WHAT DO WE WANT?

THE PROBLEM OF SPECIFICATION

The three articles that follow are based on papers given at the 1986 Royal Naval Engineer Officers' Conference. The session at which they were presented was sub-titled 'The problem of what our ships and equipment should be able to do'. After Commander Bass's introduction, D. B. Nolan and Dr L. A. Taylor refer particularly to combat systems, and then J. McIver is concerned with shipbuilding.

INTRODUCTION

BY

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I have spent the last 21 months as one of the Staff Engineers of the Second Frigate Squadron, which consisted for most of that time of the four Batch I and first two Batch II units of the Type 22 Class—the most recent additions to the operational frigate force of the Navy. I want to high-light a few of our major concerns and hope that these provoke discussion, or better still argument, later. What do I want? What do the operators and maintainers of the Second Frigate Squadron want?

Firstly, we want systems with a broad spread of capability; not systems designed for tightly constrained, narrowly defined conditions. Two ships of our squadron went South in 1982 to fight a totally unexpected war against largely unspecified opposition. They came back with more holes than they started out with and the distinct impression that a few things had been left out of the specification. They also learnt that we need the flexibility to control our weapons within complex rules of engagement changing in real time under political control. Now many changes shown to be necessary in that war have still not been incorporated in our ships, which leads to the second point.

We want readily adaptable systems. We have become exasperated with the upheavals created in supposedly operational ships by modification and alteration programmes. We could not care less whether the changes resulted from obsolescence, capability enhancement or—perish the thought—from oversight in the original design. We want only essential changes that can be

simply implemented, that do not keep us in harbour long, and do not disrupt or degrade the system that we already have. We need systems that are designed to be ready for change—not ones apparently designed with the assumption that they will remain inviolate for the entire life of the ship. The area that I have most particularly in mind is that of computer hardware and software.

May I quote from an article in *Jane's Defence Weekly*[1]: 'The US Department of Defense..., over the past few years, has become mindful of the fact that commercial computing technology has been rapidly overtaking the ability of the defense procurement system to take full advantage of it.' If the US DOD is having trouble taking full advantage, we seem to be having insuperable difficulty in even keeping up. The weird mix of computers and peripherals in the later Type 22 frigate is a strong indication of the mess that we seem to be getting into.

Thirdly, we want ships and systems that require the minimum of cleaning and preserving. Modern sailors are a highly trained and very expensive commodity. There are comparatively few of them in our new warships and we simply do not have the men or the time to waste digging around in awkward corners, chipping and painting. And awkward corners on the upper deck make good radar reflectors, too.

Lastly, and most importantly in my view, we need systems with much better availability than several of those at sea in our ships today. I must emphasize that users in general and Commanding Officers in particular need to have confidence in their systems. Now confidence may seem a dangerously subjective concept at a conference such as this but I have to report that my Commanding Officers—six experienced captains in command—lacked confidence to some degree in several of our systems. If you think that I am being unreasonable or unscientific in placing emphasis on user confidence, then I can quote in my defence a recent Law Report from *The Times*[2]:

> The word 'reliable device' in Section 8 para 3 sub-para b of the Road Traffic Act of 1972 as substituted in schedule 8 of the Transport Act of 1981 should be construed subjectively and should be given the meaning: a device which the operator reasonably believes to be reliable.

I would conclude with the thought that the greatest threat to our Navy today may not be from the Warsaw Pact or from the unexpected enemy, but from our own costs. Yet I look round my squadron and everywhere I see monstrously expensive equipment. Some of it is not even working—often because it is too complex. There is too much to go wrong and it costs too much to put right. Many of you may have guessed the sort of equipment I am eluding to and will be thinking, 'OK. We know about that. The next generation will be all right.' That is the famous 'jam tomorrow' argument. Can any of you assure us that tomorrow's jam is not going to be designed, manufactured and supported by the same people who made yesterday's mistakes? Why should we have confidence—that word again—that they will do better next time? And please be aware of one last thing. At sea we have to be ready to fight with what we have, and we get a very clear perspective of the nature of our profession. Our job is to keep the peace at minimum cost, and if we can't, to win our battles with the minimum losses of ships and our sailors' lives. We rarely, if ever, look for the maker's name tally.

References

1. Broadbent, S.: Deliveries of Gridset computer begin; *Jane's Defence Weekly*, vol. 5, no. 4, Feb. 1 1986, pp. 165-166.
2. *The Times*, March 26 1986.