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FOREWORD BY THE CHIEF NAVAL ENGINEER OFFICER

It has become something of a custom for each newly appointed Chief Naval Engineer Officer to write a few words in the first issue of the *Journal of Naval Engineering* to appear during his term of office. Many of the things on which we have all come to rely will change during the next few years, but there is no reason to surrender good habits gratuitously; I am therefore delighted to accept the Editor's invitation to follow my predecessors' example.

There is, of course, no doubt that we will see much organizational and technical change over the next few years. On the organizational side, the Royal Navy—like all NATO forces—is responding to the changed international environment: downsizing, mobility and flexibility are the familiar watchwords. But this is complicated—and occasionally obscured—by other changes stemming from an urgent and similarly worldwide search for better ways of doing things, and nowhere is this search more intense than amongst those activities which are the province of Government. We therefore find ourselves surrounded by new mechanisms for accomplishing familiar tasks: executive agencies such as the Defence Research Agency; defence support agencies such as the Hydrographic Office; and contractorization such as the arrangements for operating the Royal Dockyards. The new Naval Support Command is perhaps pre-eminent in the context of this *Journal* among all the organizational changes that will influence our professional lives.

However difficult each of us find it is—and I think most of us do find it difficult—to learn to exploit the opportunities provided by these changes, it is almost certainly more difficult to get them securely launched. Many of the new organizations will be pressed (or dragged) into service through the efforts of naval engineers, and I would like to suggest a principle which can be added to all the other compulsory guidance they will receive: structure should be an expression of function. Keen natural historians will recognize that this principle paraphrases an idea from a classic of 20th Century science¹. As a small boy I was privileged to know the author during his last years, during which he seemed to spend an inordinate time observing the seashore around a small Scottish town, searching for new ideas and teaching the many who derived pleasure from listening. I am only sorry that it has taken me nearly half a century to recognize that the unerring truth behind a great scientific principle should also underpin the structure of organizations—and must underpin such structures if they are to be successful.

Technical change will also be a feature of our professional lives over the coming years, but the pace of such change will not be uniform. Emphasis on the many areas where we see and predict scientific advances is commonplace, but the adoption of new technology for specific applications will need to be informed by an understanding of the longer term consequences. Choice of the right material—surely an undervalued subject during most engineers' education—will remain a truly strategic decision. That is probably as true about program languages in relation to software as it is about physical structures—and is certainly true in relation to the cost of ownership of specially developed software. In the same vein, software is an area where I would suggest more caution than has sometimes been fashionable before assuming that major developments are the right route just because they are claimed to be technically feasible.

Change, then, is going to remain endemic, but it must be managed if it is to be successful. I am sure that engineers of all specializations and at every level will be at the forefront of such management, and it will be their professionalism that will determine the results of their efforts. I am in no doubt that journals such as this have a valuable role in securing such professional standards, and I would like to express my gratitude to our Editor (Commander Trevor Shaw, Royal Navy Retd), since this is the last of twenty-one issues to be published during his term of office. We wish him well and hope that he and our other professional antecedents will continue to recognize naval engineers as people 'who can do for five shillings what any fool can do for a pound'².

References

1. Thompson, D'Arcy Wentworth. *On growth and form*. Cambridge University Press, 1917.
2. Shute, Nevil. *Trustee from the toolroom*. Heinemann, 1960.