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SUBMARINE LAUNCHED CRUISE MISSILE

--COMMENTS ON--

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REQUIREMENTS FOR:

1. The chief advantage of a submarine launched weapon is reduction of vulnerability of the launch platform due to less detectability and to the "cover" provided by submersion - requiring a specialized weapon of less efficiency per pound than any other kind. These advantages vis-a-vis a surface craft launch platform of similar tonnage are undoubtedly offset by certain constraints on weapon size, ship-fill, vessel speed and target acquisition range.

These questions can well be examined within the structure of the Naval Surface Combat Study by merely replacing surface craft with missile-firing submarines in some selected list of the engagements being analyzed.

2. However, one of the chief questions to be answered is: "Why not accomplish the same objective with and Air-to-Surface Missile?" This question will be particularly difficult to answer if the missile system is dependent on the aircraft for target acquisition or for guidance.

The USSR may have gone to cruise missiles for use in areas, such as the high seas, where they do not expect to gain air superiority but hope to be able to mount an occasional attack by airplane-assisted missiles; the airplanes involved being presumably land-based. Whether such a strategy will make large ocean areas untenable for U.S. carrier task forces is a very critical question. It can probably be approached in the context of the Naval Surface Combat Study, but this should be deferred as long as possible. We must get a good deal of groundwork done before complicating the engagements with air elements.

If in fact the SLCM can defeat the carrier task force that particular U.S. capability must be replaced by something in naval engagements, and a U.S. SLCM may be the answer.

3. The above study (Paragraph 2) is not urgent if one assumes a probability that we will not enjoy air superiority over some overseas locations such as Europe. In such case the carrier task force may have to stand quite far off-shore, and long range fire support for ground forces may have to be supplied by surface-to-surface missiles. A 1000 km missile (or thereabouts) fired from the sea can influence any area in the world except heartland Eurasia. A concept of sea-borne "heavy artillery" fits well with one of the alternate concepts of Army 1990 now being studied by the Institute of Land Combat.

4. If the above areas of study reveal that a sub-launched missile is promising, we come to the question "Why cruise?" In the past, justification for cruise versus ballistic trajectories has been sought ad nauseam in the field of penetration, and the search is still going on. I personally feel there is little to choose. With either category of missile, granted a suitable level of capability against important targets, one can put unacceptable pressure on any defense within the limits of credibility. The only real argument for a cruise missile would be if it can easily employ enough variability in trajectory so that defense characteristics cannot be optimized against a relatively narrow envelope of attack capability.

It would be of utility to forget the penetration question for a while and review other areas of possible advantage of a cruise missile. This would be a technology study in which Systems Analysis help would be peripheral. Perhaps the cruise missile is of advantage in employment of some particular guidance system.

<u>REQUIREMENTS ON:</u>

1. RANGE --- The advantage of increased missile range for naval combat can be studied within the engagements now postulated in the Naval Surface Combat Study. We already know (surprise!) that its utility is most dependent on target acquisition capability, and that it is hard to show good performance in that field without introducing airborne vehicles.

In regard to "heavy artillery" support of land combat, range of a capable missile directly increases the area within which the enemy must take special precautions to protect his targets. Hardening, dispersal, and concealment require extra effort and may reduce efficiency. ECM or active defense require diversion of resources from other profitable employment.

It is expected that a much better case can be made for an SLCM if capability against land targets is highlighted.

2. WARHEAD/MISSILE SIZE --- This subject remains an open-ended question; answers are dependent on target hardness assumptions and very sensitive to those assumptions and the extrapolations of kill mechanism data. Little progress in this field is expected in the near future.

3. ACCURACY --- In regard to naval surface targets, or hard point targets on land, accuracy requirements can be quite easily defined. It is mandatory to hit the target, and the target has certain dimensions. It is quite dubious that other types of targets will be suitable for long-range conventional missiles, since they can be fairly readily dispersed and concealed.

4. RESPONSE TIME --- Fixed targets do not move at all, and naval surface aircraft move slowly compared to a missile; therefore, response times are not particularly critical.

If an attempt is made against mobile and dispersible land targets the missile must be very responsive, preferably in flight.