THE SECRETARY OF THE NAVY
WASHINGTON, D. C. 20350

Navy — Plat Study

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The Honorable Warren G. Magnuson
Chairman, Appropriations Committee
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

The 1978 Defense Authorization Act directed me to undertake the conduct of comprehensive evaluation studies of the costs and combat effectiveness of Sea-based Aircraft Platforms for both the short and long term needs of the Navy. Specifically, the studies of at least four sea-based air platforms, the CVN, CVV, VSS and the air capable DD 963(H), were to be sufficiently advanced to provide Congress information necessary to the authorization of any one of the ships in fiscal year 1979. These studies have been completed, and I am pleased to forward our report to you. Identical reports have been sent to the Chairman of the other Defense Committees. An executive summary is contained in the section immediately following this letter. Formal transmittal of the reports will be made by the Office of the Secretary of Defense.

I believe you will find the report responsive. Every effort was made to provide the best possible cost estimate of each of the platforms deemed technically feasible by our Navy design teams. All of the designs will be sufficiently advanced by the time you complete your budget deliberations this summer so that any one of the platforms could be authorized, though not necessarily contracted for, in fiscal year 1979.

The combat effectiveness studies examined one or more of each platform type in specific combat scenarios designed to test a range of capabilities of each platform and its embarked aircraft. Although your tasking did not specifically mention aircraft, I believe the evaluation of the ship and airwing as a weapon system was implicit in your directive. As an example of the insight gained by this approach, the costing revealed that in a typical force mix, aircraft life cycle costs exceeded those of ship platforms by a two-to-one ratio.

Limitations

The study is not presented as providing the definitive answers to all questions as to which sea-based air platform is "best." It deals conceptually with ships and aircraft in a setting more than 15 years in the future. Uncertainties exist, and the number of variables is myriad. Given these limitations, I consider that the study provides a sound basis for the selection of additional sea-based air platforms for the immediate future.

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It should be recognized that cost and performance estimates associated with CVNs and CVVs are of considerably higher confidence than are those for future VSTOL platforms, such as VSSs or air capable DD 963(H)s. Additionally, the cost and performance estimates of future ships are considered to be far more accurate than the estimates for future aircraft. This is so because the ship designs are firmer and the technologies involved are better in hand.

As is typical of studies of this scope, a great many assumptions were required, some primarily to limit the total effort to reasonably manageable proportions. For example, the equal-cost forces that were compared for effectiveness were single-platform forces (i.e., all CVN, CVV, or VSS) rather than mixed forces such as CVN/CVV/DDV or CVN/CVV/VSS. In actuality, any future direction in aviation ship design other than indefinitely continuing construction of large deck CVs or CVNs alone (together with conventional takeoff and landing aircraft) implies a mix of platform aircraft types for a quarter century or more. The comparison of single platform types in various scenarios was made for two reasons: first, to make the problem tractable in the time allowed, and second, to isolate and highlight the capabilities of each ship design in a variety of applications. We believe that information now available is sufficient to form a basis for decisions concerning aviation ships in the immediate future. Further, we will have ample opportunity to examine and refine interim force mixes and ultimate force compositions during the extended period of transition.

Additional assumptions were applied to achieve a perspective on the relative worldwide utility of the alternative types of platforms and aircraft, the equal-cost forces were distributed to theaters of operation around the world, and the alternative forces in each theater were engaged by a defined common threat to assess their effectiveness. Thus, although we can thereby gain some insight as to the advantages of strategic dispersion, this issue was not treated in any rigorous quantitative fashion in this study. Within each theater, however, the advantages and disadvantages of tactical dispersion were taken into account. Also, there was simply not time to analyze all the cases possible, including more types of engagements in each theater. Thus air defense capabilities, and limitation, were assessed in one scenario, while vulnerability to torpedo attack was the focus in another. On the whole, I think this was a reasonable approach, but consequently it is important to avoid becoming diverted by such questions as "why that force and that threat at that place used in that way?" or the fundamental lessons can be lost. In reviewing the study I found it helpful to isolate strategic dispersion considerations and to review the combat effectiveness arguments independent of geography.

Finally, the study looked only at non-nuclear conflicts. Tactical nuclear warfare at sea poses a complex analytical task; this question is now being assessed in other studies. The advantages of dispersed aviation platforms (and of submarine forces) may well be significant in such a case.

As in the case of the CVN, a modified VSS design was developed during the course of the study with significantly more passive protection than the baseline configuration. Again, as in the improved CVN design, the increased protection proved highly effective for the additional cost.

Surface Combatants

Surface combatants, such as SPRUANCE class destroyer derivatives with VSTOL capability, are not fully comparable with major aviation ships, and therefore are not compared to them in all roles. They were highly effective, however, in selected sea control scenarios and demonstrated well the large benefit from improved air capability in the surface combatant force. Advantages were shown both for occasional tactical dispersal of aircraft from major aviation ships and for increased use of aircraft in executing the surface combatants' primary missions.

Conclusions

I believe that the findings of the capable people who worked so hard on this set of studies are the best conclusion I can offer you. For your convenience I am attaching to this letter portions of classified executive summaries of the three parts of the assessment.

You will see that there is no single or dominant answer to the question of how best to utilize aviation at sea in the future. This outcome was not completely unexpected. The sea-based aviation forces which we are comparing will support a large number of missions against a large number of threats, none of which are predictable with confidence, into the 21st century. There is no single key or driving consideration to this highly demanding set of tasks, whether nuclear power, VSTOL, or any other. Had there been such an accessible answer to the sea-based air question, the impetus for this study would have been considerably reduced. But we must not give up in our efforts to plan for such a distant future merely because it is hard to do. We should avoid making the easy assumption that our children and grandchildren will be called upon in the 21st century to re-fight the wars of the recent past, such as the WWII battle of the Atlantic, Vietnam, or any other.

We are all faced with the difficult job of deciding today what platforms and aircraft to design and build for this dimly perceived future, and I feel that you deserve my best personal assessment in making that decision. I believe that the keynote must be flexibility and ability to adapt to uncertainty. This is the source of my own interest in VSTOL aircraft and my predilection for a more numerous force of smaller carriers than we will be able to have if we decide now to remain perpetually with large-deck carriers and CTOL aircraft. This study provides a beginning in assessing the costs and benefits of such flexibility. If we are able to effect a gradual transition to VSTOL there will be a very lengthy period during which mixed CTOL and VSTOL aircraft will operate, with both large

and small ships to carry them. This mixed force may well have many strengths. We should thus not neglect to build other needed CTOL-capable carriers merely because of the promise of VSTOL and more numerous smaller ships in the future.

I realize that the question of whether any additional such carrier should be a CVN or a CVV is one of great importance, but in my view it is of less importance than getting some kind of CTOL-capable carrier built in the reasonably near term. This debate -- CVN or CVV -- has, with minor variations, been going on for twenty years or so. Our study found, with certain variations and updated data, what most previous ones have found: ship for ship, the CVN is the more survivable and effective platform, but it is also the more expensive, by a ratio of about 3 to 2. The two ships are relatively comparable in equal-cost mixes. Given the budgetary constraints we will continue to face and our need for more rather than fewer ships, my own preference continues to be for the CVV.

Respectfully,

W. Graham Claytor

W. Graham Claytor, Jr.

Attachment