

# ANOTHER BOOK PLEASE!

BY

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What is the angle of an Acme thread? What thickness is 22 S.W.G. sheet? What is the formula for the volume of a cap of a sphere? What is the difference between the Ardrox 610 and Ardrox 667 cleaning processes?

Engineers who can answer those questions straight off, or readily find the information in their office need read no further, but it is fairly certain that this will not qualify many to stop reading. Finding the answers to questions like these, and there are many more which when they arise usually need to be answered as soon as possible, can be very time consuming and even, in some cases, impossible.

COMPARATIVE THREAD TABLE

Nominal Size	Actual Diam. <i>inches</i>	WHIT.	B.S.F.	U.N.C.	U.N.F.	B.A.	A.D.M.	C.E.I.	U.S.S.	S.A.E. Reg.	S.A.E. Fine	S.I.	Metric fine	B.S.P.	BRIGGS	Copper Tube
		55°	55°	60°	60°	47½°	55°	60°	60°	60°	60°	60°	60°	60°	55°	60°
4 B.A.	0.1417					38.5										
4 mm.	0.1575											36.2	51			
3 B.A.	0.1614					34.8										
4.5 mm.	0.1772											33.8	51			
2 B.A.	0.1850					31.4										
3/16	0.1875	24	32					32			32					
5 mm.	0.1969											31.8	51			
1 B.A.	0.2087					28.2										
6 mm./O.B.A.	0.2362					25.4						25.4	33.8			
1/8	0.2480															28
1/4	0.2500	20	26	20	28		24	26	20	28	36					
7 mm.	0.2756											25.4	33.8			
5/16	0.3125	18	22	18	24		24	26	18	24	32					
8 mm.	0.3150											20.3	25.4			
9 mm.	0.3543											20.3	25.4			
3/8	0.3750	16	20	16	24		24	26	16	24	32					
1/8	0.3830													28		
1/4	0.3890															20
10 mm.	0.3937											16.9	25.4			
1/8	0.4044														27	
7/16	0.4375	14	18	14	20		24	26	14	20	28					
12 mm.	0.4724											14.5	16.9			
1/2	0.5000	12	16	13	20		20	26	13	20	28					
3/8	0.5140															20
1/4	0.5180													19		
1/4	0.5343														18	
14 mm.	0.5512											12.7	16.9			
9/16	0.5625	12	16	12	18		20	20	12	18	24					
5/8	0.6250	11	14	11	18		20		11	18	24					
16 mm.	0.6299											12.7	16.9			
1/2	0.6390															20
3/8	0.6560													19		
3/8	0.6714														18	
11/16	0.6875	11	14				20			16	24					
18 mm.	0.7087											10.3	16.9			
3/4	0.7500	10	12	10	16		14		10	16	20					
5/8	0.7640															20
20 mm.	0.7874											10.3	16.9			
13/16	0.8125	10	12				14									
1/2	0.8250													14		
1/2	0.8355														14	
22 mm.	0.8661											10.3	16.9			

Some of the information needed to answer such questions is contained in BRs and other official publications, but not all of it; and the little that there is is somewhat scattered or else in a place so unlikely that looking there is regarded as an act of desperation. We have all, no doubt, made use of the old note book or annual which is always kept in the top left-hand drawer of the Senior Engineer's desk (or which the C.E.R.A. has in his locker!). It has always fascinated me how old such books are. I suppose there is such a thing as an up-to-date *Mechanical World Year-Book*? From my experience it would seem that such information, not of an ephemeral nature, could usefully be gathered together so that it would be more readily available. Even, in some cases, making it available in an official publication for the first time. The following paragraphs suggest some of the things that such a book might contain.

### **Screw Threads**

A knowledge of these could be classed as basic engineering, yet information is very scarce indeed in official publications. A single comprehensive table (such as is shown in FIG. 1) would fill a considerable gap in our knowledge and be of inestimable value in repair work. Following this would be the more conventional tables of the different screw systems giving detailed dimensions, tapping sizes, etc. A table of hose connection threads would alone save innumerable man-hours throughout the Fleet—all those man-hours in fact for which men (usually skilled) are employed in measuring and making sketches for the adaptors that always have to be made. BR 3001 Article 1110, para. 2 exhorts us to use an Acme thread in certain applications, and many ships possess every facility except the one to do so, and that one is the very necessary tables. Thread inserts are now used on many components but there is a dearth of information on their repair and replacement.

### **Technical Dictionary**

This would fill a tremendous gap in the state of our knowledge that is currently accessible. There are certainly sufficient names and sets of initials in use (with undoubtedly many more to come) to make quite a list of items needing definition. Where appropriate, references could be given to other sources for fuller information. For example, does everyone know sufficient about the following few to be able to deal unhesitatingly with them:- Caposite, Calcium Silicate, Glacier Du, Lox, Methyl Bromide, Segar, Silicon Dioxide, P.L.E.C.A., or P.T.F.E? Some information is usually available when a substance is introduced but then, apparently, has no place in any existing publication and is subsequently lost. In DCI(RN) 573/67 it stated, 'The known hazards concerning any new solvent or chemical process introduced at Headquarters will be indicated in the introductory DCI(RN) or letter . . .' but it didn't go on to say what would happen to the information later. It might be incorporated somewhere, but it might not because a suitable place for it doesn't exist, and the possible number of such gaps is steadily increasing.

### **Properties of Materials**

There are many materials in service use, some more common than others, but all of them presumably necessary for the job that they do. Each has its own characteristics and 'do's and don'ts', but the little information that is available in print is widely scattered. One complete table is required showing such things as: usage, identification, workability, weldability, strength, density, etc., with remarks on limitation, replacement and repair.

### Miscellaneous Tables and Data

This heading covers the many other items of information that are required from time to time but which are seldom readily available, such as:

Conversion Tables, Factors and Equivalents

Sheet and Wire Gauges and Drill Sizes

Basic Formulae, which everyone remembers how to use but not exactly what they were!

Four-figure Tables; these already exist in B.R.557 but are not usually held by Engineer Officers, and in their existing format would only be lost in an Engineer's Office anyway!

Steam Tables; an abridged set only which is all that is normally needed for quick reference, with a mention of the full set to be found in BR 1902 under the relatively obscure title 'Thermodynamic Properties of Fluids'.

### Notes

Under this heading come the many useful articles, leaflets, abstracts, etc. which are issued by various authorities from time to time. They are usually zealously preserved against the day when they will be needed, and then cannot be found! Some sample titles selected from among my own hoard will illustrate what is meant: 'Identification of Metallic Particles in Sump Oil Filters', 'Tests for Contamination in Lubricating Oils' and 'Specifications and Equivalents for Boiler Feed Water Tests'.

Then, too, a concise version of the splendid and useful booklet 'Questions for Advancement' produced by H.M.S. *Sultan* would find a permanent home here. In the same section, an outline in note form of a series of lectures suitable for various degrees of advancement would save the time of many engineers.

No doubt everyone can produce his own list of subjects for inclusion and the resulting volume would be too big to handle! But at least if notes of the above sort were produced to a standard format, the individual having made his choice of what to keep and what to discard, would have somewhere to put them.

### Bibliography

There is a grave lack of a suitable guide to further reading in the field of Marine Engineering and its related subjects and such a section would find a natural place in this book. It would enable any engineer to find a list of suitable reading material so that he could readily pursue the particular topic in which he was interested. An exhaustive list is not needed, but an annotated guide to the standard works on various aspects of engineering would serve to introduce the subject and lead to other sources. Also, such bibliographies bring to people's notice aspects of a subject (and its literature) of which they may not have been fully aware, and serve to lead them on.

Undoubtedly there are reasons against the production of such a book or it would have been produced long ago. The need has been there for some considerable time, and the passing of time increases that need. No doubt the first point that would have to be made is that such a book would have to be a 'note book' and issued for guidance only, not a series of mandatory directives or regulations, or else much that could be of benefit would be excluded. One thinks here particularly of information concerning some of the more recently introduced materials where a voluminous specification might have to be given if the work was to be considered definitive rather than a concise guide.

There is a gap for just such a book on our book-shelves and, produced in a modern binder (like BR 96 which does lie flat when opened) it would become the most used volume there.