

American manufacture) was examined and found to be of the same glass throughout, as shown below :

	Bulb 113.	Stem 114.
K ₂ O.....	7.17	6.91
Na ₂ O.....	6.43	5.89
Al ₂ O ₃	0.39	1.98
PbO.....	18.70	17.14
SiO ₂	66.22	65.80
CaO.....	0.45	1.25
MnO.....	} traces.	} traces.
MgO.....		
Fe ₂ O ₃		
	99.36	98.97

It should be said here that no proof has been obtained as to the possibility that some glasses of different composition may have similar coefficients of expansion, certain constituents compensating each other, but as it is a simple matter to obtain glass of practically the same composition for all parts of a lamp or any other complex glass work.

Problems connected with the coefficient of expansion need not necessarily be taken into consideration.

REPORT OF THE COMMITTEE ON SPELLING AND PRONUNCIATION OF CHEMICAL TERMS.*

During the last four years, your committee has sought to obtain from the members of this Section, from leading American Philologists, and from American Chemists in general, an exhaustive and thoroughly representative expression of opinion on the questions coming within the scope of its commissions, which has been essentially the attainment of uniformity in the orthography and pronunciation of the terms used in our science.

Three preliminary reports were distributed to American Chem-

* From advance sheets of the Proceedings of the American Association for the Advancement of Science, Washington Meeting, 1891.

ists in the years 1889, 1890 and 1891, inviting extended criticism and suggestion.

The substance of the replies to these was carefully digested and submitted to the Chemical Section each year for detailed discussion and decision.

The present and final report of your committee embodies the results of these four years of correspondence and discussion, as completed by the sectional action at the present meeting of the Association. It is presented in the hope that all chemists, especially those engaged in teaching, will cordially unite in the efforts to bring about the desired uniformity in usage.

The reasons for the adoption of a few more radical changes in our nomenclature are to be found in the report for 1890. Those specially interested in the subject who have not attended the recent sessions of the Association may freely correspond with individual member of the Committee, who will gladly furnish more detailed explanation of the principles involved.

The following summary of rules is not to be regarded as final. Your committee recognize the fact that after a fair trial for a decade or even less, certain modifications will in all probability be generally regarded as desirable.

In conclusion the committee express their sincere thanks to their many colleagues throughout the land, who have so promptly and fully responded to the successive requests for data, suggestions and opinions.

T. H. NORTON,
EDWARD HART,
H. CARRINGTON BOLTON,
JAS. LEWIS HOWE.

RULES FOR THE ORTHOGRAPHY AND PRONUNCIATION OF CHEMICAL TERMS.

GENERAL PRINCIPLES OF PRONUNCIATION.

1. The pronunciation is as much in accord with the analogy of the English language as possible.
2. Derivatives retain as far as possible the accent and pronunciation of the root word.
3. Distinctly chemical compound words retain the accent and pronunciation of each portion.
4. Similarly sounding endings for dissimilar compounds are avoided (hence **-id**, **-ite**).

ACCENT.

In polysyllabic chemical words the accent is generally on the antepenult; in words where the vowel of the penult is followed by two consonants, and in all words ending in **-ic** the accent is on the penult.

PREFIXES.

All prefixes in strictly chemical words are regarded as parts of compound words, and retain their own pronunciation unchanged (as, **ā'**ceto-, **ā'**mido-, **ā'**zo-, **hŷ'**dro-, **ī'**so-, **nī'**tro, **nītrō'**so-).

ELEMENTS.

In words ending in **-ium**, the vowel of the antepenult is short if **i** (as **īrī'**dium), or **y** (as **dīdŷ'**mium, or if before two consonants (as **cā'**lcium), but long otherwise (as **tītā'**nium, **sĕlĕ'**nium, **chrō'**mium).

al'ū'minum	chrō'mium	i'ōdĭn	nī'trogen
a'ntimony	cō'balt	īrī'dium	ō'smium
a'rsĕnic	colū'mbium	iron	ō'xygen
bā'rium	cō'pper	lā'nthanum	pallā'dium

Fāte, fāt, fār, mēte, mēt pīne, pĭn, marĭne, nōte, nōt, mōve tūbe, tūb, rūle, mŷ, ŷ = ĭ.

Primary accent; " secondary accent N. B.—The accent follows the vowel of the syllable upon which the stress falls, but does not indicate the division of the word into syllables.

bi'smuth (biz)	dīdŷ'mium	lead	phōs'phorus
bō'ron	e'rbiium	lŷ'thium	plā'tinum
brō'mŷn	flū'orŷn	magnē'sium	potā'ssium
cā'dmium	gā'llium	(zhium)	rhō'dium
cā'lcium	germā'nium	ma'nganese	rubŷ'dium
ca'rbon	glū'cinum	(eze)	ruthē'nium
cē'rium	gold	me'rcury	samā'rium
cē'sium	hŷ'drogen	mōlŷ'bdenum	scā'ndium
chlō'rin	ī'ndium	nŷ'ckel	sēlē'nium
sì'licon	sŷ'lfur	thō'rium	vā'nā'dium
silver	tāntalum	tin	ytte'rbiium
sō'dium	tellū'rium	tītā'nium	ŷ'ttrium
strō'ntium	te'rbiium	tŷ'ngsten	zinc
(shium)	thā'llium	ūrā'nium	zircō'nium

Also: āmmō'nium, phosphō'nium, hā'logen, cŷā'no-gen, āmŷ'dogen.

Note in the above list the spelling of the halogens, cesium and sulfur; **f** is used in the place of **ph** in all derivatives of sulfur (as sulfuric, sulfite, sulfo-, etc.)

TERMINATIONS IN -ic.

The vowel of the penult in polysyllables is short (as cŷā'nic, fūmā'ric, arsē'nic, silŷ'ic, iō'dic, bū'tŷ'ric), except (1) **u** when not before two consonants (as mercū'ric, prŷ'ssic), and (2) when the penult ends in a vowel (as benzō'ic, olē'ic); in dissyllables it is long except before two consonants (as bō'ric, cŷ'tric).

Exceptions: acē'tic or acē'tic.

The termination **-ic** is used for metals only where there is a contrast with **-ous** (thus avoid aluminic. ammonic. etc.).

TERMINATIONS IN -ous.

The accent follows the general rule (as plā'tinous, sŷ'lfu-rous, phōs'phorous; cōba'l'tous). Exception: acē'tous.

Fāte, fāt, fār, mēte, mēt, pine, pīn, marine, nōte, nōt, move, tūbe, tūb, rūle, mŷ, ŷ = ŷ

Primary accent; " secondary accent. N. B.—The accent follows the vowel of the syllable upon which the stress falls, but does not indicate the division of the word into syllables.

TERMINATIONS IN **-ate** and **-ite**.

The accent follows the general rule (as *ǎ'cetāte*, *vǎ'nadāte*); in the following words the accent is thrown back (as *ǎ'bietāte*, *ǎ'lcoholāte*, *ǎ'cetonāte*, *ǎ'ntimonite*).

TERMINATIONS IN **-id** (FORMERLY **-ide**).

The final *e* is dropped in every case and the syllable pronounced *id* (as *chlō'ríd*, *í'odíd*, *hý'dríd*, *ǎ'xíd*, *hýdrǎ'x'íd*, *sǔ'l-fíd*, *ǎ'míd*, *ǎ'nilíd*, *mūrě'xíd*)

TERMINATIONS IN **-ane**, **-ene**, **-ine** and **-one**.

The vowel of these syllables is invariably long (as *mě'thāne*, *ě'thāne*, *na'phtalēne*, *a'nthracēne*, *prō'pine*, *quí'nōne*, *ǎ'cetōne*, *kě'tōne*)

A few dissyllables have no distinct accent (as *benzene*, *xý-lēne*, *cētēne*)

The termination **-ine** is used only in the case of doubly unsaturated hydrocarbons, according to Hofmann's grouping.

TERMINATIONS IN **-in**.

In names of chemical elements and compounds of this class, which includes all those formerly ending in **-ine** (except doubly unsaturated hydrocarbons) the final *e* is dropped, and the syllable pronounced **-in** (as *chlō'rín*, *brō'mín*, etc., *ǎ'mín*, *ǎ'nilín*, *mó'rphín*, *quí'nín*, *vaný'llín*, *alloxǎ'ntín*, *absín'thín*, *emǔ'lsín*, *cǎ'ffeín*, *cō'caín*)

TERMINATIONS IN **-ol**.

This termination, in the case of specific chemical compounds, is used *exclusively* for alcohols, and when so used is never followed by a final *e*. The last syllable is pronounced **-ol** (as *glý'cōl*, *phē'nōl*, *crē'sōl*, *thý'mōl* (ti), *glý'cerōl*, *quí'nōl*).

Exceptions: *ǎlcohōl*, *argōl*.

Fāte, *fāt*, *fār*, *mēte*, *mět*, *pīne*, *pín*, *maríne*, *nōte*, *nőt*, *move*, *tǔbe*, *tǔb*, *rúle*, *mý*, *ý* = *í*.

Primary accent; " secondary accent. N. B.—The accent follows the vowel of the syllable upon which the stress falls, but does not indicate the division of the word into syllables.

TERMINATIONS IN **-ole**.

This termination is always pronounced **-ole**, and its use is limited to compounds, which are not alcohols (as *Y'ndōle*).

TERMINATIONS IN **-yl**.

No final **o** is used; the syllable is pronounced **yl** (as *ā'cetyl*, *ā'myl*, *cē'rotyl*, *cē'tyl*, *ē'thyl*).

TERMINATIONS IN **-yde**.

The **y** is long (as *ā'ldehyde*).

TERMINATIONS IN **-meter**.

The accent follows the general rule (as *hydrō'meter*, *barō'meter*, *lactō'meter*).

Exception: words of this class used in the metric system are regarded as compound words, and each portion retains its own accent (as *cēntime'ter*, *mīllime'ter*, *kylome'ter*).

MISCELLANEOUS WORDS

which do not fall under the preceding rules.

Note the spelling: albumen, albuminous, albumiferous, asbestos, gramme, radical.

Note the pronunciation: a'lkaline, a'lloy (n. & v.) a'llo-tropy, a'llo-tropism, i'somerism, pō'lymerism, apparā'tus (sing. & plu.) āqua regia, barý'ta, cēntigrade, co'n-centrated, crystallin or crystalline, electrō'lysis, líter, mō'lecule, mōlē'cular, nō'menclā'ture, olē'fi-ant, qua'ntivā'lence, vā'lence, ū'nivā'lent, bī'vā'lent, trivā'lent, qua'drivā'lent, tí'trate.

Fāte, fāt, fār, mēte, mēt, pīne, pīn. marne. nōte, nōt. mōve, tūbe, tūb, rúle, mý, ý = í.

Primary accent; ' secondary accent. N. B.—The accent follows the vowel of the syllable upon which the stress falls, but does not indicate the division of the word into syllables.

A LIST OF WORDS WHOSE USE SHOULD BE AVOIDED IN FAVOR OF THE ACCOMPANYING SYNONYMS.

<i>For</i>	<i>Use</i>
beryllium	glucinum
niobium	columbium
thein	caffein
titer (n.)	strength or standard
titer (v.)	titrate
monovalent	univalent
divalent, etc.	bivalent, etc.
quantivalence	valence
sodic, calcic, zincic, nick- elic, etc., chlorid, etc	sodium, calcium, zinc, nickel, etc., chlorid, etc. vid. terminations in <i>-ic</i> supra.
arsenetted hydrogen	arsin
antimonetted hydrogen	stibin
phosphoretted hydrogen	phosphin
sulfuretted hydrogen, etc	hydrogen sulfid, etc.
alkylogens	alkylhaloids
benzol	benzene
toluol, etc.	toluene, etc.
pyrocatechin	catechol
resorcin	resorcinol
*hydroquinone (and hy- drochinon	quinol
orcin	orcinol
hydrophlorone	phlorol
phloroglucin	phloroglucol
quercite	quercitol
pinite	pinitol
glycerin	glycerol
erythrite, erythroglucin, eryglucin, erythroman- nite, phycite.	erythrol

Fâte, fât, fâr, mête, mêt, pîne, pîn, marine, nôte, nôt, move,
tûbe, tûb, rûle, mÿ, y = î.

Primary accent ; " secondary accent. N. B.—The accent fol-
lows the vowel of the syllable upon which the stress falls, but does
not indicate the division of the word into syllables.

*Regarding this and the following words, cf. *J. Chem. Soc.* XLI, p. 248

mannite	mannitol
dulcite	dulcitol
sorbite	sorbitol
furfuroil	furfuraldehyde
fucosol	fucusaldehyde
anisol	methyl phenate
phenetol	ethyl phenate
anethol	methyl allyl-phenol

NOTE.—It has been suggested that the words qualitative and quantitative could be advantageously replaced by qualitative and quantitative, deriving the terms from the Latin adjectives instead of the nouns, as has been done in the case of rotary instead of rotatory, agriculturist instead of agriculturalist, etc. The Section regards this change as eminently desirable, but on account of the extended use of the words outside of chemistry, delays action until the opinions of those in allied branches have been obtained.

Fâte, fât fâr, mête, mêt, pîne, pîn, marine, nôte, nôt, möve, tübe. tüb. rüle, mÿ, ÿ = î

Primary accent " secondary accent. N. B.—The accent follows the vowel of the syllable upon which the stress falls, but does not indicate the division of the word into syllables.

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