

MEDICAL TERMINOLOGY

For Medical Students

WILLIAM BLAKE TYRRELL

*Associate Professor of Classics
Michigan State University
East Lansing, Michigan*

Illustrations By

DORIS L. EISENSTEIN

This volume is designed to direct students in the analysis of medical terms. It explains word components and principles governing their combination. Exercises in analyzing and composing terms are provided, as is a key to such composition. Background materials relate the origin of certain medical terms. The essentials of Latin required to understand anatomical nomenclature are presented separately. Indices to the word components and illustrations are provided.

CHARLES C THOMAS • PUBLISHER • SPRINGFIELD • ILLINOIS

MEDICAL TERMINOLOGY

For Medical Students

By

WILLIAM BLAKE TYRRELL

*Associate Professor of Classics
Michigan State University
East Lansing, Michigan*

Illustrations By

Doris L. Eisenstein



CHARLES C THOMAS • PUBLISHER
Springfield • Illinois • U.S.A.

Published and Distributed Throughout the World by
CHARLES C THOMAS • PUBLISHER
Bannerstone House
301-327 East Lawrence Avenue, Springfield, Illinois, U.S.A.

This book is protected by copyright. No part of it
may be reproduced in any manner without written
permission from the publisher.

© 1979, by CHARLES C THOMAS • PUBLISHER

ISBN 0-398-03810-4

ISBN 0-398-03820-1

Library of Congress Catalog Card Number: 78-6770

*With THOMAS BOOKS careful attention is given to all details of
manufacturing and design. It is the Publisher's desire to present books that
are satisfactory as to their physical qualities and artistic possibilities and
appropriate for their particular use. THOMAS BOOKS will be true to those
laws of quality that assure a good name and good will.*

Library of Congress Cataloging in Publication Data

Tyrrell, William Blake.

Medical terminology for medical students.

Includes index.

1. Medicine—Terminology. I. Title. [DNLM:

1. Nomenclature. W15 T993m]

R123.T97 610'.1'4 78-6770

ISBN 0-398-03810-4

ISBN 0-398-03820-1 pbk.

Printed in the United States of America

C-1

**MEDICAL TERMINOLOGY
FOR MEDICAL STUDENTS**

for my parents

PREFACE

THIS BOOK is the product of my experience in teaching medical terminology at Michigan State University. It is intended for all students of medicine. Its approach is linguistic rather than scientific, and so it may be used profitably, I believe, by those students with nonprofessional interests in medicine. It has three purposes.

The first is to train the student in the analysis of terms. The vocabulary of medicine is vast and grows daily. Unreflective memorization not only is a herculean task: it provides no help in deciphering unfamiliar words. Most medical terms, however, are composed of elements taken from Greek and Latin in a way that signals their technical meaning. Analysis or the breaking up of terms into their components provides clues to the meaning of new terms and mnemonics for retaining others. Augmenting the student's recognition and retention of medical terms through the principles of analysis is the primary purpose of this book.

The way to growth in vocabulary begins with a command of the components of terms—prefixes, bases, and suffixes. They are the building blocks; their meanings must be memorized, not the terms themselves. Bases are presented by body systems. Those which derive from Greek are capitalized; those from Latin are in lower case. The purpose of this distinction is to encourage the student to learn the origin of a base, since it is important for both the history and makeup of terms. All prefixes are presented in the early lessons; suffixes are throughout the lessons.

Each lesson has an exercise in analysis except those that treat anatomical terminology. Analysis consists of breaking up a term into its components, assigning each a meaning, and reassembling the meanings. It leads to a definition which, at the least, alludes to the meaning of the term. For example, tonsillitis breaks up

into the suffix -itis (inflammation) and the base tonsill- (tonsil) and means inflammation of the tonsils. Nephroma is a tumor (-oma) of the kidney (NEPHR-); pericardiorrhaphy is the suture (-rrhaphy) of the membrane around (peri-) the heart (CARDI-). The principles that govern the formation of definitions will be discussed. How closely analysis comes to the technical meaning depends upon how carefully the term was composed.

Exercises in composing terms are introduced in Lesson Five. Composition is the reverse of analysis: a definition is translated into a term. A key of terms corresponding to the definitions is provided. Every term in this book is or has been part of the language of medicine. Most are found in *Dorland's Illustrated Medical Dictionary*, 25th edition.

To fulfill its function of the precise and unambiguous communication of ideas, a scientific language should be exact and free from vague connotations. This is because language is the medium in which we think as well as communicate. Analysis soon reveals that the language of medicine falls short of this goal. Generations of men have observed, formed hypotheses, and named the structures of the body, symptoms and causes of disease, and their treatments. Schools of thought, each with its own way of looking at things and naming them, have contended for favor since modern medicine began with Hippocrates. Terms have been actively and not always correctly adapted from the ancient languages and changed according to the haphazard, intuitive principles of the spoken language. The result is that medical terminology is both more and less than a scientific nomenclature. It is a living language with an elusiveness of its own. The second purpose of this book is to convey some notion of the history and whimsey of medical language.

The third purpose is to train the student to translate Latin anatomical nomenclature. Such terminology is a part of the language of medicine, and though it may be fudged or blindly memorized, it can become a source of anxiety and a stumbling block to learning. Effort expended in acquiring the skill to translate these terms will be repaid twofold. Terms will be more

easily remembered since they will make sense on their own. Moreover, once translated, they identify or describe the structure to which they refer, thus aiding the study of anatomy. The elements of Latin presented in the lessons are limited to those necessary for translating terms.

On the other hand, since many medical schools and journals in this country permit anglicized terminology (which is not strictly a translation), the student may deem such skill unnecessary. For this reason, the lessons on anatomical terminology have been written as a self-contained unit. They may be omitted without impairing the book's primary purpose. Even so, it is recommended that they be read as background.

The illustrations are intended as a study aid to the bases. For exact representations, a textbook on anatomy or medical dictionary should be consulted.

I wish to thank my friend and colleague Edward Eisenstein, Professor of Biophysics and medical student, for his advice and consultations. Mistakes that remain are my responsibility. As always, I am indebted to my wife Mary Ann for her careful and patient reading and rereading of each page.

East Lansing, Michigan

W.B.T.

This book includes, in part, paraphrases of definitions taken from Dorland's Illustrated Medical Dictionary, 25th edition, Philadelphia, Saunders, 1974. Used with permission of W. B. Saunders Company.

CONTENTS

	<i>Page</i>
<i>Preface</i>	vii
 <i>Lesson</i>	
I. Word Base. Prefix. Suffix. Combining Vowel. Combining Form. Guidelines to Directional Terms	3
II. Assimilation. Greek and Latin in Medical Terminology	9
III. Hyphenation. Criteria for a Good Term	16
IV. Hybrids	21
V. Composition. Guidelines to the Syntax of Medical Terms	25
VI. Anatomical Terminology. Guidelines for Declensions	30
VII. Elision. Aspiration. Word Origins	37
VIII. Transliteration. Anatomical Nomenclature	42
IX. Plurals. Synonyms	50
X. Acro-, Auto-, Synonyms	56
XI. Formation of Adjectives. Two Guidelines for Analyzing and Composing Terms	60
XII. Anatomical Terminology	64
XIII. Ellipsis. Chemical Suffixes. Humoralism	70
XIV. -Phobia and -Philia. Word Origins	76
XV. Diminutives. Word Origins	81
XVI. Phobias. Arabic in Medical Terminology	87
XVII. Phobias. Eponyms	92
XVIII. Anatomical Terminology	98
XIX. Oncological Terminology. Mythological Eponyms	101
XX. Mythological Eponyms	106
XXI. Par-, Gravid-	111
XXII. Teratological Terminology. Word Origins	115
XXIII. Dermatological Terms. Terms from Literature	120
XXIV. Anatomical Terminology	125
XXV. -Mania. The Terms Anesthesia and Anesthetic	129

XXVI. Medical Microbiological Terminology. Staff of Asclepius 133
XXVII. Heter- 137

Appendices

1. Key to Composition Exercises 143
2. Index to Bases 148
3. Index to Suffixes 153

Index 155

**MEDICAL TERMINOLOGY
FOR MEDICAL STUDENTS**

LESSON I

WORD BASE

A *word base*, or simply *base*, is the essential part of a word, the smallest unit which expresses its meaning. The base of the word *essential* is *ess-* (being); of *unit* is *un-* (one); of *express*, *press-* (press).

The bases presented in the following lessons are derived from Greek and Latin nouns, verbs, and adjectives. Certain ancient words have yielded more than one base. These bases vary in appearance but have the same meaning. For example, *HEM-* and *HEMAT-* both refer to blood; *corp-*, *corpus-*, and *corpor-* indicate body.

Bases differ in this way because the base of the Greek or Latin word usually changed in order to show different grammatical relationships. Modern terms have been formed on one base instead of another because of euphony, because of analogy, or because of the preference of their originators.

Euphony is the quality of having a pleasing sound. *Analogy* is the process by which new or unfamiliar terms are made to conform to older, familiar ones. Children make the past tenses of the irregular verbs *sing* and *do* like those of the regular verbs by adding *-ed*.

PREFIX

A prefix is a word component of one or more syllables that is placed before and joined to a base to qualify it or to add to its meaning. Prefixes used in medical terminology are derived from Greek and Latin adverbs and prepositions.

The prefix puts a limit upon the rest of the term by telling its circumstances: how, where, to, under, etc. This function is called *modifying*. A prefix modifies a base by restricting its meaning to a specific situation or, at least, to a narrow range of situations.

In the word *eulogize* (to speak well of), the prefix *eu-* (well) tells *how* the speaking was done. The *intra-* (within) of *intra-*

mural (pertaining to within the walls) tells *where*; hyper- (excessive) in hypercritical (characterized by being excessively critical) tells *how much*.

SUFFIX

A *suffix* is a word component of one or more syllables that is placed after and joined to a base. A suffix adds to the meaning of the base and indicates whether it is a noun, verb, or adjective.

The suffix *-ity* (state or quality of) in the word *activity* denotes a quality and forms a noun. The adjectival suffix *-ive* (having the quality of) attributes that quality to something, e.g., an active child. The verbal suffix *-ate* (to make) expresses the process of creating that quality in something, e.g., to activate a company of reserves.

COMBINING VOWEL

A *combining vowel* is inserted between word components to facilitate pronunciation. Though all the vowels may be used for this purpose, *o* and *i* are the most common. A combining vowel imparts no meaning to the term but is used as a glide for the tongue from a word component ending in a consonant to one beginning with a consonant. In the term *gastrotomy* (incision of the stomach), the italicized combining vowel connects the base *GASTR-* with the suffix *-tomy*.

When the following word component begins with a vowel, there is no need for a glide, and the combining vowel may be omitted. The term *hemarthrosis* (abnormal condition of a joint due to blood) has no combining vowel between the bases *HEM-* and *ARTHR-*.

Exceptions are numerous. In the term *gastroenteritis* (inflammation of the stomach and small intestine), for example, the combining vowel is used although the next syllable begins with a vowel. In such cases it is retained either to ease pronunciation or by analogy with other terms beginning with *GASTR-*.

COMBINING FORM

Gastro-, the base with the combining vowel, is the word component known as the *combining form*. Dictionaries often list

this form instead of the base. Experience has shown that the combining form becomes so locked in memory and in vision that confusion results when only the base appears in a term. For this reason, bases alone are listed in the lessons.

Prefixes

Learn the following prefixes and their meanings:

1. a-, ab- (from, away from, off)
2. ante- (before, in front of, forward)
3. anter- (before, in the forward part of, in front of)
This prefix is used primarily with directional terms and not as an alternative to pre- or pro-.
4. con-, co- (with, together, completely, very)
This prefix may strengthen or intensify the meaning of a base. As an intensive its meaning is *completely* or *very*, e.g., congelation (a freezing completely, frostbite).
5. in- (in, into, on)
6. inter- (between)
7. juxta- (beside, near)
8. per- (through, throughout, very, completely)
9. poster- (behind, in the back part of)
10. re- (back, again)
11. supra- (above, over)

Suffixes

Learn the following suffixes and their meanings:

1. -ad (in the direction of, toward)
2. -al, -ar, -ile (pertaining to, characterized by)
3. -an (pertaining to)
4. -ary (pertaining to, connected with)

This suffix may also form nouns; in this usage its meaning is a person connected with, a thing connected with, or a place for. Sometimes the same word may be both a noun and an adjective, e.g., veterinary, subsidiary, mortuary. Coronary is used as a noun nontechnically, but here familiarity with the phrase coronary thrombosis has led to the omission of the noun, thus making a noun of coronary.

Bases

Learn the following bases for directional terms:

1. caud- (tail, lower end of the body)
2. CEPHAL- (head)
3. coron- (corona, crown)
4. crani- (cranium, skull)
5. dextr- (right, righthand)
6. dist- (remote, distant, farther from the attached end)
7. dors- (back, dorsum)
8. extern- (outside)
9. front- (forehead, front)
10. intern- (inside, within)
11. later- (side)
12. medi- (middle)
13. MES- (middle)
14. pariet- (internal wall of a cavity or organ)
15. proxim- (next to, nearer to the attached end)
16. sinistr- (left, lefthand)
17. transvers- (turned across, situated crosswise)
18. ventr- (belly)
19. viscer- (the internal organs of the body, the viscera)

Exercise

Analyze the following terms:

craniad	anteromedian
distal	mesad
ventrodorsal	distad
interproximal	laterad
mesal	ventrolateral
supracranial	posteromedial
coronad	cephalocaudad
anteroventral	mediad
viscerad	dorsoventrad
ventroposterior	mediofrontal
transverse	external
proximad	frontad
inferolateral	dorsomesal