

confusion between vessels of the same name—in a work on naval history, for example—the numbers should be included at first mention. Smaller ships such as landing craft and submarine chasers are individually numbered but not named.

USS *Enterprise* (CVN-65) was already on its way to the Red Sea.

- 8.116 **Other vehicle names.** Names of makes and classes of aircraft, models of automobiles and other vehicles, names of trains or train runs, and names of space programs are capitalized but not italicized.

Acela Express	Concorde	Project Apollo
Boeing 747	Metroliner	Toyota Prius

- 8.117 **Pronouns referring to vessels.** When a pronoun is used to refer to a vessel, the neuter *it* or *its* (rather than *she* or *her*) is preferred. See also 5.41, 8.76.

Scientific Terminology

Scientific Names of Plants and Animals

- 8.118 **Scientific style—additional resources.** The following paragraphs offer only general guidelines. Writers or editors requiring detailed guidance should consult *Scientific Style and Format* (bibliog. 1.1). The ultimate authorities are the *International Code of Botanical Nomenclature (ICBN)*, whose guidelines are followed in the botanical examples below, and the *International Code of Zoological Nomenclature (ICZN)* (see bibliog. 5). Note that some fields, such as virology, have slightly different rules. Writers and editors should try to follow the standards established within those fields.

- 8.119 **Genus and specific epithet.** Whether in lists or in running text, the Latin names of species of plants and animals are italicized. Each *binomial* contains a genus name (or *generic name*), which is capitalized, and a species name (also called *specific name* or *specific epithet*), which is lowercased (even if it is a proper adjective). Do not confuse these names with phyla, orders, and such, which are not italicized; see 8.125.

The Pleistocene saber-toothed cats all belonged to the genus *Smilodon*.

Many species names, such as *Rosa caroliniana* and *Styrax californica*, reflect the locale of the first specimens described.

The pike, *Esox lucius*, is valued for food as well as sport.

For the grass snake *Natrix natrix*, longevity in captivity is ten years. Certain lizard taxa such as *Basiliscus* and *Crotaphytus* are bipedal specialists.

- 8.120** **Abbreviation of genus name.** After the first use the genus name may be abbreviated to a single capital letter. If two or more species of the same genus are listed together, the abbreviation may be doubled (to indicate the plural) before the first species, though repeating the abbreviation with each species is more common. But if species of different genera beginning with the same letter are discussed in the same context, abbreviations may not be appropriate.

Two methods allow us to estimate the maximum speeds obtained by *Callisaurus draconoides* in the field. Irschick and Jayne (1998) found that stride durations of both *C. draconoides* and *Uma scoparia* do not change dramatically after the fifth stride during accelerations from a standstill.

The "quaking" of the aspen, *Populus tremuloides*, is due to the construction of the petiole; an analogous phenomenon has been noted in the cottonwood, *P. deltoides*.

Among popular species of the genus *Cyclamen* are *C. coum*, *hederifolium*, and *persicum*. . . [or, more commonly, *C. coum*, *C. hederifolium*, and *C. persicum*. . .] Studies of *Corylus avellana* and *Corokia cotoneaster*. . . ; in further studies it was noted that *Corylus avellana* and *Corokia cotoneaster*. . .

- 8.121** **Subspecies and varieties.** A subspecific zoological name or epithet, when used, follows the binomial species name and is also italicized. If the two names are the same, the first one may be abbreviated.

Noctilio labialis labialis (or *Noctilio l. labialis*) *Trogon collaris puella*

In horticultural usage, the abbreviations "subsp." (or "ssp."), "var.," and "f." (none of them italicized) are inserted before the subspecific epithet or variety or form name. See also 8.122.

Buxus microphylla var. *japonica*
Hydrangea anomala subsp. *petiolaris*
Rhododendron arboreum f. *album*

- 8.122** **Unspecified species and varieties.** The abbreviations "sp." and "var.," when used without a following element, indicate that the species or variety is unknown or unspecified. The plural "spp." is used to refer to a group of species. The abbreviations are not italicized.

Rhododendron spp. *Rosa rugosa* var. *Viola* sp.

- 8.123** **Author names.** The name of the person who proposed a specific epithet is sometimes added, often abbreviated, and never italicized. A capital L. stands for Linnaeus.

Diemus youngi cypselinus Thomas *Molossus colubensis* J. A. Allen
Euchistenes hartii (Thomas) *Quercus alba* L.
Felis leo Scop.

The parentheses in the second example mean that Thomas described the species *E. hartii* but referred it to a different genus.

- 8.124** **Plant hybrids.** The crossing of two species is indicated by a multiplication sign (×; not the letter x) between the two species names, with space on each side. Many older primary plant hybrids are indicated by a multiplication sign immediately before the specific epithet of the hybrid, with space only before it.

Magnolia denudata × *M. liliflora* (crossing of species)
Magnolia × *soulangeana* (hybrid name)

- 8.125** **Higher divisions.** Divisions higher than genus—phylum, class, order, and family—are capitalized but not italicized. (The terms *order*, *family*, and so on are not capitalized.) Intermediate groupings are treated similarly.

Chordata (phylum)
Chondrichthyes (class)
Monotremata (order)
Ruminantia (suborder)
Homnidae (family)
Felinae (subfamily)
Selachii (term used of various groups of cartilaginous fishes)
The new species *Gleichenia glauca* provides further details about the history of
Gleicheniaceae.

- 8.126** **English derivatives.** English words derived from the taxonomic system are lowercased and treated as English words.

carnivore(s) (from the order Carnivora)
hominid(s) (from the family Homnidae)
iridid(s) (from the family Iridaceae)
felinel(s) (from subfamily Felinae)
astilbe(s) (from the genus *Astilbe*)
mastodon(s) (from the genus *Mastodon*)

Vernacular Names of Plants and Animals

8.127 *Plants and animals*—*additional resources*. For the correct capitalization and spelling of common names of plants and animals, consult a dictionary or the authoritative guides to nomenclature, the ICBN and the ICZN, mentioned in 8.118. In general, Chicago recommends capitalizing only proper nouns and adjectives, as in the following examples, which conform to *Merrill-Webster's Collegiate Dictionary*:

Dutchman's-breeches	Cooper's hawk
jack-in-the-pulpit	rhesus monkey
mayapple	Rocky Mountain sheep

8.128 *Domestic animals and horticultural categories*. Either a dictionary or the guides to nomenclature ICZN and ICBN should be consulted for the proper spelling of breeds of domestic animals and broad horticultural categories.

German shorthaired pointer	Rhode Island Red
Hereford	boysenberry
Maine coon or coon cat	rambler rose
Thoroughbred horse (but purebred dog)	

8.129 *Horticultural cultivars*. Many horticultural cultivars (cultivated varieties) have fanciful names that must be respected since they may be registered trademarks.

the Peace rose a Queen of the Market aster

In some horticultural publications, such names are enclosed in single quotation marks; any following punctuation is placed *after* the closing quotation mark. If the English name follows the Latin name, there is no intervening punctuation. For examples of this usage, consult any issue of the magazine *Horticulture* (bibliog. 5).

The hybrid *Agastache* 'Apricot Sunrise', best grown in zone 6, mingles with sheaves of cape fuchsia (*Physelius* 'Salmon Leap').

Genetic Terms

8.130 *Genetic nomenclature*—*additional resources*. Only the most basic guidelines can be offered here. Writers or editors working in the field of ge-

netics should consult the *AMA Manual of Style* or *Scientific Style and Format* (both in bibliog. 1.1) and online databases including the HUGO Gene Nomenclature Database and the Mouse Genome Database (both in bibliog. 5).

8.131 *Genes*. Names of genes, or gene symbols, including any arabic numerals that form a part of such symbols, are usually italicized. (Italicization helps differentiate genes from entities with similar names.) Symbols for genes contain no Greek characters or roman numerals. Human gene symbols are set in full capitals, as are the gene symbols for other primates. Mouse and rat gene symbols are usually spelled with an initial capital. Gene nomenclature systems for other organisms (yeast, fruit flies, nematodes, plants, fish) vary. Symbols for proteins, also called gene products and often derived from the symbols of the corresponding genes, are set in roman.

HUMAN GENES

BRCA1
GPC3
IGH@ (the symbol @ indicates a family or cluster)
SNRPN

MOUSE GENES

Cmv1
Fgf12
Rosl
Wnt1
NLP3 (gene symbol); NLP3p (encoded protein; note p suffix)
GIF (gene symbol); GIF (gastric intrinsic factor)

Only a very few gene symbols contain hyphens.

HLA-DRB1, for human leukocyte antigen D-related β chain 1

8.132 *Enzymes*. Enzyme names consist of a string of italic and roman characters. The first three letters, which represent the name of the organism (usually a bacterium) from which the enzyme has been isolated, are italicized. The roman numeral that follows represents the series number. Sometimes an upper- or lowercase roman letter or an arabic numeral (or both), representing the strain of bacterium, intervenes between the name and series number.

Avd1	BamHI	ClaI	EcoR	HindIII	Sau3AI
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Geological Terms

- 8.133** *Geological terms*—*additional resources*. The following paragraphs offer only the most general guidelines. Writers or editors working in geological studies should consult *US Geological Survey, Suggestions to Authors of the Reports of the United States Geological Survey*, and *Scientific Style and Format* (both listed in bibliog. 1.1).

- 8.134** *Formal versus generic geological terms*. Formal geological terms are capitalized in both noun and adjective forms; terms used generically are not. The generic terms *eon*, *era*, and the like are lowercased or omitted immediately following a formal name. Eons are divided into eras, eras into periods, periods into epochs, and epochs into stages. The term *ice age* is best lowercased in scientific contexts because of the uncertainty surrounding any formal use of the term (cf. *Little Ice Age*); but see 8.73.

the Archean (eon)
 the Mesoproterozoic (era)
 the Tertiary period of the Cenozoic (era)
 the Paleocene (epoch)
 Pleistocene-Holocene transition
 the second interglacial stage or II interglacial
 Illinoian glaciation

The modifiers *early*, *middle*, or *late* are capitalized when used formally but lowercased when used informally.

Early Archean but
 Middle Cambrian early Middle Cambrian
 Late Quaternary in late Pleistocene times

- 8.135** *Stratigraphy*. Formal stratigraphic names are capitalized. For prehistoric cultural terms, see 8.73.

Fleur de Lys Supergroup Niobrara Member
 Ramsey Ridge Complex Morrison Formation

Astronomical Terms

- 8.136** *Astronomical terms*—*additional resources*. The following paragraphs offer only the most general guidelines. Writers or editors working in astron-

omy or astrophysics should consult *Scientific Style and Format* (bibliog. 1.1) and the website of the International Astronomical Union.

- 8.137** *Celestial bodies*. The names of galaxies, constellations, stars, planets, and such are capitalized. For *earth*, *sun*, and *moon*, see 8.139, 8.140.

Aldebaran
 Alpha Centauri or α Centauri
 the Big Dipper or Ursa Major or the Great Bear
 Cassiopeia's Chair
 the Crab Nebula
 the Magellanic Clouds
 the Milky Way
 the North Star or Polaris, polestar
 85 Pegasi
 Saturn
 but
 Halley's comet
 the solar system

- 8.138** *Catalog names for celestial objects*. Celestial objects listed in well-known catalogs are designated by the catalog name, often abbreviated, and a number.

Bond 619 Lalande 5761 Lynx 1251 or L1251 NGC 6165

- 8.139** *"Earth."* In nontechnical contexts the word *earth*, in the sense of our planet, is usually lowercased when preceded by the or in such idioms as "down to earth" or "move heaven and earth." When used as the proper name of our planet, especially in context with other planets, it is capitalized, and *the* is usually omitted.

Some still believe the earth is flat.
 The gender accorded to the moon, the sun, and the earth varies in different mythologies.
 Where on earth have you been?
 The astronauts have returned successfully to Earth.
 Does Mars, like Earth, have an atmosphere?

- 8.140** *"Sun" and "moon."* The words *sun* and *moon* are usually lowercased in nontechnical contexts and always lowercased in the plural.

The moon circles the earth, as the earth circles the sun. Some planets have several moons.

Some publications in the fields of astronomy and related sciences, however, routinely capitalize these words when used as proper nouns. (See also 8.137.)

- 8.141** *Descriptive terms.* Merely descriptive terms applied to celestial objects or phenomena are not capitalized.

aurora borealis or northern lights
gegenschein
interstellar dust
the rings of Saturn

Medical Terms

- 8.142** *Medical terms—additional resources.* The following paragraphs offer only the most general guidelines. Medical writers or editors should consult the *AMA Manual of Style* or *Scientific Style and Format* (both in bibliog. 1.1).

- 8.143** *Diseases, procedures, and such.* Names of diseases, syndromes, diagnostic procedures, anatomical parts, and the like are lowercased, except for proper names forming part of the term. Acronyms and initialisms are capitalized.

acquired immunodeficiency syndrome or AIDS
Alzheimer disease (see below^w)
computed tomography or CT
Down syndrome (see below^w)
finger-nose test
islets of Langerhans
non-Hodgkin lymphoma (see below^w)
ultrasound; ultrasonography

The possessive forms *Alzheimer's*, *Down's*, *Hodgkin's*, and the like, though less common in medical literature, may be preferred in a general context. For x-rays and radiation, see 8.150.

- 8.144** *Infections.* Names of infectious organisms are treated like other specific names (see 8.118–26). Names of conditions based on such names are neither italicized nor capitalized.

Microorganisms of the genus *Streptococcus* are present in the blood of persons with streptococcal infection.
The larvae of *Trichinella spiralis* are responsible for the disease trichinosis.

- 8.145** *Drugs.* Generic names of drugs, which should be used wherever possible in preference to brand names, are lowercased. Brand names must be capitalized; they are often enclosed in parentheses after the first use of the generic name. For guidance, consult the *AMA Manual of Style* and *Scientific Style and Format* (bibliog. 1.1) and *USP Dictionary of USAN and International Drug Names* (bibliog. 5). For brand names and trademarks, see 8.152.

The patient takes weekly injections of interferon beta-1a (Avonex) to control his multiple sclerosis.

Physical and Chemical Terms

- 8.146** *Physical and chemical terms—additional resources.* The following paragraphs offer only the most general guidelines for nontechnical editors. Writers or editors working in physics should consult *The AIP Style Manual* (bibliog. 1.1) or, among other journals, *Physical Review Letters*; those working in chemistry should consult *The ACS Style Guide* (bibliog. 1.1).

- 8.147** *Laws and theories.* Though usage varies widely, Chicago recommends that names of laws, theories, and the like be lowercased, except for proper names attached to them.

Avogadro's hypothesis (or Avogadro's law)
the big bang theory
Boyle's law
(Einstein's) general theory of relativity
Newton's first law

- 8.148** *Chemical names and symbols.* Names of chemical elements and compounds are lowercased when written out. Symbols, however, are capitalized and set without periods; the number of atoms in a molecule appears as a subscript. For a list of symbols for the elements, including atomic numbers, see 10.66.

ozone: O₃
sodium chloride: NaCl
sulfuric acid: H₂SO₄
tungsten carbide: WC

8.149 **Mass number.** In formal chemical literature, the mass number appears as a superscript to the left of the symbol. In work intended for a general audience, however, it may follow the symbol, after a hyphen, in full size.

¹⁴C (formal style); C-14 or carbon-14 (informal style)
²³⁸U (formal style); U-238 or uranium-238 (informal style)

8.150 **Radiations.** Terms for electromagnetic radiations may be spelled as follows:

β-ray (noun or adjective) or beta ray (in nonscientific contexts, noun or adjective)
 γ-ray (noun or adjective) or gamma ray (in nonscientific contexts, noun or adjective)
 x-ray (noun, verb, or adjective)
 cosmic ray (noun); cosmic-ray (adjective)
 ultraviolet ray (noun); ultraviolet-ray (adjective)

Note that the verb *to x-ray*, though acceptable in a general context, is not normally used in scholarly medical literature, where writers would more likely speak of obtaining an x-ray film, or a radiograph, of something, or of subjecting something to x-ray analysis.

8.151 **Metric units.** Although the spellings *meter*, *liter*, and so on are widely used in the United States, some American business, government, or professional organizations have adopted the European spellings (*metre*, *litre*, etc.). Chicago's publications show a preference for the traditional American spellings. For abbreviations used in the International System of Units, see 10.54–62.

Brand Names and Trademarks

8.152 **Trademarks.** Brand names that are trademarks—often so indicated in dictionaries—should be capitalized if they must be used. A better choice is to substitute a generic term when available. Although the symbols ® and ™ (for registered and unregistered trademarks, respectively) often accompany trademark names on product packaging and in promotional material, there is no legal requirement to use these symbols, and they should be omitted wherever possible. (If one of these symbols must be used at the end of a product name, it should appear before any period, comma, or other mark of punctuation.) Note also that some companies encourage the use of both the proper and the generic term in reference

to their products ("Kleenex facial tissue," not just "Kleenex") and discourage turning product names into verbs, but these restrictions, while they may be followed in corporate documentation, are not legally binding. (In fact, *Webster's* includes entries for lowercase verbs *google* and *xerox*.) For computer-related names and terms, see 7.76.

Bufferin; buffered aspirin	Ping-Pong; table tennis
Coca-Cola; cola	Pyrex; heat-resistant glassware
Google; search engine; search	Scrabble
Jacuzzi; whirlpool bath	Vaseline; petroleum jelly
Kleenex; (facial) tissue	Xerox; photocopier; copy
Levi's; jeans	

More information about registered trademarks can be found on the websites of the US Patent and Trademark Office and the International Trademark Association.

8.153 **Names like eBay and iPod.** Brand names or names of companies that are spelled with a lowercase initial letter followed by a capital letter (eBay, iPod, iPhone, etc.) need not be capitalized at the beginning of a sentence or heading, though some editors may prefer to reword. This departure from Chicago's former usage recognizes not only the preferred usage of the owners of most such names but also the fact that such spellings are already capitalized (if only on the second letter). Company or product names with additional, internal capitals (sometimes called "midcaps") should likewise be left unchanged (GlaxoSmithKline, HarperCollins, LexusNexis). See also 8.4.

eBay posted strong earnings.
 User interfaces varied. iTunes and its chief rival, Amazon.com, . . .

In text that is set in all capitals, such distinctions are usually overridden (e.g., EBAY, IPOD, HARPERCOLLINS); with a mix of capitals and small capitals, they are preserved (e.g., eBay).

Titles of Works

8.154 **Treatment of titles in text and notes—overview.** The following guidelines apply primarily to titles as they are mentioned or cited in text or notes. They apply to titles of books, journals, newspapers, and websites as well as to shorter works (stories, poems, articles, etc.), divisions of longer

works (parts, chapters, sections), unpublished works (lectures, etc.), plays and films, radio and television programs, musical works, and artworks. For details on citing titles in bibliographies and reference lists, see chapters 14 and 15.

Capitalization, Punctuation, and Italics

8.155 *Capitalization of titles of works—general principles.* Titles mentioned or cited in text or notes are usually capitalized headline-style (see 8.157). For aesthetic purposes, titles appearing on the cover or title page or at the head of an article or chapter may deviate from Chicago's rules for the capitalization of titles. For capitalization of foreign titles, see 11.3.

8.156 *Principles and examples of sentence-style capitalization.* In sentence-style capitalization only the first word in a title, the first word in a subtitle, and any proper names are capitalized. This style is commonly used in library catalogs and in the reference lists of some journals (see 15.13) and is the style recommended for most foreign titles (see 11.3). It is also useful for some types of subheads (see 2.17), including those that include terms (such as species names) that require their own internal capitalization (but note that the specific epithet remains lowercase in headline style; see 8.157, rule 7). See also 8.160.

The house of Rothschild: The world's banker 1849–1999
Crossing *Magnolia denudata* with *M. liliflora* to create a new hybrid: A success story

8.157 *Principles of headline-style capitalization.* The conventions of headline style are governed mainly by emphasis and grammar. The following rules, though occasionally arbitrary, are intended primarily to facilitate the consistent styling of titles mentioned or cited in text and notes:

1. Capitalize the first and last words in titles and subtitles (but see rule 7), and capitalize all other major words (nouns, pronouns, verbs, adjectives, adverbs, and some conjunctions—but see rule 4).
2. Lowercase the articles *the*, *a*, and *an*.
3. Lowercase prepositions, regardless of length, except when they are used adverbially or adjectivally (up in *Look Up*, down in *Turn Down*, on in *The On Button*, to in *Come To*, etc.) or when they compose part of a Latin expression used adjectivally or adverbially (*De Facto*, *In Vitro*, etc.).
4. Lowercase the conjunctions *and*, *but*, *for*, *or*, and *nor*.

5. Lowercase to not only as a preposition (rule 3) but also as part of an infinitive (*to Run*, *to Hide*, etc.), and lowercase as in any grammatical function.
6. Lowercase the part of a proper name that would be lowercased in text, such as *de* or *von*.
7. Lowercase the second part of a species name, such as *fulvescens* in *Acipenser fulvescens*, even if it is the last word in a title or subtitle.

For examples, see 8.158. For hyphenated compounds in titles, see 8.159.

8.158 *Examples of headline-style capitalization.* The following examples illustrate the numbered rules in 8.157. All of them illustrate the first rule; the numbers in parentheses refer to rules 2–7.

- Mnemonics That Work Are Better Than Rules That Do Not
Singing While You Work
A Little Learning Is a Dangerous Thing (2)
Four Theories concerning the Gospel according to Matthew (2, 3)
Taking Down Names, Spelling Them Out, and Typing Them Up (3, 4)
Tired but Happy (4)
The Editor as Anonymous Assistant (5)
From *Homo erectus* to *Homo sapiens*: A Brief History (3, 7)
Defenders of da Vinci Fall the Test: The Name Is Leonardo (2, 3, 6)
Sitting on the Floor in an Empty Room (2, 3), but Turn On, Tune In, and Enjoy (3, 4)
Ten Hectares per Capita, but Landownership and Per Capita Income (3)
Progress in In Vitro Fertilization (3)

8.159 *Hyphenated compounds in headline-style titles.* The following rules apply to hyphenated terms appearing in a title capitalized in headline style. For reasons of consistency and editorial efficiency, Chicago no longer advises making exceptions to these rules for the rare awkward-looking result (though such niceties may occasionally be observed in display settings, as on the cover of a book). For rules of hyphenation, see 7.77–85.

1. Always capitalize the first element.
2. Capitalize any subsequent elements unless they are articles, prepositions, coordinating conjunctions (*and*, *but*, *for*, *or*, *nor*), or such modifiers as *flat* or *sharp* following musical key symbols.
3. If the first element is merely a prefix or combining form that could not stand by itself as a word (*anti*, *pre*, etc.), do not capitalize the second element unless it is a proper noun or proper adjective.
4. Capitalize the second element in a hyphenated spelled-out number (twenty-one or twenty-first, etc.) or hyphenated simple fraction (two-thirds in two-thirds