CORRESPONDENCE

Sir,

Availability—A Correction

My attention has been drawn to an error in the calculations which underlie Figs. 6 and 7 of the article 'Availability—A Methodical Approach' which appeared in Vol. 16, No. 1 of the *Journal*. Unhappily the error exaggerates the reliability gain accruing from stand-by redundancy. The new Figs. 6 and 7 show corrected versions of the offending illustrations with my apologies to readers who have been misled by the erroneous originals.

(*Sgd.*) A. O. F. Venton,
Commander, R.N.

Sir,

Integration of the Shipwright Branch

I read with sadness Captain Garstin's comments about Shipwrights in his discussion of the Marine Engineering Branch Investigation, 1966, reported in Vol. 17, No. 1 of the *Journal*.

On taking over as Training Commander of H.M.S. *Caledonia*, I tried in vain to have reversed the decision to abolish the ERA metalworker, The concept of a

(a) SERIES SYSTEM   R   0·0173

(b) SERIES SYSTEM WITH PARALLEL REDUNDANCY   R   0·1295

(c) SERIES SYSTEM WITH STANDBY REDUNDANCY   R = 0·2918
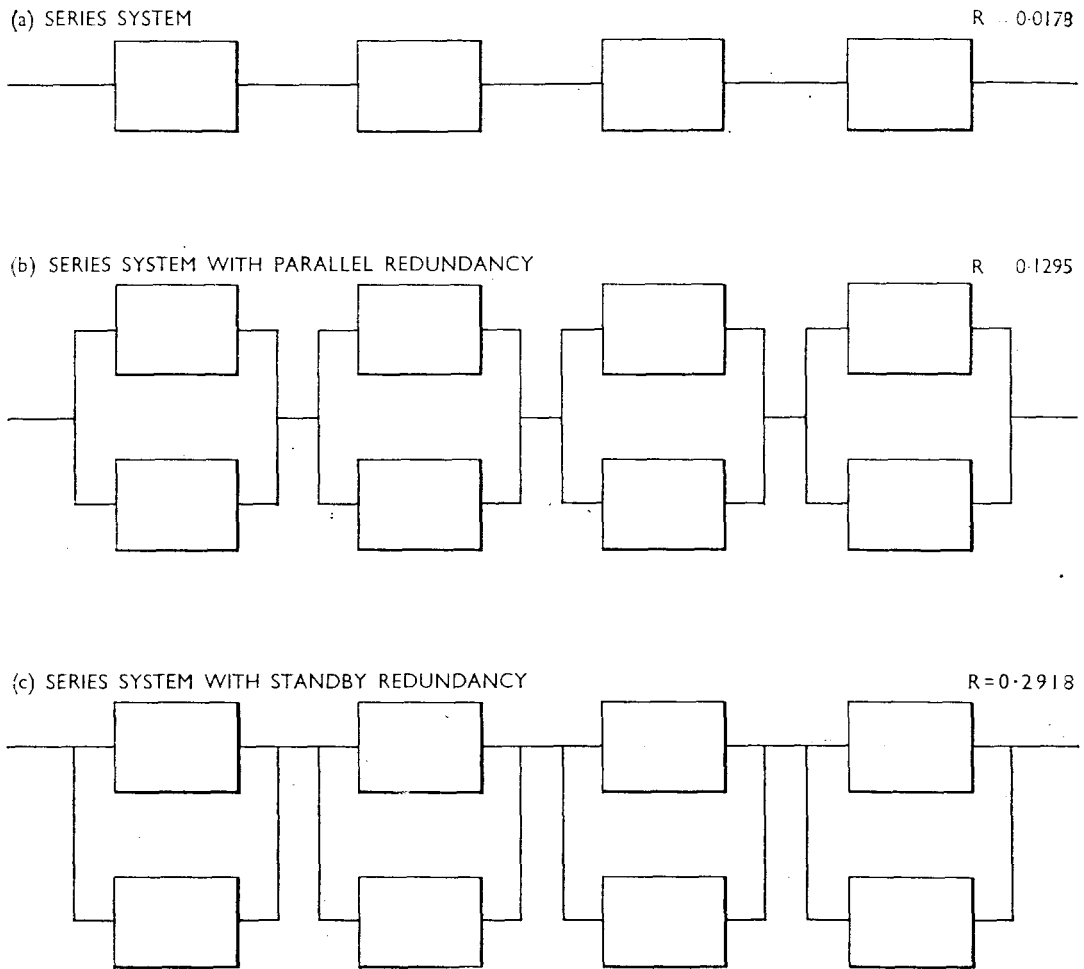

FIG. 7

shipwright artificer as the only welder and coppersmith in a small ship seemed clearly quite unrealistic.

If, before we embark on a palliative scheme of converting shipwrights into part-time ERAs, which will please nobody, we were to try to fit the Shipwright Branch to the Shipwright task, we would surely wish to:

(a) Reduce the Shipwright Branch by up to 50 per cent

(b) Employ shipwright artificers only in larger ships, depot ships, maintenance units and on squadron staffs, where they could use their skills

(c) Re-introduce ERA metalworkers, and give them and the shipwrights craft training along the lines which I suggested in 1960—I suppose it is still in the pack.

By doing this, the Shipwright Branch would be preserved and would fit its task, which is, of course, hull maintenance. The MEO would have a really well-trained coppersmith available, which is what he needs.

The shipwrights, after their initial howls of indignation at being cut down to task, should find their prestige increasing as less of their time is spent elbow-deep in soil pipes or crouched over ships' crests.

(*Sgd.*) E. D. HARWOOD,
Commander, R.N.

Sir,

The Computer as a Tool for Information Retrieval

The article in the June 1967 issue of the *Journal of Naval Engineering*, 'Classification = Clarification', by Engineer Lieutenant F. Tapson, drew attention to the ever-growing diversity of technical information sources and to the difficulties experienced by the searcher.

His proposal to adapt the Dewey library system is ingenious, but however much an improvement it may be on the existing chaotic situation of technical information, it is still an index. The task of reclassifying all the information sources extant would be prodigious and almost certainly beyond the resources which could be made available to do it, since to be complete such an index must take into account not only the titles of textual material but also the contents.

There are essentially two problems: the indexer may use different indexing terms from those used by the searcher or the indexer may not index from a particular standpoint at all, i.e., operational aspects may not be fully covered in technical information indexes. In addition to these inherent problems the indexer may make a mistake, or for reasons of time or convenience, produce an index which is not complete or one at long intervals of time. Unlike the librarian, the searcher can never be certain that he has investigated all possible sources of information or that the information which he has found has been fully updated.

The ideal way to search a mass of source documents is to read them all. Human beings cannot do this and they are thrown back upon indexes. Computers, however, are not so limited and their speed permits them to read all of the documents entirely.

There are certain difficulties in deciding how best to feed the information into the computer, but recent work at Nottingham University (*i*) on the Statute Law appears to hold some hope that a similar system might be suitable for technical information in textual form.

There appear to be four principal requirements for information retrieval:

(*a*) An electronic index to technical information

(*b*) A means of duplicating information contained on the magnetic tape file

(*c*) The preparation of comprehensive indexes and bibliographies of technical material

(*d*) A means of answering operational and technical questions directly.

Principle of a Computer Based Information Storage and Retrieval System

A library file on magnetic tape is prepared of all the documents which it is required to store. This is done by copy-typing the full text on a tape-typewriter. Although editorial work is kept to a minimum, a certain amount must inevitably be done. The first step in the editorial process is to break down the textual material into 'documents' and within each document there may then be a further division of 'sub-documents'. Each sub-document will contain textual material relating to one particular aspect of the more general field covered by the document. The second step in editing is to abbreviate certain commonly used and non-informative words and the edited paper tapes are read into the computer. The next step is to produce concordance tapes and the computer is instructed to read the file with the object of finding a document, or part of a document, which contains key words in a defined word distance relationship to each other.

The searcher must choose the correct key words and allow for the grammatical and other variants which will appear on the tape and for which the computer cannot itself allow. Certain aids can, however, be developed to help, such as a

word list in the documents and a list of synonyms compiled either manually or by the computer as it builds up experience. The time needed to make a computer search will depend on the amount of technical information sources to be searched, but studies made ((*i*) above) on computerising the UK Statute Law, which comprises 18,000,000 words, indicate that a search of this size takes 40–60 minutes. However, since a large number of searches can be carried out concurrently, a continuous process of searching can quickly be established. Storage techniques can also affect this estimate and tape space can be saved by replacing certain common words by symbols. Search times can be further reduced by the use of disc files but this is really only significant with on-line systems, with which we need not concern ourselves at this stage. In Horty's system (*ii*) all words and their concordances are stored in strict alphabetical order. It is, however, possible to reduce the search time if related documents are grouped together at the forward end of the tape.

Information is loaded in batches of 5,000 to 8,000 words and there will then be available on working tapes:

(*a*) The raw document in character-coded form

(*b*) The word lists and frequency counts for all words

(*c*) A concordance for all non-common words.

These tapes are then added to the information already available in the system.

For updating and amendments, all correspondence and newly-published material would be typed on tape-typewriters as part of the publishing or promulgation procedure and would be dealt with as above on a continuing basis.

Computer Requirements

The hardware requirements for such a system are as follows:

(*a*) A core store of 16K words

(*b*) Paper tape reader

(*c*) A high speed line printer

(*d*) A minimum of 5 tape decks

(*e*) Tape controlled typewriters, initially approximately 12 to deal with existing material.

All of the above equipment is available in the Leo 3 computer installations in the dockyards with the exception of the paper tape reader and the tape-typewriters.

So far in the Statute Law project no insuperable problems have been encountered and the cost does not appear to be prohibitive when related to the possible advantages which computers have to offer in this application.

Conclusion

The setting-up of large scale specialized information centres which store information rather than documents, and retrieve that information mechanically, is a new approach, in the United Kingdom, to the solution of the problem of the proliferation of technical information.

A great deal of work requires still to be done on the subject, but the studies so far undertaken indicate that a solution to the problem may well be in sight.

(*Sgd.*) E. R. GURNEY,
Commander, R.N.

References:
  (*i*) 'Specialized Information Centres' by Alan Kent 1965, Publisher, Macmillan.
  (*ii*) 'The Computer as an Aid to Lawyers', contribution to the *Journal of the British Computer Society*, by D. J. Harris and A. K. Kent (Vol. 10, No. 1).
  (*iii*) 'An Information Retrieval Language for Legal Studies', by W. B. Kehl, J. F. Horty, C. R. T. Bacon and D. S. Mitchell.

SIR,

A Small Ship's Administration

Having had a preview of Lieutenant Morrison's article (p. 481) may I say that it is a good and honest attempt to analyse the current problems. They are all well and accurately stated.

Had Morrison seen or been able to implement the letter by Lieutenant Baller in the last *Journal* (Vol. 17, No. 2, p. 367), describing our cross-reference entry system it would have taken care of most of his problems. This cross-reference system is vital to any integrated index system and is better than his suggested 'Master File Index'.

The 'Master File' concept is good. I adopted it in *Eskimo* and arranged it in SEL number. I, however, carried out one essential rationalization not suggested in the article. This is that the 'Captain's Office' file must be abolished and integrated into the unique SEL indexed master file system. In *Eskimo*, all Captain's Office files on technical subjects were dispensed with and treated as above. Where the subject matter could not be covered by SEL number it was given a simple sequence number (1–30, etc.) and put in the 'second drawer' as in the article. The files themselves were stowed in the combined Technical Office and administered by the MEO and WEO writers. When a 'Captain's letter' on a technical subject came into the ship, it was logged into the Ship's correspondence register and then handed over to the E.O.'s writer who put it in the master file. This master file was then circulated to the Captain and technical officers, the fact that it had left the cabinet being noted on a file register card put in place of the missing file.

If anybody drafted a 'Captain's letter' this went into the file and up to the Captain for approval. It then came back for typing either by the technical or ship's office writer and then back to the Captain for signature. The copy stayed in the file and avoided any necessity for Zerox. One copy went to the 'after action' file kept by the ship's office.

I do not agree with filing PILs entirely by their SEL number for two very simple reasons:

    (*i*) Not all PILs are covered by SEL and therefore have no number to file under

    (*ii*) PILs already have two-number systems on them which can be used.

In *Eskimo*, in fact, all those PILs which could be identified with SEL were filed under the SEL and indexed in order, as shown in the Appendix to Baller's letter. All those that could not be identified (and these were in the majority) were filed in order of the PIL number/letter/number group sequence. This PIL code gives the maker's name, so all PILs grouped in this sequence are automatically in the same sequence as the *Eskimo* cross-reference (the main entry being the maker's name). All PILs were kept in a cabinet next to the master file cabinet.

The numbering system for BRs is agreed with, except that there is a snag since some BRs cannot be identified by SEL number (a case in point being BR 3112—Type 81 Operating Instructions, etc.). These were filed under SEL number and the odd ones put at the end.

I agree that the master record is outdated and should go. The 'master file' concept is far less crude, more efficient and forms its own reference index to correspondence, papers and reports. We also enlarged the master file concept by filing all important signals in it after action had been taken on them—this is particularly important for OPDEF signals and others of a directive nature. For other sources of information, DCIs, FTOs, FTTIs, etc., there was a place on the inside cover of the master file (a suspended system file) where such things could be noted by the EOW (on my instruction, similar to the article).

With regard to the drawings' criticism, this is also all valid. The DEF33A procedure and micro-film technique will eventually solve this, but for the moment nothing can be done. What the article does not mention is what is done with the vast quantity of 'come-in-handy' drawings accumulated by any sensible MEO to supplement his awful reduced scale horrors. In most ships I have been in they have been awarded the honour of a 'heap' in the corner or in the bottom of a workshop locker. These are often invaluable, and must also be stowed in a cabinet under SEL number system.

Regarding spare gear, Morrison's solution is the only one possible to adopt with the present work level and ratings available. The system must be arranged, however, so that the D787 is dispensed with. The S151 ledger sheets must be arranged in D787 page and line number sequence with a cross-reference to the D787 on the S151 page. The grouping should be by SEL number, however, and not by D787'E' number. The master cross-reference caters for this in older ship cases where the D787 is not compiled in SEL number order. There must, however, be a base for the SG group to operate from away from the office. This centre must be habitable at sea in the worst tropical conditions and be reasonably close to at least one bulk stowage. In *Eskimo* this was achieved by completely gutting and re-building the port after corner of the tiller flat, installing air conditioning (by free-standing ACU) and electric light over a new built-in desk. All S151 ledgers (S1066) were kept there as well as the second set of PILs, though these were not used very much. The up-to-date set was in the CTO, since this was the best place for ready access by all interested parties.

With a combination of these criticisms, the article, the previous ones on spare gear, the one by Tapson, and Baller's letter, I feel that we have a completely viable administrative system. The problem is how to get it universally recognized and implemented.

(Sgd.) J. T. G. BOWEN,
Lieutenant-Commander, R.N.
(Late MEO of H.M.S. *Eskimo*)

SIR,

The Monitors

The last British big gun monitor has gone. H.M.S. *Roberts* was the last survivor of a most interesting and unique type of ship that performed a valuable role in two world wars.

I have begun to write a history of these vessels—the ships themselves, their guns, their crews and their service. I should be very pleased to hear from any readers of the *Journal of Naval Engineering* who have any knowledge of the following ships:

World War I: *Abercrombie, Havelock, Raglan, Roberts, Lord Clive, General Wolfe, General Crauford, Prince Rupert, Earl of Peterborough, Prince Eugene, Sir Thomas Picton, Sir John Moore, Marshal Ney, Marshal Soult, Erebus, Terror.*

World War II: *Roberts II, Abercrombie II.*

Although I have now established the basic details I should be particularly interested in accounts of the ships' performance, behaviour of the guns, and personal recollections. Now that official monitor records have been declassified, it would assist me to learn of any relevant memoranda, handbooks, etc., which may have been prepared by various specialist departments, which are not generally known.

I should gratefully acknowledge any assistance in this study.

(*Sgd.*) I. L. BUXTON, PH.D., B.SC., A.M.R.I.N.A.
2-B Woodstone Avenue,
Stoneleigh, Epsom, Surrey

SIR,

Life Begins at 80

As Secretary and Treasurer of the Royal Naval Engineering College Reunion Dinner I have had occasion to correspond with many retired engineer officers. Perhaps the correspondence which has given me the most pleasure has been that with Engineer Commander P. Reeve, R.N. (Rtd.).

This officer is at present teaching Spanish at the University of the West Indies and is still a very much travelled man, and I have recorded that Commander Reeve's date of birth is 12th June, 1879. I enclose his three letters, hoping that you might agree with me that they could be interesting material for the *Journal*.

The first of his letters has been printed in the College Magazine under the title: 'Life Begins at 80'. His reference to 'Cherub' Brown is Vice-Admiral Sir Harold Brown, and 'Nellie' was his own nickname when he was a student. I heard this from another correspondent, Engineer Captain Bertram F. Johns, who was one year senior to Commander Reeve.

His second letter fascinated me, being an ex-College rugby player, and I decided to get out all the old team photographs to check his memory of those far-off days. He was absolutely correct and I was pleased to be able to send him copies of the photographs.

(*Sgd.*) H. MEGSON,
Lieutenant-Commander, R.N.

Dear Sir,

I regret that I shall be unable to attend this year's Engineer Officers Reunion Dinner. My present teaching job does not end until June.

If any of those officers who entered Keyham as Engineer Students in 1898 should be present they might like to hear my news:

Axed—1922   —N.I.D. and free lance translations in Italy.

1922-4—Whitehead Torpedo Works, St. Tropez, France.

1924-33—Bursar, Kelly College, Tavistock.

1933-5—Building Thames-side houses, Hampton Court.

1935-47—New Zealand. Chief Engineer, M.V. *Manukoi.*
Chief Engineer Freezing Works, Waitara.
Manager, Citrus factory, Kerikeri.
Chairman, N.Z. Citrus Growers Association.

1947—Colombia, South America. Assistant Manager, Textile factory, Medellin.

1947-67—Jamaica. Built Tropic Winds Hotel, Port Maria. Lecturer in Spanish, University, W.I. Various teaching jobs.

From Jamaica. Campinos, Soa Paulo, Brazil, restoring worn-out coffee land to pasture and cane. Marshall's Island, Bermuda, citrus plantation.

Bourdigny, Switzerland, restoring fifteenth century chateau; laying out five acres as Park and Gardens.

Lagos, Algarve, Portugal, laying out rice irrigation scheme.

This year's assignments include work in Portugal, Switzerland and Bermuda.

(*Sgd.*) P. REEVE,
Engineer Commander (*Rtd.*).

Dear Sir,

I am home for Easter and have just received the photo of the College (Manadon) and your nice letter.

To deal with your names first: 'Cherub' Brown was a forward and Start scrum-half in the famous Matters' team which beat Devonport Albion 13-3 in 1898. Those were good rugger years: Shaw, Matters, Cooper, Gordon, Roberts, and L. H. Smith all got their England Caps.

I led the scrum when F. S. Carlisle's team drew with them 0-0 in early 1903. H. H. Huxham was in my entry and played full-back. I played three years in the First XV, Honour Cap 1903, and rowed three years in the First Boat.

The Admiralty awarded me the 'Craftsmanship Prize' in 1902 as coppersmith and enginesmith. We worked like apprentices, eight hours a day (wearing officers' caps) in the Dockyard and went to school at night; glorified mechanics —but I loved it and in recent years have shown that I can still use a hammer and chisel.

Do as you like with my letters. If you put them in the Magazine you might send me a copy to show my great-grandchildren.

(*Sgd.*) P. REEVE,
Engineer Commander (*Rtd.*)

Dear Sir,

Thank you very much for your letter, the photographs and the Magazine. I have just returned from Portugal and Geneva. In both places I had a great reception and am due back in Lagos in the Algarve in February.

I was undoubtedly called 'Nellie' by my entry, possibly because I used to blush easily, not that, at 14 stone and something of a boxer, I was very feminine-looking.

As you mention, not many of us are left; we were nearly all destroyer Chiefs in the 1914-18 war and if the ship went down the Chief was rarely saved. Steven Brown was in *Mary Rose* on the Aberdeen–Bergen convoy when *Blucher* sank her. I was in *Salmon* and we had swopped convoys because she had condenser troubles. I missed it again returning from an Arctic convoy when we were pooped and blew up on our own depth-charges. I escaped with a broken neck, which doesn't bother me much—except that I have to drink sitting down.

I was amused at the reference to 'pull-and-push' engines and coal-burning boilers in the *Dreadnought Review*. Personally, I enjoyed them. One learned a lot helping a Chief ERA to scrape a crank-head bearing and as watchkeepers we took pride in clinkering a dirty fire.

Prior to the creation of Warrant Engineers, battleships and First Class cruisers carried from six to eight engineers and two to three hundred stokers

and our great effort was to put it across the Upper Deck in boats and evolutions. At 'In and Out Torpedo Nets', *Albion*'s stokers manning the port waist held a Fleet record, as did *Russell*'s launch (50 stokers) in the boats pull round the Fleet. But sailing, rowing and rugger were our greatest joys. In China, in 1904, we Engineers beat the rest of the Fleet by 30 points to nil. *Amphitrite*'s stokers 14-oared cutter, in which I pulled second stroke, won the Fleet Trophy in 1905.

In 1907, Barry Hocken in *Albemarle*'s cutter, which he rigged as a topsail schooner, won the Atlantic Cup for Fancy Rigs, beating Admiral Curzon-Howe's gig. In 1908, E. J. Mowlen and myself in *Russell*'s pinnace beat Prince Louis of Battenberg in his gig for the Mediterranean Cup. In this race, Service Rig, we had a crew of 40 stokers whom I used as ballast—they lay in the bilges. Our success was largely due to a spinnaker made by rigging the spare foresail onto three oars lashed together. The Committee tried to disqualify us as the race was Service Rig but Prince Louis would have none of that and invited Mowlen and myself to dinner and the Opera where, incidentally, I met my future wife.

Incidentally, in *Amphitrite* when the Chief was promoted to Engineer Captain in 1905, he exercised his privilege—dating from 'up funnel down screw' days when engine room personnel manned the 'st'an'als'—of being rowed from the ship in the stokers' cutter—men in straw hats, white jumpers and blue cloth trousers—which he manned from the port boom.

(*Sgd.*) P. Reeve,
Engineer Commander (*Rtd.*)