Our Navy—Like Our Lives—Is Continuous

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On a July morning in 1964, CAPT Roger Elmore Spreen sent for CDR Wayne Meyer and LCDR E. J. Otth. It would be many years before the profound significance of this transforming meeting would be recognized elsewhere. CAPT Spreen occupied the Terrier desk (G20) in the Special Navy Task Force for Surface Missile Systems (cum Surface Missile Systems Project) commanded by RADM Eli T. Reich. CAPT Spreen had relieved CAPT R. P. "Zeke" Foreman so that the latter could become Prospective Commanding Officer, USS *Wainwright* (DLG 28). (*Wainwright* was our first effort at creating a partially digital, integral design reflected in the Weapons Direction System Mk 11 and in harmony with the Naval Tactical Data System. She was in construction at Bath Iron Works, Maine.) CAPT Spreen was later relieved by CAPT R. T. Lundy, who came from commanding USS *Dale* (DLG 19), which I referenced previously.[1]

CDR Meyer chaired the Terrier Fire Control Desk. LCDR Otth, an engineering duty officer, having been cast out of the prestigious but cloistered Bureau of Ships Engineering Duty Community, found a new life associated with me in the Terrier Project. He assisted me and CAPT Spreen in the mysteries of ship design and construction. (This remarkable officer later became an admiral, in spite of his checkered career, a story deserving of a separate chapter.)

CAPT Spreen mused to us that the transistor was maturing on land, now 10 years after its invention, but its application aboard ship was minimally recognized and not understood. Nor was the Navy ready to adopt the transistor, engineering wise, operationally, logistically, or in training. Our assignment was to conjure, lead, and develop the effort to "transform" the Terrier In-Service Fleet to transistor-based designs, thereby fundamentally displacing the vacuum tube *wherever application permitted*. This effort was not to be a wholesale destruction nor disruption of the Fleet, but rather was to focus on killing kamikazes, innovative cruise missiles, and their mother launchers. This was particularly urgent now that the reformers (McNamara and his cult of systems analysts) had ended any prospects of new warship construction (read TYPHON) any time soon.

One might say Spreen tasked us to "Build a Little, Test a Little, Learn a Lot"—a slogan which has endured through Aegis up to the present, wherein it has achieved national prominence. He assured us he'd protect us and would dedicate himself to fund-raising

for the undertaking. Thus was born the DLG Anti-Air Warfare (AAW) Modernization Program.

This effort, deserving of several chapters in any systems engineering treatise, came to be fueled by USS *Leahy* (DLG 16) as the prototype.[2] This incredible upgrade eventually embraced some 20 ships—it was vigorously prosecuted under the leadership (or should I say aegis?) of CAPT Lundy, as he succeeded Spreen.

One could argue that this program was *the* defining transform for a modern Navy: These ships became the first with an integral design of CIC and Weapons Direction System, partial integration of Anti-Submarine Warfare, introduction of the bedrock AN/SPS-48 3D radar, and a level of system reliability and operational availability never before achieved. The test, checkout, and installation processes for the first time consisted of a team anchored in the shipbuilder (shipyard) along with industry and naval laboratories and stations, including crew training and qualification. (These features were to have an amazing endurance over the next three decades.[3])

I believe that the Aegis Fleet would never have materialized without the bold and process-shattering undertaking of DLG AAW modernization, with the subsequent availability of the participating veterans to transit to the Aegis Project. Fueled by the Aegis engine, these ships were called on to support two more significant dockside upgrades (CG-Standard Missile-2 and Terrier New Threat Upgrade) to fill the gap against the escalating Soviet threat while awaiting the promise of the Aegis Fleet.[4]

My recall is having first visited APL circa 1952 at Silver Spring. I was teaching atomic weapons in Norfolk and came to the Laboratory through the Naval Plant Representative. I have long since forgotten the commander's name who met with and hosted me—one of the several attached to the Laboratory Plant Representative. The visit nevertheless initiated a half-century relationship for me with the brilliant occupants of the Laboratory, which continues even today.

From this exposure and "battle action," I learned some fundamentals that won't sweep aside, in spite of a continuing flow of "neocrats":

- *Technology* is not what's significant. On a given day the world is awash in technology and has been since biblical days. What is significant is its utility and application. In fact a "transformation" occurs only a few times each century. (There were some centuries when none occurred.) The passing faddists of today would have us believe that it's a diurnal occurrence, or at least seasonal. (For example, as I write this, one would conclude from national debates that life simply can't go on without more bandwidth—immediately—when in reality more bandwidth doesn't matter one iota to our lives!)
- *Spirit* is vital to any undertaking. Spirit can flow only from leaders and parents. Too many cry for management when the real need is leadership. (While the word is overworked, many societies as well as many projects flounder for lack of it.)
- The "*Engineering Integral*" is the ship in our naval profession. Woe to those designers who dismiss the significance of the captain and staff in effectively consummating naval operations and battle. Our contemporary belief is that the "interoperability" schemes subsume all those dimensions and such matters as auxiliaries, power, other warfares, and functions vital to dwelling in a man-of-war. Further, the ship is only an island in a grand interoperability "net," which, when perfected, will no longer require any attention.
- *Engineering is about people*. It is about building things that are useful to mankind. If the things we build are not useful, we are not useful and our engineering is "bad."[5]
- *Patriotism, Professionalism, Determination*. These needs do not fission. They are enduring. We often characterize them as the reflectance of good people. In fact all people are good in the eyes of God. But our profession requires not only good educations, but meaningful and related experience, because what we do is very hard.
- *Change*. We have an obsession that change is mandatory and can't be stopped. But our designs are driven by the opponent. In air defense, we can only react; thus, we are always pacing (therefore changing) his actions.
- *Mother's Work*. Our work is never done, even though history continues to repeat itself. The reason is that people don't change. The 85-year epoch of Aegis has about 50 years more to go—fraught by continuing change, in spite of those who attempt to impose "ultimate solutions" such as "open architecture" to all things.
- *Reward*. I have reaped an unmatched (and surely undeserved) bounty from having been mentored and associated with all of you in this profession. My bonus and spiritual reward have been that, from time to time, I was also honored to lead you.
- *You* still have miles to go.

REFERENCES AND NOTES

[1]Meyer, W. E., "A Beginning or Just a Change in Course?" *Johns Hopkins APL Tech. Dig.* **22**(4), 422–424 (2001).

[2]Later on we were so scared of what we were doing that CAPT Spreen dispatched newly selected CDR Richard Albright, the reigning Terrier Test and Evaluation Officer, to Philadelphia Naval Shipyard (NSY) as XO, *Leahy*, with orders to make a weekly progress report (in Rickover style).

[3]A bitter lesson, learned for only a short while, was that "Bath was on a gravy train," having converted, or tasked to convert, some 18 of the ships. The reformers insisted that the remaining effort had to be competed. The contract for USS *King* (DLG 10) was thus awarded to a

boatyard in Louisiana. When the effort collapsed midway through the task, the Navy, in ignominy, had to tow the remnants to the Norfolk NSY where, after considerable expense in dollars and time, *King* was finally returned to service.

[4]This was made necessary, since once again the reformers had effectively blockaded any ongoing new ship construction. Some 18 years passed before USS *Ticonderoga* (CG 47) would be made ready for sea.

[5]This era had a profound effect on the then Director of APL, Dr. A. Kossiakoff (as he always has had on me). He grasped the need for "systems engineering," which consisted of more than analysis, integration, computer programming, and buzzwords. His living legacy is having pioneered these systems engineering courses, right on the APL campus, where practitioners could profess directly to the next generation.

THE AUTHOR

RADM WAYNE E. MEYER, USN (Ret.), holds three B.S. degrees in electrical engineering as well as an M.S. in astronautics and aeronautics from MIT. He began his naval career in 1943 as an apprentice seaman and retired in 1985 as Deputy Commander for Weapons and Combat Systems, Naval Sea Systems Command; and Ordnance Officer of the Navy. RADM Meyer had numerous tours at sea, including Fire Control and then Gunnery Officer to the first Talos cruiser USS *Galveston* (CLG 3). He has also served as Director of Engineering, Naval Ship Missile Systems Engineering Station, Port Hueneme, CA; Manager, Aegis Weapons System, Naval Ordnance Systems Command; first Director of Surface Warfare, Naval Sea Systems Command; and Project Manager, Aegis Shipbuilding. He holds the Distinguished Service Medal along with 14 other medals and numerous awards including the Navy League's RADM William Parsons Award (1985) for scientific and technical progress in construction of the Aegis Fleet.