

# QUALITY IN NAVAL TECHNICAL PUBLICATIONS

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## **Introduction**

Appreciation of the importance of good technical publications has increased very considerably in recent years. Their value to Industry, to the Services, and for training purposes, is at last being recognized. The large number of technical publications being produced is a matter for satisfaction to all those engaged in the task.

Considerable progress has been made towards satisfying the Navy's needs as regards quantity. Technical handbooks, prepared to the Navy's specifications, are now in use for about 3,500 ship propulsion and weapon equipments and systems, and another 1,300 are being prepared; some 900 Changes to these handbooks, and 600 Modification Leaflets, are issued each year; the Changes vary from a few lines to complete revisions. A further 2,000 handbooks, mostly of American origin, are in use for the Polaris weapon; about 800 changes to these have been issued in the last year. The addition of handbooks for Naval Air Equipments brings the Navy's total to nearly 9,000 in use, and 2,300 being prepared. A considerable number of handbooks and pamphlets issued by equipment makers are also in use. Separately issued Parts Lists or Catalogues and Work or Maintenance Schedules have not been included in these figures.

My remarks will be confined to Technical Handbooks; it is in these that the need to improve quality is most evident, and the problem of doing so most difficult. One object of this paper is to examine what is meant by quality in technical handbooks and to consider whether enough is being done to meet the exacting needs of the future. Some of the opinions expressed are personal ones: it is hoped that this paper will provide material for the discussion of handbook quality, and the means by which it can be improved.

It is emphasized that the word 'technical' is used throughout this paper as it is defined in the dictionary: to denote specialist or expert knowledge in any field of art, science or technology.

Before discussing quality, it is necessary to define the purpose and scope of naval technical handbooks.

### **The Purpose and Scope of Naval Technical Handbooks**

A naval technical handbook has to provide the readers with all the information they need to operate and maintain an equipment or system during its life in naval service; other types of technical publication—parts lists, maintenance schedules and training manuals—may share this task. Readers will be of varying skills and responsibilities, and it is essential that the handbook author knows what these skills and responsibilities are, and what other types of technical publication may be involved. The information in the handbook must be accurate, complete, well presented, confined to essentials, and published when it is most needed.

Readership levels range from the fully qualified professional engineer, through the skilled artificer, to semi-skilled personnel; in some cases, information for unskilled personnel may be required.

### **Components of Handbook Quality**

The quality of a technical handbook depends directly on the quality of the Technical Author preparing it. Quality in technical authorship is the product of knowledge and understanding, experience, enthusiasm and hard work. It is the sum of:

- (a) Quality of technical content
- (b) Quality of presentation of information
- (c) Quality of publication standards
- (d) Cost effectiveness and timeliness of publication.

These four factors will be discussed in detail.

#### *Quality of Technical Content*

The information given must be concise, accurate, complete, and must fully meet the needs of the readers. This calls for a thorough knowledge of the

equipment or system concerned, full comprehension of the reader's needs, and discrimination in the selection of information. It requires considerable practical experience, and the ability to anticipate operational and maintenance problems.

#### *Quality of Presentation of Information*

This requires a high degree of skill in the use of English—not as an end in itself, but as a tool for good technical writing. It calls for brevity, conciseness and clarity in presenting information and a sense of orderly development in the communication of facts. It means striking the right balance between text and illustrations; far too often the author and illustrator tell the whole story separately, combining the two when their tasks are done, instead of planning an integrated draft at the beginning. Good information accessibility requires an intelligent appreciation of the reader's need for well planned contents lists, book layout and sub-division, and possibly an index for books above a certain size.

#### *Quality of Publication Standards*

Good printing and purpose-designed paper and binders are important to the naval reader. His life gets busier as the Navy gets smaller, and short-comings in this field only add to his burdens. It is unfortunate that we have had to accept, in some respects, less than adequate publication standards; control of these things is not entirely in our hands. We hope for improvements in the future.

#### *Cost Effectiveness and Timeliness of Publication*

Value for money is very important where public money is concerned. A poor quality handbook is expensive in several ways—the original draft generally costs more than it should, the processing time within Navy Department is increased, and its value to the reader is often (despite the processing) lower than it should be. The best quality work is unquestionably far cheaper in the end, even if it does cost more initially. It should be said here that the Navy Department has always tried to avoid a 'penny-wise, pound foolish' attitude towards handbook contractors. There is no intention to change this attitude, but increasing financial difficulty will mean that the Navy Department must expect better value for its money. To meet this situation, contractors will have to raise the quality of their product.

Timeliness of publication has been included as a component of quality because of its great importance to the reader, faced with complex and often unfamiliar equipment. This is the time when the handbook is most needed; if it is not produced until later, some of its value is lost.

There is a need for a closer look at the cost of naval handbooks in relation to equipment costs. Research would be needed, but the result would show handbook costs to be a microscopic fraction of the cost of designing, purchasing, and operating equipment through, say, a 20-year life.

Some interesting calculations on the cost of *not* producing handbooks at all, and of the cost of *not* producing them until after the equipment has been in service for some time, have been made by the Army. The paper 'Some Thoughts on the Provision and Methods of Production of Technical Information' by Radar Branch, Technical Group REME, suggests the lines we should pursue.

#### **Present Shortcomings of Naval Handbooks**

The technical content of naval handbooks is improving steadily. It has to be said that handbook quality in this respect still depends far too much on the work done on them within Navy Department. In general, the technical

quality of contractors' work is not high enough to meet today's needs. The standard of presentation and in particular the use of English, is in general low, and in some cases deplorable. This is harder to rectify, during processing in the Navy Department, than deficiencies in technical content. The only effective way to improve a really bad draft is to start again—with another Author! In this connection I quote from the Examiners Report on last year's City and Guilds Technical Authorship Examination:

‘ . . . the fundamental weakness is inability to write straightforward English. Haphazard presentation, slovenly phraseology, deplorable grammar, and mis-spelling—‘liaison’ was spelt correctly only once in 52 papers.’

Nearly all the candidates had undergone 2-year courses of part-time study before taking the examination.

There is a tendency to concentrate on descriptive material and details of construction at the expense of operational and maintenance information. This usually indicates a lack of practical knowledge and experience on the Author's part. It is comparatively easy to write descriptive and constructional material from drawings and design information: we could call this the static part of the task. The operational and maintenance part requires a more dynamic approach, and it is here that an Author's lack of practical experience shows most readily. Repeating, and even compounding, mistakes made in earlier books is still fairly common; operation and maintenance procedures which prove impossible or incomplete in practice are still found. It is not always possible to validate procedures in handbook drafts against the equipments because of the urgent need to meet publication dates, but more could be done, and must be done in future, in this direction.

Repetition of information is a bad practice. It can complicate amendment, and confuse the reader. There is a Spanish (or perhaps Chinese) proverb which says ‘A man with little to say repeats it frequently’.

It cannot be too strongly emphasized that satisfaction of the reader is the test of the quality of our product; sales achievement cannot be used as the yardstick, as it is in Industry. To measure the success of our efforts, we need a constant feedback of informed and constructive user opinion; there has not been enough of this in the past.

### **Training**

No paper on this subject would be complete without reference to the important matter of training technical authors. It cannot be stated too often that the quality of a technical handbook depends directly on the quality of the technical author preparing it.

The City and Guilds Examinations in Technical Authorship and Technical Writing have been in existence for some six years and two years respectively; courses are now running at a number of Technical and Art Colleges. The system has its limitations. It relies on voluntary local teaching; the courses are part-time, and usually in the evenings; and there is often the geographical difficulty—colleges may not be within reach of potential candidates. Some criticism of the products of this system have been voiced lately, and the value of the Courses questioned; this is a healthy sign, so long as the criticism is constructive. But this is the only system we have for training authors, and it should have the maximum of support. Good training postulates good teachers, as well as potentially good students; it may be that the selection (and possibly training) of teachers should receive more attention. At Huddersfield last summer, a week's course for teachers of Technical Writing was held; so far, there is no sign of a similar activity for Technical Authorship. There is an impression among potential Technical Author candidates that the value of a

City and Guilds Certificate does not justify the considerable effort needed to take the Course. Employers should recognize the value of this qualification, and make its attainment worth while. The system suffers from a lack of 'feed back' of teacher-student opinion to the Institute and its Committee. Here again, we need to strive for more two-way communication.

It is to be hoped that the Industrial Training Act will make possible the institution of a full-time technical authorship course, staffed by teachers of the right calibre; the setting up of such a Course would be a big step forward.

### **Quality of Non-Technical Writing**

The quality of writing by scientists and technologists has come in for a good deal of criticism. It should not be forgotten that this is part of a larger pattern; the general standard of writing ability today is undoubtedly low. The reasons for this have been the subject of much discussion; this is not the place to discuss them further. There is a growing awareness of this deficiency, and much has been done in schools, and in the sphere of further education, to improve this situation. We hope to see a real improvement during the next few years. Here are two examples. The first is a notice received recently from my Insurance Company:

'Please note:-

Your remittance in settlement is requested on or before the 15 days of grace allowed after the expiry date to keep the cover in force.'

This doesn't mean what it says, and it certainly doesn't say what it means!

The second is a notice which is displayed in the Cashier's office of an establishment which shall be nameless:

'Encashment of Private Cheques

Staff are not to be asked to change private cheques as in the event of them being returned to drawer then it becomes the personal liability of the paying officer.'

Its meaning is fairly clear, but what a way to express it!

In writing letters, the lack of concise, succinct expression is evident almost everywhere today. There is a general reluctance to finish a statement or sentence crisply. Long-windedness is so common that we have almost come to accept such sentences as

'Please let me know your decision (in due course) or (at your convenience).'

The qualifying phrases may increase the politeness but they are quite unnecessary.

### **Raising the standard of Quality**

#### *The Quality of Technical Authors*

There are a number of other contributors to the task of draft preparation (scientists, designers, project officers and illustrators), but the technical author is the co-ordinator: it is his responsibility to ensure that the information is communicated to the readers in the best possible way. He is the link between those who design and produce, and those who use and maintain; he must fully understand the ideas of the one group and the needs of the other; he should be able to act (and sometimes does) as a critic of the design.

The most important factor in the improvement of handbook quality is thus a raising of the quality of Technical Authors. That this is easier said than done will be only too obvious to all who have been concerned with this problem. Professionally qualified authors in Industry are on the increase, and authors are becoming more versatile. The mechanical or electrical specialist is being

overtaken by those familiar with both specializations. In future there will be a need for these authors to have a knowledge of electronics also.

In Industry, there has been a definite improvement in the status of technical authorship, and the rewards of technical authors, in the last few years; it is to be hoped that the Civil Service will soon follow suit. But we are a long way behind the United States. There, as we were told by Doctor V. M. Root, of John Hopkins University, Maryland, (at a recent Society of Technical Publication Contractors Convention), technical writing and authorship has been a recognizable profession since 1950; the median salary of technical writers is only slightly less than that of engineers.

It is very good news that a Joint Council of the PTI Group, the ITPP and the TPA, has been formed. This is an important step forward, and encourages the hope for higher quality in the profession in the future.

#### *Reading High Quality Material*

The technical and scientific press produces many high quality publications which are consistently well written. Every technical author should read widely in this field. The City and Guilds Institute publish a list of some twenty reference books on Technical Writing and Technical Authorship (excluding dictionaries and British Standards). How many of these do practising Technical Authors really study? Our main problem here is the quantity of work we have to produce, and the speed with which it has to be written. Authors, like so many others today, have to learn to develop more speed with less haste.

#### *Improvement of Methods*

Methods of collecting information are often unsatisfactory. It is surprising how many authors still depend on telephone discussions and correspondence. Sending a written questionnaire to the source, followed by a visit to collect the information verbally and by personal discussion, is not practised enough. In my experience, the cost of time and travel spent in this way is repaid by higher quality, and more timely completion, of the end product.

#### *Quality Control*

More needs to be done to improve procedures for progressing work by contractors, and controlling quality while a draft is being prepared. Navy Department staffs are too small, in relation to the amount of work done by contract, to achieve enough in this direction. Most of our effort goes into ensuring that *something* is ready to meet publication dates: in future we need to make certain that this *something* is more complete, and of higher quality, than it has been in the past. We can only hope that we shall have the resources to do so. There is room for more delegation of final responsibility to contractors who are designers of equipment, and who have proved their dependability in the authorship field.

#### *Feedback of User Comment and Opinion*

A very important factor in the search for improved quality is, as stated earlier, a constant feedback of informed opinion and constructive criticism from the users of our books. The wide circulation of handbooks (to Dockyards, Repair Authorities, and Training Establishments as well as to users and maintainers afloat) means that the amount of potential feedback is very considerable. Methods are being worked out to make more use of this potential; this must be treated as a high priority task.

#### *Discussion of Problems*

The Joint Service discussions on technical handbooks will rationalize procedures: these discussions have already highlighted many common problems

and difficulties. Each Service, however, will continue to have its own particular problems as regards quality. The growing awareness of the importance of handbook quality has been given a much needed impulse by these deliberations and by those resulting from the Navy Department's Working Party on Technical Publications. Never, in fact, has there been so much talk by so many about technical handbook problems; let us make certain that this is converted into effective action.

#### *Technical Authorship as a Career*

There is a need for Technical Authorship in Government Service to be recognized as a career in its own right, with adequate rewards; it is to be hoped that this will come soon. Only then will Publications Departments assume their proper importance within larger organizations.

#### **Conclusion**

I would like to conclude with a plea that we break away from what is now almost a national habit—the tendency to belittle our efforts, and to undervalue our product. In the Navy Department, we have every reason to be proud of the quantity of handbooks produced, in relation to the number of people engaged on the task. Our best handbooks are undoubtedly among the best in the world; our task for the future is to see that *all* our handbooks come within this category.

Finally, I would like to pay tribute to my fellow Authors and Illustrators within the Navy Department; their thought and practical help has made a big contribution towards the task of preparing this paper.

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