

CORRESPONDENCE

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Sir,

Browsing through the December issue of the *Journal*, three items deserve further comment.

‘Upholder’ Weapon Discharge System

The article presents the solution very well and mentions the novelty of the system at the time we started in the mid-1970s but, as the initial Project Director there are some still pertinent lessons:

- *Upholder* was to be a ‘cheap’ (and so small) SSK with the latest (at the time) SSN level combat system, but was not given the same level of management resources. No excuse, just fact.
- The ‘ship’ side was very concerned at the move away from mechanical interlocks, and especially the lack of a mechanical linkage between the bow door and shutter. This had been solved with great ingenuity in the S class, but the new bow shape defeated us. However as far as the bow door and Top Stop were concerned, I believe we went as far as incorporating bossing for a shaft in the dome. Although FMEA was available, unfortunately the concept of the ‘Safety Case’ analysis was not.
- The real problem was the management structure at the time meant that DUWP reported to DGW and thence to the Controller, as did DPT through DG Ships thus the cross-over point was the C of N. This meant that the ‘ship’ Project Director had no authority over or responsibility for the formal integration of the combat system, merely the traditional role of taking the many inputs and trying to create a sound design. The concept interface definition learnt the hard way in POLARIS was not seen to be needed. Thus if you cannot integrate the management, you must manage the interface!
- Nevertheless it will be an excellent submarine asset for someone, regrettably not the RN.

Book Review—Forged in War

David BROWN’s comments are excellent, but the book misses two other critical technical achievements:

- The development of an air purification system with unlimited endurance.
- The ability to design and build accurately a hull twice the diameter of those of existing classes before FEA and modern metrology was available.

Engineer Officers’ Conference

Mike RUTHERFORD’s comment on the Italian connection (to the Heads), reminds me of the Anglo-Dutch Frigate of 1970 in which the needs of the ‘English’ breakfast were in conflict with the ‘Dutch’ cold meats and cheese. Caused a problem of Galley equipments, thus arrangement, a real story of “for want of a nail . . . the battle was lost.” But to be serious, warship design is to do with the castle and the home, so the social mores of the Navy and the nation must not be ignored.

(Sgd) G.H. FULLER