

A MARINE ENGINEER'S REVIEW OF TECHNICAL INFORMATION AND LIBRARY SERVICES

by

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First of all : What is meant by ' technical information ' ? So often the title ' technical and scientific information ' is used to group together all those subjects that the scientist and the engineer are likely to be associated with in their work, and it is difficult to know where ' scientific ' stops and ' technical ' begins. Technology may be defined as the study of those subjects in applied science that have a commercial application, and this definition is probably accepted by most engineers. On the other hand many booksellers and librarians group all their books under three main headings : fiction, non-fiction, and technical ; here ' technical ' includes both pure and applied science and other associated subjects, and it is in this wider sense that the term will be used in this review.

Object and Scope of this Review

In the last twenty-five years there has been a steady increase in technical research and development, and with this has come the publication of an ever-increasing amount of technical literature describing new developments and recording operational experiences. If these technical and literary efforts are not to be wasted there must be some means of sifting this information, appropriately grouping or classifying it, and making it readily available to all those who may need it.

The day of the engineer who ' knew all the answers ' has gone. Nowadays no one is likely to know all the answers to the problems that may beset him, even in a very specialized field. He should, however, know how and where to look for information on a technical problem and he can, if he is kept well-informed of current developments and experience, know quite a high proportion of the answers.

Most of the literature published on the subjects of library organization and technique, information bureaux and special libraries, and the problems associated with disseminating technical information has in the past been regarded by many engineers as literature only of interest to the librarian and information officer. If, however, any user or would-be user of technical literature is to make the best use of the existing technical information and library services he must know what they are, what they offer, and how they operate. If he is a technical administrator it will be desirable for him to know the latest developments on the subject of organization of technical information services, and be able to appreciate their possible value to his concern.

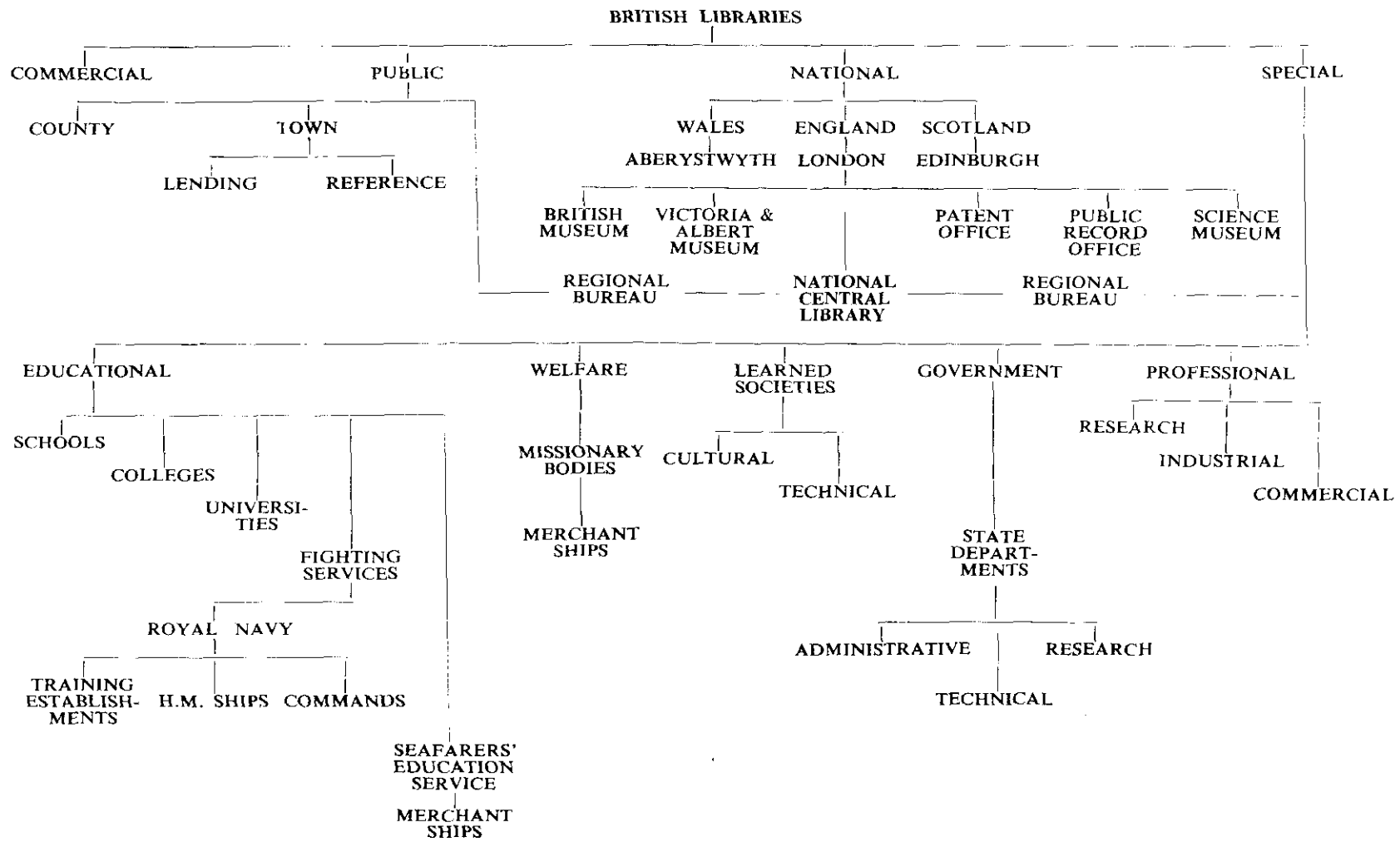


TABLE 1.—THE BRITISH LIBRARY SYSTEM

This review describes in broad outline the information services that are available to the marine engineer firstly as a layman and ratepayer, secondly as a technical specialist, and thirdly as a seafarer. The subject is treated more from the point of view of the qualified engineer rather than the student or apprentice, but much of what is written may well be of value to the latter.

Sources of Technical Information

Technical information of interest and value to the engineer is to be found in various publications of which books, periodicals, house journals, publications by professional societies, trade catalogues, technical reports, specifications, and patents provide the main sources. Books that deal with one special aspect of a subject only supply a proportion of the total amount of technical literature, in fact by far the smaller proportion, and where they relate to new developments the information they contain is necessarily not the latest. Apart from a limited number of standard reference books, which must themselves be continually revised to be of real value, most of the published technical information is to be found in publications other than books, in the form of articles in the technical journals and other periodicals, extracts, abstracts, and technical reports. This point must be recognized if full appreciation is to be given to the marine engineer's particular needs.

For the layman and ratepayer in Great Britain there are the national, educational, public, and commercial libraries ; for the technical specialist the special libraries and technical information bureaux or information centres, and for the seafarer there are the ships', seafarers', and ocean libraries.

LIBRARY ASSOCIATIONS

The two principal library associations in Great Britain are the Library Association, and the Association of Special Libraries and Information Bureaux. The former was founded in 1877 ; its primary objects are to unite all persons engaged or interested in library work, to promote better administration of libraries, to improve the position and qualifications of librarians and to encourage bibliographical study and research. It is concerned with every branch of library service and membership is open to all who are interested or engaged in library work.

The Association of Special Libraries and Information Bureaux was founded in 1924, and is known universally as Aslib. It has as its main object the co-ordination and systematic use of sources of knowledge and information in all public affairs, industry, commerce, and in all the arts and sciences. It co-ordinates the activities of special libraries and information bureaux, and aims at promoting, aiding, and improving the technique of such information centres.

One of Aslib's functions is to know what organizations are undertaking research work and to direct inquiries to the correct source of information. It is also greatly interested in the training of the librarian and information officer for special library work.

In 1948, Aslib incorporated the British Society for International Bibliography into its organization. This Society had been founded in 1927 ; its object was to bring together all those in Great Britain interested in bibliography and related subjects, and to maintain contact with those having similar interests in other countries. The growth of special libraries in the last twenty years and the interest that is now being taken in recording and disseminating specialized knowledge is reflected in the growing membership of this organization (Fig. 1).

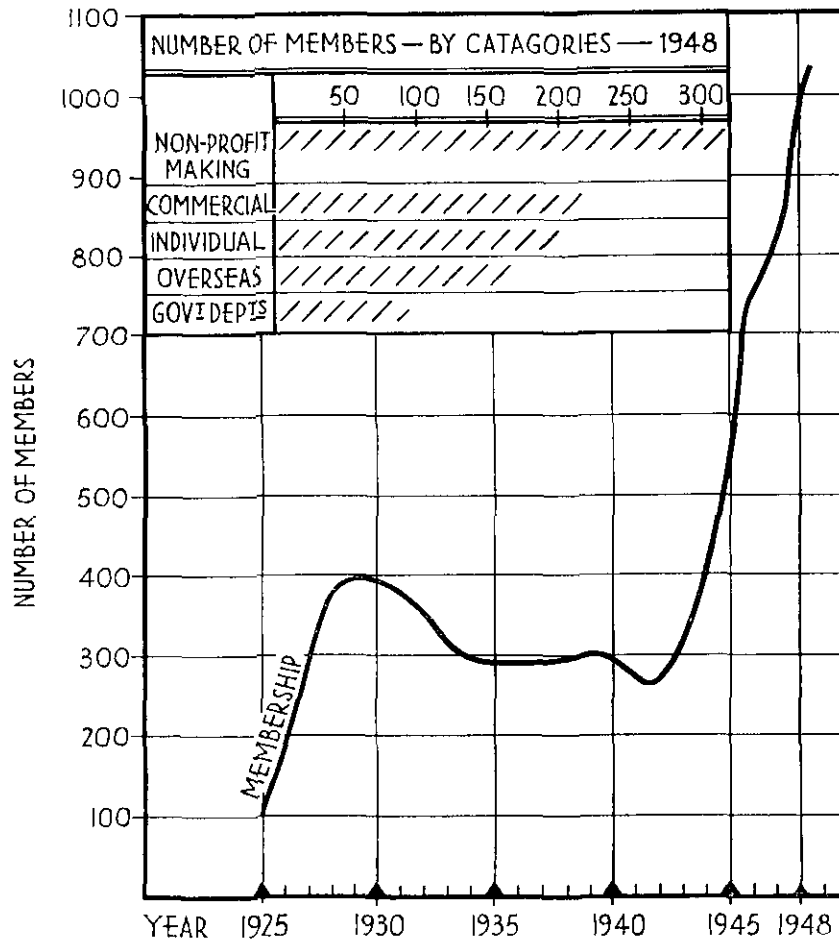


FIG. 1

BRITISH LIBRARIES

National Libraries

The majority of the great national libraries of Great Britain do not lend books ; they are for the most part reference libraries only. The oldest of these is the Bodleian library at Oxford, and with over a million books it is the greatest university library in the world. Until the founding of the British Museum in 1753 it was the national library of the country. In the British Museum care is taken to reserve accommodation for those engaged in genuine research, and on an average nearly 800 readers use the Reading Room and North Library every day of the year ; in the course of twelve months over two million books are consulted in these two rooms alone, and it is probably now one of the busiest libraries in the world. Under the Copyright Laws the British Museum receives a copy of every publication issued in Great Britain. This privilege also belongs to the Bodleian, Cambridge University, National Library of Scotland, and to a limited extent the National Library of Wales.

Other national reference libraries are the Patent Office, Public Record Office, National History Museum (which is part of the British Museum) and the Victoria and Albert Museum. All these are open to the public. The Patent Office library is often erroneously regarded as concerned only with patent

specifications, but it contains a comprehensive library on most subjects and has a reference section containing a very large number of well-arranged current technical periodicals which are easily accessible to the user. There can be no question that London offers the would-be seeker of knowledge a choice of the most comprehensive and up-to-date literature that can be found anywhere.

The Science Museum, South Kensington, is one of the few national lending libraries though it has had to limit this service to some extent. The recent introduction of an extensive photo-copying service has, however, enabled a larger number of requests to be met than hitherto and met without delay.

Public Libraries

The public lending libraries have developed over the last three hundred years. There are now two principal groups, (i) Town Libraries and (ii) County Libraries.

(i) *Town Libraries.* These usually provide for the loan of books and the reference of a number of selected books and periodicals. Many town libraries also have a photo-copying service. While all public libraries cover a wide range of subjects, the local industry or interest is often reflected in the classes of books held by them. Bristol, for example, has an extensive commerce section ; Bradford includes a special collection on the textile industry ; Birmingham houses the Boulton and Watt and other collections, and so on.

(ii) *County Libraries.* Compared with the town libraries, the county library system is comparatively young and dates from about 1915. The scheme brings a library service to those living in rural districts, small towns, and villages. County library centres are established in most villages to which books are sent from a central county headquarters. It cannot give the same service as a town library and a reader with special interests will have to incur delays in receiving books by post, but it is possible by this organization to borrow a book from almost any lending library in Great Britain.

Some counties and municipal authorities organize library vans, *i.e.*, travelling libraries, or "bookmobiles" as the Americans call them. The vans are arranged to accommodate 1,500-2,000 volumes and tour the rural areas in accordance with a pre-arranged time-table.

Commercial Libraries

A considerable number of British people rely for their reading on what are known as the 'circulating' or 'subscription' libraries, which offer their users a selection of books of the popular type, in particular novels, travel, biography, and drama. These libraries are seldom used by those engaged in serious study or research, but they offer a service which appeals to many. Passengers' libraries in ships are sometimes supplied by these libraries and for that reason are mentioned here.

Special Libraries

In addition to the 'general' libraries there are many which concentrate on special fields of study and research ; this group is known as the special libraries. These include many of the great national libraries, the libraries of learned societies and professional institutes, industrial organizations, government departments, universities, and research and educational establishments.



CAMBRIDGE UNIVERSITY LIBRARY



BRITISH MUSEUM READING ROOM



OXFORD UNIVERSITY READING ROOM



TRAVELLING LIBRARY

The majority of special libraries are intended primarily as 'internal' in that they are intended to serve the requirements of the parent organization and its associated establishments only. Though the majority of them are willing to supply general bibliographical knowledge relating to their own specialized interests, only a proportion lend their literature outside their own organization.

Most of the learned societies, professional institutions and research associations provide for their members or staff a comprehensive library and specialized information service, and the following brief list gives an approximate summary of the type and quantity of literature available (1949) :

| | <i>Volumes</i> | <i>Periodicals</i> |
|---|----------------|--------------------|
| Royal Society | 145,000 | 600 |
| Institution of Mechanical Engineers | 40,000 | 400 |
| Institution of Electrical Engineers | 25,000 | 350 |
| British Non-Ferrous Metals Research Association | 5,000 | 250 |
| North-East Coast Institution of Engineers and Shipbuilders | 5,000 | 192 |

The large number of current periodicals is worth noting.

Library Co-operation

In 1916 there was founded the Central Library for Students which in 1930 was reconstituted as the National Central Library. It is now not only a great lending library itself but is also the recognized centre for the loan of non-fiction books, for study and research, to readers in all parts of the British Isles, through their public, university, or special library. It supplies bibliographical information to libraries and maintains an extensive Bureau of American Bibliography.

Under its national lending scheme the country is divided into regions each having its regional bureau which is housed in one of the principal libraries of the region. Each regional bureau has its own staff and maintains a union catalogue of all the books in those libraries that are prepared to co-operate under the scheme. In July, 1949, there were 603 libraries in the British Isles co-operating in this manner.

TECHNICAL INFORMATION CENTRES

The functions of a technical special library, information bureau, and information centre are much the same. For a research organization, technical department, or industrial concern, many prefer the title 'information centre,' for it brings to mind the idea of it being the focal point in the organization through which or from which technical information may be obtained.

Most of the demands made upon a public library are for books of which the title and author are known : the type of inquiry with which an information centre has to deal is often related to a specific problem, and this may involve seeking out information under several subjects and possibly obtaining it from many different sources.

The main object of any information centre is to supply the user with the information he requires. If this cannot be done promptly the centre should, at least, be able to give the user an insight into what has been published on a particular subject, and the likely sources from which further information might be obtained, and, if desired, obtain it for him. This arrangement leaves the

work of seeking out the information in the hands of the information officer, and by his knowledge of and liaison with other agencies he should be able to obtain the information much quicker than the inquirer. Delays are thereby avoided, and the inquirer is left to carry on with his normal duties.

There are now many organizations which treat their special library or information centre as the section that is the repository of all the organization's literature and information (published and internal). It is, however, recognized that some sections require to have their own collection of ready-use literature and where this is necessary this literature should be efficiently co-ordinated with the main information centre.

In this information centre will be the lending library, reading room, and centre for receipt of inquiries ; through the medium of this office technical information will be received and disseminated, and photo-copying and micro-film facilities are often provided. Sometimes the editing of the organizations' own publications is also included ; one advantage of this arrangement is that the staff of the information centre is thus kept fully informed of all current developments of the organization.

Accessions

The total amount of literature held by an information centre will depend on its exact functions in relation to its parent organization. If the organization is a large one it will probably be necessary for the main centre to hold a comprehensive library of books and other publications ; on the other hand it may only be necessary to cover a few subjects as exhaustively as possible. If an information centre functions as part of a wider organization, a few books and documents with a bibliography of specialized information that is available elsewhere may meet the requirement.

Classification

One of the earliest forms of grouping or classification of books in libraries was according to size, and even in household and other small libraries this arrangement persists for reasons of neatness and the fixed distance allowed between bookshelves. Where, however, libraries contain several thousands of books and other documents some better systematic grouping is necessary, in order that books on a particular subject or by a particular author may be quickly found.

Fiction books are usually arranged by authors' names in alphabetical order, and non-fiction and technical books and documents under subject headings. Where the library is small and specialized a librarian can easily work out an appropriate arrangement of subject headings. A healthy, expanding, up-to-date library or information centre, however, requires a very carefully thought-out arrangement, and here it is advisable to adopt one of the standard classification systems already in existence ; the advantages of doing this are firstly, the experience of a host of experts is immediately at the disposal of the librarian and, secondly, the user soon gets to know whereabouts in any library he should find books or other documents on a particular subject.

There are three main library classification systems ; the Dewey Decimal Classification, the Universal Decimal Classification (U.D.C.), and the Library of Congress system which uses both letters and figures. In Great Britain most public libraries use the Dewey while there is a growing tendency for technical libraries to use the U.D.C. All three are subject classifications.

In 1895 an international conference decided that the Dewey system was the most suitable to adopt as the basis of classification for universal use, and this was remoulded by the Institut International de Bibliographie which adopted it for use in the wider, but kindred, fields of technical, scientific, and office records. The Dewey and the U.D.C. are therefore very closely related and the classification numbers for many of the main subject headings are the same in both systems.

The U.D.C. divides all knowledge into ten main divisions from 0 to 9. Then each of these main divisions is again divided into ten, and so the subdivision goes on until the final detail of the subject has been classified (Table II). Books and other documents having been given a classification number are arranged in numerical order, the books being usually arranged on 'open-access' shelves, with pamphlets and other limp-backed documents in filing cabinets. Current periodicals are arranged in display racks.

From the user's point of view all he has to do is refer to a library index or catalogue which should immediately give him the classification number and, therefore, the position in the library of the document that he requires.

The greatest user of the U.D.C. in Great Britain is the Science Museum Library. It has also been adopted by many Government departments, research establishments, and a number of professional bodies associated with marine engineering. Among these may be mentioned the Institution of Engineers and Shipbuilders in Scotland, the North-East Coast Institution of Engineers and Shipbuilders, and the British Shipbuilding Research Association. The Institute of Marine Engineers has recently agreed to adopt it for their library.

One of the reasons for the slow adoption of the U.D.C. in Great Britain has been the lack of a complete translation of the European edition. This applies particularly to the Mechanical Engineering section, but the British Standards Institution expects to publish an up-to-date version of this section in the near future.

Some periodicals have been publishing the U.D.C. classification alongside the titles of the articles, while a number of technical books recently published show the U.D.C. number inside the cover page. An extension of this idea will be of immense assistance to librarians and information officers who use this classification, as normally a document cannot be properly classified until the contents have been studied; this often takes up much of a librarian's or information officer's time.

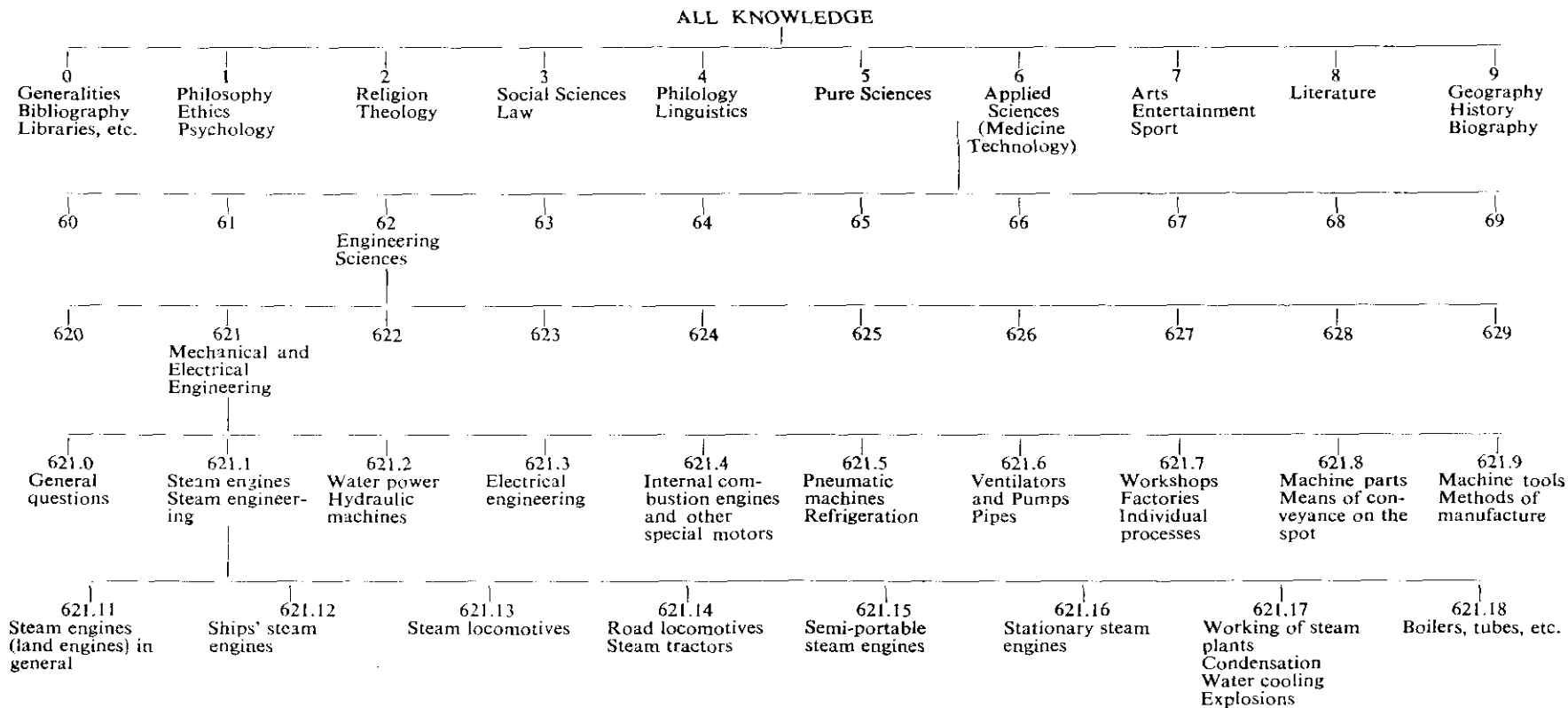
Catalogues and Indexes

The next requirement is a 'key' to tell the user what information is in a library and where it is kept. This, as already mentioned, is done by means of library catalogues and indexes, and the usefulness of a library depends very much upon how efficient and up-to-date these are.

A newcomer to a library is often confused by the terms 'subject-index' and 'subject-catalogue', for librarians are not consistent in the usage of these terms. A catalogue is a complete list of all items: an index is an alphabetical list of all subjects. A subject-index is smaller than a subject-catalogue and is the key to the main headings in the subject-catalogue.

To be complete an information centre needs three kinds of catalogues: subject, author or name, and source. The value of each depends on the general type of inquiry. A recent review carried out by the University of California, for instance, found that 61% of the users preferred the author-catalogue to the

TABLE II
AN EXAMPLE OF U.D.C. CLASSIFICATION



subject-catalogue. If the author is known then the author-catalogue in a technical library does provide a very quick reference, as the literary efforts of most technical experts are very limited in number. The source-catalogue is especially valuable for numbered documents such as technical reports.

In each information centre there should be a prominent notice describing how the particular indexes and catalogues should be used in order to find the information required (Table III).

TABLE III

REPRODUCTION OF A LIBRARY NOTICE IN THE WESTMINSTER REFERENCE LIBRARY,
ST. MARTIN'S STREET, W.C.2

TO FIND YOUR BOOK

By Subject

1. Consult the Subject-Index and note the subject number.

This index is NOT a list of books but a guide to the arrangement in the *Subject-Catalogue* and of the books on the shelves.

2. Find the subject number in the Subject-Catalogue.

This catalogue consists of entries arranged by class numbers representing the subject number of books and showing their position on the shelves.

By Author

Look up his name in the Name Catalogue.

This catalogue has entries for the same book in one alphabetical sequence of authors, editors, composers, and in some cases titles.

Biographies and studies of individual artists, writers, musicians, etc., are also entered under the name of the person whose life and work is described.

The subject number of the book is given in each of these entries.

EXAMPLE :—

| | |
|--|-----------------------|
| <p>HEDLEY, Arthur Chopin Dent 1947</p> | <p>789 Chopin</p> |
|--|-----------------------|

The *Subject-Index* gives the subject number (789) under Musicians : Individual biography. 789 in the *Subject-Catalogue* stands for *Biographies of musicians by their names*.

The work appears in the *Name-Catalogue* in two places : under HEDLEY, Arthur, and under CHOPIN, Frederic Francois.

ASK FOR THE INFORMATION YOU WANT—THE STAFF IS HERE TO HELP.

For bound volumes of periodicals, which may contain a large number of classified subjects, it is often convenient to institute a code number which corresponds to the library volume number and this is shown after the subject classification in the library catalogue. A simple code may also be introduced to show whether the subject matter is in a book, periodical, technical report, trade catalogue, or pamphlet.

Catalogues may be in book form, but loose-leaf ledgers and card systems are more widely used. The card system can readily be kept up-to-date and the

small-drawer cabinets provide a very compact arrangement. Where, however, the user's inquiries are of the nature, What has been published ? or What have you ? on a particular subject, the visible strip system is often found to be more suitable. Very few libraries publish printed catalogues because they so very quickly get out of date. The arrangement generally adopted is to maintain an up-to-date catalogue in the library and to notify its users of recent accessions from time to time by the distribution of accession lists of bulletins.

THE INFORMATION SERVICE

In addition to the seeking out of technical information by the information centre in answer to direct inquiries, there is also the need to sift all published information and disseminate the appropriate details to the staff of an organization. This is best done by the information centre which may regularly publish either an abstract journal, technical bulletin, accession list, house journal or a combination of any of these.

Abstracting Service

The great advantage of abstracts is that they enable the principal points of a large amount of scattered information to be collected in a convenient form. They require, however, considerable time, skill, and knowledge to prepare satisfactorily.

In the last twenty years there has been a steady increase in the number of abstracts published regularly by various abstracting agencies. In addition to those published by professional and public bodies, a number of government departments, research organizations, and industrial concerns produce abstract journals. There is probably a large duplication of effort in this direction, but it will be appreciated that the points of an article that appeal to a scientist may not be the same as those that appeal to the engineer or industrialist. Thus many concerns will prefer to do their own abstracting ; the extent to which it is done depending very much on the size and qualifications of the staff available for this work.

A large number of abstracts are classified under the U.D.C., and these therefore form a valuable international bibliographical reference to all published literature.

Abstract journals are issued to the various sections of an organization. If, after perusal of the abstracts, a member of the staff considers that he should see the original periodical or document to which an abstract refers, then it is usual for the original article or a photo-copy of the article to be supplied on application to the information centre.

Technical Bulletins and Accession Lists

In many organizations it is not possible, or even considered desirable, to arrange for abstracts of current literature to be prepared and supplied to all interested members of the staff, and there are several alternative schemes such as :—

- (i) Keeping all current periodicals in a reading room and relying on the staff to make use of the room ;
- (ii) Circulating a number of periodicals and other documents to those members of the staff who might be interested in the subject matter

which the documents contain. The great disadvantage of this scheme is that once a periodical or document has started on its circulation the information centre loses control of it, and it may be months before it returns. In particular, it may get into the hands of someone who has not the time or interest to make use of it ;

- (iii) Publishing a technical bulletin giving the principal subject headings of the articles that are of interest to the organization from each periodical or document. Members of the staff then make a request on the information centre for the documents they require. This scheme has two good points ; firstly, the bulletins can be prepared very rapidly and this enables the organization to keep right up-to-date with current literature and, secondly, by sending out documents to individuals the information centre knows where all the organization's literature is at any moment ;
- (iv) Publishing an accession list giving the titles only of all literature received in the information centre. While this is useful, it is not as valuable as the technical bulletin. Sometimes a combination of (iii) and (iv) is arranged.

House Journals

House journals, containing selected articles, abstracts, extracts, and information relating to new books and other literature, are usually published additional to abstract journals, technical bulletins, or accession lists. They are primarily intended for the 'external' staff of a wide organization of which many members may not be able to have easy access to a technical library. These journals often contain personal and social news in addition to technical information.

Obtaining External Literature

Not only does an information centre provide the best means of obtaining "external" literature promptly, but if all technical information flows into an organization through this centralized office, and provided that the information officer classifies it adequately and accurately, and keeps the organization well-informed of what is being received, then the whole of the information will be readily available to any member of the staff who may need it.

Where unilateral action is taken by individuals of a department to obtain external technical literature much duplication of effort can occur. This is especially so where more than one individual may require the same information ; it is also most irritating to receive several requests from different individuals or sections of the same department, and it involves the supplier in an unnecessary amount of additional work.

An information centre provides the most economical way of using technical literature, and for this reason most concerns prefer to send literature to a librarian or information officer because they know that it will then be made available to the whole of a department.

Co-operation and Flexibility

Some rules are necessary for the proper regulation of technical information centres ; these, however, should be kept to a minimum, for new problems and

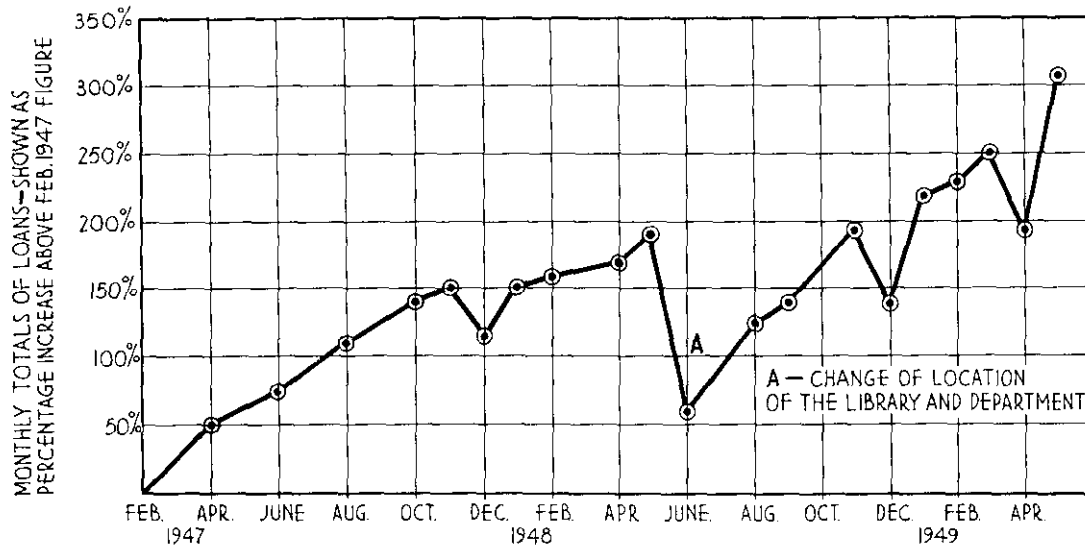


FIG. 3

developments make it necessary for the internal organization to be very flexible. It cannot be flexible if it is tied down by a large number of rules and regulations.

The real success of a technical information centre depends not only on it being efficiently organized and giving prompt and willing service, but it also depends very largely upon the co-operation of the whole of the parent organization.

J. E. Wright in his helpful little book *Manual of Special Library Technique* (Aslib) in 1945 wrote "there are quite large concerns which have never had a library, or never had a good one, and it is a fact that the staffs of such concerns appear sometimes very apathetic towards a newly-established library. In such cases the library staff may find that it will take a year or more for the scientific staff to realize the value of the library and to form the habit of using it frequently." In the same year the Engineer-in-Chief's Department at the Admiralty formed the nucleus of a departmental technical library, supplementary to the main Admiralty Library, and at the beginning of 1947 commenced the regular production of a weekly technical information bulletin. This bulletin was a combination of the principal subject-headings of the articles of interest to the Department in current periodicals and an accession list of reference books, technical reports, trade catalogues, and specifications. The most optimistic of the library staff forecast that at the end of twelve months the number of requests dealt with by the library would reach a peak and after that would remain fairly constant. But now after two years since the first bulletin was issued the use made of the library by the Department is still on the increase (Fig. 3). This tends to confirm the view that the technical expert once he has experienced the facilities offered by an organized technical information service will readily avail himself of it, and this is also borne out by a number of requests from naval engineer officers who have left the Department asking to be included in the distribution of future technical bulletins. The use of the library during any one month varies, of course, according to the size of the staff available to make use of it, to the type and amount of literature being received, and whether any special departmental investigation is in hand.

TECHNICAL INFORMATION AND THE SEAFARER

There are not many ways in which a seafarer can spend his spare time at sea ; there are few recreational amenities, but reading for recreation or education is one of the chief relaxations from a ship's routine. The seafarer has generally far greater opportunities for serious reading than the landsman and will readily make the most of any ship's library, but he is the most difficult reader to keep regularly supplied with books and other literature.

The organization for supplying books to ships varies in different countries ; Denmark, for example, has one central organization for both naval and merchant ships ; the United States Navy has its own organization, while almost the whole of the American Merchant shipping is supplied by the American Merchant Marine Library Association. The Royal Navy, too, has its own library organization, while approximately half of the British Merchant Navy is supplied by welfare societies and the other half by the Seafarers' Education Service.

Naval authorities are especially interested in keeping all naval sea-going personnel fully informed of current developments. Those who have to operate new equipment require instruction and instruction books, new developments often necessitate reorganization of existing arrangements, and details must be promulgated, while experiences in operating naval equipment must be shared by all those who may have to operate similar equipment. Naval authorities, therefore, have their own arrangements for circulating technical letters, fleet orders, technical bulletins, or departmental journals. As a large proportion of this information is of a secret or confidential nature it is not available to the public, but technical information relating to current developments and of operational experiences is, however, released whenever it is possible to do so without jeopardizing security.

To quote one instance of how this sharing of operational experience may help others, perhaps readers may remember an article being released by the Admiralty in 1946 on the subject of ' Burning of Iron in Steam.' This referred to the report and lessons learned when a fire developed in a boiler of a destroyer. Neither the ship's nor administrative staffs had experienced this phenomenon before and it was some time before the fire was under control. This article was subsequently reprinted in the technical press both at home and abroad, and was included in the Spanish journal, *Ingenieria Naval*. A few months later this journal published a report of a similar type of accident in a Spanish merchant ship, but in this instance " its effect was considerably reduced through the ship's technical personnel being well aware that the phenomenon had the same characteristics as those referred to " in the previous edition of the journal. The writer pointed out the undoubted advantage of selecting articles of this nature for publication.

Libraries for Naval Ships

In the Royal Navy books of a non-confidential nature for recreational and educational purposes in H.M. ships are supplied as Ships Reference Libraries which vary in size according to the complement of each class of ship. In addition, there are Command Reference Libraries under the local administration of the Fleet, Command or Senior Education Officer. Both Ship and Command libraries provide a lending and a reference service.

The Command Reference Libraries are established in the Nore, Plymouth, Portsmouth, and Rosyth Commands, and on the Mediterranean, East Indies, and Far East Stations.

Catalogues of both types of libraries are issued to H.M. ships and a member of a ship's company can obtain books on loan from the larger Command Libraries through the ship's librarian who is usually the Senior Education Officer.

Ships are notified of the additions to these libraries from time to time. In some of the larger classes of warship a limited number of technical periodicals is supplied additional to the departmental technical journals or bulletins which are issued to nearly all naval vessels.

MERCHANT SHIPS' LIBRARIES

British Merchant Navy and Fishing Fleets

The majority of the ships of the British Merchant Navy and Fishing Fleets are supplied with crews' libraries either by the British Sailors' Society or the Seafarers' Education Service ; some ships are supplied with books from both sources. In addition, a number of other welfare societies also provide recreational reading material for seafarers.

Where the number of passengers justifies a separate library it is usually arranged either by contract with a commercial library organization or by the shipping company itself. These libraries are provided purely for the recreation of the passengers and, although ship's officers have access to them, any technical section would be outside the service for which these libraries are really intended.

The Ocean Library Service

It was the missionary bodies like the Missions to Seamen and the British Sailors' Society which first developed an organized library service for the crews of British merchant ships. The Ocean Library Service of the British Sailors' Society will be known to most seafarers and nowadays this Society supplies over 5,000 unit libraries to more than 4,000 ships of the British Merchant Navy.

Each unit library contains 30 selected books which may be exchanged at various exchange stations situated throughout the world, of which there are 56 around the coast of Great Britain alone. By the very nature of this Society these libraries are essentially for recreational purposes and, while they contain carefully selected fiction and non-fiction books of high quality, they do not contain technical books.

Under a new plan of centralization all unit libraries are now compiled and issued from the headquarters in London and sent to the respective exchange stations for issue to ships.

There is no charge for this service, it being entirely supported by voluntary contributions.

The Seafarers' Education Service

The Seafarers' Education Service (S.E.S.) was founded in 1919. Its main objects are to provide educational facilities for members of the British Merchant Navy and Fishing Fleets, to encourage, further, and develop the education of seafarers, and to provide libraries on shore and in ships for the use of the seafarers.

Libraries varying from 50 to 300 selected books are provided for ships according to the size of the ship's company. The cost of this undertaking is borne mainly by the shipping companies whose ships are supplied with libraries by this Service, and partly by voluntary subscription. About 70% of British ocean-going ships are supplied with books by this Service, and it is estimated that it will supply a total of about 180,000 books this year (1949) to ships.

Users of this service are entitled to ask for any fiction or non-fiction book and, if available, these are supplied on the next occasion that a part or the whole of the library is exchanged. The larger part of these libraries is exchanged at frequent intervals and ships with S.E.S. libraries are permitted to exchange their libraries with one another when abroad. The whole of this library organization and its advice bureau is centralized in Selwyn House, Endsleigh Street, London, W.C.1. The libraries supplied to ships are made up of 50% fiction and 50% non-fiction books; the non-fiction includes a small proportion of technical books. No periodicals are supplied.

Difficulty has been experienced in the past in obtaining the return of technical books issued on loan to individuals and the more expensive books of this nature are not as a rule issued to ships except at the expressed wish of a shipping company. Some technical books costing 25s. or less, in limited numbers, and a few of the more expensive books are, however, available for issue to seafarers.

In conjunction with the Seafarers' Education Service there is the College of the Sea which was formed to assist any seafarer who wants to study a subject or to pursue a hobby, and this College will arrange for his tuition. It does not deal, however, with nautical and technical subjects, but will give advice to students interested in these subjects. The College is open to any seafarer whether his ship is supplied with an S.E.S. library or not.

American Merchant Marine

In 1921, *i.e.*, two years after the formation of the Seafarers' Education Service in Great Britain, the American Merchant Marine Library Association (A.M.M.L.A.) was formed in the United States "for the purpose of maintaining a library for the free use of the officers and crews of American vessels." The Association is organized as a private non-profit corporation with a national board of trustees, and it supplies or attempts to supply a library for the crew of every American merchant ship.

The crews' libraries are made up into groups of 40 carefully-chosen hard-covered books of which 26 are fiction and 14 non-fiction, including one or two technical books of a general nature, 20 paper-bound pocket-type books, and 100 assorted magazines. A few technical journals are sometimes included in this magazine assortment but the information is intended to be general rather than technical. Each library is designed on a basis of providing sufficient reading material for a crew of 40 men for a three months' voyage. Any member of a crew can ask for any recreational or educational book as long as it is not technical.

This service of crews' libraries is very similar to that provided for the British seafarer apart from one noteworthy difference, namely, that a bundle of assorted magazines accompanies each library of books. These magazines are for passing round the entire crew and need not be returned.

The American Technical Service

The A.M.M.L.A. apparently experienced at first a similar difficulty over supplying technical books to American seafarers as did the S.E.S. with British

seamen, and apart from the one or two already mentioned, technical books are not included in the libraries as the losses have been too heavy. It has been stated by the A.M.M.L.A. that until the seafarer has developed a feeling of full responsibility for the crews' libraries, technical books cannot be placed in them. The Association is doing much to encourage the development of this responsibility and has instituted a certificate of competency for crew librarians.

It is difficult to believe that the technical-minded man is less honest or more casual than his other associates and one can come to the conclusion that either he values the rare technical book so highly that he is loath to part with it, or else it is treasured because of the good second-hand value it may possibly fetch, but it cannot be suggested that there is no underlying requirement for technical literature.

The A.M.M.L.A. has faced up to this requirement by the establishment of Port Office libraries all of which contain a nautical-technical section and other educational books. These books may be borrowed by any seafarer, two at a time, on payment of a deposit, or if a seafarer is a member of the Association (subscription 1 dollar per annum) no deposit is required. The books may be borrowed for the duration of the voyage and, like the crews' libraries, any book borrowed at one Port Office may be returned at another, or returned by mail.

The Association publishes a *Seaman's Library Manual* which, in addition to giving some useful information about the organization and its Port Offices, provides a list of the latest technical books that may be borrowed together with a brief, but very useful, description of their contents.

In 1947 a total of over 31,000 seafarers visited A.M.M.L.A. shore libraries and of the books borrowed 50% were technical. This considerable use of technical literature is a development of recent years and has been brought about by increasing the number of technical books, making it easy for the seafarer to borrow them, and keeping him informed of what books are available in these libraries.

It has been said by the A.M.M.L.A. "that the love of reading grows on the man who reads. With increasing education and use of books among seamen, their demand for more and better books has been steadily growing." Another reason put forward for expecting a greater use in the future is the steady improvement in the standard of crew accommodation.

The following figures also show how the proportion of the different classes of books borrowed from the Port Office libraries has varied in recent years.

| | | | | | | | 1939 | 1947 |
|-------------|-----|-----|-----|-----|-----|-----|------|------|
| Technical | ... | ... | ... | ... | ... | ... | 26% | 50% |
| Non-fiction | ... | ... | ... | ... | ... | ... | 38% | 21% |
| Fiction | ... | ... | ... | ... | ... | ... | 36% | 29% |

The Association indulges in nation-wide publicity on behalf of the American seafarer ; annual Book Weeks are organized, and by this means about 100,000 books are collected each year. Over the whole of 1947 more than 423,000 books and 632,000 magazines were contributed to the Association.

Technical Information provided by Shipping Companies

Sufficient has been written to show that the supply of technical books to British seafarers through the usual library organizations is very restricted, and no attempt whatever is made to arrange for technical literature other than books.

No review of this nature would, however, be complete without some knowledge of how British shipping companies are treating this particular problem, and through the good offices of the Institute of Marine Engineers and with the helpful co-operation of a number of shipping companies the following information is included.

Information received from thirty-three of the principal shipping companies in Great Britain shows that 27% provide from one to eleven technical books for each of their ships, 15% arrange for the regular supply of one to three technical periodicals, and 60% provide neither technical books nor periodicals.

Of the ships supplied with technical books most of the intermediate passenger liners have seven or eight books on engineering and associated subjects, and tankers and cargo vessels have four or five books. These books are usually placed in the charge of the Chief Engineer. It would be interesting to know to what extent they are used. From the author's own experience the Chief's cabin is not the best, though probably the safest, place for these books.

Several companies arrange to send occasional extracts that are considered of interest to the technical staffs, and most circulate information related directly to the particular machinery in their ships. Maintenance literature, including any makers' handbooks and instruction books, is also supplied. Short-service vessels, of course, have not the same requirement for a collection of technical reference books as ocean-going ships.

There is an impression among some of those shipping companies that are served by the Seafarers' Education Service that any technical book can be obtained by a seafarer on application to the S.E.S.; this, however, is only true if the book is already possessed by the Service or if not possessed costs less than twenty-five shillings.

Summary

A very interesting record of the books selected by individual readers representing various occupation groups, was recently compiled, without the knowledge of the persons concerned, by the Bristol Public Libraries, and it showed how surprisingly wide and varied these selections were. It is probably true to say that underneath the somewhat stolid appearance of many Englishmen there is an underlying interest in a wide range of subjects, and this interest can be brought to the surface by easy access to the appropriate literature. This is no less true of those who are technically-minded and, as *The Times Educational Supplement* has mentioned, "Without a sufficient and properly administered collection of books, freely available to everyone, much of the effect of the stimulus and training provided by all types of education is lost."

The present amount of technical literature available to the British seafarer through the normal channels is very little and is confined almost solely to a few standard reference books. To maintain interest in his work the seafarer requires more than this; he requires the opportunity of obtaining the latest information published both in books and periodicals and, in particular, he can benefit considerably from the operational experiences of others.

The majority, if not all, of the shipping companies recognize that some form of technical information service is most desirable and some provide their own service. To be at all comprehensive this system must result in a considerable strain on the office organization for such a limited field and is probably uneconomical though, no doubt, very beneficial. Most companies encourage their staffs to join technical societies and to purchase their own books, and many marine engineers, of course, do this, but while marine engineers' pay has in-

creased so have subscription rates to most technical societies, and good technical books are costly and difficult to obtain.

In considering the possible benefits of a Seafarers' Technical Information Service one must recognize the growing interest in the recording, dissemination, and use of technical information as is illustrated by the increasing membership of Aslib (Fig. 1), the interest displayed by users of existing technical information services (Fig. 3), and the high proportion of technical books borrowed by American seafarers from their Port Offices.

Port Libraries and Bookmobiles

It is suggested that the A.M.M.L.A. system of nautical-technical sections in shore libraries at different ports has much to recommend it. From the seafarer's point of view, especially where he is in an ocean-going ship with a quick turn-round, would not a bookmobile working in conjunction with a port office library provide a better service? The travelling library could reach ships in remote docks or berths, and books could be chosen and 'taken on charge' either by the individual or by a crew librarian. As these bookmobiles can contain up to 2,000 books quite a good selection of likely books could be provided. An expensive suggestion?—perhaps so, but if a municipal authority can provide this service for outlying districts surely something of this kind could be provided for the seafarer?

Some form of subscription for a seafarer technical library service is desirable but perhaps it should be mentioned here that many a seafarer is a rate-payer contributing from 4d. to 6d.* in the £, or more, on the rates for his local library services. He may thus be already paying annually over twice the A.M.M.L.A. subscription for a library service he can seldom use, though of course his family would be free to do so.

The more important problem, however, is the dissemination of the appropriate information contained in a large number of periodicals, publications by professional societies, and other forms of technical literature. Some articles or papers are of sufficient value to the seafarer to justify them being read in full while others can be covered by an abstract or extract.

Engineering Abstracts

Sea-going members of this Institute place considerable value on the 'Engineering Abstracts' of the Transactions which are prepared in conjunction with the Institution of Naval Architects. Some extension of this form of literature for the seafarer appears desirable, but abstracts need to be specially prepared for each type of reader. Technical abstracts for the seafarer should give sufficient information to enable the principal points to be woven into a complete and interesting short article, for he will have little opportunity of referring to the original document. The value of abstracts is also greatly enhanced by good illustrations, and all abstracts should be classified under appropriate subject headings.

The seafarer also needs to know what new technical literature is being published, what value it is likely to be to him, and where it can be bought, borrowed, or referred to.

* Bristol (1948) 3.81d. Liverpool (1949/50) 4.74d. Birmingham (1949/50) 5.43d. Swansea (1949/50) 6d. Newcastle-upon-Tyne (1949) 7.77d.

The form in which technical information is presented needs to be carefully considered ; the enthusiast or specialist will read almost any literature related to his specific problems however badly it may be presented, he will read long articles printed in small type and illustrated by inferior diagrams, and he seldom realizes the strain that he is imposing upon himself. Not so the technician of average ability ; if the information is not presented in an attractive manner he is apt to ignore it, and those who provide technical information should ensure that it is presented in such a form that it is willingly accepted, and therefore appreciated, by those for whom it is intended.

A Seafarers' Technical Information Service ?

A technical library forms the natural centre for the establishment of a service capable of seeking, sifting, and disseminating technical information, and the seafarer needs such a service if he is not to lose ' much of the stimulus and training ' of his earlier technical education.

Would not a centralized service of this kind, available to all British seafarers, be of value not only to the seafarers and their ships, but also to the Nation ?

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This paper is published with the approval of the Lords Commissioners of the Admiralty, but the responsibility for any statements of fact or opinions expressed rests solely with the author.