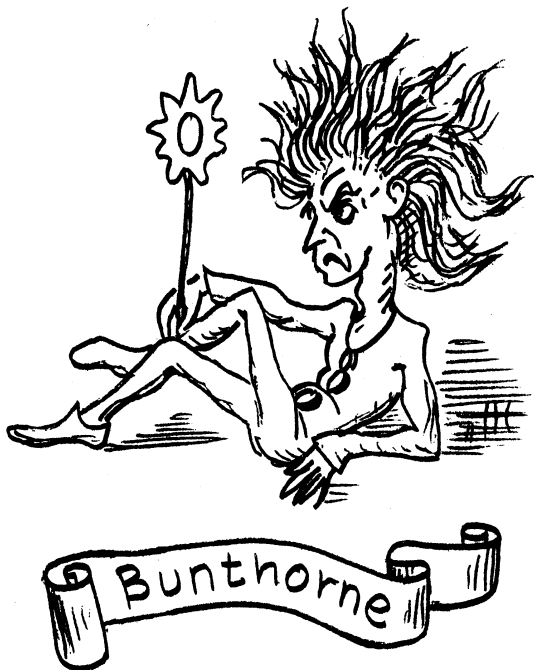


The Literate Naval Architect

Harry Benford

Benford, Harry



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THE LITERATE NAVAL ARCHITECT

by

Harry Benford

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FOREWORD

As my Exclusive Western Hemisphere Agent, Professor Benford has repeatedly demonstrated his editorial capability in rewriting my technical and philosophical papers, which I always inscribe in Sanskrit -- an innocent foible acquired during my Heidelberg days. A few years ago I discovered that the professor kept a little black book that was the secret of his literary prowess. In it he listed his standard abbreviations and choices for alternative spellings. He admitted that before he prepared his little book he would speak of "Figure 3" in one place, "Fig. 3" in the next, and "figure 3" in another. He wrote "cargos" in one line and "cargoes" in the next, while disappearing and reappearing hyphens were thick as leprechauns on St. Patrick's Day.

I was so impressed with the practicality of the good professor's list of standards that I urged him to make it available to others. This he agreed to do and went one step further in writing several preliminary chapters that he felt might be of help to young naval architects. His paper is no substitute for either a grammar book or a style manual but is primarily intended as a naval architect's supplement. There are, of course, alternative acceptable forms for many of the words in his standard list; those shown are merely his personal choice and anyone is free to accept them or not. The important things are consistency and clarity.

All of us are profoundly grateful to my hereditary patron, Lord Vladimir of Basingstoke, for his gracious generosity in providing the funding necessary to publication of this worthy opus. Splendide mendax!

Heinrich Bjöenfjard

Professor Emeritus of
Chimerical Engineering

Hammerfest
November 1967

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CHAPTER I

INTRODUCTION

There are two universal gripes we hear about our graduates: they don't check their work and they don't know how to write. There's little we can do about the first complaint, but this minor opus may help with the second. And, incidentally, employers have observed that those few engineers who do write well are the same ones who come up with the best solutions to engineering problems. Cause and effect are mixed here, but who can doubt that the engineer who learns to write well also learns to think more clearly.

Most of us, when writing a paper or report, are so intent on what we have to say that we forget the mechanics of how we are saying it. On the other hand, if we concentrate too much on the mechanics of writing, we are likely to get snarled up in expressing the thoughts we are anxious to put across. This paper aims to improve the mechanics of your writing so you can put your concentration where it belongs: on the subject matter.

Unless you're a literary marvel, you'll find it pays to attack your writing chore in several cycles. First jot down an outline, then write as uninhibitedly as possible. Don't give a thought to spelling, punctuation, or literary style in this cycle; just put those thoughts down as fast as you can, and if you're stuck for the right word, leave a gap and keep scribbling. In your subsequent refinements you can fill gaps, check spelling, and all that, to your heart's content.

Any young naval architect who thinks he can depend on some benevolent editor or exceptional typist to civilize his writing is in for a shock. If you aspire to a professional quality final product, you had better submit a professional quality manuscript. Make every effort to have all words (and especially people's names) correctly spelled and to be uniform in your format and use of words.

Your duty arises again after each successive stage in the duplication process. Endless proofreading is a cross any careful writer must bear. The total elimination of mistakes in a lengthy work is close to impossible, so look upon the job as a challenge rather than a bore. Go through each draft several times: once quickly to see how it sounds, then once carefully (with partner) to pick the fly specks out of the pepper. Then make special checks for mistakes that are hard to spot: running heads, captions, sequence of words from one page to the next, reference and figure numbers, and so forth. Make a particular effort to eliminate all self-evident mistakes. Does your table of calculations agree in

Introduction

detail with your graphic presentation and with the discussion of results -- or did you make a last minute change in one place and overlook the others?

Go through your manuscript at least once in a special effort to eliminate useless words or phrases. "Planning ahead" and "future predictions" are typical examples of wasted words. Can you plan backwards, or predict the past?

An inaccurate or sloppy final product is not likely to give the reader a favorable impression of your technical competence; nor does an accurate, professional-looking final product come about by accident. So make up your mind, from the very beginning, to be engineer, author, and editor as the occasion demands.



CHAPTER II

ROGUES' GALLERY OF SPELLING

In the tenth chapter a large number of words are listed in an effort to standardize their spelling and capitalization. Certain words, however, are such frequent villains that this special chapter has been prepared just to unmask them and to make them stand exposed to the public gaze. Behold and beware:

1. Make it your principle to spell Principal Dimensions correctly.
2. Always leave enough room to accommodate two m's in symmetric.
3. Proper spelling in a report has a good effect and will favorably affect the reader.
4. It is sheer foolishness to call the curve of a deck the shear. (The latter term is used only by sheep herders and stress analysts.)
5. Any naval architect who spells it "navel" will be too poor to keep his umbilicus covered.
6. It will help you move forward if you spell Foreword correctly in your next paper.
7. Maintain your resolve to keep the ten in maintenance.
8. You'll get no compliment unless you refer to the crew as the complement.



CHAPTER III

DOUBLE DOUBLE

Several pairs of look-alike words were exposed in the preceding chapter. There are certain others that are not so much misspelled as misused. These couples have been living too long in open sin:

1. Continual: Repeated
Continuous: Without interruption
Continuous vibration can cause continual trouble with crew resignations.
2. Alternate: First one and then the other
Alternative: A choice (of two or more)
The alternative to alternating current is direct current.
3. That and which are frequently interchangeable.
Try, however, to confine the use of which to those expressions that could be put in parentheses.
The rudder, which was in ancient times mounted on the ship's right-hand side, gave us the word "starboard" (steerboard). If we have two rudders, the one that is on the starboard side is usually linked to the one that is on the port side.
4. Criterion: Singular
Criteria: Plural
5. Datum: Singular
Data*: Plural to the purist, singular to the rest of us
(You may be wise in avoiding these words. You can't win; either you offend the purist or interrupt the thought of the average reader.)
6. Controllable-pitch propeller (preferred); also variable-pitch or reversible-pitch: Propeller in which blades can be mechanically rotated at will
Varying-pitch propeller: Propeller with changing pitch between root and tip of blade
Adjustable-pitch propeller: Propeller having detachable blades with slotted holes allowing occasional change of position
(These three qualify as a double double double.)

*Couth people say dayta. Uncouth people say datta.

7. Light ship: Weight of the empty ship
Lightship: A floating lighthouse
8. Alumnus: Singular (masculine)
Alumni: Plural (masculine)
9. Imply: To express indirectly
Infer: To conclude
10. Underway: Proceeding
Under weigh: Same as above, but obsolete since the reign
of Julian the Apostate
11. Discreet: Cautious
Discrete: Distinct
12. Comprises: Is composed of, embraces, includes
13. Farther: More distant
Further: To a greater extent, more
I shall walk farther to contemplate further.
14. Definite: Clear and explicit
Definitive: Decisive and final judgment



CHAPTER IV

MYSTERIES OF THE FORMAT UNFOLDED (by Mary Schnell, unfolder and editor)

In a typical technical paper or report, the sections appear in the sequence listed below. You can of course omit sections if they are not needed.

Title page
Copyright page (if copyrighted; if not, leave blank)
Dedication page
Foreword
Preface
Acknowledgment page
Contents page
List of figures or illustrations
List of tables
List of abbreviations
Abstract
Introduction and text
Appendix
Notes
Glossary
Bibliography
Index

All of the above sections should begin on a right-hand page, except for the copyright notice, which appears on the back of the title page.

Anything appearing before the contents page is NOT listed in the contents. The table of contents is obviously a table and should therefore simply be entitled "Contents." The same is true of various lists; the list of tables, for example, being entitled "Tables."

The foreword and the preface are used interchangeably although technical differences do exist. A preface is usually written by the author and is unsigned; a foreword is written by someone else (usually well known in the field and particularly knowledgeable on the topic concerned) and is signed. A preface or foreword deals with the genesis, purpose, and scope of the work. Acknowledgments may also be included if too few to warrant a separate page. If written by someone other than the author, the foreword will usually cover a wider range than the preface, i.e., the foreword may contain comments on the relationship between the topic under discussion and

Mysteries of the Format Unfolded

the field in general, or a related aspect of the field, or some interesting and relevant history on the subject matter.

An introduction deals with the subject of the work and is usually part of the text (Chapter I). If the introduction is written by someone other than the author, or if it is of a prefatory nature, it is placed before the contents page, with, or in place of, the preface or foreword.

The pages preceding the first chapter are numbered with lower-case Roman numerals (i, ii, iii, iv, ...). Although these pages are counted in the numbering system, we do not actually write the numbers on the title page, copyright page, dedication page, acknowledgment page, contents page, lists of figures, or blank pages. If both sides of the sheets are printed, the title page begins on page i, the back of the title page is page ii, the dedication page (if there is one) then would be page iii -- otherwise the foreword would become page iii -- and so forth, with Chapter I beginning on page 1. The right-hand pages have odd numbers; the left-hand pages, even numbers. Each part begins on a right-hand page, although Chapter II and subsequent chapters can begin on either right- or left-hand pages.

CHAPTER V

AN ABBR'V'T'D CH'MB'R OF H'RR'RS

Engineers use symbols and other abbreviations in their technical conversations; shp, I/y, GM and rpm are examples of shortcut terms used by every naval architect and marine engineer. Even in conversation, such usage can get out of hand. BM means one thing to the expert in stability, another thing to the structures man, and a third thing to your family physician.

In technical writing, abbreviations and symbols should be kept to an absolute minimum. If some term is to be used repeatedly, it may be permissible to add its abbreviation in parentheses after the term the first time it appears, using only the abbreviation thereafter. Be careful, however, in long reports where many readers may study only isolated portions. Including a glossary usually is advisable, and that also gives you a chance to really pin things down.* Otherwise readers will never know whether shp is the normal or maximum shaft horsepower and only your family physician will feel at home with your BM.

The following notes are quoted directly from the American Standards Association pamphlet "Abbreviations for Scientific and Engineering Terms." Standard abbreviations from the same source are tabulated in Chapter XI.

Scope and Purpose

1. The Executive Committee of the Sectional Committee on Scientific and Engineering Symbols and Abbreviations has made the following distinction between symbols and abbreviations: Letter symbols are letters used to represent magnitudes of physical quantities in equations and mathematical formulas. Abbreviations are shortened forms of names or expressions employed in texts and tabulations, and should not be used in equations.

Fundamental Rules

2. Abbreviations should be used sparingly in text and with due regard to the context and to the training of the reader. Terms denoting units of measurement should be abbreviated in the text only when preceded by the amounts

*"... to really pin ... " is a bald-faced, split infinitive, included here not so much to rile my purist friends as to show you a mildly horrible example. Split infinitives can be avoided in most cases.

indicated in numerals: thus, "several inches," "one inch," "12 in." In tabular matter, specifications, maps, drawings, and texts for special purposes, the use of abbreviations should be governed only by the desirability of conserving space.

3. Short words such as ton, day, and mile should be spelled out.

4. Abbreviations should not be used where the meaning will not be clear. In case of doubt, spell out.

5. The same abbreviation is used for both singular and plural, as "bbl" for barrel and barrels.

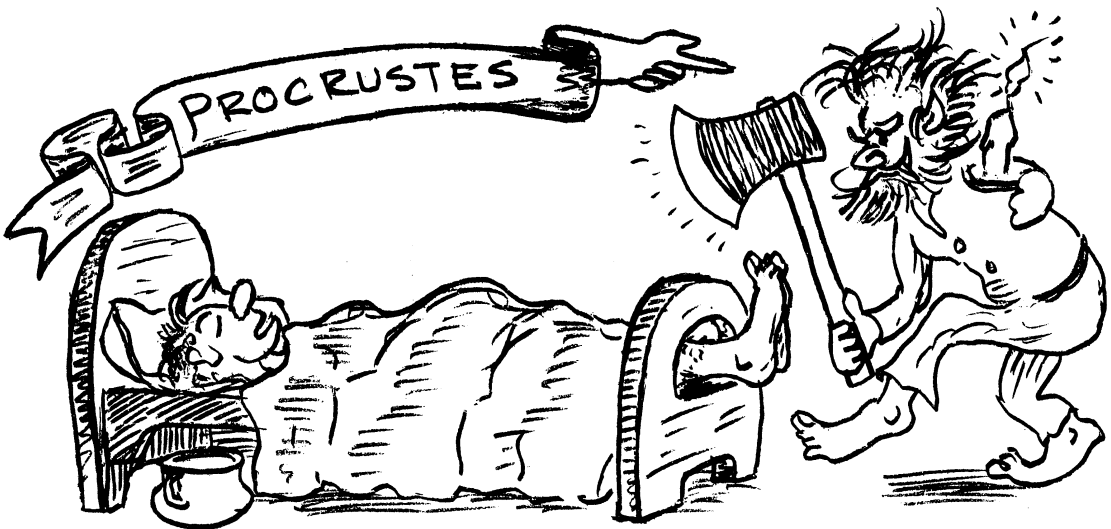
6. The use of conventional signs for abbreviations in text is not recommended: Thus, per, not /; lb, not #; in., not ". Such signs may be used sparingly in tables and similar places for conserving space.

7. The period should be omitted except in cases where the omission would result in confusion.

8. The letters of such abbreviations as ASA should not be spaced (not A S A).

9. The use in text of exponents for the abbreviations of square and cube and of the negative exponents for terms involving "per" is not recommended. The superior figures are usually not available on the keyboards of typesetting and linotype machines and composition is therefore delayed. There is also the likelihood of confusion with footnote reference numbers. These shorter forms are permissible in tables and are sometimes difficult to avoid in text.

10. A sentence should not begin with a numeral followed by an abbreviation. Abbreviations for names of units are to be used only after numerical values, such as 25 ft or 110 v.



CHAPTER VI
SAFETY IN NUMBERS

Unless your technical paper is just a lot of hot air in print, it will contain plenty of numbers, not only in tables but also scattered throughout the text. Numbers are not always easy to standardize, but here are a few random suggestions:

1. Numbers over ten are not spelled out unless they start a sentence:
The temperature was 15 degrees.
2. Numbers up to and including ten are spelled out unless they are closely associated with larger numbers:
The temperature jumped from 5 to 15 degrees.
3. Some editors do not spell out the small numbers when followed by a technical unit:
There were eight of us in that 8-ft boat.
4. Hyphenate numbers and units when units are singular:
A 20-knot ship frequently slows down to 12 knots in heavy weather. A 15-knot ship suffers proportionately less.
5. Spelled-out fractions are hyphenated when used as modifiers:
The fleet is two-thirds wrecked.
Two thirds of the fleet is wrecked.
6. Commas can be difficult. They should be used in numbers with five or more digits. I favor omitting them in four-digit numbers. Use your own judgment but try to be consistent.
7. Use fewer with whole numbers, less with sizes, dimensions, or amounts.

CHAPTER VII

A SEMI-POX ON HYPHENS!

You must now be made aware that those innocuous-looking little things called hyphens have diabolical Frankenstein-monster-like tendencies. One editor, after a lifetime of study, concluded: "If you take hyphens seriously, you will surely go mad." And not everyone realizes that the earliest unexpurgated version of Dante's "Inferno" had an entire canto devoted to the little incubi. The number one rule, then, is to keep hyphens from multiplying; when in doubt, stamp 'em out.

Pairs of short words have a historic tendency, as they become more commonly accepted, to become joined:

1. Labor saving device
2. Labor-saving device
3. Laborsaving device

In line with the philosophy of the first paragraph, Step 2 might well be eliminated in many instances. If the words are long, leave them separated. If they are short and look reasonable when joined, join them.

Hyphens are frequently necessary if we are to avoid ambiguous modifiers. Thus, an aluminum-ore carrier is a ship that carries bauxite, while an aluminum ore-carrier is an aluminum-hulled carrier of ore. And what do you think of the designer of a crude oil tanker?

Hyphens are also necessary where two or more adjectives must be tied into one:

1. Labor-management problems
2. Passenger-cargo ships
3. Political-economic considerations
4. Speed-length ratio

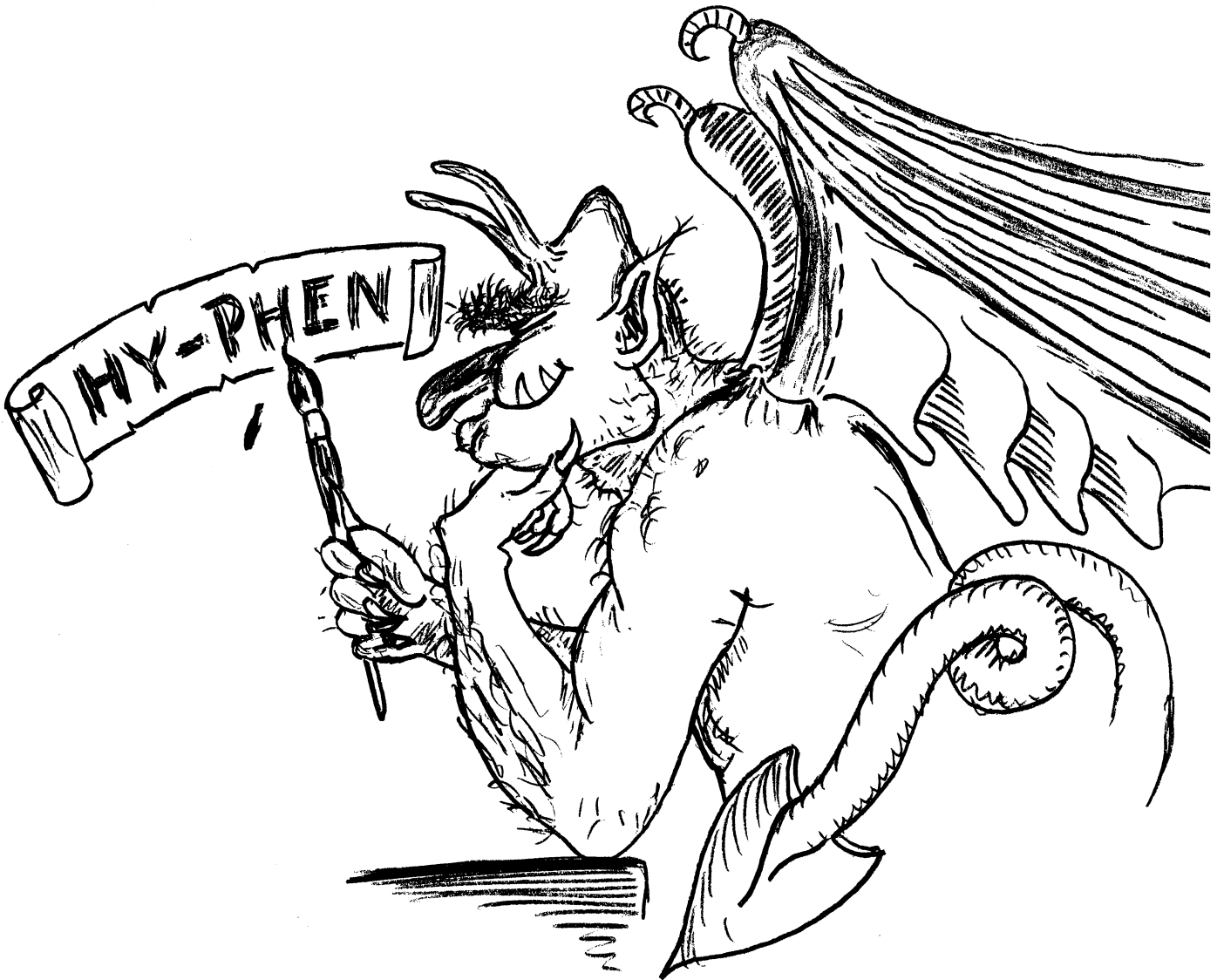
A pair of words that modify another are frequently married into one or hyphenated:

This is a cast-iron fitting; it is made of cast iron.
The shortcut study is indeed a short cut.
High-grade ores are invariably of high grade.

A Semi-Pox on Hyphens!

Where to break words that are continued onto another line is another baffling phase of the hyphen tangle. For one thing, try to do it as infrequently as possible. If you must break a word, look at both parts. Usually, the first letter of the second line should be a consonant. Avoid breaks that result in nonsense (or vulgar) words and never break a word at the end of a page.

Other tips can be found in any dictionary or grammar book. However, these may be out of date (out-of-date?) so be careful. Use hyphens where they definitely help clarity. Otherwise, try to eliminate them.



CHAPTER VIII

CAPITAL OFFENSES

Propagandists habitually capitalize the first letters of words or phrases that have, for them at least, emotional connotation. The words somehow seem more significant if thus adorned. Marine literature abounds in Winnie-the-Poohisms (That Kind of Bear): Merchant Marine, Labor's Equity, Differential Subsidy, Automation, Block Obsolescence, Shipbuilding Industry, and even Unlicensed Seamen and U. S. Bottoms. Avoid this Bad Habit lest readers mistake you for just another Breast Beater.



CHAPTER IX

ASSORTED ADMONITIONS

1. The knowledgeable minority's consensus is that consensus of opinion has two redundant words.

2. When you have both a quotation mark and a comma or period in one place, put the quotation mark last. This is simply a matter of looks:

"You may fire when ready, Gridley."

"I forgot the matches," replied Gridley.

3. The so-called impersonal style is gradually becoming obsolete. Avoiding reference to the first person supposedly convinces readers of your objectivity, but anyone who thinks about it realizes that the whole idea is merely a thin semantic disguise. Calling yourself "the writer" is not so much modesty as self-consciousness. And hiding behind "it is believed" instead of "I think" only obscures your ideas. Things get muddy indeed when you turn out written discussions with: "It is felt that the author's reference to the writer's views demonstrates the author's ignorance of the writer's opinion of the author's theories." You can imagine the author's reply.

In a similar vein, say "you," not "the reader"; and say "you can do it," not "one can do it."

Technical people, having grown used to the impersonal style, are still apt to be a little shook up when they find an "I" in a technical report. Nevertheless, the advantages in clarity and brevity of "I think" in place of "the writer believes" or "it is thought" are too pronounced to deny forever. Let's keep chipping away at that conceited wretch, "the writer," or even worse, "the author."

4. Many slang terms are so appropriate that they become widely accepted and gradually absorbed into the language. During the transitional period, don't be afraid to use such words, and don't embellish them with needless quotation marks unless you actually disdain the term. Don't use slang, however, if its meaning isn't clear.

5. Don't say "this type machinery."
Say "this type of machinery."

6. Equations should be separated from the lines of the text without benefit of special punctuation. The following paragraph is an example:

Lord Vladimir of Basingstoke, in 1927, promulgated the relationship

$$W = C \sqrt{\text{shp}} \quad (1) \text{ or } [1]$$

where

W = weight in long tons

C = coefficient whose value varies with
type and location of machinery

shp = maximum rated shaft horsepower

Table 6 shows typical values of the coefficient C.

7. Very many writers are quite prone to overwork the words "quite" and "very." Be very careful that you do not become quite addicted to that very very bad habit.

8. Whenever you use the word "utilize," stop and ask yourself if "use" wouldn't do the job as well.

9. The past participle of "forecast" is also "forecast," not "forecasted."

10. In technical writing, apply the neuter gender to ships unless you are referring to a specific vessel. Even there, I should hesitate to write "she" in connection with a garbage scow, or an ore carrier named after some bearded steel baron.



CHAPTER X

STANDARD SPELLING

<u>A</u>	<u>C</u>	<u>F</u>
above-indicated	cargoes	federal
above-mentioned	catalog	Figure 3, but "the above figure"
absorption	changeable	fireproof
acknowledgments	changeover	first class
Act (referring to law)	chapter (but Chapter V)	"flags of convenience"*
adjustable-pitch	clean-cut (adj.)	forces in being
adviser	clear-cut (adj.)	foregoing
age-old	coequal	foreign built
agreed-upon	controllable-pitch propeller	foreign flag
air cushion vehicle	container ship	forward-looking
airport (land facility)	cooperation	fuel-saving
air port (round window)	cross section	full-scale (adj.)
all-inclusive	cutout (adj.)	
all-out		<u>G</u>
all right	<u>D</u>	germane
already	decimal	goodwill
America: use United States	degrees: master's degree but masters' degrees	government built
American: use U.S.	displacement-length	governmental (adj.)
apologize	drawback	ground effect vehicle or machine (air cushion vehicle preferred)
assumed	dry dock	guarantee
	dual purpose	guideline
<u>B</u>	<u>E</u>	gypsy-head
back-up (adj.)	engine room	
below-deck	engineroom (adj.)	
beneficiated	ever increasing	
break-bulk	everwidening	
breakthrough		
build up		
bulk oil		

*Quotes are important here because opposing factions have their own terms and get emotional at the use of any other. The quotes signify that you don't necessarily like the term yourself.

Standard Spelling

<u>H</u>	<u>M</u>	<u>P</u>
heavy-lift	man-days	paddle wheel
high-grade	man-hour	part-time
high-quality	man-to-man	passenger-cargo (ship)
high-speed (adj.)	Mariner-class	pay-back
horsepower	Mariner design	payload
hove-to	maritime related	pay-off
hull form	mass produced	percent (don't use % in text)
	matter-of-opinion (adj.)	pick-up
<u>I</u>		port turnaround
interchangeable	<u>N</u>	postwar
interdependent	nationwide	precut
inter-governmental	naval	preloaded
interrelated	non sequitur	present-day (adj.)
	nontechnological	prestowed
<u>J</u>	nuclear powered	presuppose
judgment		prewar
	<u>O</u>	privately owned
<u>K</u>	objectivity	propaganda
	occasionally	propeller
	occurring	
	ocean going	<u>Q</u>
	off-pier	
	offshore	
<u>L</u>	oil-fired	<u>R</u>
laborsaving	old-fashioned	radio communication
land-based	overall	radio controlled
large scale	overdesign	radiotelephone
Liberty ship	overemphasize	rate cutting
lifesaving	overrefine(ment)	ratios
lighthouse	overriding	raw material
light ship condition	oversupply	reestablish
lightweight (adj.)	over-the-beach	reevaluate
long range		
low cost		

Standard Spelling

R (Cont'd)

reexamine
reversible
roll-on, roll-off
Roll-On, Roll-Off
(in titles)
round trip
rule-of-thumb

S

saltwater
scale effect
screw propelled
sea based
seaborne
seacoast
seagoing
seakeeping
seakindliness
seawater
self-noise
self-propulsion
self-rendering
self-sufficiency
self-supporting
self-unloader
shaft horsepower
shipboard
shipborne
shipbuilder
shipbuilding
ship in being
ship manning

S (Cont'd)

ship model
ship operating
shipowner
ship repair
shore based
shoreside
short cut (noun)
shortcut (adj.)
short haul
short run
shp (avoid except
after number)
single screw
solid-state physics
sizable
so-called
soogee
special purpose
speed-length ratio
stand-by (unit)
steamship
still-water (adj.)
subsection
subtotal
superliner, supertanker

T

through-billing
tie-in
TITLES OF BOOKS
or
Titles of Books
ships' names: SS "Comet"
or SS Comet

T (Cont'd)

transatlantic
transpacific
turnaround
'tween-deck
twin screw
type:
beaching type
commercial type
conventional type
Mariner type

U

underdeveloped
underemphasize
up-to-date
U.S. built
U.S. flag
U.S. (adj.)
usable

V

variable-pitch
Victory ship

W

wall effect
war built
waterborne
waterway
wave making
weight saving
well-known (adj.)
widespread
worldwide
worthwhile (adj.)

CHAPTER XI

STANDARD ABBREVIATIONS

The following abbreviations are extracted from the American Standard recommendations published by the American Society of Mechanical Engineers. These forms are recommended for readers whose familiarity with the terms used makes possible a maximum of abbreviations. For other classes of readers, you may wish to use less contracted combinations made up from this list. For example, the list gives the abbreviation of the term "feet per second" as "fps." To some readers "ft per sec" will be more easily understood.

alternating-current (as adj.)	a-c
average	avg
barrel	bbl
boiling pressure	spell out
brake horsepower	bhp
British thermal unit	BTU or B
calorie	cal
center to center	c to c
coefficient	coef
constant	const
continental horsepower	cont hp
cosecant	csc
cosine	cos
cost, insurance, and freight	cif
cotangent	cot
counter electromotive force	cemf
cubic	cu
cubic centimeter	cu cm, cm ³ (liquid, meaning milliliter, ml)
cubic feet per minute	cfm
cubic feet per second	cfs
cubic foot	cu ft
cubic inch	cu in.
cubic meter	cu m or m ³
cubic millimeter	cu mm or mm ³
cubic yard	cu yd
cycles per second	spell out or c
cylinder	cyl

Standard Abbreviations

day	spell out
degree*	deg or °
degree centigrade	C
degree Fahrenheit	F
diameter	diam
direct-current (as adj.)	d-c
dollar	\$
dozen	doz
efficiency	eff
electric	elec
electromotive force	emf
elevation	el
equation	eq
feet board measure (board feet)	fbm
feet per minute	fpm
feet per second	fps
fluid	fl
foot	ft
foot-pound	ft-lb
foot-pound-second (system)	fps
free aboard ship	spell out
free alongside ship	spell out
free on board	fob
frequency	spell out
gallon	gal
gallons per minute	gpm
gallons per second	gps
high-pressure (adj.)	h-p
horsepower	hp
horsepower-hour	hp-hr
hour	hr
hundred	C
hundredweight (112 lb)	cwt

*There are circumstances under which one or the other of these forms is preferred. In general the sign ° is used where space conditions make it necessary, as in tabular matter, and when abbreviations are cumbersome, as in some angular measurements, i.e., 59° 23'42". In the interest of simplicity and clarity the Committee has recommended that the abbreviation for the temperature scale, F, C, K, etc., always be included in expressions for numerical temperatures, but, wherever feasible, the abbreviation for "degree" be omitted; as 69F.

Standard Abbreviations

inch	in.
inch-pound	in.-lb
inches per second	ips
indicated horsepower	ihp
indicated horsepower-hour	ihp-hr
inside diameter	ID
intermediate-pressure (adj.)	i-p
internal	int
latitude	lat or ϕ
linear foot	lin ft
liquid	liq
logarithm (common)	log
logarithm (natural)	log _e or ln
longitude	long. or λ
low-pressure (adj.)	l-p
maximum	max
mean effective pressure	mep
meter	m
mile	spell out
miles per hour	mph
million	spell out
minimum	min
minute	min
month	spell out
ohm	spell out or Ω
ounce	oz
outside diameter	OD
parts per million	ppm
pound	lb
pound-foot	lb-ft
pound-inch	lb-in.
pound-sterling	£
pounds per brake horsepower-hour	lb per bhp-hr
pounds per cubic foot	lb per cu ft
pounds per square foot	psf
pounds per square inch	psi
pounds per square inch absolute	psia
power factor	spell out or pf
quart	qt
radian	spell out
revolutions per minute	rpm
revolutions per second	rps

Standard Abbreviations

secant	sec
second	sec
shaft horsepower	shp
sine	sin
specific gravity	sp gr
specific heat	sp ht
square	sq
square foot	sq ft
square inch	sq in.
standard	std
tangent	tan
temperature	temp
tensile strength	ts
thousand	M
thousand pound	kip
ton	spell out
ton-mile	spell out
watt	w
watthour	whr
week	spell out
weight	wt
yard	yd
year	yr



APPENDIX

Shown below is a paragon of epistlehood. Note the smooth, crisp writing style, sophisticated choice of words, and neat, workmanlike appearance. Who could fail to conclude that the writer himself embodied those same wholesome characteristics?

July 19,66

Prof Ben Ford:

It has been shown to the writer
that you wrote some kind of a book for people who don't
write English so good. Well if you have any

extra copies I sure could use three of 4 of them to

send to people I sure think could use it. (Dont

really need 1 my self or otherwise I would say send another
extra copy above and beyond them.

You sure would be a boone to humanity if

~~if~~

you would add another part that
would be like well you know more of a General Part say

~~XXXXXX~~ a part on style so between us we would

~~XXXXXXXXXX~~

be able to help all these poor old talknicians ha ha to get out there

and write. You know what I mean to really write! Stylewise.

~~XXXXXXXXXXXXXXXXXXXX~~ Jim Packard

P.S. Decided against complementary close for ~~XXX~~ bre-
vity.



Praying for the good-humored forgiveness of my good-humored, forgiving friend John P. Comstock, I show below a page proof of his latest opus. Fortunately, Mr. Comstock's perspicacity was equal to the challenge and he caught one slight error before the book went to press. See anything wrong here?

Principals of

NAVAL ARCHITECTURE

Written by
a Group of Authorities

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Naval Architect (retired), Newport News
Shipbuilding and Drydock Company

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