Webster's Medical Desk Dictionary

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Preface

Webster's Medical Desk Dictionary introduces a new concept in medical dictionaries. It combines a medical wordlist (including British terms and spelling variants) selected and defined on the basis of citational evidence with a number of features expected in a Merriam-Webster® desk dictionary such as pronunciations, end-of-line division points, functional labels, common derivatives, and irregular inflected forms.

One of the most difficult challenges faced by the editors of this dictionary was to keep both the number of vocabulary entries and the defining vocabulary within manageable limits. Without constraints on both elements, any dictionary can quickly expand to many times its intended size. If the number of entries is controlled but the defining vocabulary is not, the definitions may contain numerous words that are not entered in the dictionary itself or in a readily available, standard, general dictionary of English.

This challenge was met in two important ways. First, the number of vocabulary entries was controlled through a critical review of the medically relevant citations drawn from the more than 13,400,000 citations in the Merriam-Webster offices. Many of these citations were produced by a special reading program of medical publications which was meant to keep the citational evidence as current as possible. The critical nature of this review is evidenced by the fact that thousands of words that might conceivably be included in a medical dictionary were rejected for lack of evidence from twentieth-century sources other than dictionaries and glossaries.

Second, the defining vocabulary was controlled by a rigorous cross-reference process which ensured that every word used in a definition was entered in this book or in Webster's Ninth New Collegiate Dictionary. Whenever a cross-reference editor found a word in a definition that was not entered in the Collegiate, the definer had to enter that word in this dictionary or rewrite the definition without the word.

Another noteworthy feature of this book is the treatment of words derived from the names of persons (eponyms). All eponymous entries are followed by a short biographical sketch of the person or a brief account of the legendary, mythical, or fictional figure from whose name the term is derived.

The front matter of this book includes three important sections. The Explanatory Notes describe the conventions, devices, and techniques that one will find used throughout this book. All users of the dictionary are urged to read this section through and then to consult it for special information as they need to. The Explanatory Notes are followed by an informative and entertaining essay on the history and etymology of medical English by John H. Dirckx, M.D. The third section of the front matter is a gathering of entries for prefixes, suffixes, and combining forms that are commonly encountered in medical writing.

The back matter contains two sections that dictionary users have long found helpful. The first is a listing of Signs and Symbols that cannot readily be alphabetized. The second is a Handbook of Style in which various stylistic conventions (such as those of punctuation and capitalization) are summarized and exemplified.

In this dictionary, those entries known to be trademarks or service marks are so labeled and are treated in accordance with a formula approved by the United States Trademark Association. No entry in this dictionary, however, should be regarded as affecting the validity of any trademark or service mark.

The use of medical English is not without risk. Differences in medical usage between doctor and patient may contribute to serious failures of communication. One patient in an emergency room who had taken an overdose of a drug could not be treated, because he knew the substance only as *yellow jackets*, and the emergency-room staff, unfamiliar with that term, could not identify the drug with certainty. And, rightly or wrongly, dictionaries are sometimes consulted for a second opinion in medical matters. Some years ago a young woman wrote to us that when she found she was pregnant she went straight to her dictionary. Her physician had used the term *roseola* to denote a harmless rash, and she had found the rare sense "German measles" among others at the entry for *roseola*. The incident illustrates the obstructive effect rare and outmoded senses of commonly used medical terms can have when they are retained in dictionaries.

Problems like these have been considered in the editing of Webster's Medical Desk Dictionary, and we offer this new dictionary with confidence that it will meet the needs of those who seek to understand or use medical English in effective communication, whether as a medical professional, as a patient, or as a peer of either.

Webster's Medical Desk Dictionary is the result of a collective effort by the staff of Merriam-Webster Incorporated. The editor was assisted in preparing definitions by Stephen J. Perrault, Associate Editor, and Peter D. Haraty, Assistant Editor. The work of pronunciation was started by Dr. John K. Bollard and completed by Dr. David B. Justice, Associate Editor. The paragraphs following eponymous entries were written by Michael G. Belanger, Assistant Editor. Cross-reference was started by Grace A. Kellogg, Associate Editor, now retired, and completed by Eileen M. Haraty, Assistant Editor, with the help of Daniel J. Hopkins, Assistant Editor. The copy was edited principally by Robert D. Copeland, Associate Editor, with the assistance of James G. Lowe, Senior Editor, and Madeline L. Novak and Julie A. Collier, Associate Editors. The work of proofreading was performed by editors Lowe, Novak, Haraty, Haraty, and Hopkins, cited earlier, and by Kathleen M. Doherty, Associate Editor, and Paul F. Cappellano, Assistant Editor. Additional editorial assistance was provided by Francine A. Roberts, Editorial Librarian. Ruth W. Gaines, Senior General Clerk, kept track of copy as it moved about the editorial offices. Typing and clerical work was performed by Georgette B. Boucher, Jean M. Fitzgerald, Patricia M. Jensen, and Barbara A. Winkler, under the supervision of Gloria J. Afflitto, Head of the Typing Room. Madeline L. Novak, as Editorial Production Coordinator, directed the book through its typesetting stages. John M. Morse, Manager of Editorial Operations and Planning, made major contributions to the design and the scheduling of the book and edited the Handbook of Style. Dr. Mairé W. Kay, Joint Editorial Director, now retired, contributed to the early stages of planning. Dr. Frederick C. Mish, Editorial Director, contributed advice at several stages of the project. William A. Llewellyn, President and Publisher, suggested several innovative features of content and design and was a source of enthusiastic support throughout.

Roger W. Pease, Jr., Ph.D.
Editor

Explanatory Notes

Entries

Main Entries

A boldface letter or a combination of such letters set flush with the left-hand margin of each column of type is a main entry or entry word. The main entry may consist of letters set solid, of letters joined by a hyphen, or of letters separated by one or more spaces:

blood·less . . . *adj*
blood–typ·ing . . . *n*
blood vessel . . . *n*

The material in lightface type that follows each main entry explains and justifies its inclusion in the dictionary.

Variation in the styling of compound words in English is frequent and widespread. It is often completely acceptable to choose freely among open, hyphenated, and closed alternatives. To save space for other information, this dictionary usually limits itself to a single styling for a compound. When a compound is widely used and one styling predominates, that styling is shown. When a compound is uncommon or when the evidence indicates that two or three stylings are approximately equal in frequency, the styling shown is based on the analogy of parallel compounds.

Order of Main Entries

The main entries follow one another in alphabetical order letter by letter without regard to intervening spaces or hyphens: *elastic stocking* follows *elasticity* and *flat-footed* follows *flatfoot*. Words that often begin with the abbreviation *St.* in common usage have the abbreviation spelled out: *Saint Anthony's fire, Saint Vitus' dance*.

Full words come before parts of words made up of the same letters. Solid words come first and are followed by hyphenated compounds and then by open compounds. Lowercase entries come before entries that begin with a capital letter:

meta . . . *adj*
meta- *prefix*
workup . . . *n*
work up . . . *vt*
enterococcus . . . *n*
Enterococcus . . . *n*

Entries containing an Arabic numeral within or at the end of the word are alphabetized as if the number were spelled out: *glucose phosphate* comes after *glucose-1-phosphate* and before *glucose-6-phosphate* while *LD50* is between *LD* and *LDH*. Some chemical terms are preceded by one or more Arabic numerals or by a chemical prefix abbreviated to a Roman or Greek letter or by a combination of the two usually set off by a hyphen. In general the numerical or abbreviated prefix is ignored in determining the word's alphabetical place: *N-allylnormorphine* is entered in the letter *a*, *5-hydroxytryptamine* in the letter *h*, and β_2-*microglobulin* in the letter *m*. However, if the prefix is spelled out, it is used in alphabetizing the word: *beta globulin* is entered in the letter *b*, and *levo-dihydroxyphenylalanine* in the letter *l*. In a few cases, entries have been made at more than one place to assist the reader in finding the place of definition, especially when the prefix has variants: *gamma-aminobutyric acid*, defined in the letter *g*, is often written with a Greek letter as *γ-aminobutyric acid*, and an entry has been made in the letter *a* to direct the reader to the place of definition.

If the names of two chemical substances differ only in their prefixes, the terms are alphabetized first by the main part of the word and then in relation to each other according to the prefix: *L-PAM* immediately precedes *2-PAM* in the letter *p*.

Guide Words

A pair of guide words is printed at the top of each page. The entries that fall alphabetically between the guide words are found on that page.

It is important to remember that alphabetical order rather than position of an entry on the page determines the selection of guide words. The first guide word is the alphabetically first entry on the page. The second guide word is usually the alphabetically last entry on the page:

anallergic • anarithmia

The entry need not be a main entry. Another boldface word—a variant, an inflected form, or a defined or undefined run-on—may be selected as a guide word. For this reason the last main entry on a page is not always the last entry alphabetically.

All guide words must themselves be in alphabetical order from page to page throughout the dictionary; thus, the alphabetically last entry on a page is not used if it follows alphabetically the first guide word on the next page.

Homographs

When main entries are spelled alike, they are called homographs and are distinguished by superscript numerals preceding each word:

[1]an·orex·ic . . . *adj*
[2]anorexic *n*

[1]mi·crom·e·ter . . . *n*
[2]mi·cro·me·ter . . . *n*

Although homographs are spelled alike, they may differ in pronunciation, derivation, or functional classification (as part of speech). The order of homographs is usually historical: the one first used in English is entered first.

End-of-Line Division

The centered dots within entry words indicate division points at which a hyphen may be put at the end of a line of print or writing. Centered dots are not shown after a single initial letter or before a single terminal letter because printers seldom cut off a single letter:

abort . . . *vi*
body . . . *n*

Nor are they shown at second and succeeding homographs unless these differ among themselves in division or pronunciation:

[1]mu·tant . . . *adj*
[2]mutant *n*

[1]pre·cip·i·tate . . . *vb*
[2]pre·cip·i·tate . . . *n*

There are acceptable alternative end-of-line divisions just as there are acceptable variant spellings and pronunciations. No more than one division is, however, shown for an entry in this dictionary.

Many words have two or more common pronunciation

variants, and the same end-of-line division is not always appropriate for each of them. The division *du·o·de·num,* for example, best fits the variant \ˌd(y)ü-ə-ˈdē-nəm\ whereas the division *du·od·e·num* best fits the variant \d(y)ü-ˈäd-ᵊn-əm\. In instances like this, the division falling farther to the left is used, regardless of the order of the pronunciations:

du·o·de·num \ˌd(y)ü-ə-ˈdē-nəm, d(y)ü-ˈäd-ᵊn-əm\

A double hyphen at the end of a line in this dictionary stands for a hyphen that belongs at that point in a hyphenated word and that is retained when the word is written as a unit on one line.

Variants

When a main entry is followed by the word *or* and another spelling, the two spellings are equal variants.

ten·di·ni·tis *or* **ten·don·itis**

If two variants joined by *or* are out of alphabetical order, they remain equal variants. The one printed first is, however, slightly more common than the second:

phys·i·o·log·i·cal . . . *or* **phys·i·o·log·ic**

When another spelling is joined to the main entry by the word *also,* the spelling after *also* is a secondary variant and occurs less frequently or is less acceptable than the first:

lip·id *also* **lip·ide**

If there are two secondary variants, the second is joined to the first by *or*. Once the word *also* is used to signal a secondary variant, all following variants are joined by *or:*

ce·sar·e·an *or* **cae·sar·e·an** *also* **ce·sar·i·an** *or* **cae·sar·i·an**

If one variant has an italic label *Brit* (for "British") or *chiefly Brit,* the label applies to all of the variants given after it. If the *Brit* label is preceded by *also,* the variants appearing before the label are preferred in British as well as in U.S. usage to those following the label. If a variant after the first one following a *Brit* or *chiefly Brit* label is preceded by *also,* it and succeeding variants are secondary British variants:

ster·il·ize *also Brit* **ster·il·ise** *vt* **-ized** *also Brit* **-ised; -iz·ing** *also Brit* **-is·ing**

hem·ag·glu·ti·nin . . . *also* **he·mo·ag·glu·ti·nin** . . . *or chiefly Brit* **haem·ag·glu·ti·nin** *also* **hae·mo–ag·glu·ti·nin** *n*

A variant whose own alphabetical place is at some distance from the main entry is also entered at its own place with a cross-reference to the main entry. Such variants at consecutive or nearly consecutive entries are listed together, and if there are five or more they are usually collected in a table:

tendonitis *var of* TENDINITIS

procaryote, procaryotic *var of* PROKARYOTE, PROKARYOTIC

Each boldface word in the list below is a chiefly British variant of the word to its right in small capitals.

aetiologic	ETIOLOGIC	**aetiopatho-genesis**	ETIOPATHO-GENESIS
aetiological	ETIOLOGIC		
aetiologically	ETIOLOGICALLY	**aetiopor-phyrin**	ETIOPORPHYRIN
aetiology	ETIOLOGY		

Run-on Entries

A main entry may be followed by one or more derivatives or by a homograph with a different functional label. These are run-on entries. Each is introduced by a lightface dash and each has a functional label. They are not defined, however, since their meanings can readily be derived from the meaning of the root word:

bloody . . . *adj* . . . — **blood·i·ly** . . . *adv* — **blood·i·ness** . . . *n*

drift . . . *n* . . . — **drift** *vi*

A main entry may be followed by one or more phrases containing the entry word. These are also run-on entries. Each is introduced by a lightface dash but there is no functional label. They are, however, defined since their meanings are more than the sum of the meanings of their elements:

²couch *n* . . . — **on the couch** : . . .

risk . . . *n* . . . — **at risk** : . . .

Variants are shown, where appropriate, at run-on entries:

far·a·dize *or Brit* **far·a·dise** . . . *vt* . . . — **far·a·di·za·tion** *or Brit* **far·a·di·sa·tion** . . . *n* . . .

A run-on entry is an independent entry with respect to function and status. Labels at the main entry do not apply unless they are repeated.

Pronunciation

The matter between a pair of reversed virgules \ \ following the entry word indicates the pronunciation. The symbols used are listed in the chart printed on the page facing the first page of the dictionary proper. An abbreviated list appears at the bottom of the second column of each right-hand page of the vocabulary.

Syllables

A hyphen is used in the pronunciation to show syllabic division. These hyphens sometimes coincide with the centered dots in the entry word that indicate end-of-line division; sometimes they do not:

ab·scess \ˈab-ˌses\

met·ric \ˈme-trik\

Stress

A high-set mark \ˈ\ indicates primary (strongest) stress or accent; a low-set mark \ˌ\ indicates secondary (medium) stress or accent:

back·thorn \ˈbək-ˌthȯ(ə)rn\

The stress mark stands at the beginning of the syllable that receives the stress.

Variant Pronunciations

The presence of variant pronunciations indicates that not all educated speakers pronounce words the same way. A second-place variant is not to be regarded as less acceptable than the pronunciation that is given first. It may, in fact, be used by as many educated speakers as the first variant, but the requirements of the printed page are such that one must precede the other:

or·ange \ˈär-inj, ˈȯr-\

um·bi·li·cus \ˌəm-bə-ˈlī-kəs, ˌəm-ˈbil-i-\

A variant that is appreciably less common is preceded by the word *also:*

se·nile \ˈsēn-ˌīl *also* ˈsen-\

Sometimes a geographical label precedes a variant:

meth·ane \ˈmeth-ˌān, *Brit usu* ˈmē-ˌthān\

Parentheses in Pronunciations

Symbols enclosed by parentheses represent elements that are present in the pronunciation of some speakers but are absent from the pronunciation of other speakers, elements that are present in some but absent from other utterances of the same speaker, or elements whose presence or absence is uncertain:

neu·ral \'n(y)ůr-əl\
re·sponse \ri-'spän(t)s\

Partial and Absent Pronunciations

When a main entry has less than a full pronunciation, the missing part is to be supplied from a pronunciation in a preceding entry or within the same pair of reversed virgules:

psy·cho·sur·gery \-'sərj-(ə-)rē\
iso·ge·ne·ic \,ī-sō-jə-'nē-ik, -'nā-\

The pronunciation of the first two syllables of *psychosurgery* is found at the main entry *psychosurgeon:*

psy·cho·sur·geon \,sī-kō-'sər-jən\

The hyphens before and after \'nā\ in the pronunciation of *isogeneic* indicate that both the first and the last parts of the pronunciation are to be taken from the immediately preceding pronunciation.

When a variation of stress is involved, a partial pronunciation may be terminated at the stress mark which stands at the beginning of a syllable not shown:

li·gate \'lī-,gāt, lī-'\

In general, no pronunciation is indicated for open compounds consisting of two or more English words that have own-place entry:

medial condyle *n*

A pronunciation is shown, however, for any unentered element of an open compound:

Meiss·ner's corpuscle \'mīs-nərz-\

Only the first entry in a sequence of numbered homographs is given a pronunciation if their pronunciations are the same:

[1]sig·moid \'sig-,mȯid\
[2]sigmoid

The pronunciation of unpronounced derivatives run on at a main entry is a combination of the pronunciation at the main entry and the pronunciation of the suffix or final element.

Functional Labels

An italic label indicating a part of speech or some other functional classification follows the pronunciation or, if no pronunciation is given, the main entry. Of the eight traditional parts of speech, five appear in this dictionary as follows:

healthy . . . *adj* — **[1]per** . . . *prep*
psy·cho·log·i·cal·ly . . . *adv* — **pre·scribe** . . . *vb*
hos·pi·tal . . . *n*

If a verb is both transitive and intransitive, the labels *vt* and *vi* introduce the subdivisions:

op·er·ate . . . *vb* . . . *vi* . . . ~ *vt*

A boldface swung dash ~ is used to stand for the main entry (as *operate*) and separate the subdivisions of the verb. If there are no subdivisions, the label *vt* or *vi* takes the place of *vb:*

med·i·cate . . . *vt*
[2]faint *vi*

Other italic labels used in this dictionary to indicate functional classifications are these:

tid . . . *abbr* — **Ca** *symbol*
orth- *or* **ortho-** *comb form* — **Val·ium** . . . *trademark*
I- *prefix* — **sig·na** . . . *vb imper*

Two functional labels are sometimes combined:

sap·phic . . . *adj or n*
MD . . . *abbr or n*

Inflected Forms

The inflected forms recorded in this dictionary include the plurals of nouns; the past tense, the past participle when it differs from the past tense, and the present participle of verbs; and the comparative and superlative forms of adjectives and adverbs. When these inflected forms are created in a manner considered regular in English (as by adding *-s* or *-es* to nouns, *-ed* and *-ing* to verbs, and *-er* and *-est* to adjectives and adverbs) and when it seems that there is nothing about the formation to give the dictionary user doubts, the inflected form is not shown in order to save space for information more likely to be sought.

If the inflected form is created in an irregular way or if the dictionary user is likely to have doubts about it (even if it is formed regularly), the inflected form is shown in boldface either in full or, especially when the word has three or more syllables, cut back to a convenient and easily recognizable point.

The inflected forms of nouns, verbs, adjectives, and adverbs are shown in this dictionary when suffixation brings about a change in final *y* to *i*, when the word ends in *-ey*, when there are variant inflected forms, and when the dictionary user might have doubts about the spelling of the inflected form:

thirsty . . . *adj* **thirst·i·er; -est**
[2]atrophy . . . *vb* **-phied; -phy·ing**
kid·ney . . . *n, pl* **kid·neys**
sar·co·ma . . . *n, pl* **-mas** *or* **-ma·ta**
burn . . . *vb* **burned** *or* **burnt; burn·ing**
sta·tus . . . *n, pl* **sta·tus·es**

A plural is also shown for a noun when it ends in a consonant plus *o* or in a double *oo*, and when its plural is identical with the singular. Many nouns in medical English have highly irregular plurals modeled after their language of origin. Sometimes more than one element of a compound term is pluralized:

ego . . . *n, pl* **egos**
HMO . . . *n, pl* **HMOs**
[2]tattoo *n, pl* **tattoos**
pu·bes . . . *n, pl* **pubes**
en·ceph·a·li·tis . . . *n, pl* **-lit·i·des**
cor pul·mo·na·le . . . *n, pl* **cor·dia pul·mo·na·lia**

Nouns that are plural in form and that regularly occur in plural construction are labeled *n pl*. Nouns that are plural in form but are not always construed as plural are appropriately labeled:

in·nards . . . *n pl*
rick·ets . . . *n pl but sing in constr*
smelling salts *n pl but sing or pl in constr*

The inflected forms of verbs, adjectives, and adverbs are

also shown whenever suffixation brings about a doubling of a final consonant, elision of a final *e*, or a radical change in the base word itself. The principal parts of a verb are shown when a final *-c* changes to *-ck* in suffixation:

[2]scar *vb* **scarred; scar·ring**
hot . . . *adj* **hot·ter; hot·test**
op·er·ate . . . *vb* **-at·ed; -at·ing**
sane . . . *adj* **san·er; san·est**
[1]break . . . *vb* **broke** . . . **bro·ken** . . . **break·ing**
[1]ill . . . *adj* **worse** . . . **worst**
[2]panic *vb* **pan·icked** . . . **pan·ick·ing**

Regularly inflected forms are shown when it is desirable to indicate the pronunciation of one of the inflected forms:

[2]blister *vb* **blis·tered; blis·ter·ing** \-t(ə-)riŋ\

Inflected forms may be shown at run-on entries and may be cut back like inflected forms of main entries:

[1]scab . . . *n* . . . — **scab·by** . . . *adj* **scab·bi·er; -est**
rem·e·dy . . . *n* . . . — **remedy** *vt* **-died; -dy·ing**

Capitalization

Most entries in this dictionary begin with a lowercase letter, indicating that the word is not ordinarily capitalized. A few entries have an italic label *often cap*, indicating that the word is as likely to begin with a capital letter as not and is equally acceptable either way. Some entries begin with an uppercase letter, which indicates that the word is usually capitalized.

pan·cre·as . . . *n*
braille . . . *n, often cap*
Gol·gi . . . *adj*

The capitalization of entries that are open or hyphenated compounds is similarly indicated by the form of the entry or by an italic label:

heart attack *n*
neo–Freud·ian . . . *adj, often cap N*
Agent Orange . . . *n*

Many acronyms are written entirely or partly in capitals, and this fact is shown by the form of the entry or by an italic label:

DNA . . . *n*
cgs *adj, often cap C&G&S*

A word that is capitalized in some senses and lowercase in others shows variations from the form of the main entry by the use of italic labels at the appropriate senses:

strep·to·coc·cus . . . *n* 1 *cap*
pill . . . *n* . . . 2 *often cap*

Attributive Nouns

The italicized label *often attrib* placed after the functional label *n* indicates that the noun is often used as an adjective equivalent in attributive position before another noun:

blood . . . *n, often attrib*
hospital . . . *n, often attrib*

Examples of the attributive use of these nouns are *blood bank* and *hospital bed*.

Etymology

Etymologies showing the origin of particular words are given in this dictionary only for some abbreviations and for all eponyms.

If an entry for an abbreviation is followed by the expansion from which it is derived, no etymology is given. However, if the abbreviation is derived from a phrase in a foreign language or in English that is not mentioned elsewhere in the entry, that phrase and its language of origin (if other than English) is given in square brackets following the functional label:

bid *abbr* [Latin *bis in die*] twice a day

Words derived from the names of persons are called eponyms. Eponymous entries in this dictionary are followed by a short biographical sketch of the person or a brief account of the legendary, mythical, or fictional figure from whose name the term is derived:

Pas·teur effect . . . *n* : . . .
Pasteur, Louis (1822–1895), French chemist and bacteriologist. Pasteur made contributions that rank with the greatest in modern science. His achievements include . . . .

If a series of main entries is derived from the name of one person, the paragraph usually follows the first entry. The dictionary user who turns, for example, to *pasteurella, pasteurellosis, pasteurization, pasteurize,* or *Pasteur treatment* and seeks biographical information is expected to glance back to the first entry in the sequence, *Pasteur effect*.

If an eponym is compounded from the names of two or more individuals, several sketches may follow a single entry either as separate paragraphs (as at *Watson-Crick*) or incorporated into a single paragraph (as at *Guillain-Barré syndrome*).

If an eponymous entry is defined by a synonymous cross-reference to the entry where a biographical paragraph appears, no other cross-reference is made. However, if the definition of an eponymous entry contains no clue as to the location of the paragraph, the name of the individual is given following the entry and a directional cross-reference is made to the appropriate entry:

gland of Bartholin *n* : BARTHOLIN'S GLAND
gland of Bow·man . . . *n* : any of the tubular and often branched glands occurring beneath the olfactory epithelium of the nose . . .
W. Bowman — see BOWMAN'S CAPSULE

A paragraph on C. T. Bartholin can be found at *Bartholin's gland* and one on William Bowman at *Bowman's capsule*.

Usage

Usage Labels

Three types of status labels are used in this dictionary—temporal, regional, and stylistic—to signal that a word or a sense of a word is restricted in usage.

The temporal label *obs* for "obsolete" means that there is no evidence of use since 1755:

eryn·go . . . *n* . . . *obs*

The temporal label *archaic* means that a word or sense once in common use is found only rarely today:

em·bryo . . . *n* . . . 1 *archaic*

The labels *obs* and *archaic* are comments on the word being defined. When a thing, as distinguished from the word used to designate it, is obsolete or outmoded with respect to some use or application or is part of a discredited theory or concept, appropriate orientation is usually given in the definition:

black bile *n* : the one of the four humors of ancient and medieval physiology that was believed to be secreted by the kidneys and spleen and to cause melancholy

A word or sense limited in use to a specific region of the English-speaking world has an appropriate label. The adverb *chiefly* precedes a label when the word has some currency outside a specified region, and a double label is used to indicate currency in each of two specific regions:

red bug . . . *n, Southern & Midland*
ap·pendi·cec·to·my . . . *n* . . . *Brit*
enzootic ataxia *n, chiefly Austral*

The stylistic label *slang* is used with words or senses that are especially appropriate in contexts of extreme informality, that usually have a currency not limited to a particular region or area of interest, and that are composed typically of shortened forms or extravagant or facetious figures of speech. Words with the label *slang* are entered if they have been or in the opinion of the editors are likely to be encountered in communicating with patients especially in emergencies. A few words from the huge informal argot of medicine are entered with the label *med slang* because they have appeared in general context or have been the subject of discussion in medical journals:

ben·ny . . . *n* . . . *slang*
go·mer . . . *n, med slang*

Subject orientation is generally given in the definition; however, a guide phrase is sometimes used to indicate a specific application of a word or sense:

¹abuse . . . *n* . . . 2 . . . b *under some statutes*
erupt . . . *vi* 1 *of a tooth*

Illustrations of Usage

Definitions are sometimes followed by verbal illustrations that show a typical use of the word in context. These illustrations are enclosed in angle brackets, and the word being illustrated is usually replaced by a lightface swung dash. The swung dash stands for the boldface entry word, and it may be followed by an italicized suffix:

¹med·i·cal . . . *adj* . . . 2 . . . ⟨the ~ wards of a hospital⟩
ab·sorb . . . *vt* . . . 1 . . . ⟨surgical sutures which can be ~*ed* by the body⟩

The swung dash is not used when the form of the boldface entry word is changed in suffixation, and it is not used for open compounds:

ab·nor·mal·i·ty . . . *n* . . . 2 . . . ⟨brain-wave *abnormalities*⟩
work up . . . *vt* . . . ⟨*work up* a patient⟩

Illustrative quotations are also used to show words in typical contexts:

sub·li·mate . . . *vt* . . . 2 . . . ⟨sexual passion was largely *sublimated* into intellectual passion —Havelock Ellis⟩
hospitalize . . . *vt* . . . ⟨the child was *hospitalized* at once for diagnosis and treatment —*Jour. Amer. Med. Assoc.*⟩

Usage Notes

Definitions are sometimes followed by usage notes that give supplementary information about such matters as idiom, syntax, semantic relationship, and status. For a few words more amenable to comment than definition, a usage note is used in place of a definition. A usage note is introduced by a lightface dash:

pill . . . *n* . . . 2 . . . : . . . — usu. used with *the*
purge . . . *vb* . . . *vt* . . . 2 : . . . — used of a liquid
bug . . . *n* . . . 1 a : . . . — not used technically
hs *abbr* . . . — used esp. in writing prescriptions
Val·ium . . . *trademark* — used for a preparation of diazepam

Sometimes a usage note calls attention to one or more terms with the same denotation as the main entry:

lep·ro·sy . . . *n* . . . : a chronic disease caused by infection with an acid-fast bacillus of the genus *Mycobacterium* (*M. leprae*) . . . — called also *hansenosis, Hansen's disease, lepra*

The called-also terms are shown in italic type. If the called-also term falls alphabetically at some distance from the principal entry, the called-also term is entered in alphabetical sequence with the sole definition being a synonymous cross-reference to the entry where it appears in the usage note:

han·sen·osis . . . *n* . . . : LEPROSY
Hansen's disease *n* : LEPROSY
lep·ra . . . *n* : LEPROSY

Two or more usage notes are separated by a semicolon.

Sense Division

A boldface colon is used in this dictionary to introduce a definition:

pul·mo·nary . . . *adj* : relating to, functioning like, associated with, or carried on by the lungs

It is also used to separate two or more definitions of a single sense:

¹quack . . . *n* : a pretender to medical skill : an ignorant or dishonest practitioner

Boldface Arabic numerals separate the senses of a word that has more than one sense:

nerve . . . *n* 1 : any of the filamentous bands of nervous tissue that connect parts of the nervous system with other organs . . . 2 *pl* : a state or condition of nervous agitation or irritability 3 : the sensitive pulp of a tooth

Boldface lowercase letters separate the subsenses of a word:

reflex . . . *n* . . . 2 a : an automatic and often inborn response to a stimulus . . . b : the process that culminates in a reflex and comprises reception, transmission, and reaction c *pl* : the power of acting or responding with adequate speed

Lightface numerals in parentheses indicate a further division of subsenses:

ra·di·a·tion . . . *n* . . . 2 a : . . . b (1) : the process of emitting radiant energy . . . (2) : the combined process of emission, transmission, and absorption of radiant energy

A lightface colon following a definition and immediately preceding two or more subsenses indicates that the subsenses are subsumed by the preceding definition:

hep·a·ti·tis . . . *n* . . . 2 : a disease or condition marked by inflammation of the liver: as a : INFECTIOUS HEPATITIS b : SERUM HEPATITIS

¹seed . . . *n* . . . 1 a : . . . b : a propagative animal structure: (1) : MILT, SEMEN (2) : a small egg (as of an insect) (3) : a developmental form of a lower animal

The word *as* may or may not follow the lightface colon. Its presence (as at *hepatitis*) indicates that the following subsenses are typical or significant examples. Its absence (as at *seed*) indicates that the subsenses which follow are exhaustive.

Sometimes a particular semantic relationship between sen-

ses is suggested by the use of one of four italic sense dividers: *esp*, *specif*, *also*, or *broadly*. The sense divider *esp* (for *especially*) is used to introduce the most common meaning subsumed in the more general preceding definition. The sense divider *specif* (for *specifically*) is used to introduce a common but highly restricted meaning subsumed in the more general preceding definition. The sense divider *also* is used to introduce a meaning that is closely related to but may be considered less important than the preceding sense. The sense divider *broadly* is used to introduce an extended or wider meaning of the preceding definition.

The order of senses within an entry is historical: the sense known to have been first used in English is entered first. This is not to be taken to mean, however, that each sense of a multisense word developed from the immediately preceding sense. It is altogether possible that sense 1 of a word has given rise to sense 2 and sense 2 to sense 3, but frequently sense 2 and sense 3 may have arisen independently of one another from sense 1.

Information coming between the entry word and the first definition of a multisense word applies to all senses and subsenses. Information applicable only to some senses or subsenses is given between the appropriate boldface numeral or letter and the symbolic colon.

bur . . . *n* 1 *usu burr*

chla·myd·ia . . . *n* 1 *cap* . . . 2 *pl* **-iae**

Names of Plants & Animals

The entries in this dictionary that define the names of plants and animals include common or vernacular names (as *mosquito* and *poison ivy*) and names from the formal, codified, New Latin vocabulary of biological systematics that denote categories at the level of the genus or higher. The vocabulary of biological nomenclature has been developed and used in accordance with international codes for the purpose of identifying and indicating the relationships of plants and animals. Organisms are classified into a hierarchy of groups—taxa—with each kind of organism having one—and only one—correct name and belonging to one—and only one—taxon at each level of classification in the hierarchy.

The fundamental taxon is the genus, which includes a group of closely related species of organisms and of which the name is a capitalized singular noun:

Ix·o·des . . . *n* : a widespread genus of the family Ixodidae that includes ticks that suck the blood of man . . .

rhus . . . *n* 1 *cap* : a genus of shrubs and trees (family Anacardiaceae) . . . that include some (as poison ivy, poison oak, and poison sumac) producing substances causing dermatitis

Names of taxa higher than the genus (as family, order, class, and phylum) are capitalized plural nouns that are often used with singular verbs and that are not abbreviated in normal use:

Platy·hel·min·thes . . . *n pl* : a phylum of . . . usu. much flattened invertebrates comprising the planarians, flukes, tapeworms, and related worms . . .

Trem·a·to·da . . . *n pl* : a class of the phylum Platyhelminthes including the flukes and related parasitic worms . . .

The unique name of each kind of organism or species—the binomial or species name—consists of a singular capitalized genus name combined with an uncapitalized specific epithet. The name for a variety or subspecies—the trinomial, variety name, or subspecies name—adds a similar varietal or subspecific epithet. The head louse *(Pediculus humanus capitis)* is a subspecies of the species *(Pediculus humanus)* to which the body louse belongs.

If a name from biological nomenclature is used outside of parentheses as part of a definition, it appears in this dictionary as a vocabulary entry at its own place. If the name of a genus or higher taxon is used inside parentheses in a definition, it may or may not appear as an entry. No binomial, specific, subspecific, or varietal name appears as a vocabulary entry (although common names derived from such names may be entered). In contrast, every common or vernacular name which is used in a definition whether inside or outside of parentheses is entered in this dictionary or in its companion volume, Webster's Ninth New Collegiate Dictionary.

Many common names are derived directly from the names of taxa and especially genera with little or no modification. The genus name (as *Chlamydia* or *Drosophila*) is capitalized and italicized but never takes a plural. In contrast the common name (as chlamydia or drosophila) is not usually capitalized or italicized but does take a plural (as chlamydiae or drosophilas). Occasionally, a common name in plural form (as coleoptera) may be spelled like the name of a taxon, but it is not usually capitalized. In many cases both the systematic taxonomic name and the common name derived from it are entered in this dictionary.

chla·myd·ia . . . *n* 1 *cap* : the type genus of the family Chlamydiaceae comprising . . . 2 *pl* **-iae** : any microorganism of the genus *Chlamydia*

dro·soph·i·la . . . *n* 1 *cap* : a genus of small two-winged flies . . . 2 : any fly of the genus *Drosophila*

The entries defining the names of plants and animals are usually oriented to a taxon higher in the systematic hierarchy by a systematic name of higher rank (as *Chlamydiaceae* at *Chlamydia* or *Streptomycetaceae* at *Streptomyces*), by a common name (as *two-winged fly* at *Drosophila*, *insects* at *Coleoptera*, or *madder family* at *cinchona*), or by technical adjectives (as *digenetic* and *trematode* at *fluke*) so that the systematic name of a higher, more inclusive taxon can usually be found by consulting another entry if it is not explicitly mentioned at the entry itself.

A genus name may be abbreviated to its initial letter when it is used as part of a binomial or trinomial name in the definition of the genus itself or when it is listed more than once in senses not separated by a boldface number.

A capitalized entry for a systematic taxonomic name of the form X *n, syn of* Y means that *X* has the same taxonomic rank and meaning as *Y* but that it is technically inferior to and less valid than *Y*. In a few cases a widely used synonym may be added after the currently recognized systematic name in some definitions:

En·ter·o·coc·cus . . . *n, syn of* STREPTOCOCCUS

plague . . . *n* . . . 2 : a virulent contagious febrile disease that is caused by a bacterium of the genus *Yersinia* (*Y. pestis* syn. *Pasteurella pestis*)

Cross-Reference

Four different kinds of cross-references are used in this dictionary: directional, synonymous, cognate, and inflectional. In each instance the cross-reference is readily recognized by the lightface small capitals in which it is printed.

A cross-reference usually following a lightface dash and beginning with *see* or *compare* is a directional cross-reference. It directs the dictionary user to look elsewhere for further information. A *compare* cross-reference is regularly appended to a definition; a *see* cross-reference may stand alone:

can·cer . . . *n* 1 . . . — compare CARCINOMA, SARCOMA; NEOPLASM, TUMOR

iron . . . *n* 1 . . . — symbol *Fe;* see ELEMENT TABLE

mammary artery — see INTERNAL THORACIC ARTERY

A *see* cross-reference may be used to indicate the place of definition of an entry containing one or more Arabic numerals or abbreviated chemical prefixes that might cause doubt. Examples of chemical names are given above at "Order of Main Entries." The entry below follows the entry for the abbreviation *GP:*

G_1 phase, G_2 phase — see entries alphabetized as G ONE PHASE, G TWO PHASE

A *see* cross-reference may appear after the definition of the name of a generic drug to refer the reader to a trademark used for a preparation of the drug:

di-az-e-pam . . . *n* . . . — see VALIUM

A cross-reference immediately following a boldface colon is a synonymous cross-reference. It may stand alone as the only definitional matter, it may follow an analytical definition, or it may be one of two synonymous cross-references separated by a comma:

hepatitis B *n* : SERUM HEPATITIS

sys-tem-a-tist . . . *n* : a classifying scientist : TAXONOMIST

ad-i-po-sis . . . *n* . . . 1 : ADIPOSITY, OBESITY

A synonymous cross-reference indicates that a definition at the entry cross-referred to can be substituted as a definition for the entry or the sense or subsense in which the cross-reference appears.

A cross-reference following an italic *var of* is a cognate cross-reference:

qhat *var of* KHAT

manoeuvre *Brit var of* MANEUVER

A cross-reference following an italic label that identifies an entry as an inflected form is an inflectional cross-reference. Inflectional cross-references appear only when the inflected form falls alphabetically at some distance from the main entry.

corpora *pl of* CORPUS

broke . . . *past of* BREAK

When guidance seems needed as to which one of several homographs or which sense of a multisense word is being referred to, a superscript numeral may precede the cross-reference or a sense number may follow it or both:

Indian squill *n* : URGINEA 2a

ossa *pl of* 'OS

Combining Forms, Prefixes & Suffixes

Combining forms, prefixes, and suffixes of medical importance are listed in a separate section in the front matter beginning at page 20a. However, a few of chemical significance (as d- and orth- *or* ortho-) are entered in alphabetical sequence in the dictionary because of the frequency with which they are prefixed to the names of chemical substances, often in abbreviated form and set off by a hyphen.

Abbreviations & Symbols

Abbreviations and symbols for chemical elements are included as main entries in the vocabulary:

RQ *abbr* respiratory quotient

Al *symbol* aluminum

Abbreviations are entered without periods and have been normalized to one form of capitalization. In practice, however, there is considerable variation, and stylings other than those given in this dictionary are often acceptable.

The more common abbreviations and the symbols of chemical elements also appear after the definition at the entries for the terms they represent:

respiratory quotient *n* : . . . — abbr. *RQ*

Symbols that are not capable of being alphabetized are included in a separate section of the back matter headed "Signs and Symbols."

Abbreviations Used in This Book

abbr	abbreviation	*comb*	combining	*occas*	occasionally
A.D.	anno Domini	*constr*	construction	*orig*	originally
adj	adjective	*d*	died	*part*	participle
adv	adverb	*Encyc*	Encyclopedia	*pl*	plural
Amer	American	*esp*	especially	*pres*	present
Assoc	Association	*et al*	and others	*prob*	probably
attrib	attributive	*F*	Fahrenheit	*Rev*	Review
Austral	Australian	*fl*	flourished	*sing*	singular
b	born	*g*	gram	*So*	South
B.C.	before Christ	*imper*	imperative	*specif*	specifically
Biog	Biography	*Jour*	Journal	*spp*	species (*pl*)
Biol	Biological	*Ky*	Kentucky	*syn*	synonym
Bk	Book	*Mass*	Massachusetts	*Univ*	University
Brit	British	*Med*	Medical, Medicine	*US*	United States
Bull	Bulletin	*ml*	milliliter	*usu*	usually
C	Celsius	*mm*	millimeter	*v*	versus
ca	circa	*n*	noun	*var*	variant
Canad	Canadian	*NewZeal*	New Zealand	*vb*	verb
cap	capitalized	*nm*	nanometer	*vi*	verb intransitive
cc	cubic centimeter	*No*	North	*vt*	verb transitive
Chem	Chemical	*n pl*	noun plural	*Yr*	Year
Coll	College	*N.Y.*	New York		

The History and Etymology of Medical English

John H. Dirckx, M.D.

The language of modern medicine, a vigorous, versatile idiom of vast range and formidable intricacy, expands constantly to meet the needs of a complex and rapidly evolving discipline. Medical English in its broadest sense includes not only the official nomenclatures of the basic medical sciences (such as anatomy, biochemistry, pathology, and immunology) and the clinical specialties (such as pediatrics, dermatology, thoracic surgery, and psychiatry) but also a large body of less formal expressions, a sort of trade jargon used by physicians and their professional associates in speech, correspondence, and record-keeping.

Despite the decrees of official boards and committees, medical language tends to grow and change in much the same ways as the vernacular. New terms and expressions appear as if by spontaneous generation to meet new needs, and established words readily acquire new meanings. No firm distinction can be drawn between formal terminology and argot, or between current and obsolescent nomenclature, for expressions that began as informal or shorthand terms may achieve formal status because of their aptness and usefulness, while others whose inaccuracy or inappropriateness have become obvious may survive for decades in speech and even in textbooks.

The parallel between medical English and the common speech also holds true in other ways. Just as no single person can possibly know and use all the words recorded in an unabridged dictionary, no single physician knows and uses all the terms in a medical dictionary. Purists within the profession often object to certain pronunciations and uses of technical terms, but the majority of physicians go on remorselessly pronouncing and using them in ways that seem natural and useful and, as always, it is the standard of usage that finally determines what is correct and what a word really means.

Since pronunciation, spelling, and even meaning depend on usage rather than etymology, it has often been said that the least important thing about a word is its history. And yet, to trace the history of medical terminology is to trace the history of medicine itself, for every stage of that history has left its mark on the working vocabulary of the modern physician. Each new discovery in anatomy, physiology, pathology, and pharmacology has called forth a new name, and a great many of these names, no matter how haphazardly and irregularly coined, no matter how unsuitable in the light of later discoveries, have remained in use. An etymological survey of this rich lexical medley we call medical English, where terms used by Hippocrates jostle others made up yesterday, where we find words from classical languages adapted, often ingeniously and sometimes violently, to modern concepts, and where the names of celebrated persons, mythic figures, and remote places lend human interest and a spice of the exotic, should claim the attention of anyone having a professional or avocational concern with medicine or one of its allied fields.

For convenience, medical terms currently used by speakers of English may be grouped in eight classes: 1) terms borrowed from everyday English; 2) Greek and Latin terms preserved from ancient and medieval medicine; 3) modern coinages, chiefly from classical language elements; 4) terms based on proper names; 5) borrowings from modern foreign languages; 6) trade names; 7) argot and figurative formations; and 8) abbreviations.

Since every man is ultimately his own physician, professional practitioners of medicine have never held an exclusive right to treat diseases, much less to name and discuss them. Physicians have been borrowing "medical" words from lay English as long as the language has existed.

The history of English falls naturally into three stages. During the Old English or Anglo-Saxon period (A.D. 450–1150), a group of Germanic dialects carried into Britain from northwestern Europe by invading continental tribes including Saxons, Angles, and Jutes gradually diffused and coalesced, receiving important additions from the Old Norse of Scandinavian pirates and marauders and the Latin of Christian missionaries and lesser ones from the languages of foreign traders and the conquered Celts. As Middle English (1150–1500) evolved, most of the inflectional endings of its nouns, adjectives, and verbs weakened and were gradually lost, and it assimilated a vast number of French words brought into Britain after the Norman Conquest (1066). Modern English differs from later Middle English in many of its vowel sounds, in the stabilization of its spelling after the invention of printing, and in its increasing richness in loan words and new formations.

Many modern terms used by both physicians and laity for parts or regions of the body (*arm, back, breast, hand, head, neck*), internal organs and tissues (*heart, liver, lung, blood, bone, fat*), and common symptoms and diseases (*ache, itch, measles, sore, wart, wound*) derive from Anglo-Saxon origins. *Leg, scalp, skin,* and *skull,* also dating from the earliest period of English, can be traced to Old Norse. We find most of these words in the works of Geoffrey Chaucer (ca 1342–1400), the first important figure in English literary history, and in addition others that entered Middle English via Norman French from medical Latin (*canker, jaundice*) and Greek (*cholera, melancholy*). *Migraine, plague,* and *pleurisy,* also adapted by French from classical words, appear in other Middle English authors.

Though all of these structures, symptoms, and ailments have formal names in the technical language of medicine, physicians generally prefer to use the common English words. They do not, however, always use them in the same way as the laity. For example, medicine has found it expedient to narrow and fix the meanings of some words taken over from lay speech. The anatomist limits the sense of *arm* to the part of the upper extremity between the shoulder and the elbow, and of *leg* to the part of the lower extremity between the knee and the ankle. To the microbiologist and the specialist in infectious diseases, *plague* means a specific communicable disease, not just any epidemic. To the cardiologist, *heart failure* denotes a group of sharply defined clinical syndromes, not just any breakdown of heart function. Similarly, *chill, depression, joint, migraine, shock, stillborn, strain,* and *tenderness* all have more restricted meanings in medical English than in lay speech.

In discussing human anatomy, physicians use some words, such as *flank* and *loin,* that the general populace applies only to animals, and others, such as *belly* and *gut,* that many of the laity regard as impolite. On the other hand, physicians find it best to avoid certain common words of shifting or dubious meaning and to substitute others (usually borrowed from classical languages or fabricated from classical material) whose meaning can be ar-

bitrarily limited. For example, *hip* may be undesirably vague when the context fails to indicate whether the reference is to the thigh, the pelvis, the joint between them, the entire bodily region around this joint, or, euphemistically, the buttock. A patient may complain of dizziness, but the physician cannot be content with a term whose range of meanings includes such disparate symptoms as vertigo, disequilibrium, sleepiness, and nausea.

Physicians have been accused of adopting and clinging to an abstruse terminology based on dead languages in order to keep their patients in ignorance or even to conceal their own ignorance. But apart from cases of ambiguity as with *dizziness* and *hip*, or of brand-new concepts for which the common speech can supply no suitable names, the medical profession is only too ready to borrow or modify plain English expressions. Medical English includes a great many lively and even poetic compounds and phrases built of native material, some of them involving metaphor or hyperbole: *bamboo spine, the bends, clubfoot, frozen shoulder, hammertoe, harelip, knock-knee, mallet finger, saddle block, strawberry mark,* and *wandering pacemaker*.

The enormous stock of Greek words and word elements in the medical vocabulary, a source of difficulties for physicians and laity alike, owes its origin to the fact that Western medicine, insofar as we have written records of it, began with Hippocrates in the Periclean Age of Greece. It can be said with equal truth that Western civilization itself took shape in the same era, when the world and everything in it, from the phenomena of nature to human relations and institutions, first came under the scrutiny of that soaring analytic spirit, tempered by profound wisdom, that found its most perfect expression in Socrates. The presence in modern English of such words borrowed or derived from Greek as *astronomy, character, criticism, democracy, dialogue, emphasis, idea, paragraph, problem, system, theme, theory,* and *thesis* attest to the enduring influence of ancient Greek thought on modern culture. The philosophers Plato and Aristotle, the dramatists Sophocles and Euripides, and the historians Herodotus and Thucydides were all roughly contemporary with Hippocrates.

Revered as the Father of Medicine, Hippocrates (ca 460–ca 370 B.C.) was the guiding spirit if not the founder of the world's first school of scientific medicine on the Greek island of Kos, the site of a famous temple to Aesculapius, god of healing. Tradition assigns to Hippocrates the role of separating medicine from religion by teaching that diseases have organic causes and must be combated by physical measures. He also worked out a primitive system of physiology and pathology based on the physics of Empedocles and the numerology of Pythagoras, and established the ethical directives for physicians embodied in the celebrated Hippocratic oath (which, however, is thought to be by a later hand).

The Corpus Hippocraticum, one of the wonders of ancient learning, is a collection of medical works covering a remarkable range of topics including medical history, geographic medicine, dietetics, prognosis, surgery, and orthopedics. Although no modern scholar believes that all these works are by the same author, a substantial number of them seem to show the same fertile, inquiring, incisive mind at work, and it is through these that Hippocrates has exerted so powerful an influence on all subsequent medical theory and practice. The oldest Greek medical terms in current use appear in the Hippocratic writings themselves, among them *anthrax, asthma, bronchus, condyloma, dyspnea, dysthymia, erythema, erysipelas, orthopnea,* and *tenesmus*.

These words were not, of course, invented by Hippocrates (*asthma* appears in the *Iliad*), but only borrowed by him from the common speech and adapted to serve the needs of the fledgling science. The modern physician uses all of these terms, generally with more specific meanings than did Hippocrates, and sometimes with radically different ones. The principal reason for the survival of these words from a classical language is that for centuries after Hippocrates, Greek medicine was virtually the only medicine worthy of the name in the Western world, just as Greek philosophy and science dominated Western thought until long after the beginning of the Christian era. Aristotle (384–322 B.C.), remembered chiefly as a philosopher and the formulator of the system of logic still most widely accepted today, was also a brilliant anatomist and physiologist, and a few of our medical Greek words *(alopecia, aorta, epiglottis, nystagmus, pancreas)* made early appearances in his works.

Centuries before Hippocrates, the priests of Egypt learned something about anatomy and pathology through the exercise of their duties as embalmers of the dead. Egyptian medicine, as revealed to us by tantalizingly sparse remnants of ancient writings on papyrus, seems to have been, like Greek medicine before Hippocrates, a branch of religion. There is evidence that early Egyptian science and mathematics influenced the development of these disciplines in Greece, and that, long before Alexander the Great conquered Egypt and annexed it to the Hellenic world, some Egyptian medical lore had reached Greece. A few medical terms that we customarily derive from Greek ultimately had Egyptian origins: *ammonia*, from a primitive term for ammonium chloride, of which large natural deposits were found near a shrine of the Egyptian deity Ammon (Amen) in Libya; *gum* 'vegetable exudation' from Egyptian *qmy.t* via Greek *kommi*; *stibium*, the chemical name for the element antimony and the basis for its international symbol, Sb, from Egyptian *stm* by way of Greek *stimmi*.

Long after Rome in its turn conquered Greece and absorbed the best of Hellenic learning and culture, most physicians in Rome and the provinces were Greek slaves or freedmen or Greek-speaking immigrants from the Near East or North Africa. Hence the lore of the craft continued to be passed on in the language of Hippocrates. Aretaeus of Cappadocia, who practiced and wrote in the first century after Christ, discussed *asphyxia* and apparently invented the term *diabetes*. His contemporary, the medical botanist Dioscorides, used the terms *eczema, kerion,* and *trachoma*. Galen (A.D. 129–199), a native of Pergamum in Asia Minor, moved to Rome early in his career, devoted many years to the study and practice of medicine, and became court physician to the emperor Marcus Aurelius. His voluminous writings in Greek on anatomy, physiology, pathology, and therapeutics have earned him second place in medicine's pantheon. Among words that first appear in his writings may be mentioned *allantois, atheroma, coccyx, epididymis,* and *peritoneum*.

In discussing parts of the body or common diseases a medical writer may find lay terms sufficient for his needs, but to write about new concepts or discoveries he must either invent new words or use old ones in new ways. From the dawn of medical history, writers on anatomy and pathology have yielded to the natural impulse to create metaphors to name new things. Thus the bone at the lower end of the spine was called *coccyx*, Greek for 'cuckoo', because of its beaklike shape, and the opening from the stomach into the small intestine became the *pylorus* 'gatekeeper'. Loss of hair was termed *alopecia* because it suggested the appearance of a fox *(alopex)* with mange, and a person with an abnormally ravenous appetite was said to have *bulimia* 'the hunger of an ox'. Perhaps none of these words was the invention of a physician, but they all appear in early Greek medical writings, setting a precedent for subsequent medical word-making in all Western languages down to the present day.

With the collapse of the Byzantine Empire, the Greek language went into eclipse as a medium of scientific and technical communication. Even the masterpieces of Greek drama, philosophy, and history dropped out of sight, to be rediscovered centuries later in the Renaissance. Meanwhile Latin, the language of republican and imperial Rome and its western provinces, flourished as both a widespread vernacular and a literary language. While the popular speech was evolving into regional dialects that would in time become Italian, Spanish, Catalan, Portuguese, French, Provençal, and Rumanian, the classical language, enshrined in the prose of Cicero and the verses of the Augustan poets, survived with changes as the international language of learning, science, jurisprudence, and the Church.

The first Roman writer on medicine, Aulus Cornelius Celsus, who lived in the first century after Christ, was probably not a physician. His eight books *De Medicina (On Medicine)*, perhaps translated or adapted from a Greek work, review the whole subject of medical theory and practice in lucid, even elegant Latin.

The immense historical value of Celsus's writings lies partly in his nomenclature, for besides recording numerous Greek medical terms for which Latin offered no suitable equivalents (*aphthae, ascites, cremaster, lagophthalmos, mydriasis, opisthotonos, staphyloma, tetanus*), he also gives the earliest medical applications of many Latin words still in use today (*angina, caries, delirium, fistula, impetigo, mucus, radius, scabies, tabes, tibia, varus, verruca, vertebra, virus*).

Celsus's contemporary, Pliny the Elder (A.D. ca 23–79), an indefatigable if somewhat incautious student of the natural sciences (he died while observing at close range an eruption of Vesuvius), was also a prolific writer. He devoted several books of his monumental *Naturalis Historia* (*Natural History*) to medical topics, and recorded for the first time the medical uses of such Latin terms as *acetabulum, pruritus,* and *tinea*. Whereas Celsus's rigorously scientific work remained virtually lost from about the fifth century to the fifteenth, when its rediscovery stirred the medical world to its foundations, Pliny's compendium of myth and misinformation became one of the nonfiction best-sellers of antiquity, and by the Middle Ages it was firmly established as a popular encyclopedia.

During the centuries following the decline of classical culture, the progress of medicine, as of all the arts and sciences, slowed nearly to a halt. Scientific investigation languished; education consisted largely in the uncritical memorization of ancient lore. In medicine the teachings of Galen, known through Latin translations and commentaries, maintained an unchallenged supremacy for more than a thousand years. But gradual though it was, the development of medical knowledge during the Dark Ages led to a slow accretion of technical Latin terms representing modifications of and additions to the lexical legacy of the ancients.

In the ninth century, when European letters and science were at their lowest ebb, Islamic scholars began a revival of Western learning, translating Aristotle, Galen, and other Greek authors into Syriac and Arabic and subjecting their teachings to searching analysis and impartial verification. The Persian physicians Rhazes, Haly Abbas, and Avicenna, the Arabians Averroës and Albucasis, and the Jew Maimonides performed important original research and made valuable contributions to medical literature. Traces of their influence linger in many terms of Arabic and Persian origin referring to anatomy, chemistry, and pharmacy that made their way into medical English by way of medieval Latin: *alcohol, alkali, benzoin, bezoar, camphor, nuchal, retina, safranin, saphenous, soda,* and *sugar*.

With the resurgence of intellectual activity in the Renaissance, vigorous and original thinkers arose all over Europe to overthrow the hallowed errors of ancient authorities. In medicine, the earliest revolution came in anatomy with the painstaking dissections and detailed drawings of Leonardo and Vesalius, who dared to show where Galen had gone wrong. Fallopius, Servetus, Sylvius, and many others followed their lead. Increasingly minute descriptions of the human body called for an ever more elaborate nomenclature. The printing, in 1502, of the *Onomasticon* (*Word-book*) of Julius Pollux (2d century A.D.), a sort of dictionary that happened to include a section on anatomic terms, enabled anatomists to drop most of the Arabic names for parts of the body then commonly found in textbooks and reintroduce such classical Greek terms as *amnion, atlas, axis, canthus, gastrocnemius, tragus,* and *trochanter*.

But the system of anatomic nomenclature that had been largely codified by the end of the sixteenth century, while including a substantial body of Greek terms, was chiefly Latin. Once again metaphor played an extensive role in the choice of terms. Anatomists named body parts after plants (*glans* 'acorn', *uvula* 'little grape'), animals (*cochlea* 'snail', *vermis* 'worm'), architectural elements (*tectum* 'roof', *vestibulum* 'entrance hall'), household implements (*clavicula* 'little key', *malleus* 'hammer'), articles of clothing (*tunica* 'tunic', *zona* 'belt'), topographic features (*fossa* 'ditch', *fovea* 'pit'), and even other body parts (*capitellum* 'little head', *ventriculus* 'little belly'). By contrast, scores of other Latin anatomic terms, including many that we still use, seem almost painfully literal (*extensor pollicis longus* 'long extender of the thumb', *foramen magnum* 'big hole'). The investigation of the fine structure of the body and of disease-causing microorganisms, made possible by the invention of the simple and compound microscopes, demanded a new stock of terms, and again many of those adopted were descriptive figures (*bacillus* 'little stick', *glomerulus* 'little ball of yarn', *nucleus* 'kernel').

Medicine in the modern sense came into being only with the commencement of the scientific era. Physiology, pathology, pharmacology, and surgery, formulated on an increasingly rational basis, required increasingly rigorous and systematized language. As long as Latin was understood by all educated persons, medical textbooks and monographs continued to be written in that language and lectures to be delivered in it. New medical terms were Latin in form if not always in lexical origin. The modern vocabulary of medicine contains, besides many words known to Celsus, other terms borrowed from Latin at a much later date, such as *angina pectoris, cor bovinum, fetor hepaticus, molluscum contagiosum, placenta previa, rubeola, torticollis,* and *vaccinia*.

In the days when a doctor's prescription was a kind of recipe calling for several ingredients, prescriptions were written in an elaborate, ritualized, grammatically debased form of Latin. This pharmaceutical Latin flourished until about the middle of the present century, and many abbreviations based on it are still in use today (*b.i.d., bis in die* 'twice a day'; *p.c., post cibos* 'after meals'; *p.r.n., pro re nata* 'as the occasion arises').

Although not directly connected with medicine, the system of classificatory naming of all living things devised by the Swedish naturalist Linnaeus (1707–1778) plays an important role in medical communication. Linnaean nomenclature, fundamentally Latin with a substantial admixture of Greek stems and proper nouns, includes terms for disease-causing bacteria and fungi as well as more complex organisms of medical importance.

It is one thing for medicine to borrow a classical Greek or Latin word such as *typhus* or *scabies* and assign it a specific technical meaning, and another to combine classical stems and affixes to make entirely new words like *hypercholesterolemia* and *proprioception*. Most new medical terms formed from classical elements during the past hundred years have been of the latter kind, which we may call coinages for want of a more distinctive label.

Coinage entails two kindred processes, derivation (or affixation) and compounding. Derivation here refers to the attachment of one or more prefixes or suffixes to a word or stem, as when the prefix *endo-* 'within' and the suffix *-itis* 'inflammation of' are added to the base word *metra* 'uterus' to form *endometritis* 'inflammation of the uterine lining'. Compounding is the joining of two or more adjective, noun, or verb stems, as when the English stems derived from Greek *megas* 'large', *karyon* 'nut, nucleus', and *kytos* 'vessel, cell' are combined to form *megakaryocyte* 'a bone marrow cell with a large, irregular nucleus'. Derivation is exemplified by English *outlandish* and *unfriendly*, compounding by *headache* and *windpipe*.

The combining form of a classical word consists of its stem plus, if needed, a linking vowel, usually *o* but sometimes *i* with Latin words. Thus *brady-*, as in *bradycardia*, is from Greek *bradys* 'slow'; *cortico-*, as in *corticothalamic*, from Latin *cortex, corticis* 'bark'; *hemat-* or *hemato-*, as in *hematopoiesis*, from Greek *haima, haimatos* 'blood'; *femoro-*, as in *femoropopliteal*, from Latin *femur, femoris* 'thigh'; *gastr-* or *gastro-*, as in *gastroesophageal*, from Greek *gaster, gastros* 'stomach'; *my-* or *myo-*[1], as in *myoneural*, from Greek *mys, myos* 'mouse, muscle'; *ov-* or *ovi-* or *ovo-*, as in *oviduct*, from Latin *ovum, ovi* 'egg'. The linking vowel is generally omitted before a following vowel: *gastritis, hematemesis, hematuria*. The final element of a classical coinage may be anglicized (*colostomy, dermatome* with silent final *e, fibroblast, herniorrhaphy*) or not (*hemochromatosis, keratoconus, polyhydramnios, asystole* with *e* pronounced).

Although in earlier times makers of new terms followed classical precedents more diligently and accurately than now, medical coinages have never adhered strictly to any rule, not even that of self-consistency. Medical language has not hesitated to shorten stems, drop awkward syllables, or use unorthodox forms of juncture. The meanings of some stems have wavered between

two extremes (*carcinogenic* 'causing cancer' but *nephrogenic* 'arising in the kidney') or even gone in entirely new directions under the influence of analogy. The suffix *-itis*, in classical Greek merely a means of turning a noun into an adjective (as with English *-en* in *golden*), took on its special meaning 'inflammation of' because it often appeared in Greek phrases such as *nephritis nosos* 'kidney disease'. Even as early as the time of Hippocrates, it was customary to shorten a phrase of this kind by omitting the noun. Similarly, the Greek suffix *-ma* that was a means of forming a noun from a verb stem (as in *drama* and *diploma*) fused with the linking vowel *-o-* appeared in English as the combining form *-oma* with the medical sense of 'tumor, neoplasm' because it figured in a number of ancient terms, such as *sarcoma* and *condyloma* denoting abnormal growths.

For centuries, classical scholars thought it unscholarly to join Greek and Latin material in the same word. Since most of the living medical prefixes and suffixes, including the ubiquitous and indispensable *-itis* and *-oma*, were of Greek pedigree, matching Greek stems were dredged up from the depths of oblivion for combination with them, even when synonyms of Latin derivation were already in general use. Thus, although the common adjectives *oral*, *mammary*, and *renal* embody the Latin words for 'mouth', 'breast', and 'kidney' respectively, the corresponding Greek stems appear in *stomatitis*, *mastectomy*, and *nephrosis*. Now that objections to Greek-Latin hybrids have largely died out, many such words *(appendicitis, hypertension; radiology)* thrive without the stigma of scholarly reproach. Indeed, compounds of Greek with French *(culdoscopy, goitrogenic)*, English *(antibody, hemiblock)*, German *(antiscorbutic, kernicterus)*, and Arabic *(alcoholism, alkalosis)* now find universal acceptance. Meanwhile the medical lexicon remains rich beyond its needs in Greek stems and in Greek-Latin synonym pairs such as *hypodermic/subcutaneous, scaphoid/navicular*, and *xiphoid/ensiform*.

The hundreds of classical stems and affixes in daily use virtually invite further coinages, and in fact physicians produce nonce words and ad hoc formations from this material at a rate that defies the lexicographer to keep pace. Each new word may become the basis of a whole dynasty of derivative or analogical formations. Nouns, equipped with appropriate suffixes, readily change into verbs and adjectives, and vice versa. Many terms arise by back-formation, the process of creating an imaginary precursor or a shortened unconventional word from an existing form, such as *to diagnose* from *diagnosis, to perfuse* from *perfusion*, and *precordium* from *precordial*.

At all periods of history, proper nouns denoting persons and places have been incorporated into adjectives, verbs, other nouns, and phrases, as in *Jeffersonian, Americanize, Marxism*, and *Halley's comet*. Eponymy, the derivation of words from personal names, has added to the medical vocabulary such diverse expressions as *Addison's disease, chagoma, cushingoid, descemetocele, facies Hippocratica, galenical*, and *parkinsonism*. Besides terms like these honoring distinguished physicians, others stand as monuments to important patients: *bacitracin*, an antibiotic named for Margaret Tracy, from whose tissues it was first isolated; *Carrión's disease* (bartonellosis), named for Daniel A. Carrión, a Peruvian student who inoculated himself experimentally with the disease and died of it; *Hartnup disease*, a heredofamilial metabolic disorder named for an English family of which several members were so affected; *HeLa cells*, a line of cultured human malignant cells named for Henrietta Lacks, from whose cervical carcinoma they are all descended; *Legionnaires' disease*, pneumonitis due to a bacterium of the genus *Legionella*, the disease and the genus both named for the American Legion, at whose convention in 1976 the first recognized outbreak occurred.

Names of prominent figures in myth, legend, and popular fiction have also found their way into the physician's lexicon. *Atropine*, a drug extracted from belladonna and various related plants of the genus *Atropa* and used as an antispasmodic for smooth muscle, is named, in allusion to its lethal properties, for Atropos, one of the three Fates, who was reputed to cut off each person's thread of life at the moment appointed for death. *Morphine*, a narcotic extracted from the juice of the poppy, is named for Morpheus, the god of sleep. *Satyriasis*, abnormal sexual excitability in the male, refers to the Satyrs, mythic sylvan deities with a leaning toward lechery. *Pickwickian syndrome*, extreme obesity with hypoventilation, refers to Joe the fat boy in Dickens's *Pickwick Papers*.

Most of the medical terms that incorporate geographic allusions are names of infectious diseases or their causative agents and refer to sites where these diseases are specially prevalent or endemic or where they were first identified or studied. In some of these terms, the names preserve their original form, as in *Lyme disease*, a tick-borne spirochetal infection named for a town in Connecticut, and *Norwalk virus*, which causes outbreaks of diarrhea in school children and is named after a city in Ohio. For other terms the geographic origins are not so evident: *Coxsackie virus*, any of a group of human viruses causing various acute febrile syndromes, named for Coxsackie, New York; *maduromycosis*, a fungal skin disease, named after the Indonesian island of Madura; *tularemia*, an infection of rodents sometimes transmitted to man, first identified in Tulare County, California.

These terms based on proper nouns impart an element of novelty as well as a liberal dimension to what might otherwise be a depressingly prosaic assemblage of dry lexical bones gathered from the graveyard of dead languages. In a similar way, terms borrowed from modern foreign languages lend a cosmopolitan flavor to medical speech and writing. There are logical reasons why speakers of English customarily use foreign words for certain diseases, symptoms, or drugs. During the nineteenth century, the teachings and writings of Continental medical authorities played an essential part in the education of British and American physicians. Up until World War I, Americans flocked to Paris and Vienna for specialty training, and brought back French and German words and phrases for which no English equivalents seemed quite right. Numerous French words continue in use today in clinical medicine (*ballottement* 'shaking', *bruit* 'noise', *grand mal* 'big disease', *petit mal* 'little disease'), surgery (*curette* 'scraper', *débridement* 'unbridling, cutting loose', *rongeur* 'gnawer', *tamponade* 'plugging'), and obstetrics (*cerclage* 'encirclement', *cul de sac* 'bottom of the bag', *fourchette* 'little fork', *souffle* 'blowing'). The suffix *-ase*, used to form the names of enzymes, first appeared in *diastase*, a French respelling of Greek *diastasis* 'separation'. The sugar suffix *-ose* dates from French *glucose*, based on Greek *gleukos* 'sweet wine'. The phrase *milieu intérieur*, applied in French by Claude Bernard in the 1850s to his concept of internal physical and chemical equilibrium, is used in English today to designate the same concept.

German words also abound in medical English. *Mittelschmerz* 'middle pain' (that is, pain midway between menses) is a well-established term for the pain of ovulation. *Spinnbarkeit* 'stretchability' refers to the consistency of cervical mucus under the influence of estrogen. *Magenstrasse* 'stomach street' picturesquely designates a portion of the stomach whose longitudinal folds seem designed to channel food toward the intestine. A number of German terms have been retained in English for findings first reported by German or Austrian scientists: *mast* 'stuffed' *cell* in histology, *gestalt* 'shape' in psychiatry, *anlage* 'foundation' in embryology, *quellung* 'swelling' in microbiology. The term *eye ground* for the retina and associated structures as examined with the ophthalmoscope probably owes its origin to German *Augenhintergrund*. *Antibody* is a translation, or at least a partial translation, of *Antikörper*, and *sitz bath* bears the same relation to *Sitzbad*. The adjective *German* in *German measles*, a synonym for *rubella*, probably came into use in the sense of 'false' or 'illusory', but may allude to the German term *Röteln*, by which the disease was widely known in the nineteenth and early twentieth centuries.

Most of the Spanish and Portuguese loans in medical use denote diseases endemic in tropical colonies established by Spain and Portugal in the Old and New Worlds, or drugs derived from plants first found in those regions. Spanish *espundia* (apparently an alteration of *esponja* 'sponge') and *pinta* 'splotch of paint' are names for tropical infections based on their appearance, and

Portuguese *albino* 'little white one' was first applied to the occasional African slave without skin pigment. Spanish *curare* and Portuguese *ipecacuanha* are derived from South American Indian words, Portuguese *ainhum* from an African word. Other medical terms of African origin are *kwashiorkor* and *tsetse*.

Among Italian words in modern medical English, *pellagra* and *malaria* denote diseases once endemic in Italy. *Influenza* and *petechia* are also Italian in origin. *Kala-azar* is Hindi for 'black disease', and *beriberi* means 'extreme weakness' in Sinhalese. *Tsutsugamushi* 'dangerous bug' *disease* and *sodoku* 'rat venom' are from Japanese.

Trade names inevitably figure in workaday medical parlance, as they do in the speech of the general public. Nearly all drugs in common use and many dressing materials, instruments, and appliances bear trade names that are simpler, more euphonious, and more distinctive than their generic names. The trade name of an especially successful product may become a generic term for all similar products despite the efforts of the manufacturer to assert his legal rights in the name. *Aspirin, lanolin,* and *milk of magnesia* were once trade names; *Band-Aid, Vaseline,* and (in Canada) *Aspirin* still are.

When Takamine isolated the hormone of the adrenal medulla in 1901 he called it *Adrenalin* and promptly patented both name and product. This created difficulties for the compilers of the *United States Pharmacopeia,* since regulations forbade the inclusion of trade names. The term *epinephrine,* the Greek equivalent of *Adrenalin,* which had been suggested in 1897 by Abel, was therefore substituted in the *U.S. Pharmacopeia,* but meanwhile *adrenaline* (with finale *e*) had slipped into the *British Pharmacopoeia*. Nowadays *epinephrine* and *adrenaline* are generally used interchangeably for both the natural hormone and the drug, although Parke-Davis holds the rights to *Adrenalin* as a trademark for a preparation of epinephrine used as a drug.

Physicians would not be human if they never playfully made up unconventional expressions or indulged in humorous distortions of technical terminology. What motives lie behind the creation of medical argot—the natural relish for a secret group language, the poetic impulse gone astray, a spirit of rebellion against regimentation of language and thought, or a craving for comic relief—need not concern us here. As mentioned earlier, no sharp distinction can be drawn between formal terminology and medical argot. Clearly *retinitis pigmentosa* and *antihemophilic factor* belong to formal language; just as clearly *red-hot belly* in the sense of 'an abdomen showing signs of acute inflammation' and *electric lights and watermelons* as a jocular variation on *electrolyte and water balance* do not. Between these extremes lie a large number of expressions that, without being perfectly orthodox in formation or altogether serious in tone, yet hover on the verge of respectability, and occasionally achieve it. Since this dictionary is based on a bank of citations from printed sources, it includes only such examples of medical slang as find their way at least occasionally into published literature.

Many terms now ratified by long use began as figures of speech, euphemisms, or experiments in onomatopoeia. An unconscious anthropomorphism has influenced the physician's way of talking about disease-causing microorganisms, which are described as *fastidious, resistant,* or *sensitive,* and about neoplasms, which may be *benign, invasive,* or *malignant*. Many expressions in daily use seem based on the notion that medical practice is a warfare waged against disease. The physician plans an *aggressive* clinical *strategy,* choosing *weapons* from his *arsenal* (or *armamentarium*) to augment the patient's *defenses* against *attacking* organisms or *foreign* substances.

Despite the nature of their calling, physicians are not much less squeamish than others about naming and discussing certain body parts and functions, nor less ready to substitute euphemisms for cruder and more explicit terms. Some expressions still in use, such as *stool* for *feces* and *void* for *urinate,* were already well established in lay speech by the end of the Middle English period. During the Victorian era, medical language copied the extreme prudishness of demotic English: childbirth was disguised as *confinement* and a leg masqueraded as a *limb*. Modern medicine continues to sugarcoat its less palatable pills, calling one kind of abortion a *menstrual extraction* and substituting *chemical dependency* for drug addiction. Even *disease, infirmity,* and *invalid* are somewhat euphemistic in tone, hinting at illness by denying wellness.

Onomatopoeia is the creation of a word whose very pronunciation seems to echo the thing named, as in the case of *screech, squawk,* and *whisper*. Any discussion of medical onomatopoeia must ignore the lines dividing languages and epochs, for the process has undoubtedly been at work since the origin of speech. In fact, at one time linguists were ready to trace all words to this source. Although that theory is no longer held, onomatopoeia still provides the most reasonable explanation for certain recurring associations between sound and sense, such as the relations between [sn] and the nose *(sneeze, sniffle, snore)* and between [gl] and swallowing *(deglutition, gullet, singultus)*. Greek *borborygmus, bruxism,* and *rhonchus,* Latin *crepitus, murmur,* and *stertor,* and English *croup, hiccup,* and *wheeze* are also plainly onomatopoetic in origin. Less evidently so, because of phonetic refinements, are *eructation, rale,* and *sternutation*.

The more frequently a medical word or phrase is used, the more likely it is to undergo some kind of shortening in both speech and writing. Spoken shortenings on the order of "CA" for *cancer* and "scope" for *bronchoscope* do not often achieve formal status, but the list of written abbreviations that have become standard grows steadily longer. The most common type of written abbreviation is the initialism, consisting of the initials of the words in a phrase or of the key elements in a compound term: *BUN, blood urea nitrogen; ECG, electrocardiogram; HMO, health maintenance organization*.

When, instead of saying the letters separately, one customarily pronounces such an abbreviation as a word (*AIDS, acquired immune deficiency syndrome; CABG,* pronounced "cabbage," *coronary artery bypass graft*) it is often called an acronym. An acronym may be treated as an ordinary word and combined with stems or affixes, as in *vipoma* 'a neoplasm that secretes VIP (vasoactive intestinal polypeptide)'. Other kinds of shortening to which medical terms are subject include telescoping of phrases *(arbovirus, arthropod-borne virus)* and omission of one or more words from a phrase *(steroid* for *adrenal cortical steroid)*.

Not all shorthand expressions are abbreviations in the strict sense; sometimes letters or numbers are chosen arbitrarily to designate the members of a group or series. Thus the letters *A, B, C,* and so on, as used to designate the vitamins, are not abbreviations of more elaborate names (though, as an exception, *vitamin K* refers to Danish *koagulation*). Nor are the letters *P, Q, R, S,* and *T,* as applied to the electrocardiogram (as in *P wave, QRS complex,* and *Q-T interval*) abbreviations for words beginning with those letters. Greek letters as well as Arabic and Roman numerals figure in many medical terms: *alpha-fetoprotein, beta-hemolysis, gamma globulin, HTLV-III, HLA-B27 antigen*.

These, then, are the ways in which nearly all of the words, phrases, and expressions in this dictionary have come into being. We often forget that words are first of all combinations of sounds, and only later marks on paper. The pronunciation of a word *is* that word, no matter what it means, how it is used, or how we choose to spell it. The pronunciation of medical terms by speakers of English tends to parallel the somewhat unruly practice of the general language. Classical precedents are largely ignored in the pronunciation of Greek and Latin words, particularly as to vowel sounds and syllable stress. Words and proper names borrowed from foreign languages fare little better, and the reproduction of French phonology is usually essayed with more zeal than accuracy. Moreover, an attempt at French pronunciation is often forced on words *(chalazion, raphe, troche)* having no connection with that language.

Although medical English may give a superficial impression of order and system, it does not possess these qualities in much higher degree than the common speech. Quasi-official bodies select and ratify anatomic, pharmaceutical, and taxonomic terms to fit into schemes and classifications already established, but the

bulk of medical terminology displays a remarkable lack of organization and consistency. The practice of calling diseases by common, provincial, or purely descriptive names long after their nature and causation have become clear makes for a cluttered and unsystematic nosology, or nomenclature of disease. Whereas the microbiologist has neatly classified one group of disease-causing microorganisms as the rickettsias, the infections they cause bear such heterogeneous names as *typhus, Brill's disease, rickettsialpox, Q fever, Rocky Mountain spotted fever, fièvre boutonneuse*, and *tsutsugamushi disease*.

When several competing groups of researchers are investigating a new disease, names for the causative agent may proliferate almost as rapidly as the microorganism itself only to be synonymized later. One school of research identified the retrovirus implicated in causing AIDS and called it *lymphadenopathy-associated virus* or *LAV*. Other researchers call the same virus *HTLV-III, human T-cell leukemia virus type HI, human T-cell lymphotropic virus type III, human immunodeficiency virus*, or *HIV*. Meanwhile the mass media often refer to the retrovirus simply as the *AIDS virus*. All of these terms are entered in this dictionary as synonyms. It remains to be seen which will survive to a second edition. The condition itself is variously denoted by *acquired immune deficiency syndrome, acquired immunodeficiency syndrome*, or simply by the acronym *AIDS*.

But although medical language cannot match the exemplary regularity of chemical and taxonomic nomenclature, it is at least no less precise and consistent than, for example, the technical vocabularies of banking, geology, aeronautics, and law, nor less useful and convenient for those who speak and write it daily in their professional work.

One might sum up the history of medical English by saying that it has grown and evolved as an integral part of the common language, choosing and even manufacturing its vocabulary to suit the special needs of medical practitioners, investigators, teachers, and writers, but generally clinging to the phonetic, semantic, and syntactic habits of plain English. The individual histories of medical words may be both fascinating and instructive, but they do not necessarily help in determining correct meanings or current spellings. Indeed, the entry of a term into the medical vocabulary is not the end of its history but only the beginning.

The meaning we accept nowadays for a word may be but the latest of many it has borne. In the Greek of Hippocrates, *aorta* refers to the lower respiratory tract and *bronchus* means the throat, gullet, or windpipe indifferently, as does *stomachos* in Homer. In classical Latin, *vulva* means 'uterus' and *uterus* generally means 'belly'. We retain the term *influenza* for a group of specific viral syndromes although we no longer attribute them to the malign influence (for that is the purport of the term) of the heavenly bodies. We preserve terms alluding to Hippocratic pathophysiology, such as *cholera, chyme, crisis, dyscrasia, humoral, hypochondria*, and *melancholia*, although the concepts for which these terms stand were rejected as invalid early in the nineteenth century. These words remain in use because over the years they have lost their original meanings and acquired others. Cholera is now a specific bacterial infection, and a blood dyscrasia is a disturbance in the formation of blood cells, both notions that would have baffled Hippocrates.

These hardy survivors illustrate the point, often overlooked and sometimes vigorously contested, that the meaning or definition of a word depends on association and analogy, not necessarily on its history or etymology. The portal vein got its name from the *porta* or gate of the liver, a cleft on the underside of the organ where this vein enters. For centuries the portal vein was believed to be the only blood vessel in the body that both begins and ends in capillaries. For this reason the term *portal* lost its earlier associations and came to mean 'beginning and ending in capillaries'. When a similar arrangement was finally discovered in the pituitary gland, the vessels there were called the *pituitary portal system*. Because the sense of *colic* (Greek *kolikos*) has shifted from the literal one of 'pertaining to the colon' to 'any intermittent, cramping pain in the lower trunk', we can speak without incongruity of *renal colic* 'the pain caused by a stone in a kidney or ureter'.

The definitions assigned to terms such as *abortion, acupuncture, chiropractic, holistic medicine, macrobiotic diet*, and *wellness* by advocates of these disciplines or practices may differ radically from the definitions of their opponents, and these again from those of disinterested observers. Our language both reflects and shapes our ways of perceiving, dividing, and classifying reality. As modern medical thought becomes less empirical and superstitious, more coherent and linear, so does modern medical language. The words may sound the same, look the same on paper, but their connotations shift with the passing years, responding to shifts in theory, doctrine, and point of view.

The quest for the exact meaning of a medical term is more than just an academic exercise. Words are our most effective means of recording and transmitting information, and almost our only way of dealing with complex and abstract subjects. The precision and perspicuity with which words are used determine the efficacy of educational and informational endeavors and the validity of written records. On the meaning of a single word in a hospital chart may hinge thousands of dollars in insurance benefits, millions in litigation settlements, even the life of the patient. In this light the importance of an accurate, up-to-date dictionary of medical English with definitions based on current usage citations can hardly be exaggerated.

A living language is a dynamic process, not a static product, and no dictionary of it can ever be definitive. The editors of this dictionary have not set out to assign meanings to words arbitrarily, much less to fix them unalterably, but only to record the meanings that the words presently convey in actual use. Drawing on the full lexicographic resources of Merriam-Webster Inc., the editors have produced a current word list that includes new formations and omits terms no longer used, and have supplied current definitions as reflected in recently published material. The result is a uniquely authoritative and up-to-date reference work for professional, student, and layman.