

MODERN
SCIENCE DICTIONARY
Second, Enlarged Edition

MODERN SCIENCE DICTIONARY

second, enlarged edition

compiled by

A. HECHTLINGER

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PREFACE TO THE SECOND EDITION

The first edition of MODERN SCIENCE DICTIONARY was hailed as the best general source of science information for students and teachers alike.

Its popularity has prompted the publication of this new, enlarged edition which includes an addenda of simple, clear, and accurate definitions of over one thousand important and interesting scientific and technical terms. Hundreds of these terms, especially those used in space science and computer technology, have been coined since the publication of the first edition.

Another new feature is a selective list of some five hundred hard-to-pronounce words and their simplified phonetic equivalents.

But for a dozen or two of minor corrections, the main body of the dictionary remained unchanged.

We dedicate this edition to those who have the courage to penetrate the labyrinth of our scientific age and hope it will help them find their way out.

IRENE E. BERCK, PH.D.
EDITOR

PREFACE TO THE FIRST EDITION

In working with high school students, I have heard many complaints concerning the difficulty in finding explanations for scientific terms which occur so frequently in high school studies and readings. I was also told that after consulting several dictionaries and encyclopedias, if a definition was found at all, it often only added to the confusion by its complicated wording.

This started me on a search for a dictionary which covers every branch of science taught today in high schools and the most important technical accomplishments of our "nuclear age," and which would be suitable for both the student and the average adult. As I found no dictionary that would meet these requirements, even to some extent, I decided to compile one.

The task proved to be much bigger than it appeared at the outset, and this book is the fruit of several years of concentrated effort. The greatest problem was what to include and what to omit. It is hoped, however, that a fair balance was reached among the many subjects covered.

In our modern age, when science is in the news, radio, and television every day, nobody can afford to withdraw in the isolation of a small vocabulary. It is everybody's business and even duty to understand the scientific and technical problems that face our nation and humanity, and the progress being made in their solution.

If with this dictionary I have made the humblest contribution toward this goal, my efforts are amply rewarded.

Grateful acknowledgement is due to the students of the Bronx High School of Science for the inspiration, to many colleagues and friends for their encouragement, to my former principal, Dr. Morris Meister, founder of the Bronx High School of Science, for reviewing the manuscript and endorsing the dictionary, and to Miss Norma Chigrinsky for the attractive illustrations.

In a book of this scope errors of commission and omission are only natural. I invite constructive criticism and calling errors to my attention. They will be corrected in the next edition.

A. HECHTLINGER

AN ENDORSEMENT

The recent increase in science interest makes this publication especially valuable. Newspapers, magazines, radio, and T.V. reflect a growing use of scientific and technical terms. The availability of a source book of a dictionary type should prove invaluable and facilitate learnings in the fields of science. Most important, it is essential that we raise the scientific literacy of all citizens. Here, too, this dictionary will prove invaluable.

The author has done an excellent job in providing a work that will prove useful to students, their teachers, and their parents.

MORRIS MEISTER
President, Bronx Community College

PHONETIC SPELLING OF HARD-TO-PRONOUNCE WORDS

Symbols Used

<u>a</u>	as in	rate
ä	as in	rat
â	as in	far
ä	as in	lark
ch	as in	church
<u>e</u>	as in	he
ë	as in	hen
ë	as in	her
g	as in	go
gw	as in	guano
<u>i</u>	as in	pine
i	as in	pin
j	as in	joy
k	as in	cat
kw	as in	queen
ŋg	as in	sing
<u>o</u>	as in	no
ö	as in	not
ô	as in	form
ö	as in	anatomy
oi	as in	toy
<u>oo</u>	as in	good
oo	as in	too
ow	as in	cow
s	as in	moss
sh	as in	fish
th	as in	thin
<u>u</u>	as in	pure
ü	as in	nut
y	as in	yard
z	as in	maze
zh	as in	vision

abaxial	ăb ăk' sǐ ăl	acropetal	ă kröp' ẽ tăl
abdomen	ăb' dō măn	acrosome	ăk' rō sōm
abducens	ăb dū' sěnz	actinomorphic	ăk tǐ nō mōr' fĭk
abiogenesis	ăb ỹ ō jěn' ẽ sĭs	actinula	ăk tĭn' ũ lă
abomasum	ăb ō mā' sūm	adaxial	ăd ăk' sǐ ăl
aboral	ăb ō' răl	adipose	ăd' ỹ pōs
abscission	ăb sĭzh' ũn	adnation	ăd nă' shŭn
abyssal	ă bĭs' ăl	adrenalin	ăd rěn' ăl ĩn
Acanthodii	ăk ăn tho' dĭ ĩ	adrenergic	ăd rěn' ẽr' jĭk
accelerator	ăk sěĭ' ẽr ā tēr	adventitious	ăd vĕn tĭsh' ũs
accretion	ă kre' shŭn	aerenchyma	ā ẽr ẽng' kĭ mǎ
accumulator	ă ku' mŭ lă tēr	aerostat	ā' ẽr ō stăt
acetabulum	ăs ẽ tăb' ũ lŭm	afferent	ăf' ẽr ẽnt
achene	ă ken'	agglutination	ă gloo' tĭ nă' shŭn
achlamydeous	ăk lă mĭd' ẽ ũs	agglutinin	ă gloo' tĭ nĭn
achromatic	ăk rō măt' ĭk	agglutininogen	ă gloo' tĭn' ō jěn
Acoelomata	ăs ẽ lō' mā tâ	albedo	ăl bē' dō
acontia	ă kōn' shĭ ă	aleurone	ă lu' rōn
acoustic	ă koos' tĭk	allantois	ă lăn' tō' ĩs
acromegaly	ăk rō mĕg' ă ĩ	allele	ă ĩel'
acromion	ă krō' mĭ ōn	allelomorph	ă ĩe' lō mōr' f

allochthonous	ă lők'thō nūs	anandrous	ăn ăn'drūs
alogamy	ă lөг'â mĩ	anaphylaxis	ăn â fĩ lăk'sis
allopatric	ăl ö păt'rik	anastomosis	â năš tō mō'sis
allopolyploid	ăl ö pöl'ĩ ploid	androdioecious	ăn drō dī ē'shūs
altricial	ăl trĩsh'ăl	androgenesis	ăn drō jěn'ē sis
alveolus	ăl vē'ö lūs	androgynous	ăn drøj'ĩ nūs
amboceptor	ăm'bō sěp tēr	anemophily	ăn ē mǫf'ĩ lĩ
ambulacral	ăm bū lă'krăl	aneuploid	ăn ū'ploid
amitosis	ăm ỹ tō'sis	anthesis	ăn the'sis
amnion	ăm'nĩ ǫn	anthoxanthin	ăn thō zăn'thĩn
amoebocyte	â mē'bō sīt	aphakia	ă fă'kĩ â
amphiaster	ăm'fĩ ăš tēr	aphylous	ă fĩ'ūs
amphibolite	ăm fĩb'ö fĩt	aplanatic	ăp lâ năt'ik
amphicoelous	ăm fĩ sē'lūs	apocarpous	ăp ö kăr'pūs
amphimixis	ăm fĩ mĩk'sis	apomixis	ăp ö mĩk'sis
amphitrichous	ăm fĩt'fĩ kūs	aponeurosis	ăp ö nū rō'sis
amphivasal	ăm fĩ vā'săl	apophysis	â pǫf'ĩ sis
amphoteric	ăm fǫ tēr'ik	apospory	â pǫs'pō rĩ
ampulla	ăm pũl'â	apothecium	ăp ö the'sĩ ũm
amylopsin	ăm ỹ lǫp'sĩn	arachnoid	â răk'noid
anabolism	â năb'ö nĩzm	arborescent	ăr bō rēs'ěnt

archegonium	är kē gō'nŷ ŭm	bioecology	bī ō ē kōl'ō jī
archenteron	är kēn'tēr ōr	biogenesis	bī ō jēn'ē sīs
archeocytes	är'kē ō sīts	biramous	bī rā'mūs
artefact	är'tē fākt	blastocoele	blās'tō sēl
ascocarp			blās'tō stl
ascogonium			blēf'â rō plāst
asteroid			brāk'ī blāst
atrium	ā'trŷ ŭm	brachycephalic	brāk'ī sē fāl'īk
atropous	āt'rō pūs	brachydactyly	brāk'ī dāk'tŷ lŷ
auricle	ō'rŷ kl	bracteole	brāk'tē ōl
autolysis	ō tōl'ŷ sīs	branchiostegite	brāŋg kŷ ōs'tē jīt
bactericidin	bāk'tēr'ī sīd'īn	bysus	bŷ'ūs
bacteriolysin	bāk tēr'ŷ ō lŷ sīn	caducous	kā du'kūs
bacteriophage	bāk tēr'ŷ ō fāj	calcareous	kāl kār'ē ūs
bacteriostatic	bāk tēr'ŷ ō stāt'īk	calcicole	kāl'sŷ kōl
baleen	bā lēn'	calyptra	kā lŷp'trā
basidiospore	bā sīd'ŷ ō spōr	calyptrogen	kā lŷp'trō jēn
basidium	bā sīd'ŷ ŭm	campylotropous	kām pŷ lōt'rō pūs
basophilic	bā sō fīl'īk	canaliculus	kān'â fŷk ū lūs
bathymetric	bāth'ī mēt'rīk	capillitium	kāp'ī lŷh'ŷ ŭm
benthos	bēn'thōs	carapace	kār'â pās

carboniferous	kǎr bôn ỉ'ēr ưs	choana	kō'â nâ
carnassial	kār nās'ỉ'ăl	choanocyte	kō'â nō sít
carpogonium	kār pō gō'nỉ'ưm	cholesterol	kō lēs'tēr ơl
caruncle	kǎr'ưng kl	cholinergic	kō lĩn ư'r'jĩk
caryopsis	kǎr ỉ'ốp'sis	chondriocont	kôn'drỉ'ố kōnt
cataphoresis	kăt â fō rē'sis	chondriosome	kôn'drỉ'ố sōm
cauline	kô'lin (or ỉn)	choripetalous	kō rĩ pết'ăl ưs
chaeta	kē'tâ	chromatophore	krō'mâ tō fōr
chalaza	kâ lā'zâ	chromidia	krō mĩd'ỉ'â
chalcopyrite	kǎl kō pĩ'rĩt	chronaxie	krō'nǎk sĩ
chamaephyte	kǎm'ē fĩt	circumscissile	sư kũm sĩs'ỉl
chela	kē'lâ	clathrate	klǎth'rát
cheliceræ	kē lĩs'ēr ē	cleistocarp	klĩs'tō kǎrp
cheliped	kē'ỉl pết	cleistogamy	klās tồg'â mĩ
chernozem	chēr nō zyôm'	clitellum	kỉ'ỉt'ưm
chilaria	kĩ lā'rỉ'â	clitoris	klĩ'tō rĩs
chimera	kỉ mēr'â	cnidoblast	nĩ'dō blǎst
chlamydospore	klǎm'ỉ dờ spōr	cnidosil	nĩ'dō sĩl
chloragogen	klō rā gō'jẽn	coelenteron	sẻ lẽn'tēr ỗn
chlrenchýma	klō rẻng'kỉ mả	coenenchýma	sẻ nẻng'kỉ mả
chlorocruorin	klō rō kroo'ợ rĩn	coenobium	sẻ nō'bỉ'ưm

coenosarc	sē'nō sārċ	dactyl	dăċ'tŭl
colchicine	kōl'kĭ sĭn	decidua	dě sĭd'ū â
collenchyma	kō lēng'kĭ mā	deglutition	dē gloō tŭsh'ŭn
columella	kōl ŭ mēl'â	dehiscence	dě hĭs'ēns
conchiolin	kōng kĭ'ō lĭn	deliquescent	dēl ĭ kwēs'ēnt
conidophore	kō nĭd'ŭ ō fōr	dendrochronology	dēn drō krō nōl'ō jĭ
conidiōspore	kō nĭd'ŭ ō spōr	desquamation	dēs kwâ mā'shŭn
conjunctiva	kōn jŭngk tĭ'vâ	diadelphous	dĭ â dēl'fŭs
consociation	kōn sō sĭ â'shŭn	diageotropism	dĭ â gē ōt'rō pĭzm
coracoid	kōr'â koid	diaphysis	dĭ âf'ĭ sĭs
cormidium	kōr mĭd'ĭ ŭm	diastema	dĭ â stē'mâ
corymb	kōr'ĭmb	dichasium	dĭ kâ'zhĭ ŭm
coxopodite	kōk sōp'ō dĭt	dichlamydeous	dĭ klâ mĭd'ē ŭs
cribriform	krib'rĭ fōrm	dichogamy	dĭ kōg'â mĭ
cryoscopic	kri ō skōp'ĭk	dichotomous	dĭ kōt'ō mŭs
cryptozoic	krip tō zō'ĭk	dichroism	dĭ'krō ĭzm
ctenidium	tē nĭd'ŭ ŭm	dictyostele	dĭk tĭ ō stē'lē
ctenophora	tē nōf'ō râ	didynamous	dĭ dĭn'â mŭs
cybernetics	sĭ bĕr nēt'ĭks	diencephalon	dĭ ĕn sēf'â lōn
cysticeroid	sĭs tĭ ŭr'koid	digitigrade	dĭj'ŭ tĭ grād
cytokinesis	sĭ tō kĭ nē'sĭs	dikaryon	dĭ kār'ŭ ōn

dioecious	dī ē'shŭs	epigenesis	ěp'ĩ jēn'ē'sis
dioptric	dī ōp'trĭk	epigynum	ě pĭj'ĩ nŭm
dipleurula	dī ploor'ŭ lā	epigyny	ě pĭj'ĩ nĭ
diuresis	dī ŭ rē'sīs	epinasty	ěp'ĩ nās tĭ
dizygote	dī zī gŏt	epinephrine	ěp'ĩ nēf'rĭn
dolichocephalic	dŏl'ĩ kŏ sě fāl'tk	epipharynx	ěp'ĩ fār'ĩngks
ecdysis	ěk'dĭ'sīs	epiphragm	ěp'ĩ frām
edaphic	ě dāf'tk	epiphysis	ě pĭf'ĩ'sīs
efflorescence	ěf lŏ rēs'ěns	epiphyte	ěp'ĩ fĭt
elaioplast	ě lā'ŏ plāst	epistasis	ě pĭs'tā'sīs
electrophoresis	ě lĕk trŏ fŏ rē'sīs	epizoic	ěp'ĩ zŏ'tk
enantiomorphs	ěn ān'tĭ ō mŏrfs	erythrocyte	ě rĭth'rŏ sĭt
endophragmal	ěn dŏ frāg'māl	euchromatin	ŭ krŏ'mā tĭn
enterokinase	ěn tēr ō kĭ'nās	eurythermous	ŭ rĭ thēr'mŭs
entomogenous	ěn tŏ mŏj'ě nŭs	exogenous	ěks'ŏj'ě nŭs
entomology	ěn tŏ mŏl'ŏ jĭ	exopodite	ěks'ŏp'ŏ dĭt
eosinophil	ē ō sĭn'ŏ fĭl	fasciation	fāsh'ĩ ā'shŭn
ephyra	ěf'ĩ rā	fenestration	fēn'ēs trā'shŭr
epicotyl	ěp'ĩ kŏt'ŭl	flocculent	fłŏk'ŭ lĕnt
epididymis	ěp'ĩ dĭd'ĩ mĭs	francium	frān'sĭ ŭm
epigeal	ěp'ĩ jē'āl	frenulum	fren'ŭ lŭm

fucoxanthin	fū kō zǎn'thĩn	hemimetabolous	hēm ĩ mē tab'ō džus
funicle	fū'nĩ kl	heteroecious	hět ěr ē'shūs
galvanotropism	gǎl vǎ nőt'rō pĩzm	heterokaryosis	hět ěr ö kǎr ĩ'ō'sĩs
gametogonium	gǎm ě tō gō'nĩ ũm	heterotrichous	hět ěr öt'rĩ kūs
gamopetalous	gǎm ö pět'ǎl ũs	hologamy	hō lög'â mĩ
gamosepalous	gǎm ö sěp'ǎl ũs	holophyte	höl'ö fĩt
gastrocnemius	gǎs trök nē'mĩ ũs	homeostasis	hō mē ö stā'sĩs
gingival	jĩn ĵĩ'vǎl	homoplasty	hō mö plǎs'tĩ
gliadin	glĩ'â džĩn	hydathode	hĩ'dâ thōd
glomerulus	glō mēr'ũ lūs	hydranth	hĩ'drǎnth
glossopharyngeal	glōs ö fǎ řĩn'jē ǎl	hydrorhiza	hĩ drō řĩ'zâ
gonadotrophic	gōn ǎ dö trōf'ĩk	hymenium	hĩ mē'nĩ ũm
gonangium	gōn ǎn'jĩ ũm	hypogeal	hĩ pō jē'ǎl
gonotheca	gōn ö the'kâ	hypogynous	hĩ pōj'ĩ nūs
guano	gwǎ'nō	hyponasty	hĩ'pō nǎs tĩ
gynandromorph	jĩ nǎn'drō mōrf	hypopus	hĩp'ö pūs
gynodioecious	jĩ nō dī ē'shūs	hysteresis	hĩs tēr ē'sĩs
gynoecium	jĩ nē'sĩ ũm	ichthyology	ĩk tĩ'öl'ö ĵĩ
haustorium	hōs tō'rĩ ũm	idioblast	ĩd'ĩ ö blǎst
hectocotylus	hěk tō kōt'ĩ lūs	infundibulum	ĩn řũn džĩb'ũ lũm
helminthology	hěl mĩn thōl'ö ĵĩ	integument	ĩn tęg'ũ mēnt

interstitial	ĩn tēr stšš'ǎl	miracidium	mī rā sld'ĩ ũm
introrse	ĩn trōrs'	miscegenation	mīs ě jě nā'shũn
intussusception	ĩn tũs sũ sěp'shũn	mitochondria	mī tō kōn'drĩ â
jejunum	jě joo'nũm	monadelphous	mōn â děl'rũs
karyokinesis	kār ĩ ö 'kĩ nē'sis	monochasium	mōn ö kâ'zhĩ ũm
kinesis	kĩ nē'sis	monochlamydeous	mōn ö klâ mĩd'ē ũs
kinetochore	kĩ nē'tō kōr	monokaryon	mōn ö kār'ĩ ũn
leptocephalus	lěp tō sěf'â lũs	monophyletic	mōn ö fĩ lět'ĩk
loculicidal	lōk ũ lĩ sīd'ǎl	monotrichous	mō nōt'rĩ kũs
lophotrichous	lō fōt'rĩ kũs	mycorrhiza	mī kō n'zâ
lyophilic	lĩ ö fĩ'ĩk	mycotrophic	mī kō trōf'ĩk
lysigenous	lĩ sīj'én ũs	nauplius	nō'plĩ ũs
madreporite	mād're pō rit	necrosis	ně kro'sis
manubrium	mâ nũ'břĩ ũm	nematocyst	něm'â tō sīsť
meconium	mě kō'nĩ ũm	neopallium	nē ö pāl'ĩ ũm
melanin	měľ'â nĩn	nephridiopore	ně frĩd'ĩ ö pōr
merogony	mě rōg'ö nĩ	nephridium	ně frĩd'ĩ ũm
mesencephalon	mēs ěn sěf'â lōn	nephromixium	ně. frō mĩk'sĩ ũm
mesenchyme	mēs'ěng kĩm	nephrostome	něf'rō stom
metastasis	mě tās'tâ sis	nidicolous	nĩ dĩk'ö lũs
metaxenia	mět â zē'nĩ â	obdiplostemonous	ōb dĩp'lō stēm'ö nũs

oenocyte	ē'nō sīt	perigynous	pě rĭj'ŷ nŭs
oestrus	ēs'trŭs	periosteum	pěr ŷ ōs'tē ūm
olecranon	ō lĕk rā'nŏn	periostracum	pěr ŷ ōs'trā kŭm
ommatidium	ōm â tid'ŷ ūm	perithecium	pěr ŷ the'shĭ ūm
operculum	ō pēr'kū lŭm	peroneus	pěr ō nē'ūs
orthotropic	ōr'thōt'rō pŭs	pharyngeal	fă rĭn'jĕ ăl
osmeterium	ōs mĕ tē'rŷ ūm	photonasty	fō'tō năs tĭ
osphradium	ōs frā'dŷ ūm	phycocyanin	fĭ kō sĭ'ā nĭn
ovoviviparous	ŏ vō vĭ vĭp'â rŭs	phycoerythrin	fĭ kō ě rĭth'rĭn
oxytocin	ŏk sŷ tō'sĭn	piscivorous	pĭ sĭv'ō rŭs
paedogamy	pē dŏg'ă nŭ	plagiosere	plă'jĭ ō sēr
paragaster	pă â găs'tēr	plasmotomy	plăz mōt'ō mĭ
paragnatha	pă ăg'năth â	plerocercoid	pĕr ō sŭr'koid
paraphysis	pâ răf'ŷ sĭs	poikilothermy	poi'kĭ lō thēr mĭ
parenchyma	pâ rĕng'kŷ mâ	polyadelphious	pŏl ŷ â dĕl'rŭs
parthenocarpic	păr thē nŏ kăr'pĭk	polydactily	pŏl ŷ dăk'tĭ lŷ
parthenogonidium	păr thē nŏ gŏ nĭd'ŷ ūm	polyphyletic	pŏl ŷ fĭ lĕt'ŷk
paurometabolous	pô rŏ mĕ tăb'ō lŭs	polysepalous	pŏl ŷ sĕp'ăl ūs
pedicellaria	pĕd ŷ sĕ lā'rĭ â	proctodeum	prŏk tō dē'ŷm
pereiopods	pĕ n'ō pŏdz	progesterone	prŏ jĕs'tēr ōn
perichaetium	pěr ŷ kē'shĭ ūm	proprioceptor	prŏ prŷ ō sĕp'tŏr