome.*

As noted in the Introduction (Sec. I), technology forecasting is the focus of Task 2 of this study, which is proceeding in parallel. The following observations nevertheless seem appropriate in the present context:

1. The technologies contemplated in *Army 21* do not seem overly exotic or optimistic. However, there is a critical difference between the feasibility of a prototype system and the ability to procure and deploy it in adequate numbers. The issue may therefore be one of budgets and policy rather than of technological feasibility.
2. The technical or functional area appendices of *Army 21* are strapped together with very little integration beyond a general identification of recurring themes. The document does not assign priorities, nor does it provide the basis for assigning

priorities to technologies or systems, within, among, or across functional areas.

3. The single major technical "leap of faith," is the postulation of a revolution in tactical logistics. One of the following two developments would be required to bring it about: equipment without substantial need for logistic support, or a logistical system with the agility and flexibility to match those of the proposed main line of combat equipment. Either would constitute a sizable technological challenge.

UNADDRESSED ISSUES

Some critical issues and their underlying assumptions have not been adequately addressed or explored in *Army 21*. These issues are:

1. The officer and command and control (C²)
2. The roles of the USAF and USN
3. The "offensive orientation" of the Army 21 Concept

1. The officer and C²

Perhaps the single most demanding challenge that implementation of the Army 21 Concept poses to the U.S. Army is an extraordinarily increased degree of independence, initiative, and flexibility that would have to become standard among Army field officers. The development of AirLand Battle as well as the discussion surrounding it in the military literature of the last ten years indicate a widespread belief that the U.S. Army officer has traditionally fallen short in this respect compared with his much admired counterpart, the German officer (especially the Wehrmacht officer of World War II). Furthermore, it appears to be conventional wisdom that we are *still* a considerable way from that "ideal."

Yet, the Army 21 Concept is likely to require even higher standards of independence and flexibility of the U.S. Army officer than those attained by the Germans at their historical best. The degree of dispersal and decentralization suggested by the concept, combined with the frenetic pace of operations and the requirement for pinpoint synchronization of diverse assets, would likely complicate command and control beyond anything the Germans conceived, let alone confronted. The discussion of "the soldier" in *Army 21* (Chapter Six) does not grapple with this most critical issue. Rather, it focuses primarily on

the more definable and probably more tractable need for greater and more widespread competence in the operation of advanced technology.

Indeed, if there is a hidden implicit assumption regarding the projected increase in complexity and difficulty of command and control, it is that they will be overcome through advances in the technologies of information and communication. This is reminiscent of our traditional tendency to cut through the proverbial "fog of war" by means of tight organization, complex management, and technology. (The current AirLand Battle doctrine attempts to counter this traditional inclination, although it, too, does not go substantially beyond exhortation.) The difficulty of achieving "synchronization" on the *Army 21* battlefield, combined with the allure of technological panaceas that will supply boundless and reliable information-cum-communication, may set the stage for the Army to revert to a tendency to centralize rather than decentralize.

2. The roles of the USAF and USN

The potential capabilities of U.S. air or sea power could bear directly on whether the Army could or should have certain roles, the degree of Army involvement, and the preferred/optimal choice of operational methods. This is most obvious in connection with power projection in Third World contingencies (alluded to above) and, most importantly, with regard to what today (in AirLand Battle) we call "deep" operations. These questions are not addressed. Although an Army Operations Concept is not the place to examine Service roles and missions, it does and should reflect certain assumptions about them. These should be made clear.

3. The offensive orientation of the concept

Army 21's vision of noncontiguous battlefields, resulting in "islands of conflict" (a term no longer employed in the document itself, but one which does seem to capture the idea), is the closest approximation on land to naval warfare. Unlike the naval case, however, the *site* of the land battle can sometimes be as important as its outcome. It will therefore become imperative, in some cases, that the battle in an *Army 21* environment be carried to and waged in the opponent's "backyard" as early and as completely as possible. This logic, not addressed in the document itself but recognized and accepted (in interviews) by several of its developers, renders the concept inherently offensive in a way that Active Defense and even AirLand Battle are not. Whatever its operational merits, such an offensive imperative has political and strategic implications that are not recognized in the current document. An

Interim Operational Concept is not the appropriate vehicle for the exploration and elaboration of these issues. But it would be useful to display awareness that there is a particularly significant, and unexplored, connection in this instance between the operational and strategic levels.

IV. AN ALTERNATIVE MODEL: A TWO-TIER PLANNING APPROACH

In this section, we present an alternative approach which addresses the major flaw in the current concept and offers a sounder framework for considering future warfighting concepts.

THE NATURE OF MEDIUM-TERM VS. LONG-TERM PLANNING

While some of the difficulties with the Army 21 Concept stem from lack of clarity and incompleteness, the main obstacle to any assessment of the validity of its assumptions and the usefulness of the concept itself lies in the ambiguity regarding its nature and purpose. Futuristic *visions* are meant to serve different ends from medium-term *plans*; accordingly, they are properly judged by different criteria.

The visionary approach is useful if it "teases," in the best sense of the word, i.e., stimulates or facilitates original thinking that might be stifled by more systematic extrapolations of the present into the future. This approach can lead to ideas that might otherwise be overlooked. Such longer-term projections are less certain and necessarily encompass a wider range of possibilities. Therefore, their appropriate role is exploratory rather than guiding. Hence, such projections are best directed toward bounding the inevitable uncertainties regarding the future, rather than attempting to dispel them or make definitive choices despite them. To this end, it is necessary to vary key assumptions considerably, and to consider a range of scenarios corresponding to the variations.

Medium-term planning must withstand much more rigorous tests of plausibility in connection with known circumstances and resources. A single major diversion from plausibility (such as, in our opinion, the projection of NATO acceptance of noncontiguity on the Central Front) can invalidate a plan. In sum, while it is both possible and necessary to consider a *set* of far-off "visions," shorter-term planning covers a more limited spectrum to provide a single preferred "blueprint" to which commitments can be made.

In our opinion, it is necessary for the Army to recognize that the inherent tension in the CBRS, to which we pointed at the beginning of Sec. III, is not completely resolvable and that, therefore, a pure form of

a *concept based* requirements system is not possible. This stems from the fact that the farther into the future the Army tries to look, the farther "ahead of technology" it attempts to cast its concepts, the less it can rely on them to "drive the labs," as General Morelli would have had it. In a nutshell, relying on a single long-term vision or projection to provide concept based requirements represents a "catch-22." It does not provide the precise, confident projections necessary for firm planning commitments.

AN ALTERNATIVE MODEL

An alternative approach to the exploration of future warfighting concepts would break up the effort into two fundamentally different parts, or tiers:

- A primary, medium-term *planning* effort
- A secondary, long-term *exploration* effort

A Medium-Term Planning Effort

This effort would seek to project from the known to the relatively foreseeable future on the basis of estimates that are individually highly probable, though uncertain as to their combined effects. It would use the current, known and approved Army doctrine— AirLand Battle—as the baseline, and extrapolate plausible variations in implementation over the next 10–15 years. One natural starting point (though by no means the only one) would be a survey of the possible shortcomings of present doctrine and of current and foreseeable deficiencies in the Army's ability to implement it effectively. The objective would be to produce the Army's best estimate of the way it would fight by the turn of the century. It would project a single concept, based on an evolutionary extension of accepted doctrine, with the purpose of providing an approximate "blueprint" that the Army can directly infuse into the CBRS process. This would represent a rough return to the original approach and purpose of General Starry and Brigadier General Morelli. Although some of their specific ideas appear to us to have been too ambitious or optimistic for this time frame, their definition of the effort was essentially correct. Also, close involvement by TRADOC's leadership appears indispensable for an undertaking as ambitious, complex, and potentially controversial as the development of an "Umbrella Concept" for the CBRS.

A Long-Term Exploration Effort

A long-term effort would extend to a period far into the future, say 30–40 years, where projections are necessarily highly speculative.¹ It would consider a *range* of alternative visions that are different from each other in interesting and important ways. Radical or revolutionary ideas would not only be acceptable but essential in attempting to bound the unknown and to highlight *generic* developments, some of which may be subject to policy choice. A natural but by no means unique starting point might be the postulation of operational concepts at opposite ends of a plausible spectrum of maneuver capabilities and battlefield fluidity, with some version of the Army 21 Concept representing one, and some combination of, say, Active Defense and the Maginot Line representing the other. A straight-line projection of AirLand Battle would be one of various and possibly numerous other concepts that should also be examined.

One purpose of such an effort would be to stimulate the Army's conceptual thinking by systematically contrasting alternative and possibly revolutionary visions, thus profiting from comparisons between and among them. Another purpose would be to explore the connections between foreseeable technologies and conceivable operational concepts so as to perhaps illuminate differences in the range of applicability or robustness of various technologies. At best, such a long-range exploration might also increase sensitivity to important decision points (regarding technology, organization, or doctrine) that occur over time by heightening awareness of the range of plausible consequences and differences among them. Direct and continuous involvement by TRA-DOC leadership would probably be less important in this effort than in the former.

While the medium-term effort would be primarily an inductive exercise and the long-term one primarily deductive, both would involve

¹In fact, it could be argued that such exercises are inherently fruitless. The case was made to us most cogently by General Starry in a letter on January 6, 1988:

I believe that trying to project much beyond fifteen years in the future is not a very useful undertaking. There will be no validated threat projection, and at best only the most tentative threat estimate. A relevant technology estimate will be almost equally difficult to conjure up. Such efforts will inevitably be quite like the long term projections so characteristic of the old Combat Developments Command, which were in principal the reason that command was disbanded in 1973—its "long term exploration" was perceived to be non-relevant.

We do not agree that such efforts are "inevitably" useless. But we do think that General Starry's warning points to a real pitfall, one the Army is likely to step into if assumptions are not spelled out clearly and their implications are not developed and contrasted systematically.

systematic variation of critical assumptions or "drivers" to assess their implications. These factors would include but not be limited to the following issues:

- **Political:** "Forward Defense" vs. noncontiguous battle in Europe; the U.S. Army's role in the Third World.
- **Operational:** Mobility and C² on the different battlefields of the future; the capabilities and roles of the USAF and USN.
- **Threat:** Possible developments in Soviet capabilities and operational concepts.
- **Technology:** New capabilities, absolute and relative to the threat(s).
- **Human:** Ability of U.S. Army officers to operate independently and achieve synchronization in a decentralized command and control environment; physical stamina in continuous operations; the training of reserves.
- **Manpower and budgetary constraints:** Their effect on the basic force structure, the mix of active duty and reserve forces, CONUS/OCONUS deployment, and the "translation" of advanced technology into systems in the field.

For it to be useful, the Army 21 Concept must be brought off the fence between the medium- and long-term approaches outlined above. It appears to us that the most distinctive and interesting ideas in the concept are the more radical ones such as noncontiguity, extreme decentralization, and dispensing with the tactical rear. It would be best to recognize this openly and free the Army 21 Concept from Air-Land Battle, and vice-versa. Uninhibited by present doctrine and political sensibilities, it should then be possible to bring these ideas into sharper focus and use them to design a clear and coherent *futuristic* concept of operations for the U.S. Army. For that longer range exploration, the Army 21 Concept should be *supplemented* by using the best results of comparing and contrasting futuristic concepts. For the shorter range, it should be *supplanted* within the CBRS process by evolutionary extensions of the current approved Army doctrine.