

The Executive Role for the Marine Engineer

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INTRODUCTION

It was with some amusement that I re-read recently some of the events in the early history of The Institute of Marine Engineers. My predecessor in 1898 was Dr John Inglis, who, according to B. C. Curling in his book *History of the Institute of Marine Engineers*, wished to be remembered as the President who abolished what he described as 'the serious interruption to the pleasures of either the Annual Dinner or the Annual Conversazione by the Presidential Address', which that year and thereafter was delivered at an ordinary meeting of the Institute.

Difficult though it may be, I will try to avoid having my present address regarded as a serious interruption in today's pleasures.

It is a somewhat awe-inspiring task to stand before you in a long line of distinguished Presidents of this Institute. The list includes such luminaries as Lord Kelvin, who was President in 1892, and Sir Charles Parsons, President in 1904. Looking back to the times of these great men it is difficult to put the situation of marine engineers today into perspective.

These giants of history lived in the burgeoning age of steam, when British engineering led the world and when our Merchant Navy and Royal Navy were expanding fast under the stimulation and to meet the demands of an ever growing world empire.

Several recent Presidential Addresses have given a fascinating insight into the history of those times and the developments of the intervening years and they form a rich tapestry within our Transactions.

As for the present, now is not the time to be writing its history. In due course some of our successors will no doubt review and analyse our present age with a detachment and perspective which can not be vouchsafed to us.

It is for this reason that I have decided to slant my address to the future rather than the past, even though I am only too conscious of the minefields which lie in the path of the prophet. In fact it is not my intention to seek to prophesy, but it did seem to me, with not only our younger members in mind but also those who are responsible for their training and development, that we do have an obligation to cast our minds forward to the probable needs of the future.

Article 7(c) of our original Royal Charter reads as follows:

The Institute is constituted to:

'Maintain and improve the status of Marine Engineers and the profession of Marine Engineering, and to afford facilities to Marine Engineers for their advancement in a knowledge of their profession.'

Examination of our published Transactions over the 98 years of the Institute's existence does, I think, bear testimony to the continuous efforts made to be faithful to this objective. The question which now arises is how are we to continue to fulfil that role.



Alex Harrold served an apprenticeship with North Eastern Marine Engineering Co. Ltd, Wallsend from 1941 to 1945, during which time he was awarded the Superintendent's Cup for best apprentice and the 1943 Scholarship of the North East Coast Institution of Engineers and Shipbuilders, and obtained his BSc in Marine Engineering at King's College, University of Durham. In 1946 he joined the sea-going staff of Anglo-Saxon Petroleum Co. and obtained his First Class Certificate of Competency (Steam and Motor). In 1952 he was appointed ashore as Superintendent Engineer. Following the creation of Shell Tankers UK Ltd he was appointed Fleet Manager in 1959, Technical Manager (Fleet Operations) in 1961 and Technical Manager (Group New Construction), Shell International Marine Ltd in 1965. In 1969 he joined the Hill Samuel Group as a Director of Lambert Brothers Shipping Ltd, leaving in 1976 to set up the partnership of Vine, Able & Harrold Ltd, consulting marine engineers. In 1984 he established a practice in his own name as a consulting marine engineer and divides his time between London and his home in North Wales. Mr Harrold was appointed Deputy President of the Institute of Marine Engineers in 1983, after three periods of office on its Council totalling 11 years, and serving on or chairing some of its key committees. His two year term as President commenced on 12 March 1987.

It was a characteristic of the great engineers of the past that they were not only successful applied scientists and inventors but also went on to establish strong manufacturing bases and successful businesses, and became, in every sense of the word, successful businessmen. They were, to coin a phrase, 'wealth creators'.

The conditions which made this possible do not appertain today. The manufacturing facilities exist, albeit in some cases rather antiquated and even with the doors closed. The capital markets are there to provide finance for worthwhile projects. Our scientific culture is still in place within universities and research institutions. The catalyst which will be needed in the future is that quality of entrepreneurial vision which appears to have been either lost or suppressed over an extended period of market decline.

That there is a future for marine engineers is not in doubt — 90% of the world's trade is carried in ships and this situation is unlikely to change. Indeed I fully expect this Institute to be playing a significant role in one form or another in 100 years time. However, if our members are to reap the benefit thereof, they will need to be in possession of the right talents to enable them to exploit the opportunities which will arise.

It is my belief that it is to engineers that society will have to look for the 'entrepreneurial vision' I have described. Neither accountants nor bankers nor lawyers nor civil servants and certainly not politicians are going to supply the needed impetus.

If this is so, then it must follow that for those marine engineers for whom high achievement is the goal, a total business capability will be essential. In any profession there has to be a progressive road to the top and the wellbeing of the profession as a whole will be reflected in the level of achievement of its most successful practitioners.

In terms of academic standard and engineering experience the criteria have been firmly established in the requirements for the title of 'Chartered Engineer', and it might even be argued that the Engineering Council has devoted a disproportionate share of its activities to this end.

For those engineers who ultimately aspire to positions of influence and authority in either industry or commerce, however, the field of management expertise must also be studied and mastered, which leads me to ask what can be done about this.

DEPARTMENT OF INDUSTRY SURVEY, 1987

A survey carried out by the Policy Studies Institute for the Finnieston Inquiry and published by HMSO under the title 'The education, training and careers of professional engineers' shows very clearly that job satisfaction, reward and self-regard are highest among those engineers who have moved on to general management functions, which by definition involve financial, personnel and business strategy functions in addition to the technical expertise which engineers are able to bring to their jobs at all levels.

Complementary to this survey, a further survey of Chartered Engineers was performed in 1979 under the title 'Professional engineer's needs for managerial skills and expertise' and published as Report No. TMR 15A by the School of Technological Management.

This report highlights a number of important points which will now be considered.

The transfer from engineering to management

The importance and possible difficulty for engineers to make the transition from the precision and predictability of physical problems to the uncertainty and speed of change of managerial problems should not be underestimated.

The corollary to this of course is that fully trained engineers should enjoy the advantage of a logical analytical ability arising naturally from the fact that engineering is an applied science discipline.

The importance of 'the ability to communicate'

The most brilliant ideas are of little consequence unless they can be expressed clearly both in speech and the written word in a form which can be readily understood by others. These are the skills of articulation without which no one can be really successful. The requisite vocabulary and the ability to speak and write clearly should ideally be learned at school since it is a 'lifeskill'.

However, there is another area of particular challenge to engineers and scientists generally. Whereas every profession has need of its own 'technical vocabulary', the use of pseudo-technical jargon is to be eschewed. I find myself from time to time reading learned technical papers in which the true message of the authors is buried in obscurity. If I, as an engineer, find this a problem, how much more difficult it will be for members of society at large possessing only the thinnest veneer of scientific culture.

The role of 'Business Studies' in first degree graduate courses

The lack of 'business management' teaching in the engineering faculties of many universities has long been a subject of comment. One of the reasons for this omission is that many university lecturers have no personal experience whatsoever of business management.

This is a deficiency which the faculties must remedy themselves and it has long been my view that the most effective way of doing this would be to bring in from the business world engineers who have mastered these skills, to lecture on a part-time basis.

It is not enough to say that curricula are already overfilled — young graduates are sent out from universities wholly unprepared for the real world of business in which they are going to have to work.

Involvement in corporate planning

The survey analysed skills employed by participating engineers in terms of the different Engineering Institutions to which they belonged. The percentage of respondents involved in corporate business planning was recorded as follows:

I. Mech. E.	29%
I. E. E.	28%
I. C. E.	23%
I. Chem. E.	30%
I. Mar. E.	17%

The low percentage of marine engineers participating in company decision making at this level is an indictment of the shipowning, shipbuilding and ship repair industries and is not unconnected with their rapid decline.

Preparation for managerial tasks

A large proportion of engineers do not receive any training in some important managerial tasks. On average 60% of those using 'man-management skills' reported no formal training for these activities and an average of 75% of engineers using skills connected with contract management and negotiation reported no formal preparation.

A very comprehensive report published earlier this year by NEDO under the title 'The making of managers' makes the same point in great detail and concludes that for many engineers managerial skills and expertise may be as important as technical ones. It states:

'Engineering graduates need to be able to cope with things managerial or they can cease to take part in decisions. Methods of preparing engineers for 'uncertainty' should be assessed.'

I have dealt with the School of Technological Management report at some length because I find I am able to recognise the validity of its principal findings from my own experience in industry and commerce over the years.

The question which now arises is what the younger members of our profession should be doing to prepare themselves for the future and what we should be doing to help them.

UNDERSTANDING THE EXECUTIVE ROLE

Much frustration is often experienced by engineers undergoing the process of transition from practising engineer to practising manager.

In most professions the supervisory or management role is performed by a member of the same profession and discipline. Engineers, on the other hand, frequently find themselves within corporate structures reporting to non-engineers, in some cases to people lacking any disciplinary qualification whatsoever and often not exercising any form of identifiable method, scientific analysis or logic and running their organisations apparently on a purely pragmatic, 'seat of the pants' approach.

The development of such an approach in a world of total commercial uncertainty is understandable. However, even in the business world, more scientifically based approaches to such matters as risk evaluation and market analysis are now becoming necessary, greatly facilitated by the advent of computers.

This will bring a requirement for all company directors to be numerate and have trained analytical minds. We can therefore look forward to a time when the proportion of company directors having graduate or other professional qualifications will increase from the present figure of 24% in the UK and approach the level of 62% found in Germany and France and even the 85% pertaining in Japan and the United States.

This would be of great assistance to engineers seeking a role in general management. They will, however, still have to make the transition to a different viewpoint, a more flexible approach, a tolerance of uncertainty and an ability to communicate at all levels.

On a broader canvas there is also the requirement to move on from the solution of purely technical problems to the responsibility of contributing effectively to decisions which will ensure customer satisfaction, help a company to grow and be profitable and underpin the future, while at the same time

remaining loyal to the ethical obligations that are implicit in our profession.

The matters to which I have referred are largely attitudinal and behavioural and as such are not readily teachable in a formal manner. They can however be learnt as a result of reading and course experience and a wealth of literature is now available on the subject.

It also goes without saying that actual experience plays an important role — a skilled and understanding superior will naturally demonstrate the techniques which have to be adopted and associating, with an open mind, with able men of different backgrounds is an education in itself.

WHERE TO SEEK HELP

In 1972-73, in response to widespread requests from members, The Institute of Marine Engineers arranged two series of lunchtime lectures on the subject of 'Business Management'. These lectures were subsequently published in two booklets which are still available.

Inevitably these lectures could only be an elementary introduction to the subject but they serve to highlight the areas which aspiring engineers should explore further.

Also in the 1970s the vogue for full-time courses leading to an MBA degree developed in the United States, since which time these courses have proliferated in America and are also available in several centres of learning in this country.

It is only fair to say that, as so often with dramatic approaches to a problem, the MBA course approach has attracted widespread criticism. Typical criticisms are:

'MBA courses teach about management but not how to manage'.

'They dispense knowledge in depth but almost none of it relates to the actual job the average manager has to do'.

'They are incapable of teaching the know-how, skills and attitudes required in a world of accelerating social and technological change'.

'The value systems which prevail in business schools diverge from those prevalent in business proper'.

Whereas the value of different courses inevitably varies widely, there is undoubtedly validity in these criticisms and this is reflected in employer usage.

Given the methodical training which a Chartered Engineer will already have undergone to achieve professional qualifications, it is likely that an MBA degree course would be of limited value, besides being time-consuming and expensive. It is likely in fact that such courses may be of greater value to someone who has not already studied a scientific discipline.

Nevertheless it was recently announced that The Fellowship of Engineering is administering awards under the Sainsbury Management Fellowship Scheme aimed at Chartered Engineers between the ages of 26 and 34 to enable them to undertake a one year MBA course at the world famous business schools of Fontainebleau, Lausanne or Geneva. This generous scheme will certainly be attractive to a limited number of high flyers.

What most engineers do need is a deeper insight into matters of finance, balance sheets, profit and loss accounts, cash-flow analysis, investment decisions, marketing, the legal environment and, if they are to become a director of a company, fiduciary responsibility.

Each of these subjects can be studied in sufficient depth over a 2-3 day period to provide a full understanding of the motivations and concerns of those who specialise in dealing with such matters within a company.

Extensive help is available in this direction, the most comprehensive being the Jupiter (Joint Universities and Polytechnics Industrial Training, Education and Research) series of courses. The prospectus covers 100 different courses, some of which are of specialist interest but many of which are concerned particularly with the topics I have highlighted. Most of the relevant courses are of short duration (1-3 days) and modest cost (£150-500) and young engineers would be well advised to take advantage of certain of these courses, either at their own expense and time or, better still, at the time and expense of their employer.

In the maritime industries there is a particular need for marine engineers to receive instruction in the particular and peculiar conventions which apply to the shipping industry. In the course of dealing with the range of problems which ships of all nationalities encounter I am frequently astonished to find the shipowner's representative on the spot possessing only the most rudimentary understanding of the owner's business, the legal significance of Charter Party clauses, the terms of Hull Insurance and the claims that can arise from cargo interests, not least in the repudiation of General Average after the vessel has been involved in some mishap.

The man who is left dealing with such matters is invariably the Superintendent Engineer, since he is essentially the officer in the field who is closest to the ship and its personnel. It is the height of folly for shipowners to appoint engineers straight from sea to this role without ensuring that they have been given an opportunity to acquaint themselves with these subjects. The neglect frequently arises because someone in the owner's office is so jealously guarding his own cabbage patch that he is reluctant to admit anyone else to an understanding of what he does. This attitude is wholly indefensible.

The relevant subjects are covered in various generalised shipping courses such as the MSc course in Shipping, Trade and Finance offered by The City University Business School and courses sponsored by The Chartered Institute of Shipbrokers. However, these courses are of long duration and include many commercial aspects which would not be of immediate interest or value to engineers.

There would appear to be a need for relatively short but concentrated courses covering the fundamentals of the matters to which I have referred and it may well be that this is an area where our Institute could sponsor certain suitable short courses, which may also be of advantage to senior seagoing staff including shipmasters.

CONTINUING EDUCATION AND TRAINING

Perhaps one of the most important initiatives taken by the Engineering Council since its inception five years ago is a consultative document published in June 1986 dealing with

'Continuing education and training (CET) for engineers'. The proposal identifies three areas of CET, viz.:

Technical
Managerial
Personal

The first of these could be the subject of another paper while the other two are the subject of this paper.

The beneficiaries of the programme are identified as:

Individual engineers
Companies
The Nation

Benefits can only accrue to those who seek and desire them. It follows therefore that imagination, effort and resources will have to flow from all three if the programme is to succeed.

Since it has been clearly identified that technologically based companies which have not traditionally devoted resources in this direction are the least likely to remain competitive, it may well be that fiscal sanctions may be required to achieve what management and shareholder's apathy has failed to do, as is already the case in certain other Western European nations.

It will also, however, remain essential for individual engineers to exercise their own initiative with regard to CET and the programme will involve participants drawing up an individual 'career action plan' aimed at fulfilling the requirements of their own career aspirations.

Our Institute, together with other leading Engineering Institutions, will be required to play a role in CET, in recommending, monitoring and facilitating suitable courses and activities particularly suited to the needs of our own members. In the coming months our Professional Affairs Committee and Council will be considering how best we can extend our services to members in this direction.

SUMMARY

The versatility and resourcefulness which is endemic in the training of marine engineers is legendary and has traditionally been reflected in the very wide range of positions of high responsibility throughout industry and commerce which many of our members have occupied and indeed continue to occupy.

The technical training, knowledge and experience which marine engineers acquire is fundamental, but to succeed in the world of industry and/or commerce other business talents must also be developed, talents of which many companies, particularly in the maritime sector, have been woefully short.

I make no apology for the fact that this address is directed largely towards the younger members of our profession because they essentially represent the future and I hope that my remarks will be widely read by them.

At the same time there is a great deal that senior members of the profession engaged in industry, commerce and education can do to recognise and promote some of the requirements which I have identified.