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An Appraisal of "The Brigade-Based New Army"

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Colonel John Brinkerhoff assumes forthright, innovative stands on a topic of immense complexity in "The Brigade-Based New Army." Army force structure is a composite of over 500 distinct unit types distributed in over 5000 units at various allowable levels of organization throughout the Army's active and reserve components. There are countless command and functional relationships between the multiple elements of this intricate architecture.

Although Army force structure is hopelessly complicated, Army people are not. They come in three basic groups.

. The first group--the vast majority--is blissfully unaware that Army force structure is hopelessly complicated. They wonder why *everyone* in the Army does not belong to *their* branch. They have heard the phrases "above the line" and "below the line," but have never bothered to find out what they mean. Overall, they are a happy lot.

. Another group--a handful of stalwart souls--is charged to manage our hopelessly complicated force structure. Since the days of the Cold War they have replicated that structure in a venerable threat- and scenario-based computer model called FASTALS. They know that no single human being completely comprehends FASTALS and the innumerable assumptions buried in its miles of code. They deal with representatives of branch schools and other nodes of force structure interest, debating the specifics of obscure mantras of FASTALS. They must also account for the comprehensive output of the FASTALS "black box," ensuring that total Army end strength meets congressionally mandated ceilings. Overall, they are *not* happy.

. A third group falls between the "happy" and the "not happy." They are simply "thoughtful." They believe that the fundamental purpose of Army force structure--the efficient, effective generation of an overwhelming combined arm effect--is still understandable to the human being. They realize that the Army system for managing force structure--hopelessly complicated and incremental--impedes such an understanding. So they think "outside the box" to ask if our static force architecture reflects the happy consequences of a timeless design--or simple inertia. Colonel Brinkerhoff joins Colonel Doug MacGregor (*Breaking the Phalanx*) and a very few others in this last group.

I embrace Colonel Brinkerhoff's underlying premise that it is time to entertain a fundamental restructuring of the Army. I admire his willingness to associate hard numbers with some qualitative ideas. General admiration, however, does not equate to total agreement. Paradoxically, his ideas are simply too important to accept without challenge. My bottom line is that I like the proposal for combined arms brigades. I have serious misgivings, however, about the elimination of the division and the implicit redesign of the echelons-above-brigade Army.

The Once and Future Brigade

Army force structure design has always reflected the competing advantages of centralization (efficiency, reduced overhead, training simplicity) and decentralization (flexibility, agility, preparedness for the uncertainties and friction of combat.) The goal has always been a strategically efficient, deployable force design that generates an effective combined arms capability.

The tension between the need for centralization and decentralization was certainly reflected in General Leslie McNair's pre-World War II "pooling" concept that stripped Army divisions down to the bare minimum, pooling support assets at

corps and army level. Divisions would draw assets from those pools as the situation dictated, releasing the assets once the need had passed. Interestingly, the pooling concept drew poor marks during postwar after-action reviews among units that had fought in Germany. Veterans of the experience noted that it was not practical to adjust the components of the combined arms team given the time and resource demands of combat operations. They noted that the size of a "real" division--the total division combined arms team--far exceeded McNair's austere version. In the contest between concern over the uncertainty of combat, which favored decentralization of key assets, and resource conservation, favoring centralization, World War II veterans at that time overwhelmingly advocated decentralization. However, the veterans did not have the last say. The bean-counters prevailed, and most of the postwar recommendations were not implemented by an Army enduring a reckless peacetime dismantlement.

The pooling concept is still alive in today's Army. It is really the premise for the current division design, wherein support assets are pooled at division level for distribution to brigade combat task forces as required. But as pointed out in "The Brigade-Based New Army," brigade task forces find that they *always* need their combined arms support, and that the units they need are routinely and habitually assigned to the same brigade. Habitual assignment is considered a good thing--yet another instance of reality conquering theory. I agree with the author: our force structure should reflect reality, and combined arms brigades should be institutionalized as our basic tactical formation.

The New Corps

Colonel Brinkerhoff's new combat brigade appears sound, and the 6000 end-strength number looks about right. I withhold judgment as to the distribution of combat brigade types; that issue can be resolved by the various constituencies in our Army. I am hesitant, however, to endorse the proposed new corps. The parts are there, but something is amiss. How do I know this? Do I have my own personal FASTALS model? Have I mastered the mysteries of the "million assumptions"? No. I cannot refute the details. But I know some aggregate facts. Sometimes, they can be more valuable.

In Desert Storm and Desert Shield, for example, we deployed slightly over 132,500 "above the line" (ATL) forces--the divisions, separate brigades, and an armored cavalry regiment. We also deployed over 171,000 "below the line" (BTL) forces. BTL units are the combat support and combat service support forces located at corps echelon and above. The ratio of Army support forces to combat forces during the fighting--BTL to ATL in our shorthand notation--was about 1.3:1. Is that number meaningful? In the aggregate, I think so. For a combat force of a given size, there is a certain amount of supporting work that must be done. The informal force structure design rule of thumb at the time was a ratio of about 1.6:1. But remember that Desert Shield and Desert Storm afforded an ideal scenario: we did not have to build or maintain a huge port infrastructure, airfields, or major roads. We enjoyed many host nation and coalition "offsets" that allowed some of our doctrinal force structure to stay home. So the ratio of 1.3 BTL to every 1 ATL soldier seemed appropriate. More important, it got the job done.

Extending this analysis by approximation to the new corps model, we see that Colonel Brinkerhoff's ATL force weighs in at about 40,500 soldiers and is supported by a BTL force of about 24,500. The BTL:ATL ratio is 0.6:1. This very low supporter-to-supported ratio is the source of my misgivings. One can conclude intuitively that merely eliminating the division echelon of command and control does not more than double our support efficiency. Nor does the elimination of the division headquarters save much end strength. In fact, three new combat brigades--at 6000 personnel each--provide a savings of only 750 spaces after eliminating a full-strength division of some 18,750. Where did all the people go?

The people disappeared, I suggest, in optimistic estimates of the support demands of the new corps. I did my own rough estimate, being careful to remember that this is a new corps concept that supports only seven brigade-sized combat units. The comparison is shown in Figure 1 below. I did not replicate the FASTALS assumptions, but tried to apply common sense, while generating the range of combined arms capabilities that experience shows we must have. I tried to be bold and assume some modularity in the future support structure, allowing some proportional reductions that don't really exist now. Colonel Brinkerhoff may feel that my estimates are too generous to the support force. Wait until the branch proponents get done with the new corps!

	Model	Comparison	
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Corps HQ & HQ Battalion	500	500	
6 Combat Brigades	36,000	36,000	
1 Cavalry Brigade	4,500	4,500	
1 Combat Aviation Brigade	3,500	3,508	
2-3 Artillery Brigades	5,000	4,960	
1 Air Defense Brigade	2,000	2,256	
1 Combat Engineer Brigade	2,500	4,202	(includes minimal construction capability and <i>bridging</i> , which cannot exist in a 450-man brigade engineer battalion)
1 Corps Signal Brigade	1,500	2,108	
1 Corps Military Intelligence Bn	750	1,408	(need an AEB and a TEB)
1 Corps Military Police Bn	750	2,250	(need 3 bns: 1 for corps overall, 1 for every 3 combat brigades)
1 Corps Chemical Battalion	500	1,149	(need at least 2 battalions with multi-function--smoke and decon--capability)
1 Corps Civil Affairs Brigade	500	412	
1 COSCOM of 6 Bde Support Bns	7,000	13,504	
COSCOM Analysis: 2 Combat Support Groups			COSCOM with MMC 723 Medical Brigade 2,908 Transportation Group 2,791 Personnel Group 925 Finance Group 448 CSGs (with BSBs) 5,257 Total: 13,054

Figure 1. Comparison with Brigade-Based Army Model.

We differ, moreover, on the support requirements of the new corps in two respects: that which would be internal to each new corps (Figure 1), and the appropriate share of the theater base support, identified as "echelons above corps," for each deployed new corps. We cannot ignore the latter requirement, even at the level of abstraction which characterizes the concept and this commentary. In the first case, my estimate is that about 11,100 more support troops than anticipated by Colonel Brinkerhoff would be required within each new corps structure. To my support estimates in Figure 1, I would add the "echelons-above-corps" theater support, which is very important. This portion of the below-the-line force includes theater army area commands, area support groups, terminal service units, army service component command headquarters--in effect, everything that allows the rear echelons of an intervention force to carry out its assigned tasks, some of which are required by law. These are also the very things that make the US Army the only force in the world that generates sustained--that is to say, indefinite--contingency land combat power. How large is a contingency theater base? About 18,000, I would estimate, roughly half of what would be required today in a theater base for a five-division corps using current organizations. Add that to my revision of the new corps support requirements above and the total BTL to ATL ratio is about 53,800:40,500, or 1.33:1. At the level of approximate analysis, anyway, this looks "about right."

Army Echelonment

I like Colonel Brinkerhoff's combined arms brigades and I have some quibbles with his new corps. Would that we could--as Colonel Brinkerhoff suggests--"eat this elephant one bite at a time." But Army force structure is a herd of elephants, echeloned in five potential tiers of command and control from the brigade task force to the theater army (now awkwardly relabeled the army service component command, or ASCC.) Colonel Brinkerhoff's brigade-based new Army offers a seductive simplification that implicitly reduces this echelonment to two levels. The division is eliminated, and the numbered army and army service component commands are relegated to "additional military personnel and external support." This, I fear, may be more simplification than reality can bear.

Examining these echelonment issues from the top down, the responsibilities of each unified command's ASCC are not easily relegated to "additional military personnel and external support." The ASCC is needed for operational support of

the corps and for all the Title 10 responsibilities to the Army component and the other services. These requirements must be carefully incorporated into any Army redesign.[1]

At the numbered army level, Brinkerhoff's two-tiered Army echelonment assumes that the future holds nothing larger than what we used to know as the "two-division" fight. With a corps designed to support and control six brigades and an armored cavalry regiment, that's all you get. There's no Army echelon of command between the corps and the theater commander or ASCC. Reasonable? Perhaps. But as the eighth largest army in the world, as of this analysis, this is certainly a *significant* assumption.

A two-tiered force structure of brigades and corps implies that the theater communications zone begins at the brigade rear boundary. The corps commander gets to do it all: fight the tactical fight and work all the logistical support all the way back to the continental United States. In his spare time, he takes care of allied or coalition concerns, the interagency process, and his Army component responsibilities to the CINC and the other services. Project this prospective new corps to Europe, in the environment we now know in Bosnia. That corps commander would be controlling the tactical activity in northeast Bosnia, addressing Title 10 responsibilities in Hungary, and providing training and support to his other four or five brigades spread around central Germany.

Can a corps realistically control the tactical operations of seven brigades? We are all familiar with the rule of thumb that five to seven direct subordinates is the upper limit to a feasible span of control. Do seven brigades (six combat, one armored cavalry regiment) get us under this limit? Not really. The corps commander also has to plan and coordinate the activities of the corps artillery, the combat aviation brigade, the engineer brigade, the signal brigade, the corps support command, and sundry battalions. The new corps commander's real span of control encompasses 19 principal subordinate organizations (see Colonel Brinkerhoff's Figure 3, A New Corps, reproduced below). We have not yet considered the routine requirement to command and control multinational formations. Major General Nash commanded five maneuver brigades in northeast Bosnia; only two were US.

Corps Headquarters and Headquarters Battalion	500
6 Combat Brigades	36,000
1 Cavalry Brigade	4,500
1 Combat Aviation Brigade	3,500
2-3 Artillery Brigades	5,000
1 Air Defense Brigade	2,000
1 Combat Engineer Brigade	2,500
1 Corps Signal Brigade	1,500
1 Corps Military Intelligence Battalion	750
1 Corps Military Police Battalion	750
1 Corps Chemical Battalion	500
1 Corps Civil Affairs Brigade	500
1 Corps Support Command	7,000
.....6 Brigade Support Battalions	
.....2 General Support Groups	
Total strength:	65,000

Colonel Brinkerhoff's Figure 3. A New Corps.

In light of the other demands on the corps commander, the proposed extension of his tactical span of control from two or three divisions to six or seven brigades is not trivial. In planning and wargaming we charge tactical leaders to envision the concept of the operation "two levels down." The prospect of realistically envisioning the interactions of 28 (4 x 7) tactical moving parts is daunting. Turn this argument on its head. If the new corps commander can handle seven maneuver brigades, why can't the new brigade commander handle seven maneuver battalions? He cannot, for the same reason that will frustrate the corps commander: it's too hard to do.

Some of the more dramatic Army redesigns in circulation propose that information technologies can extend command and control. Borrowing from industry, they suggest that with modern information technologies we can readily "flatten"

our organization. But I wonder if automation is a panacea that can wipe out echelons of command. Information technologies are already flooding the division's all-source fusion center with data generated within (and outside) the division's area. We are already defeating the limits of human synthesis, which must ultimately be involved in the fusion process. The new corps headquarters fusion center will be similarly defeated by a fusion challenge which--covering the terrain of at least two current divisions--is automatically doubled. This doubling may in fact be a best case that assumes there are no multipliers in the flows of data. It's too soon to know if this relationship is simply linear; I suspect that it is not.

The notion that improved information operations can allow elimination of headquarters carries an implicit assumption. That assumption is that the optimum amount of "command and control" is a fixed quantity. The futurists of the world will not like to hear this, but this is an industrial-age view of command and control: "If you can do it twice as efficiently, you need only half as many machines."

I challenge that view. Admit it or not, we want as much command and control as we can get away with. Echelons of command carry a cost of delays in the transmission of orders and in the analysis of intelligence. But they also distribute the human workload of synthesis and judgment, a workload that appears to be burgeoning as information systems vacuum data from the environment. If the rapid sharing of "relevant common pictures" is now a feasible task, why do we need to eliminate intervening headquarters? If headquarters can be more effective, then why is now the time to get rid of headquarters?

A Skip-Echelon Design

Quibbles and refutations are easy. Colonel Brinkerhoff has offered a serious proposal. If it is not acceptable, he deserves a counter-offer. I would propose a "skip-echelon" design:

- . At the tactical level of the brigade, uncertainty and friction must still be dealt with. An organic combined arms capability is the answer.

- . At division and higher levels, information technologies enhance our ability to reallocate combined arms assets quickly and with great flexibility. This can allow us to abandon an industrial approach that assigns all capabilities at every echelon. Over half a century after McNair first conceived it, the pooling concept may now be feasible.

- . In a skip-echelon design, the division and the numbered army headquarters would retain their responsibilities for command and control, but shed most of their combat support capabilities and virtually all logistics assets.

The division staff would include senior representatives for the entire range of combined arms functions, but the assets of current division-level organizations--the division artillery, the engineer brigade, the division support command, the air defense battalion, to name a few--migrate to either the combined arms brigades or the corps echelon. The division echelon would be a robust headquarters--400 personnel, perhaps--capable of planning and executing sustained land combat operations. Stripped of logistical responsibilities and with principal staff officers that are no longer dual-hatted as major subordinate commanders, the division staff could be all it can be as a professional warfighting staff. Planning and monitoring of operations would no longer draw attention only when the Battle Command Training Program is on the schedule. The robust headquarters could be divided into "blue" and "gold" teams to make round-the-clock operations not only feasible, but sustainable as well.

A staff alone cannot shape the fight. It needs assets. In a skip-echelon design, the division would draw assets from the corps pool. Corps capabilities would be organized into brigades and group headquarters. At about 70 individuals, a group headquarters is dirt cheap. Its sole function is to command and control ad-hoc clusters of units. The corps would reinforce employed divisions with capabilities tailored to the situation under the temporary control of group headquarters. Here's how it would work:

A division estimates that an impending attack requires the reinforcing fires of four multiple-launch rocket systems (MLRS) and two battalions of 155mm howitzers. The corps artillery brigade would organize those corps assets under

an artillery group headquarters and place them under the temporary operational control of the supported division commander. As the artillery group fires for the supported division, it continues to receive logistics support through the corps--not the division--support command. The division commander doesn't worry about supplying beans or bullets to his "borrowed" artillery, while at the corps headquarters information capabilities establish a clear "relevant common picture" of the activities and requirements of all the artillery units supporting the division.

The same division estimates it needs significant engineer augmentation for the same operation. It anticipates making two river crossings and has identified significant requirements for repair of the main supply routes in sector. In response, the corps organizes two float bridge companies, one corps combat engineer battalion, and two corps combat heavy engineer battalions under an engineer group headquarters that will operate under the temporary control of the division commander. At the end of the attack they revert back to corps control. This transition would be transparent and painless to the division headquarters.

Finally, these corps assets need resupply and maintenance support. To provide it, the corps support command could organize and position in the division area a combat support group tailored with the appropriate logistical assets. The corps and division staffs would have to coordinate terrain management issues, but that's about it.

Would a skip-echelon design work at the numbered army level? It has for years, because that's basically how a numbered army works. If we ever again have a two-corps fight, then we will need a numbered army. But as one of the echelons that "skips" the logistics function, numbered army headquarters are cheap. And in a four-corps Army, we need two at most.

The underlying premise of a skip-echelon design, of course, is that we are an Army that is sufficiently agile to generate recombinations of specifically tailored combat capabilities, mastering the extensive coordination and information requirements associated with such a modus operandi. Is that not what information technology helps us do? The skip-echelon design is a balanced approach that recognizes the residual tactical uncertainty that must be addressed by combined arms brigades, while leveraging our superior information capabilities at the higher echelons.

I hope Colonel Brinkerhoff can believe me when I state that this critique has been a labor of respect and admiration. He has initiated an important discussion, and my sole purpose has been to amplify the dialogue. I hope his ideas earn the careful consideration of the US Army.

NOTE

1. Title 10 of the US Code charges the Army to be "organized, trained and equipped primarily for prompt and sustained combat incident to operations on land." The ASCC plans and executes support operations to sustain ARFOR within the AOR (Title 10, Chapters 303 and 305), and provides support to other services in accordance with executive agent responsibilities (Title 10, Chapter 6).

These executive agent responsibilities evolve regularly but they are substantial and little understood, even within the Army. Here is a representative list:

Army Executive Agent For:	To:
Inland Logistics Support	USMCA
Inland Class I Support	All Services
Supply Support of Peacekeeping Forces	UN
Operation of Common User Ocean Terminals	All Services
Intermodal Container Management	All Services
Transportation Engineering for Highway Movements	All Services
Common User Land Transportation In-Theater	All Services
Log Applications of Automated Marking and Symbols	All Services
Military Customs Inspections	All Services
Military Troop Construction	USAF Overseas
Airdrop Equipment and Systems	All Services

Power Generation Equipment and Systems	All Services
Land Base Water Resources	All Services
Overland POL Support	All Services
Military Postal Service	All Services
DOD Enemy POW and Detainee Program	All Services
Blood Support	USAF
Military Veterinary Support	All Services
Medical Battlefield Evacuation	All Services
Mortuary Services / Graves Registration	All Services
Single Manager for Conventional Ammunition	All Services
Chemical Munitions	All Services
Disposal of Waste Explosives & Munitions	All Services

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Reviewed 20 August 1997. Please send comments or corrections to carl_Parameters@conus.army.mil