













THE NEW  
IMPERIAL ENCYCLOPEDIA  
AND  
DICTIONARY

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KNOWLEDGE AND AN UN-  
ABRIDGED DICTIONARY OF  
THE ENGLISH LANGUAGE  
UNDER ONE ALPHABET

RICHARD GLEASON GREENE, A.M., Editor-in-Chief  
(Formerly Editor-in-Chief of the International Cyclopaedia)

Assisted by a large corps of trained  
cyclopedists

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*May 14, 1906*  
CLASS *a* Xxc. No.  
*14 5856*  
COPY B.

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# IMPERIAL ENCYCLOPEDIA AND DICTIONARY.

1904-05.

## PUBLISHER'S NOTICE.

The perfect Cyclopedia must, as its name implies, cover the entire circle of human knowledge, and must answer every question which is put to it; to do this in the elaborate detail which would meet all the needs of the thorough scholar, would expand a Cyclopedia into a very large library; therefore, to keep within practicable compass, its elaboration, not its scope, must be limited; to the unlearned it may thus tell, perhaps, all that he needs to know, but to the scholar it will furnish, often, only the clue, the key, the suggestion, which he will know how to follow—or it may serve merely to refresh his memory—all he may need at the time.

In actual experience it is found that Cyclopedias go into the homes of the masses, more largely than into the libraries of students—not to say of “scholars.” Even of the Britannica, probably five times as many copies have been sold to mechanics as to college graduates, though it was made especially for profound students, and not for the unlearned.

School children, and their teachers; mothers at home, with the expanding, inquiring minds of children appealing to them; ambitious clerks and mechanics; the boy on the farm who “wants to know”; the general reader of newspapers and magazines, who meets a word, or thought, or fact, which he wants to “hunt down,” and find where it leads; the country clergyman, or lawyer, or doctor, who wants to know more, not about theology, or law, or medicine, but about the things which touch other people's lives, possibly, even more than his own—these are the ones who most use Cyclopedias.

The ideal Cyclopedia will have its place in the most-used room of home, or in the most convenient corner in school, in the best light, where one may turn to it for answer to a question, while the question is in mind, as one would ask it of an intelligent friend who stands by. It must be in small, handy volumes, because weak hands of children and of women most often handle it—because, if “utility” be the object, it is simple common-sense, for any one, that it shall be “handy”; you may then bring the page most readily to the best light and to the proper focus for the eye, and find knowledge-seeking to be pleasure instead of labor.

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It should be, also, in a handy Revolving Book Case, so that you may, by a touch, bring to your eye and hand the volume you seek.

The combination of Cyclopaedia and Dictionary, made first in this work, is found, for popular use, infinitely convenient. Each helps the other; a word leads to a fact, and facts to words which open new paths for following. Magnitude, and multiplicity of volumes, are no obstacles, because alphabetical order, instantly, in the handy form and with Revolving Case, leads to the thing you seek.

The thought of convenience—utility—which caused this first combination of Cyclopaedia and Dictionary in one work, has led, in the present edition, to further expansion, and to the inclusion of a variety of things usually relegated to the “supplements” of dictionaries, where they are so inconvenient to find.

With the Dictionary Cyclopaedia at your elbow, when you are reading a paper, magazine or book, and you find a place, or man, or thing mentioned about which you want to know more, you turn to the Cyclopaedia; you find a word or quotation, you consult the same. You do not have to go to a big dictionary, which needs, almost, a “derrick” to handle it; nor to the dark shelves of a remote corner, for a clumsy Cyclopaedia volume—and find it, possibly, the wrong one; nor do you “dig” in a series of “supplements”; you consult the Dictionary Cyclopaedia, and know, instantly, where to turn.

A Cyclopaedia never can be “complete” or “up-to-date” in a true sense. Every day brings new events, discoveries, inventions—what not—which must find important place in the next edition of the Cyclopaedia. The world moves; life is growth, and Cyclopedias must grow.

This Cyclopaedia is the first ever constructed along lines adapted to expansion and growth. Because of its small page, without folios, it is like a card catalogue or index, in which a new entry is readily made, or an old one re-written to fit new facts, and placed in its alphabetical order. Thus, at each printing, which may be several times in a year, the Cyclopaedia may be in some important, if small, measure, made new.

Partly with the purpose of serving those who have bought previous editions of the Cyclopaedia, and want the additions necessitated by time and events, and partly for the convenience of including a vast number of small and new matters which would be more difficult and expensive to put in alphabetical order in the body of the Cyclopaedia, with this edition supplementary volumes are introduced, the contents of which will be kept actually standing in type, and will be continually revised and expanded as would be impracticable for the body of the Cyclopaedia, which is necessarily in the form of electrotype plates. In the body of the Cyclopaedia you find the older knowledge, the longer articles,

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and the large dictionary of English words; for later facts, and the mass of little but important matters which a complete, up-to-date Cyclopedic must cover, consult the supplementary volumes.

The numerous maps find their appropriate place in a separate volume, large atlas size, instead of being folded and scattered among the pages of many volumes—and this finds its place of ideal convenience on the top of the Revolving Book Case, which is supplied *with* the Cyclopedic at approximate cost of manufacture, because it adds so greatly to the use and appreciation of the Cyclopedic.



# SCHEME OF SOUND SYMBOLS

## FOR THE PRONUNCIATION OF WORDS.

*Note.*—(·) is the mark dividing words respelt phonetically into syllables; (´), the accent indicating on which syllable or syllables the accent or stress of the voice is to be placed.

Sound-symbols employed in Respelling.	Representing the Sounds as exemplified in the Words.	Words respelt with Sound-symbols and Marks for Pronunciation.
<i>ā</i> ...	mate, fate, fail, aye.....	<i>māt, fāt, fāl, ā.</i>
<i>ǎ</i> ...	mat, fat.....	<i>măt, făt.</i>
<i>á</i> ...	far, calm, father.....	<i>fár, kám, fá'thēr.</i>
<i>ǎ</i> ...	care, fair.....	<i>cār, fār.</i>
<i>aw</i> ..	fall, laud, law.....	<i>fawl, lawd, law.</i>
<i>ē</i> ..	mete, meat, feet, free.....	<i>mēt, mēt, fēt, frē.</i>
<i>ě</i> ..	met, bed.....	<i>mět, bēd.</i>
<i>é</i> ..	her, stir, heard, cur.....	<i>hēr, stēr, hērd, kēr.</i>
<i>ī</i> ..	pine, ply, height.....	<i>pīn, plī, hīt.</i>
<i>ǐ</i> ..	pin, nymph, ability.....	<i>pĭn, nĭmf, ǎ-bĭl'ĭ-tĭ.</i>
<i>ō</i> ..	note, toll, soul.....	<i>nōt, tōl, sōl.</i>
<i>ǒ</i> ..	not, plot.....	<i>nōt, plōt.</i>
<i>ó</i> ..	move, smooth.....	<i>mōv, smōth.</i>
<i>ō</i> ..	Goethe (similar to <i>e</i> in her)...	<i>gō'téh.</i>
<i>ow</i> ..	noun, bough, cow.....	<i>noun, bow, kow.</i>
<i>oy</i> ..	boy, boil.....	<i>boy, boyl.</i>
<i>ū</i> ..	pure, dew, few.....	<i>pūr, dū, fū.</i>
<i>ǔ</i> ..	bud, come, tough.....	<i>bŭd, kŭm, tŭf.</i>
<i>ú</i> ..	full, push, good.....	<i>fúl, púsh, gúd.</i>
<i>ü</i> ..	French plume, Scotch guid.	<i>plüm, güd.</i>
<i>ch</i> ...	chair, match.....	<i>chär, mäch.</i>
<i>ĉh</i> ...	German buch, Heidelberg, Scotch loch (guttural).....	<i>bóch, hĉ' del-bĉrĉh, löch.</i>
<i>g</i> ...	game, go, gun.....	<i>gām, gō, gŭn.</i>
<i>j</i> ...	judge, gem, gin.....	<i>jŭj, jĕm, jĭn.</i>
<i>k</i> ..	king, cat, cot, cut.....	<i>kĭng, kăt, kōt, kŭt.</i>
<i>s</i> ...	sit, scene, cell, city, cypress.	<i>sĭt, sĕn, sĕl, sĭt'ĭ, sĭ'prĕs.</i>
<i>sh</i> ...	shun, ambition.....	<i>shŭn, ǎm-bĭsh'ŭn.</i>
<i>th</i> ...	thing, breath.....	<i>thĭng, brĕth.</i>
<i>th</i> ...	though, breathe.....	<i>thō, brĕth.</i>
<i>z</i> ...	zeal, maze, muse.....	<i>zĕl, mǎz, mŭz.</i>
<i>zh</i> ...	azure, vision.....	<i>ǎzh'ér, vĭzh'ŭn.</i>



## ABBREVIATIONS USED IN THIS WORK.

a, or adj....adjective	A.U.C.....in the year of the building of the city (Rome)[ <i>Anno Urbis conditæ</i> ]
A.B.....Bachelor of Arts	Aug.....August
abbr.....abbreviation, abbreviated	aug.....augmentative
abl. or abla.ablative	Aust.....Austrian
Abp.....Archbishop	A. V.....authorized version [of Bible, 1611]
abt.....about	avoir.....avoirdupois
Acad.....Academy	B.....Boron
acc. or ac..accusative	B.. ..Britannic
accom.....accommodated, accommodation	b.....born
act.....active	Ba.....Barium
A.D.....in the year of our Lord [ <i>Anno Domini</i> ]	Bart.....Baronet
Adj. ....Adjutant	Bav.....Bavarian
Adm.....Admiral	bl.; bbl....barrel; barrels
adv. or ad.adverb	B.C.....before Christ
A. F.....Anglo-French	B.C.L... ..Bachelor of Civil Law
Ag.....Silver [ <i>Argentum</i> ]	B.D.....Bachelor of Divinity
agri.....agriculture	bef.....before
A. L.....Anglo-Latin	Belg.....Belgic
Al.....Aluminium	Beng.....Bengali
Ala.....Alabama	Bi.....Bismuth
Alb.....Albanian	biog.....biography, biographical
alg.....algebra	biol.....biology
A.M.....before noon [ <i>ante meridiem</i> ]	B.L.....Bachelor of Laws
A.M. ....Master of Arts	Bohem....Bohemian
Am.....Amos	bot.....botany, botanical
Amer.....America, -n	Bp.....Bishop
anat.....anatomy, anatomical	Br.....Bromine
anc.....ancient, anciently	Braz.....Brazilian
AN. M. ....in the year of the world [ <i>Anno Mundi</i> ]	Bret.....Breton
anon.....anonymous	Brig.....Brigadier
antiq.....antiquity, antiquities	Brit.....British, Britannica
aor.....aorist, -ic	bro.....brother
app.....appendix	Bulg.....Bulgarian
appar.....apparently	bush.....bushel, bushels
Apr.....April	C.....Carbon
Ar.....Arabic	c.....century
arch.....architecture	Ca.....Calcium
archæol....archæology	Cal.. ..California
arith.....arithmetic	Cambr....Cambridge
Ark.....Arkansas	Can.....Canada
art.....article	Cant.....Canterbury
artil.....artillery	cap.....capital
AS.....Anglo Saxon	Capt.....Captain
As.....Arsenic	Card.....Cardinal
Assoc.....Association	carp.....carpentry
asst.....assistant	Cath.....Catholic
astrol.....astrology	caus.....causative
astron... ..astronomy	cav.....cavalry
attrib.....attributive	Cd.....Cadmium
atty.....attorney	Ce.....Cerium
at. wt.....atomic weight	Celt.....Celtic
Au.....Gold [ <i>Aurum</i> ]	cent.....central
	cf.....compare [ <i>confer</i> ]
	ch or chh...church

## ABBREVIATIONS.

Chal.....	Chaldee	diff.....	different, difference
chap.....	chapter	dim.....	diminutive
chem.....	chemistry, chemical	dist... ..	district
Chin.....	Chinese	distrib... .	distributive
Chron.....	Chronicles	div.....	division
chron.....	chronology	doz.....	dozen
Cl.....	Chlorine	Dr.....	Doctor
Class.....	Classical [ = Greek and Latin]	dr.....	dram, drams
Co.....	Cobalt	dram.....	dramatic
Co.....	Company	Dut. or D..	Dutch
co....	county	dwt .....	pennyweight
cog.....	cognate [with]	dynam or	
Col.....	Colonel	dyn.....	dynamics
Col .....	Colossians	E.....	Erbium
Coll.....	College	E. or e....	East, -ern, -ward
colloq.....	colloquial	E. or Eng..	English
Colo.....	Colorado	Eccl.....	Ecclesiastes
Com.....	Commodore	eccl. or	} ecclesiastical [af- fairs]
com.....	commerce, commer- cial	ed .....	
com.....	common	e.g.....	for example [ <i>ex</i> <i>gratia</i> ]
comp.....	compare	E. Ind. or	} East Indies, East Indian
comp .....	composition, com- pound	E. I.... .	
compar....	comparative	elect.....	electricity
conch .....	conchology	Emp.. ...	Emperor
cong.....	Congress	Encyc.....	Encyclopedia
Congl.....	Congregational	Eng. or E..	English
conj .....	conjunction	engin.....	engineering
Conn or Ct.	Connecticut	entom... ..	entomology
contr.....	contraction, con- tracted	env. ext....	envoy extraordinary
Cop.....	Coptic	ep.....	epistle
Cor.....	Corinthians	Eph.....	Ephesians
Corn.....	Cornish	Episc .....	Epi-copal
corr.....	corresponding	eq. or =...	equal, equals
Cr .....	Chromium	equiv.....	equivalent
crystal.....	crystallography	esp.....	especially
Cs .....	Cæsium	Est .....	Esther
ct.....	cent	estab.....	established
Ct. or Conn.	Connecticut	Esthon....	Esthonian
Cu.....	Copper [ <i>Cuprum</i> ]	etc.....	and others like [ <i>et</i> <i>cetera</i> ]
cwt .....	a hundred weight	Eth.....	Ethiopic
Cyc.....	Cyclopedia	ethnog....	ethnography
D.....	Didymium	ethnol.....	ethnology
D. or Dut..	Dutch	et seq.....	and the following [ <i>et sequentia</i> ]
d.....	died	etym.....	etymology
d. [l. s. d.]..	penny, pence	Eur.....	European
Dan.....	Daniel	Ex.....	Exodus
Dan.....	Danish	exclam....	exclamation
dat .....	dative	Ezek.....	Ezekiel
dau.....	daughter	Ezr.....	Ezra
D. C.....	District of Columbia	F.....	Fluorine
D.C.L.....	Doctor of Civil [or Common] Law	F. or Fahr.	Fahrenheit
D.D.....	Doctor of Divinity	f. or fem...	feminine
Dec.....	December	F. or Fr...	French
dec.....	declension	fa.....	father
def.....	definite, definition	Fahr. or F.	Fahrenheit
deg.....	degree, degrees	far.....	farriery
Del.....	Delaware	Fe.....	Iron [ <i>Ferrum</i> ]
del.....	delegate, delegates	Feb.....	February
dem.....	democratic	fem or f. .	feminine
dep.....	deputy	fig.....	figure, figuratively
dep.....	deponent	Fin.....	Finnish
dept.....	department	F.—L.....	French from Latin
deriv.....	derivation, deriva- tive	Fla.....	Florida
Deut.....	Deuteronomy	Flem.....	Flemish
dial.....	dialect, dialectal	for.....	foreign
diam... ..	diameter	fort.....	fortification
Dic.....	Dictionary	Fr. or F...	French
		fr.....	from



## ABBREVIATIONS.

freq.....	frequentative	ind.....	indicative
Fris.....	Frisian	indef.....	indefinite
ft.....	foot, feet	Indo-Eur.....	Indo-European
fut.....	future	inf.....	infantry
G. or Ger.....	German	inf or infin.....	infinitive
G.....	Glucinium	instr.....	instrument, -al
Ga.....	Gallium	int....	interest
Ga.....	Georgia	intens.....	intensive
Gael.....	Gaelic	interj. or	
Gal.....	Galatians	int.....	interjection
gal.....	gallon	interrog.....	interrogative
galv.....	galvanism, galvanic		noun
gard.....	gardening	intr. or	
gen.....	gender	intrans.....	intransitive
Gen.....	General	Io.....	Iowa
Gen.....	Genesis	Ir.....	Iridium
gen.....	genitive	Ir.....	Irish
Geno.....	Genoese	Iran.....	Iranian
geog.....	geography	irr.....	irregular, -ly
geol.....	geology	Is.....	Isaiah
geom.....	geometry	It.....	Italian
Ger.....	German, Germany	Jan.....	January
Goth.....	Gothic	Jap.....	Japanese
Gov.....	Governor	Jas.....	James
govt.....	government	Jer.....	Jeremiah
Gr.....	Grand, Great	Jn.....	John
Gr.....	Greek	Josh.....	Joshua
gr.....	grain, grains	Jr.....	Junior
gram.....	grammar	Judg.....	Judges
Gr. Brit.....	Great Britain	K.....	Potassium [ <i>Kalium</i> ]
Gris.....	Grisons	K.....	Kings [in Bible]
gun.....	gunnery	K.....	king
h.....	Hegira	Kan.....	Kansas
H.....	Hydrogen	Kt.....	Knight
h.....	hour, hours	Ky.....	Kentucky
Hab.....	Habakkuk	L.....	Latin
Hag.....	Haggai	L.....	Lithium
H. B. M.....	His [or Her] Britan- nic Majesty	l. [l. s. d.], } pound, or £..... } [sterling] pounds	
Heb.....	Hebrew, Hebrews	La.....	Lanthanium
her.....	heraldry	La.....	Louisiana
herpet.....	herpetology	Lam.....	Lamentations
Hg.....	Mercury [ <i>Hydrar- gyrum</i> ]	Lang.....	Languedoc
hhd.....	hogshhead, hogsheads	lang... ..	language
Hind.....	Hindustani, Hindu, or Hindi	Lap.... ..	Lapland
hist.....	history, historical	lat.....	latitude
Hon.....	Honorable	lb.; llb. or } pound; pounds lbs..... } [weight]	
hort.....	horticulture	Let.....	Letish
Hos.....	Hosea	Lev.....	Leviticus
Hung.....	Hungarian	LG.....	Low German
Hydros.....	Hydrostatics	L.H.D.....	Doctor of Polite Lit- erature
I.....	Iodine	Lieut.....	Lieutenant
I.; Is.....	Island; Islands	Lim.....	Limousin
Icel.....	Icelandic	Lin.....	Linnæus, Linnæan
ichth.....	ichthyology	lit.....	literal-ly
Ida.....	Idaho	lit.....	literature
i.e.....	that is [ <i>id est</i> ]	Lith.. ..	Lithuanian
Ill.....	Illinois	lithog.....	lithograph, -y
illus.....	illustration	LL.....	Late Latin, Low Latin
impera or		LL.D.....	Doctor of Laws
impr.....	imperative	long.....	longitude
impers.....	impersonal	Luth.....	Lutheran
impf or imp.....	imperfect	M.....	Middle
impf. p. or		M.....	Monsieur
imp.....	imperfect participle	m.....	mile, miles
Improp.....	improperly	m. or masc.....	masculine
In.....	Indium	M.A.....	Master of Arts
in.....	inch, inches	Macc.....	Maccabees
incept.....	inceptive	mach... ..	machinery
Ind.....	India, Indian	Mag.....	Magazine
Ind.....	Indiana		

## ABBREVIATIONS.

Maj.....	Major	N. A., or	
Mal.....	Malachi	N. Amer.	North America, -n
Mal.....	Malay, Malayan	nat.....	natural
manuf.....	manufacturing, manufacturers	naut.....	nautical
Mar.....	March	nav.....	navigation, naval af- fairs
masc or m.	masculine	Nb.....	Niobium
Mass.....	Massachusetts	N. C. or	
math.....	mathematics, math- ematical	N. Car...	North Carolina
Matt.....	Matthew	N. D.....	North Dakota
m.d.....	Doctor of Medicine	Neb.....	Nebraska
MD.....	Middle Dutch	neg.....	negative
Md.....	Maryland	Neh.....	Nehemiah
ME.....	Middle English, or Old English	N. Eng....	New England
Me.....	Maine	neut or n..	neuter
mech.....	mechanics, mechani- cal	Nev.....	Nevada
med.....	medicine, medical	N.Gr.....	New Greek, Modern Greek
mem.....	member	N. H.....	New Hampshire
mensur...	mensuration	NHG.....	New High German [German]
Messrs. or		Ni ...	Nickel
MM.....	Gentlemen, Sirs	N. J.....	New Jersey
metal.....	metallurgy	NL.....	New Latin, Modern Latin
metaph...	metaphysics, meta- physical	N. Mex....	New Mexico
meteor....	meteorology	N. T. or	
Meth.....	Methodist	N. Test...	New Testament
Mex.....	Mexican	N. Y. ....	New York [State]
Mg.....	Magnesium	nom.....	nominative
M.Gr.....	Middle Greek	Norm. F...	Norman French
MHG.....	Middle High Ger- man	North. E..	Northern English
Mic.....	Micah	Norw... ..	Norwegian, Norse
Mich.....	Michigan	Nov.....	November
mid.....	middle [voice]	Num.....	Numbers
Milan.....	Milanese	numis.....	numismatics
mid. L. or }	Middle Latin, Me-	O.....	Ohio
ML.....	diæval Latin	O.....	Old
milit. or		O.....	Oxygen
mil.....	military [affairs]	Obad.....	Obadiah
min.....	minute, minutes	obj.....	objective
mineral...	mineralogy	obs. or †.	obsolete
Minn.....	Minnesota	obsoles...	obsolescent
Min. Plen..	Minister Plenipoten- tiary	O.Bulg....	Old Bulgarian or Old Slavic
Miss.....	Mississippi	Oct.....	October
ML. or }	Middle Latin, Me-	Odontog...	odontology
mid. L... }	diæval Latin	OE.....	Old English
MLG.....	Middle Low German.	OF or	
Mlle.....	Mademoiselle	O. Fr....	Old French
Mme.....	Madam	OHG.....	Old High German
Mn.....	Manganese	Ont.....	Ontario
Mo.....	Missouri	opt ..	optics, optical
Mo.....	Molybdenum	Or.....	Oregon
mod.....	modern	ord.....	order
Mont.....	Montana	ord....	ordnance
Mr.....	Master [Mister]	org.....	organic
Mrs.....	Mistress [Missis]	orig.....	original. -ly
MS.; MSS..	manuscript; manu- scripts	ornith.....	ornithology
Mt.....	Mount, mountain	Os.....	Osmium
mus.....	music	OS.....	Old Saxon
mus.doc....	Doctor of Music	O. T., or	
myth.....	mythology, mytho- logical	O. Test...	Old Testament
N.....	Nitrogen	Oxf.....	Oxford
N. or n.....	North, -ern, -ward	oz.....	ounce, ounces
n.....	noun	P.....	Phosphorus
n or neut...	neuter	p.; pp.....	page; pages
Na.....	Sodium [ <i>Natrium</i> ]	p., or part..	participle
Nah.....	Nahum	Pa. or Penn.	Pennsylvania
		paint ..	painting
		palæon....	palæontology
		parl.....	parliament
		pass.....	passive

## ABBREVIATIONS.

pathol or		pt.....	past tense
path.....	pathology	pt.....	pint
Pb.....	Lead [ <i>Plumbum</i> ]	Pt.....	Platinum
Pd.....	Palladium	pub.....	published, publisher, publication
Penn or Pa.	Pennsylvania	pwt.....	pennyweight
perf.....	perfect	Q.....	Quebec
perh.....	perhaps	qt.....	quart
Pers.....	Persian, Persic	qtr.....	quarter [weight]
pers.....	person	qu.....	query
persp.....	perspective	q.v.....	which see [ <i>quod</i> <i>vide</i> ]
pert.....	pertaining [to]	R.....	Rhodium
Pet.....	Peter	R.....	River
Pg. or Port.	Portuguese	Rb.....	Rubidium
phar.....	pharmacy	R. Cath....	Roman Catholic
PH.D.....	Doctor of Philoso- phy	rec. sec....	recording secretary
Phen.....	Phenician	Ref.....	Reformed
Phil.....	Philippians	refl.....	reflex
Philem....	Philemon	reg.....	regular, -ly
philol.....	philology, philologi- cal	regt.....	regiment
philos.....	philosophy, philo- sophical	rel. pro. or	relative pronoun
phonog....	phonography	repr.....	representing
photog....	photography	repub.....	republican
phren.....	phrenology	Rev .....	Revelation
phys.....	physics, physical	Rev.....	The Reverend
physiol....	physiology, physi- ological	Rev. V.....	Revised Version
Pied.....	Piedmontese	rhet.....	rhetoric, -al
Pl.....	Plate	R. I.....	Rhode Island
pl. or plu..	plural	R. N.....	Royal Navy
Pl. D.....	Platt Deutsch	Rom.....	Roman, Romans
plupf.....	pluperfect	Rom.....	Romanic or Ro- mance
P.M.....	afternoon [ <i>post meri- diem</i> ]	Rom. Cath. {	Roman Catholic
pneum.....	pneumatics	Ch. or R. {	Church
P. O.....	Post-office	C. Ch.... {	
poet.....	poetical	r.r.....	railroad
Pol.....	Polish	Rt. Rev ..	Right Reverend
pol econ...	political economy	Ru.....	Ruthenium
polit.....	politics, political	Russ.....	Russian
pop.....	population	r.w.....	railway
Port. or Pg.	Portuguese	S.....	Saxon
poss.....	possessive	S.....	Sulphur
pp.....	pages	s.....	second, seconds
pp.....	past participle, per- fect participle	s. [l. s. d.]..	shilling, shillings
p. pr.....	present participle	S. or s.....	South, -ern, -ward
Pr. or Prov.	Provençal	S. A. or	
pref.....	prefix	S. Amer..	South America, -n
prep.....	preposition	Sam.....	Samaritan
Pres.....	President	Sam.....	Samuel
pres.....	present	Sans, or	
Presb.....	Presbyterian	Skr.....	Sanskrit
pret.....	preterit	Sb.....	Antimony [ <i>Stibium</i> ]
prim.....	primitive	s.c.....	understand, supply, namely [ <i>scibicet</i> ]
priv.....	privative	S. C. or	
prob.....	probably, probable	S. Car....	South Carolina
Prof.....	Professor	Scand.....	Scandinavian
pron.....	pronoun	Scot.....	Scotland, Scotch
pron.....	pronunciation, pro- nounced	scr.....	scruple, scruples
prop.....	properly	Scrip.....	Scripture [s], Scrip- tural
pros.....	prosody	sculp.....	sculpture
Prot.....	Protestant	S. D.....	South Dakota
Prov. or Pr.	Provençal	Se.....	Selenium
Prov.....	Proverbs	sec.....	secretary
prov.....	province, provincial	sec.....	section
Prov. Eng..	Provincial English	Sem.....	Semitic
Prus.....	Prussia, -n	Sep.....	September
Ps.....	Psalms	Serv.....	Servian
psychol....	psychology	Shaks....	Shakespeare
		Si.....	Silicon

## ABBREVIATIONS.



Sic.....	Sicilian	trigon.....	trigonometry
sing.....	singular	Turk.....	Turkish
sis.....	sister	typog.....	typography, typographical
Skr. or		U.....	Uranium
Sans.....	Sanskrit	ult.....	ultimate, -ly
Slav.....	Slavonic, Slavic	Unit.....	Unitarian
Sn.....	Tin [ <i>Stannum</i> ]	Univ.....	Universalist
Soc.....	Society	Univ.....	University
Song Sol..	Song of Solomon	U. Presb...	United Presbyterian
Sp.....	Spanish	U. S... ..	United States
sp. gr.....	specific gravity	U. S. A....	United States Army
sq.....	square	U. S. N....	United States Navy
Sr.....	Senior	Ut.....	Utah
Sr.....	Strontium	V.....	Vanadium
.....	Saint	v.....	verb
.....	street	Va.....	Virginia
stat.....	statute	var.....	variant [word]
s.t.d.....	Doctor of Sacred Theology	var.....	variety of [species]
subj.....	subjunctive	Ven.....	Venerable
suf.....	suffix	Venet.....	Venetian
Su. Goth..	Suo-Gothic	vet....	veterinary
superl.....	superlative	v. i. or	
Supp.....	Supplement	v. intr....	verb intransitive
Supt.....	Superintendent	vil.....	village
surg.....	surgery, surgical	viz.....	namely, to-wit [ <i>vide-licet</i> ]
Surv.....	surveying	v. n.....	verb neuter
Sw.....	Swedish	voc.....	vocative
Swab.....	Swabian	vol.....	volume
sym.....	symbol	vols.....	volunteers
syn.....	synonym, -y	Vt.....	Vermont
Syr.....	Syriac, Syrian	v. tr.....	verb transitive
t.....	town	W.....	Tungsten [ <i>Wolfram</i> ]
Ta.....	Tantalum	W..	Welsh
Tart.....	Tartar	W. or w....	West, -ern, -ward
Te.....	Tellurium	Wal.....	Walachian
technol...	technology	Wall.....	Walloon
teleg.....	telegraphy	Wash.....	Washington
Tenn.....	Tennessee	Westph....	Westphalia, -n
term.....	termination	W. Ind. }	West Indies, West
terr.....	territory	or W. I... }	Indian
Teut.....	Teutonic	Wis.....	Wisconsin
Tex.....	Texas	wt.....	weight
Th.....	Thorium	W. Va.....	West Virginia
theat.....	theatrical	Wyo.....	Wyoming
theol.....	theology, theological	Y.....	Yttrium
therap....	therapeutics	yd.....	yard
Thess.....	Thessalonians	yr.....	year
Ti.....	Titanium	Zech.....	Zechariah
Tim.....	Timothy	Zeph.....	Zephaniah
Tit.....	Titus	Zn.....	Zinc
Tl.....	Thallium	zool.....	zoology, zoological
toxicol....	toxicology	Zr.....	Zirconium
tp.....	township		
tr. or trans.	transitive		
transl.....	translation, trans. lated		

See also ABBREVIATIONS: in Vol. L

# IMPERIAL ENCYCLOPEDIA AND DICTIONARY.

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**A, ā**: the first letter in almost all alphabets; the only exceptions, perhaps, are the Ethiopian, where it stands thirteenth, and the Runic, in which the order is altogether different (see **RUNES**). A has in English at least four distinct sounds, as heard in *ale, man, father, all*. Of these, the third may be considered its primitive and proper sound; it is its name-sound in perhaps all languages except English, and is that which is assigned to it in comparative grammar. This sound is the purest and fullest in human speech; it is that which the child learns first and most easily to produce, and its sign stands as if by right at the head of the alphabet. In the oldest languages it is the predominating vowel, and gives them their peculiar fulness and strength. Philologists consider it the *heaviest* of the three fundamental vowels; the other two, *i* and *u* (whose primitive and proper sounds are heard in *me* and *do*), seem to have arisen out of *a*, by lightening or weakening it (Lat. *cadence—incidence, calco—inculco*). By combining with these, *a* gives rise to *ai, au*, which in their turn coalesce into *é* and *ô*.—In the Phœnician alphabet the letter A bears the name of *aleph*; i.e., 'ox,' with reference to its most ancient form, which rudely represented an ox's head. From this came the Greek name *alpha*. For engraving or tracing on stone or other hard materials, characters composed of straight lines are best adapted, and such was naturally the earliest form of A and the other letters. It is easy to trace the growth of our small a or *a* out of the monumental A. In Greek and Roman inscriptions executed hastily or carelessly the form

 is often found; and this, written with a flexible reed, became rounded into .—For A and the other letters as

abbreviations, see **ABBREVIATIONS**.

**A**, an adjective of number, signifying one: the indefinite article used before adjectives or nouns that begin with a consonant or with the sound of a consonant.

**A**, in composition: an Anglo Saxon prefix signifying *at, to, in, or on*: a Greek prefix, with its form **AN**, signifying *without, not*: a Latin prefix, with its forms **AB** and **ABS**, signifying *from or away*.

**A**. a note in Music: the major sixth of the scale of **C**

## A 1—AA.

**major.** When perfectly in tune to C, it stands in the proportion of  $\frac{3}{5}$  of 1. But in this state it would not be a fifth to D, the second note of the scale of C, being a comma too flat, which difference is as 80 to 81. The ear being sensibly offended with this deficiency, the note A is therefore made the least degree higher than perfect—namely,  $\frac{96}{161}$ , by which the advantage is gained that A is a fifth above D ( $\frac{108}{164}$ ), or deficient only in the proportion of  $\frac{161}{162}$ —a deficiency so trifling that the ear accepts the fifth, D, A, and the sixth, C, A, as perfect, although, mathematically calculated, the one is too great and the other too small.—For A Major and A Minor, see KEY.

**A 1:** a symbol by which first-class vessels are known in the Record of American and Foreign Shipping and in Lloyd's Register of British and Foreign Shipping, to denote the highest rating of a merchant vessel. In the American Record the rating ranges from A 1, highest grade, to A 3, lowest. Intermediate degrees of seaworthiness are indicated by the numbers  $1\frac{1}{2}$ ,  $1\frac{3}{4}$ , 2,  $2\frac{1}{2}$ . Vessels of the two highest grades (A 1, A  $1\frac{1}{2}$ ) are regarded as seaworthy for all cargoes and all voyages during a fixed term of years; the intermediate grades (A  $1\frac{3}{4}$ , A 2) for all cargoes on Atlantic voyages, and for transport of such goods as oil, molasses, sugar, etc., on long voyages; the classes A  $2\frac{1}{2}$  and A 3 for coasting only.—In Lloyd's Register wooden ships are rated A 1 or first class for a term of years varying according to the materials and the fastenings used in their construction. The other symbols used in Lloyd's Register are A 1 in red, Æ, and E; and they indicate lower degrees of seaworthiness. Iron and steel vessels are classed for an indefinite period under a system of frequent surveys, the varying degrees of strength being indicated by the formulas 100 A 1, 90 A 1, 80 A 1, etc.—In the United States, vessels are rated by U. S. govt. surveyors; in Great Britain the rating is by a society of shippers incorporated under the name 'Lloyd's Register,' and the society's officers make periodical inspections of all the shipping entered in the society's books.—The expression A 1 denotes in the language of commercial business the highest mercantile credit; in colloquial language A 1, or A number one, expresses high commendation, and is equivalent to first-rate, first-class.

**AA :** name of a number of rivers and streams in the n. of France, Holland, Germany, and Switzerland. As many as forty have been enumerated. The word is said to be of Celtic origin, but it is allied to the Old German *aha*, Gothic *ahva*, identical with the Latin *aqua*, 'water.' Ach or Aach is another form of the same word. Four streams of the name of Ach fall into the Lake of Constance. The word, in both forms, occurs as final syllable in many names of places, as, Fulda (formerly Fuldaha), Biberach, Biberich, etc. In the plural, it is Aachen (waters, springs), which is the German name of Aix-la-Chapelle (q.v.) Aix, the French name of so many places connected with springs, is derived from Lat. *Aquæ*, which became in old French *Aigues*, and then Aix. Compare the Celtic Esk, Ex, Axe, Ouse.

## AACHEN—AARD-WOLF.

AACHEN: see AIX-LA-CHAPELLE.

AALBORG, *awl'börg* (Eel-town): a seaport in the n. of Jutland, with considerable trade; pop. (1901) 31,457.

AALI PASHA, *âlê pâ-shâ'* (MEHEMED EMIN): 1815-1871. Sep. 6; b. Constantinople: Turkish statesman. He was trained to the diplomatic profession from boyhood, beginning as a clerk in the foreign office and being elevated from one position to another at home and abroad, till 1844, when he became ambassador at London. The following year he was appointed minister of foreign affairs, and thrice occupied that position. He was also chancellor of the divan, was made a pasha 1846, and grand vizier 1852. He became identified with the cause of reform in Turkey. In the conferences at Vienna and Paris, 1855, he represented Turkey and signed the treaty of Paris of 1856, Mar. 30. He presided at the conference of the powers 1864, May, for the purpose of settling the Roumanian question. In 1867 he was appointed regent of the empire, during the absence of the sultan.

AALST, *âlst*: town in Belgium: see ALOST.

AALTEN: town in the Netherlands, province of Gelderland, 29 m. e. of Arnheim, about 3 m. from the German frontier, the n.w. boundary of Westphalia. Pop. 7,000.

AAR, *âr*: next to the Rhine and Rhone, largest river in Switzerland: rises in the glaciers near the Grimsel in Bern, forms the Falls of Handeck, 200 ft. high, flows through lakes Brienz and Thun, and passing the towns of Interlaken, Thun, Bern, Soleure, Aarau, Brugg, and Klingenau, joins the Rhine a little above Waldshut, in Baden, after a course of nearly 200 miles.

AARAU, *â'row*: town in Switzerland, cap. of the canton of Aargau; on the Aar, 41 m. n.e. of Bern, 63 m. w. of Zurich. The tunnel of the Basel and Zurich railway passes under the town. In 1798 A. was the cap. of the Helvetic republic. It has manufactories of ribbons, cotton cloth, math. instruments, leather, and vitriol, and a cannon-foundry. A. has an academy and library. Pop. about 7,000.

AARIFI PASHA, *â-rê'fê pâ-shâ'*: Turkish statesman: b. Constantinople, 1830; son of a noted diplomatist, Shekib Pasha. As a boy of 15 years he received employment from the *divan*, and 2 years later went with Shekib Pasha to Rome, and subsequently to Vienna. Having become an expert linguist, he was appointed first sec. to the legation in Vienna, afterward first translator in Paris to the Sublime Porte, and later first interpreter to the divan. From this point he rose to ambassador in Vienna, minister of pub. instruction, ambassador in Paris, and 1879 prime minister. He has held other important offices, and in 1893 he was a senator.

AARD-VARK, or EARTH-HOG: see ANT-EATER.

AARD-WOLF: see PROTELES.

## AARGAU—AB.

**AARGAU**, *ár'gow*, or **ARGOVIE**, *ár-gō-vē'*: a canton of Switzerland, on the Aar, and having the Rhine for its n. boundary. Its surface is diversified, well wooded, and generally fertile. Area, about 530 sq. m.; pop. (1900) 206,498, rather more than half being Protestants. Besides agriculture, there are considerable manufactures of cotton and silk, and prosperity has of late markedly increased. In this canton is the castle of Habsburg or Hapsburg, original seat of the imperial family of Austria. The chief town is **AARAU**, situated on the Aar; pop. about 7,000.

**AARHUUS**, *ör'hós*: seaport on the e. coast of Jutland, and seat of a bishop; pop. (1880) 24,831.

**AARON**, *ār'ōn*, elder brother of Moses: was appointed his assistant and spokesman, and at the giving of the Mosaic law received for himself and his descendants the hereditary dignity of the priesthood. Aaron assisted his brother in the administration of affairs. He died in the 123d year of his age, on Mount Hor, on the borders of Idumea. His third son, Eleazar, succeeded him in the office of high-priest.

**AARONIC**, a. *ā-rōn'ík*, or **AARONICAL**, a. *ā-rōn'í-kál*: of or pertaining to Aaron or his priesthood. **AARON'S ROD**, in Arch., a rod with one serpent twining around it, as distinguished from *Mercury's rod*, which has two. **AARON'S SERPENT**, a figure expressive of some combination or power so irresistible as to break down or swallow up all opposing interests or powers.

**AARSSENS**, *ár'séns*, **FRANS VAN**: diplomatist: 1572–1641; b. at The Hague; son of Cornelis van A. He was trained from his youth to diplomacy, was minister resident of the states general 1598 in France, and ambassador 1609. He was ambassador to Venice 1609–15, and to England 1626, and again 1640, when he arranged the marriage of William II. of Nassau, and Mary, daughter of Charles I., of England. He was accused of having instigated the death of Olden-Barneveldt 1619. Richelieu deemed him one of the three ablest politicians of his time.

**AASEN**, *aw'sén*, **IVAR ANDREAS**: Norwegian philologist: b. 1813, Aug. 5. He was privately educated, and in early life interested himself in botany, but afterward began investigation of the different dialects used in Norway, and published a grammar (1848) and dictionary (1850). He attempted to remodel the Norse language, but was unsuccessful, though he was for a time supported by Björnsterne Björnson.

**AASVAR**: small group of islands off the coast of Norway, near the Arctic circle, important for their herring fisheries. During the herring run, which lasts three weeks from Dec. 10. as many as 10,000 fishermen take 200,000 kegs of fish; for the rest of the year the islands are uninhabited except by a few families.

**AB**, *áb*: Hebrew name of the 11th month of the Jewish civil year and the 5th of the ecclesiastical year; including portions of July and August.



## ABABDEH—ABAD.

**ABABDEH**, or **ABABDE**, or **ABABDIE**: race of people occupying parts of Upper Egypt and Nubia, and as to the latter country, all parts between the Nile and the Red Sea. They are on good authority deemed of Hamitic origin, and allied to the Bishareen or Bishâri; are nomadic in their habits, residing mostly in the desert, where they serve as guides for travellers; are followers of Islam, and possess camels, horses, sheep, and goats. They have no firearms, but use bows and arrows. They are under the general control of the khedive of Egypt, to whom they pay taxes. Their language is Arabic, with traces of Hamitic.

**ABACA**, n. *ăb'ă-kă*: the fibre of a species of plantain or banana (*Musa troglodytarum*), native of the Philippine Isles, where it is extensively cultivated. The leaf-stalks are split into long stripes, and the fibrous part is then separated from the fleshy pulp. A laborer can in this way produce daily 50 lbs. of hemp. Before 1825, the quantity produced was insignificant, but now it amounts to nearly 31,000 tons annually. In Manila there is a steam rope-work for making ropes of it for naval purposes. They are very durable, but not very flexible.—The fibre of a number of species of *Musa* is used in tropical countries. See **PLANTAIN**.

**ABACK**, ad. *ă-băk'* [**AS.** *on-bæc*]: on the back; back wards, as used by sailors; towards the mast; by surprise; unexpectedly.

**ABACO**. see **BAHAMAS**.

**ABACUS**, n. *ăb'ă-kŭs*, **AB'ACUSES**, n. plu. *-kŭs-ēs* [**L.** *ăb-ăcus*; **Gr.** *abaks*, a board for calculations]: a counting frame; used in ancient and modern times for reckoning accounts, and in primary schools for teaching the rudiments of arithmetic. It consists of a frame with a number of parallel wires, on which beads, ivory, and wood balls, and other counters are strung. It is universally employed by the Chinese in making up their accounts. *Abacus Pythagoricus* meant the multiplication table, as multiplying can be done on an Abacus.



Abacus for Calculations.

**ABACUS**, in **Arch.**: a square or oblong level tablet on the capital of a column, and supporting the entablature. In the Doric, old Ionic, and Tuscan orders, the abacus is a regular oblong; but in the



Corinthian Abacus.

new Ionic, Corinthian, and Roman orders, the abacus has concave sides, with truncated angles. Square marble tablets let into walls, and fields with figures in them inserted in mosaic floors, were also included under the term abacus in ancient architecture.

**ABAD**, *ă-băd'* (allied both in etymology and meaning to the Eng. *abode*): an affix to names of Persian origin, as *Hyder-abad*, the 'dwelling' or city of Hyder.

## ABADDON—ABANDON.

**ABADDON**, n. *ă-băd' dŏn* [Heb. *abad*, to be lost or destroyed]: the destroying angel of the bottomless pit. See **APOLLYON**.

**ABAFT**, ad. prep. *ă-băft'* [AS. *a*, on, and *baft*—for *bi-aft*, by-aft; *be-æftan*, by-behind; *æftan*, after, behind; *ba, ta*, the back]: a seaman's term; at or towards the stern or hinder part of a ship; behind.

**ABAISSÉ**, *a-bās-sā* (lowered): in Heraldry. When the fesse, or any other armorial figure is depressed, or situated below the centre of the shield, it is said to be *abaissé*. *Adossé* (back to back), *affronté* or *confronté* (facing or fronting one another), *aiguissé* (sharpened at the point), *ailé* (winged), are other heraldic terms borrowed, like *abaissé*, from the French, and used by English heralds in senses not differing essentially from their ordinary significations in French.

**ABANA** and **PHARPAR**, *ă-bā'nā* (or *ăb'ân-ā*) and *fār'pār*: rivers of Damascus (see II Kings, v. 12). Abana is now known as the Barada, flowing directly through the city; Pharpar as the Awaj, 8 m. south. The two flow e. to w. across the plain of Damascus and are lost in marshes on the borders of the great Arabian desert.

**ABANCAY**, *ă-vân-kī'*: town of Peru, dept. of Cuzco; on the Abancay river, spanned here by one of the finest bridges in Peru. A. has large sugar refineries. Pop. 5,000.

**ABANCOURT**, *ă-bông-kôr'*, **CHARLES XAVIER JOSEPH D'**: French soldier: 1758–1792, Sep. 9; b. Douai; nephew of Calonne. He rapidly rose in the army, becoming minister of war in the midst of the revolution 1792, June. In Sep. following he was denounced by Thuriot, and was murdered by the mob at Versailles.

**ABAND**, v. *ă-bănd'*, for *abandon* in OE.

**ABANDON**, v. *ă-băn' dŏn* [F. *abandonner*, to desert; *abandon*, a giving up: OF. *à bandon*, at his own pleasure: mid. L. *bandum*, an order or decree]: to give up; to desert; to forsake entirely. **ABAN'DONING**, imp. **ABAN'DONED**, pp. *-dŏnd*: **ADJ.** wholly forsaken; given up; extremely profligate or corrupt. **ABAN'DONMENT**, n. a giving up; a total desertion. **ABAN'DONER**, n. the person who gives up. **AN ABANDONED CHARACTER**, one wholly enslaved to vice.—**SYN.** of 'abandon': to yield; give up; surrender; cede; forego; quit; relinquish; desert; forsake; resign: abdicate; renounce; withdraw from; leave; retire. **SYN.** of 'abandoned': deserted; forsaken; profligate; vicious; corrupt; vile; odious; detestable; heinous; reprobate; wicked; criminal; depraved; abject; forlorn; destitute; derelict.

**ABANDON**, n. *ă-bâng' dŏng* [F.—see preceding title]: a complete giving up; complete absorption in some pursuit or condition of mind; disregard of appearances or usual restraints.

**ABANDON**, **ABANDONING**, **ABANDONMENT**, in Law: (*Contracts*.) In insurances, abandonment is the act by which the insured relinquishes to the assurer all the property in the thing insured. The act must be performed

## ABANO—ABASCAL.

within reasonable time after the loss, must be explicit and absolute, and must set forth the reasons upon which it is founded. Abandonment may be made when there is total loss, when the voyage is not worth pursuing on account of a peril provided against in the insurance, if the cargo be so damaged as to be of little or no value, where the salvage is very high, and further expense being necessary the insurer will not engage to bear it, or if what is saved is of less value than the freight, etc. (*Rights.*) Legal rights, when once vested, must be divested according to law, but equitable rights may be abandoned: a mill-site, once occupied, may be abandoned; so may an application for land, an improvement, and a trust fund. (*For torts.*) The owner of an animal is answerable for any damage that it may cause; but if the animal be lost, or have strayed for more than a day, he may discharge himself from this responsibility by abandoning the animal to the person who has sustained the injury—except in the case of a dangerous, or noxious animal. (*Malicious.*) The act of a husband or wife who leaves his or her consort wilfully and with an intention of causing perpetual separation. When continued the length of time prescribed by the local statutes, this is cause for divorce.

ABANO, *â-bâ'nô*, PIETRO D': 1250-1316; b. Abano, Italy. He studied in Paris and became a doctor of medicine and philosophy; then settled at Padua, where he gained great reputation. His large fees created scandal, ending in his arrest for practicing magic. During his second trial on this charge he died.

ABARBANEL, *â-vâr'vâ-nêl* (or ABRA'BANEL, *â-brâ'-*, or ABRAVENEL), ISAAC BEN JEHUDAH: Jewish writer: 1437-1508; b. Lisbon, Portugal. He was employed in state affairs by Alfonso V. of Portugal and later by John II. By the latter he was suspected of treason, and in 1483 was compelled to flee, while his property was confiscated. Afterward he entered the service of Ferdinand of Aragon. He shared in the expulsion of the Jews from Spain 1492. His works consist of doctrinal and critical commentaries on the Bible and philosophical treatises.—His eldest son, JUDA LEON A., was known as doctor, philosopher, and author: his principal work was *Dialoghi di Amore* (1535).

ABARIM, *âb'a-rîm* or *â-bâ'rîm*: range of mountains in the land of Moab, e. of the Jordan, whose highest point is Mt. Nebo, from which Moses saw the Promised Land.

ABARIS, *âb'â-rîs*, 'the Hyperborean': legendary sage of antiquity, 3d to 5th c. Accounts of him in various authors are contradictory and mythical. He is said to have ridden on an arrow given him by Apollo, to have subsisted without food, and to have freed the earth from a great plague. Of his works, nothing is known.

ABASCAL, JOSÉ FERNANDO: Spanish statesman: 1743-1821, June 30. He joined the army 1762, and assisted in the defense of Havana against the English 1796. He was gov. of New Galicia, was made 'Marques de la Concordia Española del Peru' by the Spanish cortes 1812, May 30; and was viceroy of Peru 1804-16.

## ABASE—ABATIS.

**ABASE**, *v.* *ă-bās'* [F. *abaïsser*, to lower—from mid. L. *abāssūrē*, to lower—from mid. L. *ad*, to; *bassus*, lowest]: to lower or depress; to bring low; to degrade; to cast down. **ABA'SING**, *imp.* **ABASED**, *pp.* *ă-bāst'*. **ABASE'MENT**, *n.* the act of humbling or bringing low.—**SYN.** of 'abase': to bring low; degrade; depress; humble; cast down; debase.

**ABASH**, *v.* *ă-bāsh'* [OF. *esbahir*, to set agape, to confound; Wall. *esbawi*, to astonish—from *barwi*, to look at with open mouth]: to put to confusion from any strong emotion; to confuse with guilt; to make ashamed. **ABASH'ING**, *imp.* **ABASHED**, *pp.* *ă-bāsh't'*, confounded; put to silence. **ABASH'MENT**, *n.* confusion from shame.—**SYN.** of 'abash': to confound; confuse; disconcert; shame.

**ABATE**, *v.* *ă-bāt'* [OF. *à batre*; F. *abattre*, to beat down: mid. L. and It. *abbättērē*, to overthrow—from *ab*, from; mid. L. *bättērē*; OF. *batre*, to beat]: to beat down; to lessen; to lower in price; to grow or become lower or less; to subside. **ABA'TING**, *imp.* **ABA'TED**, *pp.* **ABATABLE**, *a.* *ă-bā'tā-bl*, that can be lessened or abated. **ABATE'MENT**, *n.* a reduction; a lessening; the sum abated. **ABA'TER**, *n.* the person or thing that abates.—**SYN.** of 'abate': to lessen; decrease; subside; diminish; decline; intermit.

**ABATEMENT**, in Heraldry: a mark placed over a portion of the paternal coat-of-arms of a family, significative of some base or ungentleman-like act on the part of the bearer. Marks of abatement are generally repudiated by the best heraldic authorities. An **A.** is to be distinguished from such subtractive alterations in coats-of-arms (cadency, etc.) as signify juniority of birth, or removal from the principal house or senior branch of the family.

**ABATEMENT**, in Law: **A.**, in contracts, is a reduction made by the creditor, in return for the prompt payment of a debt. In mercantile law, the term is understood to mean the deduction sometimes made at the custom-house from the duties chargeable upon goods when they are damaged. **A.**, in pleading, means the overthrow of an action in consequence of some error committed in bringing or conducting it, when the plaintiff is not forever barred from bringing another action. Pleas relating to the jurisdiction of the court can only be inquired into under the general issue, and that is where no court of the country has jurisdiction of the cause, for in that case no action can be maintained. In regard to the person—the defendant may plead to the person of the plaintiff that there never was any such person in *rerum natura*. A nominal plaintiff in ejectment, however, may sustain an action. Death of plaintiff before the serving of the original writ may be pleaded in **A.** A suit brought by a lunatic under guardianship shall abate. **A.** of legacies is the reduction of legacies for the purpose of paying the testator's debts. **A.** of nuisances is the prostration or removal of them, and any person may do it, either by destruction or removal. See **ACTION: CUSTOMS DUTIES: FREEHOLD: LEGACY: MERCANTILE LAW: NUISANCE.**

**ABATIS**, *n.* *ăb'ă-tīs* or *ăb'ă-tē*, also spelt **AB'ATTIS**, **AB'ATISES**, Eng. plu. *-īs-ēs* [F. *abatis*, a felling, as trees; *abattre*,

## ABAT-JOUR—ABAT-VOIX.

to beat down: mid. L. *abbāticūs*—from *abbāttērē*: see ABATE]: a species of intrenchment, and one of the oldest. It consists of trees felled (*abattu*), and laid side by side, with the branches directed towards the enemy, the softer twigs being cut off. It thus forms a breastwork to fire over, and is very useful in field-works and in the out-works of regular fortifications, for retarding the enemy's advance.

ABAT-JOUR, n. *ă-bă'zhôr* [Fr. from *abattre* to throw down; *jour*, day]: a skylight or aperture admitting light from above; outside attachment to a window, like a box flaring open at the top to direct light downward into a room—also preventing a view from within of objects outside.

ABATTOIR, n. *ăb'ăt-wâr*, AB'ATTOIRS, Eng. plu. *-wârz* [F.]: a public slaughter-house. The use of this term passed into England from France, where were the first public establishments for the slaughter of animals used as food, on such a scale and with such sanitary arrangements as to obviate the injurious effects of private slaughter-houses in the midst of a crowded population. This great public improvement originated with Napoleon, who passed a decree in 1807 for the erection of public *abattoirs*. The extensive works connected with this design were nearly completed before the fall of the Empire; but it was not till the close of 1818 that the Parisian butchers ceased to slaughter in their private establishments. There are now a number of these abattoirs in Paris, which, both in architectural propriety and completeness of internal arrangement, are models of their kind. The charge per head is, for an ox, 6 francs, a cow 4 fr., a calf 2 fr., and a sheep 50 centimes. Other towns in France have similar abattoirs; and so have Mantua and Brussels. Owing to the large export trade in live, dead, and preserved meat from the United States, the slaughter-houses of Chicago, St. Louis, Kansas City, and New York, are large and perfectly equipped.

A BATTUTA, *â băt-tô'ta* [Ital.]: in music: in strict or measured time.

ABAT-VENT, n. *ă-bă'vông* [Fr. from *abattre*, to throw down; *vent*, wind]: series of broad slats or narrow roofs sloping downward and outward, filling the opening into a belfry, admitting air and light, while excluding rain and wind and directing the sound of the bells downward; a contrivance for protecting an opening from the wind; e.g., a revolving metallic cap with a wind vane, on a chimney to prevent wind from blowing down.

ABAT-VOIX, n. *ă-bă'vwö* [Fr., from *abattre*, to throw down; *voix* voice]: sounding board over a speaker's platform or over a pulpit, in a large room or space, to throw the speaker's voice down toward the audience.

## ABAUZIT—ABADIE.

**ABAUZIT**, *á-bō-zē'* FIRMIN: 1679—1767: French savant. b. at Uzès, Languedoc, of Protestant parentage. At the revocation of the Edict of Nantes, he was 6 years of age, and was sent to Geneva, where he studied with intense ardor, becoming versed in almost all the sciences. He travelled in England and Holland 1698, and made the acquaintance of Newton, Bayle, and other eminent writers. King William sought in vain to retain him in England; he returned to his mother in Geneva. He translated the New Test. into French 1726. He wrote numerous theological and archæological treatises, which mostly were burned by his Rom. Cath. heirs. His orthodoxy has been disputed. His personal qualities gained universal esteem. Rousseau, who could not bear to praise a contemporary, penned on A. his solitary panegyric.—A. d. in Geneva.

**ABB**, n. *áb* [AS.]: the yarn of a weaver's warp.

**ABBA**, n. *áb'bá* [Chald. or Syr., a father]: a name given in the East to church dignitaries—the names baba, papa, pope, are also used in same sense. **ABBACY**, n. *áb'bá-sí*, **AB-BACIES**, n. plu. *-bá-síz* [F. *abbaye*; OF. *abaie*; mid. L. *abbatiá*; It. *abbadia*; Sp. *abadia*, an abbey: Chald. *abba*, a father]: the dignity or rights and privileges of an abbot. **ABBATIAL**, a. *á-bá-shí-ál*, or **ABBATICAL**, a. *á-bát'í-kál*, of or pertaining to an abbey. **ABBÉ**, n. *áb'bé* [F.], a father; a title of courtesy or honor given to persons in many Catholic countries who have given themselves to the study of divinity and literature. **ABBESS**, n. *áb'bès* [It. *abbadessa*; mid. L. *abbatissá*]: a lady placed over a nunnery (see **MONK**). **ABBEY**, n. *áb'bí*, **ABBEYS**, n. plu. *áb'bíz*: the place of residence of religious persons secluded from the world, either male or female. **ABBOT**, n. *áb'bút*, the superior or chief person over an abbey or monastery. **AB'BOTSHIP**, n. the office of an abbot.—**SYN.** of 'abbey': convent; cloister; nunnery; monastery; priory.

**ABBADIE**, *á bá-dé'*, **ANTOINE** and **ARNOULD-MICHEL D'**: two brothers, French travellers, known for their researches in Abyssinia, from 1837 to 1845. According to their own account, their objects were purely ethnological and geographical; but they were regarded by certain English travellers and missionaries as agents employed by the French government for religious and political purposes; among the results of their travels are a catalogue of Ethiopian MSS., an Ethiopic version of the *Pastor* of Hermas, and the *Géodesie de l'Ethiopie*. Antoine issued, 1881, a Dictionary of the Amarinna (Amharic) language. Arnould published, 1868, his *Douze Ans dans la Haute-Ethiopie*; he has also distinguished himself by his study of the Basque language. Arnould d. 1893, Nov. 13.

**ABBADIE**, **JACQUES**, D.D.: French Prot. clergyman and author: about 1658—1727; b. Nay, in Bern; of humble family. Discerning friends provided for his education, in which he made such progress that at the age of 17 he received at Sedan his degree of doctor in theology. After several years as pastor of a French Prot. church in Berlin, he went with Marshal Schomberg to London, 1688, and be-

## ABBANDONAMENTÉ—ABBASSIDES.

came minister of the French church in the Savoy. King William appointed him dean of Killaloe, Ireland. He died in London.—Though an able and eloquent preacher, A. is known chiefly for his religious treatises, some of which were translated into other languages and circulated throughout Europe. His most important works are: *Traité de la Vérité de la Religion Chrétienne*; its continuation, *Traité de la Divinité de Jésus Christ*; and *L'Art de se connaître Soi-même*.

ABBANDONAMENTÉ, *ăb-băn'dôn-â mënt'ă* (Ital.), in Music: with self-abandonment; despondingly.

ABBAS, *ăb-băs'*: d. 652; the uncle of Mohammed, the Arabian prophet, and the chief promoter of his religion: founder of the family of the ABBASSIDES.

ABBAS, *ăb-băs'*, I., THE GREAT, sovereign of Persia. 1567–1623 (reigned 1585–1623); youngest son of Shah Mohammed Khodabendeh. At the age of 18, he took the throne, by rebellion against his father, having caused a brother to be assassinated. His reign was marked by a series of military triumphs. His first victory was over the Uzbecks, in a battle near Herat, whence they were driven out of his dominions. In 1605 he extended his empire beyond the Euphrates; 1611 he gained Shirwan and Kurdistan; 1618 he defeated the allied armies of the Turks and Tartars near Sultanich; 1623 Bagdad capitulated to him, after a year's siege, and by British help he wrested the island of Ormuz from the Portuguese. At his death, his empire extended from the Indus to the Tigris. He constructed highways and built bridges, and showed strange tolerance toward foreigners, especially Christians. His inconsistencies were glaring and his fame is blurred by almost incredible acts of cruelty. It is recorded that, through his insane jealousy, the eyes of his children were put out and one of his sons was slain.

ABBAS-MIRZA, *ăb'băs-mēr'zâ*: Persian prince and soldier: 1783–1833; son of the Shah Feth-Ali. A. had great talents, and saw the advantages of western civilization. With help of English officers, he applied himself to the reform of the army. He was the brave, but unsuccessful leader of the Persian army in wars with Russia, 1811–13 and 1826–28, in which Persia lost all share in Armenia. In making peace A. became a dependent on Russia, which compelled severance of his relations with England. He visited St. Petersburg 1829, was received by the czar with kindness, and loaded with presents.

ABBASSIDES, THE: n. *ăb-ăs'îd-ĕz* or *ăb ăs-sĕdz* [after *Abbas*, the paternal uncle of Mohammed; *-ides*, descendants of—from Gr. *ides*, patronymic postfix]: a line or dynasty of Arab caliphs, reigning from A.D. 749–1257, the most celebrated of whom was Haroun-al-Raschid, died 802. They ruled as caliphs of Bagdad, 749–1257, and afterwards exercised the spiritual functions of the caliphate in Egypt, under the protection of the Mamelukes, till 1517, when that dignity passed to the Turkish sultan. Descendants of this family still live in Turkey and India.

## ABBASSIDES—ABBE.

**ABBASSIDES, THE**: a reigning family in Persia; were descended from the race of the Sofi, who ascribed their origin to the caliph Ali. This race acquired dominion in 1500, and became extinct in 1736. Among them, Abbas I., surnamed the Great, was the most eminent. He came to the throne 1586; d. 1628. His reign was marked by a series of victories over the Turks. In alliance with England, he destroyed, in 1621, the Portuguese colony at Ormuz.

**ABBATE, *áb-bá'tū*, NICCOLO DELL, or NICCOLO ABATI**: 1509 or 12-71; b. Modena, d. Paris: artist in fresco-painting; a follower both of Raphael and Correggio; yet he rather blended the two styles in one than imitated either separately. His influence is traceable in art during the second half of the 16th c. His earlier works are to be seen at Modena; his later ones at Bologna, among which is his 'Adoration of the Shepherds,' considered his finest; but he is best known by the frescoes which he executed for the Castle of Fontainebleau, from the designs of Primaticcio. These, however, with the exception of the tableaux representing the history of Alexander the Great, were unfortunately destroyed in 1738, at the barbarous suggestion of an architect who wished to enlarge the building.

**ABBATUCCI, *á-bá-tú'chē***: Corsican family of diplomats and soldiers, zealous supporters of the Bonaparte dynasty. **JACQUES PIERRE CHARLES A. (1791-1857)** held important offices under Napoleon III.

**ABBÉ (see ABBA)**: the French name for an Abbot (q. v.), but often used in the general sense of a priest or clergyman. By a concordat between Pope Leo X. and Francis I. (1516), the French king had the right to nominate upward of 200 *Abbés Commendataires*, who, without having any duty to perform, drew a considerable proportion of the revenues of the convents. The hope of obtaining one of those sinecures led multitudes of young men, many of them of noble birth, to enter the clerical career, who, however, seldom went further than taking the inferior orders (see **ORDERS, HOLY**); and it became customary to call all such aspirants abbés—jocularly, Abbés of St. Hope. They formed a considerable and powerful class in society; and an abbé, distinguished by a short black or violet-colored frock, and a peculiar style of wearing the hair, was found as friend or ghostly adviser in almost every family of consequence. When a candidate obtained an abbey, he was enjoined to take holy orders; but many procured dispensation, and continued to draw the revenues as secular or lay abbots.

**ABBE, *áb'be*, CLEVELAND**: astronomer and meteorologist: b. New York, 1838, Dec. 3. He graduated at the Free Academy, and after a short service as mathematical teacher in Trinity Latin School, went to the Michigan Univ., where he taught mathematics and studied astronomy till 1860, when he took up his residence in Cambridge, Mass., and was engaged in work for the U. S. Coast Survey during the next four years. In 1865-6, he studied at the Imperial Observatory at Pulkova, Russia. Soon after his return he



## ABBESS—ABBEY.

was made director of the Cincinnati Observatory. In 1869, he began his labors in weather prognostication, which resulted in the establishment (1871) by the U. S. war dept. of the present weather bureau, of which Prof. Abbe was made first meteorologist under the general direction of the late Gen. Albert J. Myer, chief of the army signal service, and from his tri-daily tabulations and prognostications soon became known as 'Old Probabilities.' His scientific contributions to periodicals and books of reference are well known and of a high order.

**ABBESS** (see **ABBA**): the superior of a religious community of women, corresponding in rank and authority to an abbot (q.v.), except in not being allowed to exercise the spiritual functions of the priesthood—such as preaching, confession, etc.

**ABBETT, LEON**: lawyer: b. Philadelphia, 1836, Oct. 8; died 1894, Dec. 4. He studied at the public schools of Philadelphia, and in 1853 graduated from the high school. He entered the law office of U. S. Dist. Atty. Ashmead, where he remained until he was of age, when he began practicing law on his own account. In 1862, Oct. 8, he married, and immediately thereafter moved to Hoboken, N. J., and began to interest himself in politics. In 1864, he was elected, as a democrat, to the state assembly, where he served two terms. He was also corporation counsel of Hoboken for three years, and held the same office for the town of Union, N. J., for two years, and in 1876 for Jersey City. In 1869 and 70 A. represented the first dist. of Hudson in the state assembly, 1874 was elected senator from Hudson co., and 1877 chosen president of the senate. He was elected gov. of N. J. as a democrat in 1883 and 89, and in the interval practiced law. He d. 1894, Dec. 4.

**ABBEVILLE**, *âb-vîl'*: fortified town of France, dept. of Somme, on river Somme, 12 m. from its mouth, and 90 m. n.-by-w. of Paris. It is built partly on an island and partly on the banks of the river; the streets are narrow and ill paved, and the houses built mostly of brick and wood. The building most worthy of notice is the Church of St. Wolfran, commenced in the reign of Louis XII., whose façade is a splendid example of the flamboyant style, pierced by three deep portals, and surmounted by three high Gothic towers. The chief manufactures of A. are velvets, serges, cottons, linens, sacking, hosiery, jewelry, soap, glass-wares, glue, paper, etc. It is a station on the Railway du Nord, and connected by canals with Amiens, Paris, Lille, and Belgium. Vessels of between 150 and 200 tons can sail up the Somme as far as A. Pop. (1896) 19,669.

**ABBEY**: see **ABBA**: **MONASTERY**.

**ABBEY**: used in a legal sense in Scotland, signifies the sanctuary or protection against legal process afforded to a debtor by the A. of Holyrood. This privilege had its origin in the ancient regard for churches as a sanctuary and shelter for all who took refuge within their walls. The first instance known of a debtor seeking refuge in Holyrood Abbey—that of John Scott, 1531—is recorded by George Buchanan. See **SANCTUARY**.

## ABBEY—ABBON OF FLEURY.

**ABBEY**, *ăb'бі*, EDWIN AUSTIN: artist: b. Philadelphia, Penn., 1852; studied at the Pennsylvania Academy. He began to draw for books and magazines at an early age, and later took up painting in water-colors with considerable success. In 1883, he established himself in London, where he became a member of the London Institute of Water-colors. Much of his drawing has been done for publications by Harper & Bros., notably the poems of Robert Herrick, and Goldsmith's *She Stoops to Conquer*. His best-known paintings are *The Stage Office* (1876); *The Evil Eye* (1877); *Lady in a Garden* (1878); *Rose in October* (1879); *The Widower* (1883); and *Reading the Bible* (1884). He designed a series of paintings for the Boston Public Library, illustrating the "Holy Grail," and in 1902 was selected to paint the scene of the coronation of King Edward VII.

**ABBIATÉ-GRASSO**, *ăb-bē á'tā-grás'sō*: town of Italy, province of Milan, 14 m. w.-s.-w. from Milan city, on the Canal di Bereguardo. It has silk manufactures. Pop. 10,489.

**ABBEY**, *ăb'бі*, HENRY E.: theatrical manager: b. Akron, O., 1846. He learned the jewelry business, and for a time kept a store in Buffalo, N. Y. He began his theatrical career as advance agent for Edwin Adams 1870, and the following year was lessee of the Akron Opera-House. He was manager for John T. Raymond and for Miss Crabtree ('Lotta'), and in 1876 was manager of the Park Theatre, New York. He managed starring tours of Sarah Bernhardt, Adelina Patti, Adelaide Neilson, Mrs. Langtry, and Edwin Booth; managed simultaneously the Grand Opera House and Booth's Theatre, New York, and the Park Theatre, Boston, and the Lyceum Theatre, London. He opened the Metropolitan Opera House, New York, and conducted the tour in America of Henry Irving. His management had remarkable success. He d. in 1896.

**ABBON OF FLEURY**, *ă-bōng' or flēh-re'*, or **ABBO FLO-RIACENSIS**, *ăb'bō flō-rī-á-sēn'sīs*: 945-1004; b. near Orleans. He assisted Abp. Oswald of York in restoring the monastic system, and 970 was made abbot of Fleury; was twice sent to Rome by Robert the Wise, each time nullifying a threatened papal interdict. He was killed while quelling a monkish revolt. He wrote the *Lives of the Roman Pontiffs*, etc.

## ABBOT.

ABBOT ('father'—see ABBA): name originally given to any aged monk, afterward more strictly applied to the superior of a monastery or abbey. Since the 6th c., abbots have belonged to the clerical orders, but at first they were not necessarily priests. After the second Nicene Council, 787, abbots were empowered to consecrate monks for the lower sacred orders; but they remained in subordination under their diocesan bishops until the 11th c. As abbeys became wealthy, abbots increased in power and influence; many received episcopal titles; and all were ranked as prelates of the church next to the bishops, and had the right of voting in church-councils. Even abbesses contended for the same honors and privileges, but without success. In the 8th and 9th c., abbeys began to come into the hands of laymen, as rewards for military service. In the 10th c., many of the chief abbeys in Christendom were under lay-abbots (*Abbatēs Milites*, or *Abba-comites*), while subordinate deans or priors had the spiritual oversight. The members of the royal household received grants of abbeys as their maintenance, and the king kept the richest for himself. Thus, Hugo Capet of France was lay-abbot of St. Denis, near Paris. Sometimes convents of nuns were granted to men, and monasteries to women of rank. These abuses were, in a great measure, reformed during the 10th c. After the reformation of the order of Benedictines, monasteries arose that were dependent upon the mother-monastery of Clugny and without abbots, being presided over by *priors* or *pro-abbates*. Of the orders founded after the 11th c., only some named the superiors of their convents abbots; most, from humility or other cause, used the titles of prior, major, guardian, rector. Abbesses have almost always remained under the jurisdiction of their diocesan bishop; but the abbots of independent or liberated abbeys acknowledged no lord but the pope. In the middle ages, the so-called *Abbatēs Mitrati* frequently enjoyed episcopal titles, but only a few had dioceses. Before the period of secularization in Germany, several of the abbots in that country had princely titles and powers. In England there were a considerable number of *Mitred Abbots* who sat and voted in the House of Lords. The election of an abbot belongs, as a rule, to the chapter or assembly of the monks, and is afterward confirmed by the pope or by the bishop, according as the monastery is independent or under episcopal jurisdiction. But from early times, the pope in Italy has claimed the right of conferring abbacies, and the concordat of 1516 gave that right to the king of France. Non-monastic clergy who possessed monasteries were styled *Secular Abbots*; while their vicars, who discharged the duties, as well as all abbots who belonged to the monastic order, were styled *Regular Abbots*. In France, the abuse of appointing secular abbots was carried to a great extent previous to the Revolution. (See ABBÉ.) Often monasteries themselves chose some powerful person as their secular abbot, with a view of 'commending' or committing their abbey to his protection (*Abbés Commendataires*). In countries which joined in the Reformation, the possessions of abbey:

## ABBOT.

were mostly confiscated by the crown; but in Hanover, Brunswick, and Würtemberg several monasteries and convents were retained as educational establishments. In the Greek Church, the superiors of convents are called *Hegumeni* or *Mandrites*, and general abbots, *Archimandrites*.

ABBOT, BENJAMIN, LL. D.: educator: about 1762–1849, Oct. 25. He was a Harvard graduate of 1788. Dr. A. was best known as principal of Phillips Exeter Acad., N. H., 1811–38. Edward Everett, Jared Sparks, Daniel Webster, and George Bancroft were among his pupils.

ABBOT, CHARLES: see COLCHESTER, Lord.

ABBOT, EZRA, D.D., LL.D.: 1819, Apr. 28—1884, Mar. 21; b. Jackson, Me.; eminent biblical scholar, a layman. After studying at Phillips Exeter Acad. he graduated at Bowdoin College, 1840. In 1856 Dr. A. was appointed asst. librarian in Harvard Univ., and soon became an authority on bibliography. In 1872 he became prof. of New Test. criticism in Harvard Divinity School. He was one of the American Committee of New Test. Revisers. Dr. A. was a frequent contributor to the leading religious magazines, including the *Bibliotheca Sacra* (Andover) and the *Unitarian Review*, and was the author of a valuable examination into the "Authorship of the Fourth Gospel," which has taken rank among the highest authorities on that disputed theme. He also compiled the extraordinary bibliographical work attached as an appendix to Alger's *History of the Doctrine of the Future Life*, containing more than five thousand three hundred titles of works relating to the Nature, Origin, and Destiny of the Soul. This invaluable catalogue is provided with notes and alphabetical indexes, and has two appendixes containing titles of the more remarkable works on Modern Spiritualism, and relating to the Souls of Brutes. Dr. A. was an enthusiastic lover of nature, particularly of flowers and of the starry heavens. He was modest and retiring in disposition, a gentle, kindly Christian in character, a student all his life—industrious and painstaking, and a critic of rare judgment, of perfect candor, and accuracy.

ABBOT, *äb'öt*, GEORGE: 1562–1633: English prelate under the Stuarts—remarkable chiefly for his position as an active opponent of the policy of Laud and a despotic court: the son of a cloth-manufacturer in Guildford. After studying at Oxford, he was appointed chaplain to the Earl of Dunbar, 1608, with whom he went to Scotland. This appointment was the basis of A.'s subsequent promotion. For a short time he held the see of Lichfield and Coventry, and in 1610 was made archbishop of Canterbury. As a learned and able man, but more especially as a friend of toleration, he gained the esteem of all parties in an age of religious animosities. James I. employed the advice of A. in the most important affairs of state, and the prelate often opposed the arbitrary principles of the king. A.'s intolerance of Arminian doctrines was an exception to his general rule of conduct. His independent and liberal spirit incurred the displeasure of Charles I. A. was employed on the authorized translation of the Bible under James I.

## ABBOT.

ABBOT, GEORGE, 'The Puritan': English theologian 1603-1648, Feb. 2; b. Easington, East Yorkshire, England. He was a member for Tamworth in the Long Parliament, and fought against Prince Rupert during the civil war. He was remarkable for scholastic learning and critical ability; and though a layman he wielded a profound influence amid the fierce religious controversies of his time. He wrote the *Whole Book of Job Paraphrased* (1640); *Vindiciæ Sabbathi* (1641); and *Brief Notes upon the Whole Book of Psalms* (1651). A. is very commonly mistaken for others of the same name, e.g., a son of Sir Morris Abbot.

ABBOT, GORHAM DUMMER, LL.D.: educator: 1807, Sep. 3—1874, July 31; b. Hallowell, Me.; bro. of Jacob Abbott (though he spelled his name with one *t*). He graduated from Bowdoin College 1826; studied theology at Andover; ordained as a Congl. minister 1831; taught in New York; afterward settled in New Rochelle, N. Y., where he also did literary work for the Amer. Tract Soc. He established, with his brothers, the Abbot Institute, New York; and founded Spingler Institute 1847, conducting it till 1860. Dr. A. was noted as a biblical student; and was author of well-known Sunday school books; also *Family at Home*, *Pleasure and Profit*, *Mexico and the United States*.

ABBOT, *ăb'bot*, HENRY LARCOM: military engineer: b. Beverly, Mass., 1831, Aug. 13; graduated at West Point, 1854. He was attached to the office of the Pacific railroad surveys in Washington, and afterward to that of the delta of the Mississippi river. He served through the civil war; was wounded at the first battle of Bull Run; brevetted maj.gen. of vols., and brig.gen. U. S. A., 1865, Mar. 13; appointed maj. of U. S. engineers, 1865, Nov. 11, and promoted lieut.col. 1880, Mar. 31, and col. 1886, Oct. 12. He is the inventor of a system of submarine mines for coast defense, and has written and published numerous reports and treatises on engineering, ordnance, and military hydraulics.

ABBOT, JOEL: naval officer: 1793, Jan. 18—1855, Dec. 14; b. Westford, Mass. Early in the second war with England he was appointed midshipman and ordered to the frigate *President*, as aid and signal officer to Com. Rogers, by whom A. was recommended to Com. Macdonough, commanding the naval forces on Lake Champlain. The com., learning that the enemy had a large number of spars in store at Sorel, commissioned A. to destroy them. This he did, risking death as a spy by entering the enemy's lines in the disguise of a Brit. officer. But the hardships attending the exploit left him, on his return, in a state of nervous prostration from which he was long in rallying. For gallantry in this instance, as well as in an action off Cumberland Head, 1814, congress promoted him to lieut. and voted him a sword. He was placed in charge of a private craft, the *Mariana*, captured off the coast of Africa 1818. The crew mutinied on the home voyage, but A. held them at bay, and successfully brought the vessel to port. He was appointed commander 1838; was in command of the

## ABBOTSFORD—ABBOTT.

Boston navy-yard 1839-42; and commanded the *Macedonian*, of the Japan expedition 1852, succeeding Com. Perry as flag officer of the squadron. He d. in Hong Kong.

**ABBOTSFORD**: the seat of Sir Walter Scott; on the s. bank of the Tweed, a little above its confluence with the Gala, and about three miles from the town of Melrose. Before it became, in 1811, the property of Sir Walter, the site of the house and grounds of A. formed a small farm known by the name of *Clarty Hole*. The new name was the invention of the poet, whom it pleased thus to connect himself with the days when Melrose abbots passed over the fords of the Tweed. On this spot, a sloping bank overhanging the river, with the Selkirk Hills behind, he built at first a small villa, now the western wing of the castle. Afterwards, as his fortune increased, he added the remaining portions of the building, on no uniform plan, but with the desire of combining in it some of the features (and even actual remains) of those ancient works of Scottish architecture which he most venerated. The result was that singularly picturesque and irregular pile, which has been aptly characterized as 'a romance in stone and lime.' The present proprietor of A. is the Hon. Joseph Constable Maxwell, son of Lord Herries, who, in 1873, married a great-granddaughter of the novelist, and assumed the name of Scott. A. is visited annually by thousands of people of every nationality.

**ABBOTT, AUSTIN, LL.D.**: legal writer: b. Boston, 1831, Dec. 18; son of Jacob A. Removing to New York he graduated at the univ. of that city, and there began the practice of law. In early life he joined with his brothers Benjamin V. and Lyman in writing two novels, *Connect Corners* (1855), and *Matthew Caraby* (1858). He is known as the compiler, in part jointly with his bro. Benjamin V., of legal reports and of digests of federal and state laws of very high value to the legal profession. He d. 1896, Apr. 19.

**ABBOTT, BENJAMIN**: minister of the Meth. Episc. Chh.: 1732-1796, Aug. 14; b. on Long Island, N. Y. In youth he spent several years in Philadelphia, where he led a profligate life. At the age of 33, in N. J., he was converted under the preaching of an itinerant Methodist, and soon entered with fervent zeal on the work of preaching. After 16 years as a local preacher, he served as an itinerant in N. Y. and N. J., and from 1793 as an elder in Md. He lacked education; but possessed a natural eloquence which, with his fervid piety, gave him wonderful effectiveness in the pulpit, so that multitudes of rough and hardened men were melted under his appeals. He d. in Salem, N. J.

**ABBOTT, BENJAMIN VAUGHAN**: legal writer: 1830, June 4-1890, Feb. 17; b. Boston; son of Jacob A. He was educated at the Univ. of the City of New York; and was admitted to the bar 1851. He has been indefatigable and prolific in the the production (partly in conjunction with his bro. Austin) of vols. of digests of federal and state laws. He has written many other works on various departments of law; and was a member of the national commission to

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prepare a digest of the laws of the United States. His legal writings hold high rank. He d. in Brooklyn.

ABBOTT, CHARLES: see TENTERDEN, LORD.

ABBOTT, CHARLES CONRAD, M.D.: naturalist: b. Trenton, N. J., of Quaker ancestry, 1843, June 4; educated at an academy in Trenton. He studied medicine at the Univ. of Pennsylvania, and graduated 1865. Dr. A. is known as an archeologist, having investigated pre-historic remains in this country beyond any other scientist, and collected as many as 20,000 specimens, including stone implements, etc., which he has placed in the Peabody Museum, Cambridge, Mass. As a contributor to the scientific journals and on account of his valuable reports of government surveys, Dr. A. is highly esteemed, and also as the author of a number of important works, including *Primitive Industry, or Illustrations of the Handwork in Stone, Bone, and Clay of the Native Races of the North Atlantic Seaboard of America* (1881); *A Naturalist's Rambles about Home* (1884), *Upland and Meadow* (1886); *Waste-land Wanderings* (1887). Many of his valuable papers have appeared in *The Popular Science Monthly*, *Smithsonian Reports*, *Science*, *Nature*, etc.

ABBOTT, EDWARD: clergyman and editor: b. Farmington, Me., 1841, July 15; son of Jacob A. He graduated at the Univ. of New York 1860, and studied theology at Andover Seminary. In 1862-3, during the civil war, he served in the U. S. Sanitary Commission, in Washington, and with the Army of the Potomac. In 1863 he was ordained a Congregational minister, and 1865 became founder and pastor of the Pilgrim Congl. Church, Cambridge. In 1869 he resigned his pastorate to become one of the editors of the *Congregationalist*, Boston, from which position he withdrew 1877; and having taken orders in the Prot. Episc. Church, became rector of St. James's Parish, Cambridge, which position he still holds. In 1877 also he became part owner and editor-in-chief of the *Literary World*. For many years he was a frequent contributor to the *Christian Union* and the *Independent*, also contributing to the magazines. He has published several books, including *The Conversations of Jesus*; *Revolutionary Times*; a memoir of his father, in the 'memorial edition' of the *Young Christian*; and *Authorship of the Fourth Gospel, and Other Critical Essays* (1889).

ABBOTT, EDWIN, D.D.: English educator and author: b. London, 1838. He graduated at St. John's College, Cambridge, 1861; was ordained priest 1863; and was appointed head-master of City of London School 1865. He was the author of the clause in the education bill of 1870 forbidding the teaching of any religious catechism in the board-schools. He was also responsible for the provision which secures to the successful candidate from the schools under the London board free admission to City of London School. Dr. A. received the degree D.D. from the abp. of Canterbury 1872. His *Shakspearean Grammar and English Lessons for English People* are well known. He has

## ABBOTT.

published also: *Cambridge Sermons* (1875); *Bacon's Essays* (1876); *Through Nature to Christ, Bacon and Essex* (1877); *Oxford Sermons, Philochristus* (1878); *Onesimus* (1882).

ABBOTT, EMMA: see WETHERELL, EMMA (ABBOTT).

ABBOTT, JACOB: 1803-79; b. Maine: 1825 to 1829, a professor in Amherst College. In 1838 he began writing those simple and popular works, mainly for the young, by which his name was so widely known. His works numbered 300 vols.; but it is perhaps not too much to say, that of all works intended for the juvenile mind, his are the best in the English language. So thoughtful an instructor of youth even as Dr. Arnold speaks in high terms of *The Way to do Good*. Nearly all his books have been repeatedly republished in England, and some have been translated into various European and Asiatic languages. His most popular work is *The Young Christian*. Besides this, he has written *The Franconia Stories; Histories of Celebrated Persons*, 30 vols.; *Harper's Story books*, 36 vols.; etc.

ABBOTT, JOHN JOSEPH CALDWELL: Canadian statesman: b. 1821, Mar. 12—'93, Oct. 30; b. St. Andrews. He graduated at M'Gill College, Montreal; studied for the bar, and was admitted to practice. From 1859-67 he represented Argenteuil in the Canadian assembly, and was solicitor-gen. 1862. On the formation of the Dominion 1867 he entered parliament, but on account of certain disclosures, retired and resumed his private law practice. In 1879 he visited England in connection with the dismissal of the ministry, but re-entered the Canadian parliament a year later. He joined Sir John A. Macdonald's cabinet 1887, and succeeded him as premier 1891, June, resigning 1892, Nov., from failing health. He is credited with having originated many important acts of Canadian legislation, including the Insolvency Act, 1864.

ABBOTT, JOHN STEPHENS CABOT: 1805-77; b. Maine: clergyman and author, brother of Jacob. He was a graduate of Bowdoin College and Andover Theol. Sem. After studying systems of education in the United States and Europe, he was ordained in 1830, and was pastor of Congregational churches successively in Worcester, Roxbury, and Nantucket, Mass. The success of *The Mother at Home*, published by him, 1833, and of a succeeding work, *The Child at Home*, induced him to devote himself to literary work, mainly of a historical and religious character. Among his larger works are: *Kings and Queens; or, Life in the Palace; The French Revolution of 1789; The History of Napoleon Bonaparte; Napoleon at St. Helena; The History of Napoleon III.; History of the Civil War in America; Romance of Spanish History; The History of Frederick the Second of Prussia; and The History of Christianity*. He also wrote many smaller biographies. His most popular work is *The History of Napoleon Bonaparte*. His style was graphic and vivid, his historical grouping effective, his narrative and description lively, and his works had an enormous sale in this country and abroad. He d. in Fairhaven, Conn.



## ABBOTT—ABBREVIATE.

ABBOTT, LYMAN, D.D.: Congl. clergyman and editor. b. Roxbury, Mass., 1835, Dec. 18; son of Jacob A., the eminent author. In 1853 he graduated from the Univ. of the State of New York, and began the study of law. Three years later he entered into partnership with his brothers, Benjamin V. A. and Austin A., but afterward abandoned the bar and studied theology with his uncle, the Rev. John S. C. A. In 1860 he was ordained a minister in the Congl. Church, Farmington, Me., and the same year accepted a call to the First Congl. Church, Terre Haute, Ind., where he remained until 1865, when he was appointed sec. of the American Freedman's Commission, which office he held till 1868. During 1866-69 he was pastor of the New England Congl Church, New York, but in the latter year he resigned to engage in literary work. He was joined with his brothers in the authorship of two novels, *Cone-Cut Corners* (1855) and *Matthew Caraby* (1858). These were his only attempts at fiction, his principal works being the following: *The Result of Emancipation in the United States* (1867); *Old Testament Shadows of New Testament Truths* (1870); *Jesus of Nazareth: His Life and Teachings* (1869); *Illustrated Commentary on the New Testament*, 4 vols. (1875 et seq.); *A Layman's Story* (1872); a *Dictionary of Religious Knowledge* (1872); *Life of Henry Ward Beecher* (1883); *Family Worship* (1883); *In aid of Faith* (1886); *Signs of Promise* (1889); and *The Evolution of Christianity* (1892). Dr. A. has had important editorial connections with *Harper's Monthly Magazine*, was the editor of *The Illustrated Christian Weekly*, published by the American Tract Soc.; and was associated with Henry Ward Beecher in editing *The Christian Union*, of which paper, now *The Outlook*, he afterward became editor-in-chief. He has also edited two volumes of sermons and a selection of writings by Mr. Beecher. After Mr. Beecher's death, Dr. A. acceded to a request from Plymouth Church that he should act as pastor till a permanent selection was made. 1888, May 25, he was unanimously called to the permanent pastorate, and 1890, Jan. 16, was formally installed at a council of ministers and laymen. He resigned the pastorate in 1898.

ABBOT OF MISRULE, or ABBOT OF FOOLS, or ABBOT OF UNREASON: leader of the festival revels of the middle ages in England and Scotland, by some supposed to have originated in the monastic festivals.

ABBREVIATE, v. *ăb-brĕ'vĭ-ăt* [mid. L. *abbrĕviātŭs*, shortened—from L. *ab, brĕvis*, short]: to shorten; to reduce to a smaller size; to abridge. ABBRE'VIA'TING, imp. ABBRE'VIA'TED, pp. ABBREVIATION, n. *ăb-brĕ'vĭ-ă'shŭn*, the act of shortening; a part of a word used for the whole. ABBRE'VIA'TOR, n. one who. *The Abbreviators* were a body of 70 papal scribes assigned to the work of preparing in due form the pope's bulls, briefs, and decrees. ABBREVIATORY, a. *ăb-brĕ'vĭ-ă-tŏr-ĭ*, shortening. ABBRE'VIATURE, n. *-vĭ-ă-tŭr*, an abbreviation.—SYN. of 'abbreviate': to abridge; curtail; contract.

## ABBREVIATIONS.

**ABBREVIATIONS**: contrivances in writing for saving time and space. They are of two kinds, consisting either in the omission of some letters or words, or in the substitution of some arbitrary sign. In the earliest times, when uncial or lapidary characters were used, A. by omission prevailed, such as we find on the inscriptions on monuments, coins, etc. In these, the initial letter is often put instead of the whole word, as M. for Marcus, F. for Filius. It was after the small Greek and Roman letters had been invented by transcribers for facilitating their work, that signs of abbreviation, or characters representing double consonants, syllables, and whole words, came into use. Greek manuscripts abound with such signs, and often only one that has expressly studied Greek palæography can interpret them. From the manuscripts, they passed into the early printed editions of Greek books, and it is only recently that they have quite disappeared. Among the Romans, signs of abbreviation were called *notæ*, and professed scribes who employed them were *notarii*. To such an extent was the system carried, that L. Annæus Seneca collected and classified 5,000 A. The same practice has prevailed in all languages, but nowhere more than in the Rabbinical writings.—The A. used by the ancient Romans were continued and increased in the middle ages. They occur in inscriptions, manuscripts, and legal documents; and the practice continued in these long after the invention of printing had made it unnecessary in books. An act of parliament was passed in the reign of George II. forbidding the use of A. in legal documents. Owing to these A., the deciphering of old writings requires special study and training, and forms a separate science called Diplomatics (q.v.), on which numerous treatises have been written. Tassin's *Nouveau Traité de Diplomatique* (6 vols., Par. 1750-65) contains, in the third volume, an exposition of Roman A. Other works on the subject are—Gatterer's *Abriss der Diplomatik* (2 vols., Gott. 1798); Pertz's *Schrifttafeln* (4 Nos., Hannov. 1846); and Kopp's *Palæographica Critica* (4 vols., Manh. 1817-29).—In ordinary writing and printing, few A. are now employed. The sign &, originally an abbreviation for the Lat. *et*, 'and,' is perhaps the only one of the arbitrary kind still used. It does not stand properly for a *word*, for it is used in different languages, but for an idea, and is as much a symbol as +. The A. by using the initials of Latin words are now confined chiefly to titles, dates, and a few phrases; as, M.A. (*magister artium*), Master of Arts; A.D. (*anno domini*), in the year of our Lord; *e.g.* (*exempli gratiâ*), for example. Many are now formed from English words in the same way; as, F.G.S., Fellow of the Geological Society; B.C., before Christ.—Most of the sciences and arts have sets of signs of abbreviation, or symbols, peculiar to themselves. These are of great use both for brevity and clearness. See **CHEMICAL SYMBOLS**, etc.

The following are the more important A. in general use :

A, or <i>α</i> ( <i>Alpha</i> .) Greek A, a.	A. Acre, Acting, Adjective.
A., or Ans. Answer.	Afternoon, Alto.
a., arc (of the French metric system).	A. ( <i>Commerce</i> .) Accepted.
	A1. First class or rate.

## ABBREVIATIONS.

- a., or @. At, or to.  
a., or aa. (*Ana, Gr. ἀνά*) In *med.*, of each the same quantity.  
A. A. Associate of Arts.  
Aa. Aaron.  
AAA. (*Amalgama.*) Amalgamation. [See AMM.]  
A. A. A. G. Acting Assistant Adjutant General.  
A. A. A. S. American Association for the Advancement of Science, American Academy of Arts and Sciences.  
AA. C. Antarctic Circle.  
A. A. G. Assistant Adjutant General.  
A. A. Q. M. Acting Assistant Quarter Master.  
A. A. Q. M. G. Acting Assistant Quarter Master General.  
A. A. S. American Academy of Sciences.  
A. A. S. (*Academicæ Americancæ Socius.*) Fellow of the American Academy.  
A. A. S. S. (*Americanæ Antiquariæ Societatis Socius.*) Member of American Antiquarian Society.  
A. B. Able-bodied seamen.  
A. B. (*Artium Baccalearius.*) Bachelor of Arts. [See B. A.]  
Abb. Abbot, or Abbess.  
Abbr., or Abbrev. Abbreviated, or Abbreviation.  
A. B. C. F. M. American Board of Commissioners for Foreign Missions.  
Ab ex. (*Ab extra.*) From without.  
A. B. I. S. W. Associated Brotherhood of Iron and Steel Workers.  
Α·Β·Κ· (*Αλφα Βετα Καππα.*) Alpha Beta Kappa (College Society).  
Abl. Ablative.  
Abp. Archbishop.  
Abr. Abridge, or Abridged.  
A. B. S. American Bible Society.  
Abs. (*med.*) Absinthe.  
Abs. re. (*Absente reo.*) *Law.* While the defendant was absent.  
A. C. (*Ante Christum.*) Before Christ.  
A. C. Army Corps.  
Ac. Acre.  
Acad. Mus. Academy of Music.  
Acc. Accusative.  
Acc., or acct. Account.  
Acct. Cur. Account Current.  
Acct. Sales. Account of sales.  
A. C. G. S. Acting Commissary General of Subsistence.  
A. C. S. American Colonization Society.  
A. C. S. Acting Commissary of Subsistence.  
Act. Active.  
A. C. U. L. Alden's Cyclopedic of Universal Literature.  
A. D. (*Anno Domini.*) In the Year of our Lord.  
a. d. After date.
- Ad. or Adv. Adverb, Advertisement.  
Adag. (*Adagio.*) In *mus.*, a slow movement.  
A. D. C. Aide-de-Camp.  
Ad. Ex. Adams Express.  
Ad. Inf. (*Ad Infinitum.*) Without limit.  
Ad. Int. (*Ad Interim.*) In the meanwhile.  
Adj. Adjective.  
Adjt. Adjutant.  
Adjt. Gen., or A. G. Adjutant General.  
Ad. lib., or Ad. libit. (*Ad libitum.*) At pleasure.  
Adm. Admiral, Admiralty.  
Adm. Co. Admiralty Court.  
Admr. Administrator, Administration.  
Admx. Administratrix.  
Α·Δ·Φ· (*Αλφα Δελτα Φι.*) Alpha Delta Phi (College Society).  
Ad v. (*Ad valorem.*) At the value.  
Adv. Advocate, Advent.  
Æ., or Æt. (*Ætatis.*) Of age, Aged.  
Af., or Afr. Africa, African.  
A. F. A. M. Ancient Free and Accepted Masons.  
A. E. I. O. U. (*Austriæ est Imperare Orbi Universo, or Alles Erdreich Ist Oesterreich Unterthan.*) It is given to Austria to Rule the whole Earth. (The device of Austria first adopted by Frederick III.)  
A. G. Adjutant General, Accountant General.  
Ag. (*Argentum.*) Silver.  
Agr., Agri., or Agric. Agriculture.  
A. G. S. S. American Geographical and Statistical Society.  
Agt. Agent.  
A. H. (*Anno Hegiræ.*) In the year of the Hegira, or flight of Mohammed.  
A. H. M. S. American Home Missionary Society.  
A. I. American Institute.  
A. I. A. American Institute of Architecture.  
A. I. G. Assistant Inspector General.  
Al. Aluminium.  
Ala. Alabama.  
Alas. Alaska Territory.  
Ald. Alderman.  
Alex. Alexander.  
Alf. Alfred.  
Ali. (*Alibi.*) Elsewhere.  
Alt. Altitude.  
Alum. Yalen. (*Alumnus Yalensis.*) Alumnus of Yale College.  
A. M. (*Artium Magister.*) Master of Arts. [See M. A.] (*Ante Meridiem.*) Before noon. (*Anno Mundi.*) In the Year of the World. (*Ante Mortem.*) Before death.  
Am. Amos.

## ABBREVIATIONS.

- Am., or Amer. America, American.
- A. M. A. American Medical Association.
- A. M. C. Alden's Manifold Cyclopedias.
- Am. Ant. Soc. American Antiquarian Society.
- Am. Asn. Soc. Sci. American Association for Advancement of Social Science.
- Am. Col. Soc. American Colonization Society.
- Am. Cyc. American Cyclopædia.
- Am. Ex. American Express.
- Amer. Phar. Soc. American Pharmaceutical Society.
- A. M. G. Acting Major General.
- Amh. Coll. Amherst College.
- Am. L. of H. American Legion of Honor.
- AMM. (*Amalgama.*) Amalgamation. [See AAA.]
- Am. Mus. Nat. Hist. American Museum of Natural History.
- Am. Num. Arch. Soc. American Numismatic and Archæological Society.
- Am. Philog. Soc. American Philological Society.
- Am. Phil. Soc. American Philosophical Society.
- Amt. Amount.
- Am. Vet. Coll. American Veterinary College (New York).
- An. (*Anno.*) In the year.
- An., or Ans. Answer.
- Ana. (*med.*) In equal quantity.
- An. A. C. (*Anno Ante Christum.*) In the Year before Christ.
- Anal. Analysis.
- Anat. Anatomy.
- Anat. Mus. Anatomical Museum.
- Anc. Ancient, Anciently.
- Anc. Hist. Ancient History.
- And. Andrew, André, Andrea.
- And. Theol. Sem. Andover Theological Seminary.
- Ang. (*Anglice.*) In English.
- Ang.-Sax. Anglo-Saxon.
- Anno. Annotate, Annotation.
- Anon. Anonymous.
- Ans. Answer.
- Ant., or Antiq. Antiquity, or Antiquities.
- Anth. Anthony.
- Anthr. Soc. Anthropological Society.
- A. O. F. Ancient Order of Foresters.
- A. O. H. Ancient Order of Hibernians.
- Aor. Aorist, Aoristic.
- A. O. S. S. (*Americanæ Orientalis Societatis Socius.*) Member of the American Oriental Society.
- A. O. U. W. Ancient Order of United Workmen.
- Ap. Apostle, April, Appius.
- Ap. (*Apud.*) In the writings of,
- As quoted by.
- A. P. H. A. American Public Health Association.
- A. P. M. Assistant Pay Master.
- Apo. Apogee.
- Apoc. Apocrypha, Apocalypse.
- Apen. Apennine.
- Apr. April.
- A pri. (*A priori.*) From something prior.
- Aq (*Aqua.*) Water.
- A. Q. M. Assistant Quarter Master.
- A. Q. M. G. Assistant Quarter Master General.
- A. R. (*Anno Regni.*) In the Year of the Reign.
- A. R. A. Associate of the Royal Academy.
- Arab. Arabic, Arabian.
- Arc. Circ. Arctic Circle.
- Arch. Architect, Architecture, Archibald.
- Archd. Archdeacon.
- Arg. Rep. Argentine Republic.
- A. R. H. A. Associate of the Royal Hibernian Academy.
- Arith. Arithmetic.
- Ariz. Ter. Arizona Territory.
- Ark. Arkansas.
- Arn. Arnold.
- Arr. Arrived.
- A. R. R. (*Anno Regni Regis, or Reginae.*) In the year of the King's or Queen's Reign.
- A. R. S. A. Associate of the Royal Scottish Academy.
- A. R. S. S. (*Antiquariorum Regiæ Societatis Socius.*) Fellow of the Royal Society of Antiquaries.
- Art. Article, Artemus.
- Arth. Arthur, Arthurean.
- A. S. Academy of Science.
- A. S., or Assist. Sec. Assistant Secretary.
- A. S. Assistant Surgeon.
- As. Arsenic, Arkansas, Astronomy, Asia, Asiatic.
- A. S. A. American Statistical Association.
- A. S., A-S., A S., A. Sax., or Ang.-Sax. Anglo-Saxon.
- A. S. A. S. Member of the American Statistical Association.
- A. S. C. E. A. American Society of Civil Engineers and Architects.
- A. S. P. C. A. American Society for Prevention of Cruelty to Animals.
- Ass'td. Assorted.
- Asst. Surg. Assistant Surgeon.
- A. S. S. U. American Sunday School Union.
- Astrol. Astrology.
- Astron. Astronomy.
- A. T. S. American Tract Society, American Temperance Society.
- Ats. At suit of.
- Atty. Attorney.
- Att.-Gen. Attorney-General.
- At. Wt. Atomic Weight.

## ABBREVIATIONS.

- Au.** (*Aurum.*) Gold.  
**A. U. A.** American Unitarian Association.  
**Aub.** Theol. Sem. Auburn Theological Seminary.  
**A. U. C.** (*Anno Urbis Conditæ*, or *Ab Urbe Condita.*) In the Year from the Building of the City—(Rome).  
**Aud. Treas. Dept.** Auditor Treasury Department.  
**Aug.** August.  
**Aur.** (*Aurum.*) Gold.  
**Auth. Ver.,** or **A. V.** Authorized Version (of the Bible).  
**Av.** Average, Avenue.  
**Ave.** Avenue.  
**Avoir.** Avoirdupois.  
**A. Y. M.** Ancient York Masons.  
**B,** or **β.** (*Beta.*) Greek B, b.  
**B.** Base or Bass (in music), Baron, Book, Bay.  
**b.** Born, Book.  
**B. A.** Bachelor of Arts. [See **A. B.**] British America.  
**Ba.** Barium.  
**Baa.** Baal, Baalam.  
**Bach.** Bachelor.  
**B. Agr.** Bachelor of Agriculture.  
**Bald.** Baldwin.  
**Balt.** Baltimore.  
**Bank.** Banker, Banking.  
**Bar.** Barrel, Baruch, Barometer, Barrister.  
**B. Arch.** Bachelor of Architecture.  
**Bart.,** or **Bt.** Baronet.  
**Bat.** Battery, Battalion.  
**B. B.** Bill Book.  
**B. B. C.** Base Ball Club.  
**Bbl.** Barrel, Barrels.  
**B. C.** Before Christ, Board of Control.  
**B. C. L.** Bachelor of Civil Law.  
**B. D.** Bachelor of Divinity.  
**Bd.** Bound, Bond, Bound in.  
**Bds.** Boards.  
**Be.** (*Beryllium.*) Glucinum.  
**Beau.** Beaufort, Beauregard.  
**Benj.** Benjamin.  
**Berks.** Berkshire.  
**Bev.** Beverley.  
**B F.,** or **B. fir.** Firkin of Butter.  
**B. I.** British India.  
**Bi.** Bismuth.  
**Bib.** Bible, Biblical.  
**Biog.** Biography.  
**Bis.** Bismarck, Bismuth, Bissextile.  
**Bisc.** Biscayan.  
**Bk.** Book, Bank.  
**Bk. Comr.** Bank Commissioner.  
**Bk. Ex.** Book Exchange.  
**Bk.-Kr.** Book-Keeper.  
**B. L.,** Bachelor of Laws. [See **LL. B.**]  
**B/L.** (*com.*) Bill of Lading.  
**Bl,** or **Bls.** Barrel, Barrels.  
**B. Lit.** (*Baccalaureus Litterarum.*) Bachelor of Letters.  
**B. LL.** (*Baccalaureus Legum.*) Bachelor of Laws.  
**B. M.** (*Baccalaureus Medicinæ.*) Bachelor of Medicine. [See **M. B.**]  
**B. M.** (*Beatæ Memorix.*) Of blessed memory.  
**B. M. E.** Bachelor of Mechanical Engineering, Bachelor of Mining Engineering.  
**B. Mech.** Bachelor of Mechanics.  
**B. Mus.** Bachelor of Music.  
**Bohem.** Bohemian.  
**Bon.** Bonaparte.  
**Bor.** Borough, Boron.  
**Bot.** Bought.  
**Bot.** Botany, Botanical, Botanist.  
**Boul.** Boulevard.  
**Bowd. Coll.** Bowdoin College.  
**Bp.** Bishop.  
**B/P.** Bill of Parcels.  
**B. Pay.** Bills Payable.  
**B. P. B.** Bank Post Bills.  
**B. P. O. Elks.** Benevolent and Protective Order of Elks.  
**B. R.** The King's or Queen's Bench.  
**Br.** Brother, Bromine, Brig.  
**Braz.** Brazil, Brazilian.  
**B. Rec.** Bills Receivable.  
**Brig.** Brigade, Brigadier.  
**Brig. Gen.** Brigadier General.  
**Brit.** British, Britain, Britannia, Britannicus.  
**Brit. Mus.** British Museum.  
**Bro., Bros.** Brother, Brothers.  
**Brook. N. Y.** Brooklyn Navy Yard.  
**Br. Univ.** Brown University.  
**B. S.,** or **B. Sc.** Bachelor of Science.  
**B/S.** Bill of Sale.  
**Bu,** or **Bush.** Bushel.  
**Bucks.** Buckinghamshire.  
**Burg.** Burgomaster, Burgess.  
**B. V.** (*Bene Vale.*) Farewell, (*Beata Virgo.*) Blessed Virgin.  
**B. Vet. Med.** Bachelor of Veterinary Medicine.  
**B. V. M.** Blessed Virgin Mary.  
**B. W. T. A.** British Women's Temperance Association.  
**C.** Chairman, Carbon, Church, Consul, Chapter.  
**C.** (*Centum.*) A hundred, Cent, Centime.  
**C.** (*Congius.*) Gallon.  
**C/—.** Currency, Coupon.  
**Ca.** (*Circa.*) About.  
**Cc.** Centare (metric system).  
**C. A.** Commercial Agent, Comptroller (or Controller) of Accounts, Chief Accountant, Chartered Accountant, Confederate Army.  
**Ca.** Canada, Canadian.  
**Cadav. (med.)** Cadaver.  
**Cal.** Calcium, California.  
**Cal. (Calendæ.)** Calends, Calendar.  
**Cam. (med.)** Camphor.  
**Cam.,** or **Camb.** Cambridge.  
**Camb. Obs.** Cambridge Observatory.

## ABBREVIATIONS.

Jan. Canada, Canon.	Chap. Chapter, Chaplain.
Cant. Canticles.	Char. Charter.
Cantab. ( <i>Cantabrigiensis</i> .) Of Cambridge.	Chas. Charles.
Cantuar. ( <i>Cantuarensis</i> .) Of Canterbury.	Chat. Chattel.
Cap., or c. ( <i>Caput Capitulum</i> .) Chapter.	Chem. Chemistry, Chemical, Chemist.
Cap. Capitol, Capital, Capital Letter.	Chey. Cheyenne.
Caps. Capitals.	Chf. Chief.
Capt. Captain.	Chf. Con. Chief of Construction.
Capt. Gen. Captain General.	Chf. E., or Chf. Eng. Chief Engineer.
Car. Carat.	Chf. Med. Pur. Chief Medical Purveyor.
Card. Cardinal.	Chf. Ord. Chief of Ordnance.
Ca. Resp. ( <i>Capias ad respondendum</i> .) A legal writ.	Chftn. Chieftain.
C. A. S. ( <i>Connecticutensis Academicæ Socius</i> .) Fellow of Connecticut Academy.	Chi. (χ) Greek Ch.
Ca. Sa. ( <i>Capias ad satisfaciendum</i> .) A legal writ.	Chin. Chinese.
Cash. Cashier.	Chlo. Chloroform, Chloride.
Cast. Castle.	†n., or Xn. Christian.
Cat., or Catal. Catalogue.	†nty., or Xnty. Christianity.
Cath. Catherine, Catholic, Cathedral.	Chr. Christopher, Christian.
Cath. Inst. Catholic Institute.	†mas., or Xmas. Christmas.
Caus. Causative.	Chron. Chronicles.
Cav. Cavalry.	Cic. Cicero.
C. B. ( <i>Communis Bancus</i> .) Common Bench.	Cin. Cincinnati.
C. B. Companion of the Bath, Cape Breton.	Cit. Citizen, Cited.
Cb. Columbium.	Civ. Civil, Civilian.
C. C. Cubic Centimetre.	C. J. Chief Justice.
C. C. Caius College. ( <i>Compte Courante</i> ) Account Current, Crown Clerk, County Court, County Clerk, Consular Clerk, County Commissioner.	Cl. Clergyman, Chlorine, Clerk.
C. C. A. Chief Clerk of the Admiralty.	Cl. Centilitre (metric system).
C. C. C. Corpus Christi College, Christ's College, Cambridge.	C. L. A. Chautauqua Lake Assembly.
C. C. P. Court of Common Pleas.	Class. Classical.
Cd. Cadmium.	Cleop. Cleopatra.
Cé. Cerium.	Cleve. Cleveland.
C. E. Civil Engineer, Canada East.	Cld. Cleared.
Cel. or Ce't. Celtic.	Clk. Clerk.
Cen. Century, Centennial.	C. L. S. C. Chautauqua Literary and Scientific Circle.
Cent. ( <i>Centum</i> .) A hundred.	C. M. ( <i>Congregationis Missionum</i> .) Vincentians or Lazarists.
Cf. ( <i>Confer</i> .) Compare.	C. M. ( <i>Chirurgiæ Magister</i> .) Master in Surgery, Certificated Master, Common Metre.
C. F. I. Cost, Freight, and Insurance.	C. M. G. Companion of the Order of St. Michael and St. George.
C. G. Commissary General, Captain of the Guard, Coast Guard.	Co. Company, County Cobalt.
C. G. H. Cape of Good Hope.	C. O. Colonial Office, Crown Office, Criminal Office.
C. G. S. Commissary General of Subsistence.	Coad. ( <i>Cum jure suc.</i> ) Coadjutor, with right of succession.
C. H. Court House, Captain of the Host, Custom House.	Coad. Bp. Coadjutor Bishop.
Ch. Church, Chapter, Charlotte, Charles.	Coch., or Cochl. ( <i>Cochleare</i> .) A teaspoonful, a spoonful.
Cham. ( <i>med.</i> ) Chamomile.	C. O. D. Cash (or collect) or delivery.
Chamb. Chamberlain.	Cog. Cognate. Cognate with.
Chal., or Chald. Chaldron, Chaldee, Chaldaic, Chaldean.	Col. Colonel, Colossians, Colorado, Column, Colonial, Color.
Chamb. Encyc. Chambers's Encyclopædia.	Col. Corp. Color Corporal.
Chanc. Chancellor.	Col. Gd. Color Guard.
	Coll. Collector, Colleague, College, Collection.
	Coll., or Colloq. Colloquial, Colloquially.
	Colo. Colorado.
	Col. Sergt.. Color Sergeant.
	Com. Commerce, Committee, Commentary, Commissioner, Commodore, Commune, Community, Common, Commoner, Commission, Communication.

## ABBREVIATIONS.

- Com. Agric.** Committee on Agriculture, Commissioner of Agriculture.  
**Com. Arr.** Committee of Arrangements.  
**Com. Bk.** Committee on Banks.  
**Com. Cont. Elec.** Committee on Contested Elections.  
**Com. Cont. Ex.** Committee on Contingent Expenses.  
**Com. Dept.** Commissary Department.  
**Comdg.** Commanding.  
**Comdt.** Commandant.  
**Com. Ed.** Committee on Education.  
**Com. Fin.** Committee on Finance.  
**Com. Fin. Adj.** Committee on Final Adjournment.  
**Com. For. Rel.** Committee on Foreign Relations.  
**Com. Gov. Mes.** Committee on Governor's Message.  
**Com. H.** Committee of the House.  
**Com. Inc.** Committee on Incorporations.  
**Comm.** Commentary.  
**Com. M. and R.** Committee on Manual and Roll.  
**Com. Merch.** Commission Merchant.  
**Com. Mil. Aff.** Committee on Military Affairs.  
**Commo.** Commodore.  
**Com. Off.** Commissioned Officer.  
**Comp.** Compare, Compound, Compositor, Composition, Comparative, Compounded.  
**Compar.** Comparative.  
**Com. Pard.** Commissioner of Pardons.  
**Com. Pub. Gds. and Bldgs.** Committee on Public Grounds and Buildings.  
**Com. R. R.** Committee on Railroads.  
**Com. Sen.** Committee of the Senate.  
**Com. Sergt.** Commissary Sergeant.  
**Com. S. P.** Committee on State Prison.  
**Com. Unf. Bus.** Committee on Unfinished Business.  
**Com. Ver.** Common Version (of the Bible).  
**Con.** (*Contra.*) Against, in opposition.  
**Con.** Constitution, Constanti-nople, Concordance, Contract.  
**Conch.** Conchology.  
**Con. Cr.** Contra credit.  
**Cong.** Congress, Congregation, Congregationalist.  
**Cong. Lib.** Congressional Library.  
**Cong. Rec.** Congressional Record.  
**Conj.** Conjunction.  
**Conn., Conn't., Cov., or Ct.** Connecticut.  
**Con. Sect.** Conic Sections.  
**Cons. et Prud.** (*Consilio et Prudentia.*) By counsel and prudence.  
**Cons. Mus.** Conservatory of Music.  
**Cont.** (*Contra.*) On the other hand.  
**Cont. Bon. Mor.** (*Contra bonos mores.*) Against good manners.  
**Contr.** Contradict, Contraction.  
**Conv.** Convent.  
**Cop.** Copper, Copernican.  
**Cop., or Copt.** Coptic.  
**Cor.** Correspondent, Correction, Corinthians, Coroner.  
**Cor. Mem.** Corresponding Member.  
**Corn. Univ.** Cornell University.  
**Corol.** Corollary.  
**Corr.** Corrupt, Corruption.  
**Cor. Sec.** Corresponding Secretary.  
**Cos.** Cosine.  
**Coss.** (*Consules.*) Consuls.  
**C. P.** Common Pleas, Chief Patriarch, Court of Probate, Clerk of the Peace.  
**C. P. C.** Clerk of the Privy Council.  
**C. P. S.** (*Custos Privati Sigilli.*) Keeper of the Privy Seal.  
**C. R.** (*Custos Rotulorum.*) Keeper of the Rolls. (*Civis Romanus.*) A Roman Citizen. (*Carolus Rex.*) King Charles. (*Carolina Regina.*) Queen Caroline.  
**Cr.** Creditor, Credit, Chromium, Crown.  
**Cres.** (*mus.*) Crescendo.  
**Cri.** Crime, Crimean.  
**Crim.** Criminal, Criminally.  
**Crim. Con.** Criminal Conversation or Adultery.  
**C. R. P.** (*Calendarium Rotulorum Patentium.*) Calendar of the Patent Rolls.  
**Crystal., or Crystallog.** Crystallography.  
**†, or X.** Cross.  
**†John (or other name.)** The signature of a Roman Catholic Bishop.  
**Cs.** Cæsium.  
**C. S.** Court of Sessions, Commissary of Subsistence.  
**C. S.** (*Custos Sigilli.*) Keeper of the Seal.  
**C. S. A.** Confederate States of America, Confederate States Army.  
**C. S. I.** Companion of the Star of India.  
**C. S. N.** Confederate States Navy.  
**C. S. O.** Chief Signal Officer.  
**Ct. Cent.** (*Centum.*) A hundred.  
**Ct.** Connecticut, Court, Count.  
**C. T.** Certificated Teacher.  
**C. Theod.** (*Codex Theodosianus.*) The Theodosian Code.  
**Cts.** Cents.

## ABBREVIATIONS.

- Cu. (*Cuprum.*) Copper.  
 Cum d/— With dividend.  
 Cur., or Curt. Current (*i.e.*, this month).  
 Cwt. (Lat. *Centum*, a hundred, and Eng. *weight.*) Hundred weight.  
 Cyc. Cyclopedia.  
 Cym. Cymric.  
 Δ, or δ. (*Δελτα.*) Greek D. d.  
 D. David, Duke, Duchess, Dowager, Didymium, Dutch, Dose.  
 D. Day, Died, Dime, Deputy, Daughter, Degree. (*Denarius*, or *Denarii.*) A penny, or pence.  
 D. Five Hundred  
 D. A. G. Deputy Adjutant General.  
 Dak. Dakota.  
 Dan. Daniel, Danish.  
 Dart. Coll. Dartmouth College.  
 Dat. Dative.  
 D. B., or Domesd. B. Domesday Book.  
 Dbk. Drawback.  
 D. C. Deputy Consul. (*Da Capo.*) Again, or From the beginning.  
 D. C. District of Columbia.  
 D. C. L. Doctor of Civil (or Canon) Law.  
 D. D. Doctor of Divinity.  
 d/d— Day's date.  
 D. D. S. Doctor of Dental Surgery.  
 Del. Delaware.  
 Dea. Deacon.  
 Dec. December, Declaration, declension.  
 Decid. Deciduous.  
 Def. Definition.  
 Deft. Defendant.  
 Deg. Degree, or degrees.  
 Del. Delaware, Delegate.  
 Del. (*Delineavit.*) He (or she) drew it,—appended to the draughtsman's name.  
 Dem. Democrat, Democratic.  
 Den. Denmark.  
 Dent. Dentist.  
 Dep. Deputy, Department.  
 Dep. Q. M. G. Deputy Quartermaster General.  
 Dept. Department, Deponent.  
 Deriv. Derivative, Derivation.  
 Deut. Deuteronomy.  
 D. F. Dean of the Faculty. (*Fidei Defensor.*) Defender of the Faith.  
 Dft. Draft, Defendant.  
 D. G. (*Dei gratia.*) By the Grace of God. (*Deo gratias.*) Thanks to God.  
 dg. decigram (metric system).  
 Dg. Dekagram (metric system).  
 D. H. Dead Head.  
 D. H. L. (*Literarum Humaniorum Doctor.*) Doctor of Polite Literature. [See L. H. D.]  
 Di. Didymium.  
 Diam. Diameter.  
 Dict. Dictator, Dictionary.  
 Dim. Diminutive, Diminution.  
 Dim. (*mus.*) Diminuendo.  
 Dioc. Diocese, Diocesan.  
 Dioc. Sem. Diocesan Seminary.  
 Dis. Distance, Distant.  
 Dis., Disc., or Disct. Discount.  
 Dist. District.  
 Dist. Atty. District Attorney.  
 Div. Divide, Divided, Division, Dividend, Divisor.  
 Dl. Dekalitre (metric system.)  
 D. Lit. (*Literarum Doctor.*) Doctor of Literature.  
 D. L. O. Dead Letter Office.  
 Dm. Dekametre (metric system).  
 D. M. D. Doctor Dental Medicine.  
 Do. (*ditto.*) The same.  
 Dol, Dols., \$. Dollars.  
 D. O. M. (*Deo Optimo Maximo.*) To God, the best, the greatest.  
 Dom. Dominion.  
 Dom. Econ. Domestic Economy.  
 Dom. Prel. Domestic Prelate.  
 Doz. Dozen.  
 D. P. Doctor of Philosophy. [See P. D. and Ph. D.]  
 D. P. O. Distributing Post Office.  
 Dpt. Deponent.  
 Dr. Debtor, Doctor, Dram.  
 Dram. Pers. Dramatis Personæ.  
 d/s. Days' Sight.  
 D. S. (*Dal Segno.*) From the sign.  
 D. S. Dekastere (metric system).  
 D. Sc. Doctor of Science.  
 D. T. Dakota Territory.  
 D. V. (*Deo volente.*) God willing.  
 Dwt. (Lat. *Denarius* and Eng. *weight.*) Pennyweight, or Pennyweights.  
 E. or ε. (*Επιλον.*) Greek E. e.  
 E. East, Eastern, Earl, Edinburgh, Erbium.  
 Ea. Each.  
 Eb. Erbium.  
 E. B. English Bible.  
 Eben. Ebenezer.  
 E. by S. East by South.  
 Ebor. (*Eboracum.*) York. (*Eboracensis.*) Of York.  
 E. C. Eastern Central (Posta District, London), Established Church.  
 Eccl. Ecclesiastes, Ecclesiastical.  
 Eccl. Hist. Ecclesiastical History.  
 Ecclus. Ecclesiasticus.  
 Ed. Editor, Edition.  
 E. D. Eastern District (of Brooklyn, N. Y.).  
 Edin. Edinburgh.  
 Edit. Edition.  
 Edm. Edmund.  
 Eds. Editors.  
 Edw. Edward, Edwin.  
 E. E. and M. P. Envoy Extraordinary and Minister Plenipotentiary.



## ABBREVIATIONS.

- E. Fl.** Ells Flemish.  
**E. Fr.** Ells French.  
**e.g., or ex. gr.** (*exempli gratia.*) For example.  
**Egypt.** Egyptians.  
**E. I.** East Indies, or East India.  
**E. I. C., or E. I. Co.** East India Company.  
**E. I. C. S.** East India Company's Service.  
**Eliz.** Elizabeth.  
**E. Long.** East Longitude.  
**E. M.** Mining Engineer. (*Equitum Magister.*) Master of the Horse.  
**Em.** Emma, Emily, Emmanuel.  
**Emp.** Emperor, Empress, Empire.  
**Ency., or Encyc.** Encyclopædia.  
**Encyc. Amer.** Encyclopædia Americana.  
**Encyc. Brit.** Encyclopædia Britannica.  
**E. N. E.** East-Northeast.  
**Eng.** England, English.  
**Eng. Cyc.** English Cyclopædia.  
**Engin.** Engineering.  
**Eng. in Chf.** Engineer-in-Chief.  
**Ens.** Ensign.  
**Ent., or Entom.** Entomology.  
**Env. Ext.** Envoy Extraordinary.  
**Ep.** Epistle.  
**Eph.** Ephesians, Ephraim.  
**Ephes.** Ephesians.  
**Epis.** Episcopal.  
**Eq.** Equal, Equivalent.  
**Equiv.** Equivalent.  
**E. S.** Ells Scotch.  
**Esd.** Esdras.  
**E. S. E.** East-Southeast.  
**Esp.** Especially.  
**Esq., or Esqr.** Esquire.  
**Esq., or Esqs.** Esquires.  
**Est.** Estate, Estimate.  
**Estab.** Established, Establishment.  
**Esth.** Esther.  
**E. T.** English Translation.  
**et al.** (*Et alii, or aliae.*) And others. (*Et alibi.*) And elsewhere (sometimes improperly written, *et als.*)  
**Etc., or &c.** (*Et cæteri, cæteræ, or cætera.*) And other things, and so forth.  
**Eth.** Ethiopic.  
**et seq.** (*Et sequentia, or et sequentes.*) And what follows, and the following.  
**Etym.** Etymology.  
**Evang.** Evangelical, Evangelist.  
**Ex.** Example, Exception, Exodus.  
**Exc.** Excellency, Exception.  
**Exch.** Exchequer, Exchange.  
**Ex. cp., or xcp.** Excoupon.  
**Ex. d., or x/d.** Exdividend.  
**Exec.** Executor.  
**Exec. Com.** Executive Committee.  
**Execx.** Executrix.
- ex. g.** (*exempli gratia.*) For example.  
**Exod.** Exodus.  
**Exon.** (*Exonia.*) Exeter.  
**Exr., or Exx.** Executor, Executrix.  
**Ez.** Ezra.  
**Ezek.** Ezekiel.  
**F.** France, Folio, Fellow, Fluorine, Friday, Fahrenheit.  
**F.** Feminine, Franc, Francs, Florin, Florins, Farthing, Farthings, Foot, Feet.  
**F. A. A.** Free of all Average.  
**F. A. A. A. S.** Fellow of the American Association for the Advancement of Science.  
**Fahr.** Fahrenheit.  
**Fair.** Fairfield, Fairhaven, Fairmont, Fairview.  
**F. A. M.** Free and Accepted Masons.  
**F. A. S.** Fellow of the Antiquarian Society.  
**F. A. S. E.** Fellow of the Antiquarian Society of Edinburgh.  
**F. B. S.** Fellow of the Botanical Society.  
**F. C.** Free Church (of Scotland).  
**Fcap., or fcp.** Foolscap.  
**F. C. P.** Fellow of College of Preceptors.  
**F. C. P. S.** Fellow of the Cambridge Philosophical Society.  
**F. C. S.** Fellow of the Chemical Society.  
**F. D.** (*Fidei Defensor, or Defensatrix.*) Defender of the Faith.  
**Fe.** (*Ferrum.*) Iron.  
**F. E.** Flemish Ells.  
**Feb.** February.  
**Fec.** (*fecit.*) He did it.  
**F. E. I. S.** Fellow of the Educational Institute of Scotland.  
**Fem.** Feminine.  
**Fem. Ac., or Acad.** Female Academy.  
**F. E. S.** Fellow of the Entomological Society, Fellow of the Ethnological Society.  
**Feud.** Feudal.  
**F. F. P. S.** Fellow of the Faculty of Physicians and Surgeons (Glasgow).  
**F. F. V.** First Families of Virginia (humorous.)  
**ff.** Following.  
**F. G. A.** Foreign General Average.  
**F. G. S.** Fellow of the Geological Society.  
**F. H. S.** Fellow of the Horticultural Society.  
**Fid. Def.** (*Fidei Defensor, or Defensatrix.*) Defender of the Faith.  
**fi. fa.** (*Fieri facias.*) Cause it to be done.  
**Fig.** Figure, Figures, Figurative, Figuratively.  
**Finn.** Finnish.  
**Fir.** Firkin.

## ABBREVIATIONS.

- F. K. Q. C. P. I.** Fellow of King and Queen's College of Physicians in Ireland.  
**Fl.** Flemish, Flourished, Florin, Florins.  
**Fla.** Florida.  
**Fl. E.** Flemish Ells.  
**Flor.** Florence.  
**F. L. S.** Fellow of the Linnæan Society.  
**F. M.** Field-marshal.  
**Fo., or fol.** Folio.  
**F. O.** Field-officer.  
**F. O. B.** Free on Board.  
**For.** Foreign.  
**For. Sec.** Foreign Secretary.  
**Fort.** Fortification.  
**F. P. A.** Free of Particular Average.  
**F. P. S.** Fellow of the Philological Society.  
**Fr** Franc, Francs, French, France, Fragment, Francis, Friar, Frank.  
**fr.** From.  
**Frankl. Inst.** Franklin Institute, Philadelphia.  
**F. R. A. S.** Fellow of the Royal Astronomical Society.  
**F. R. C. P.** Fellow of the Royal College of Physicians; E., of Edinburgh.  
**F. R. C. S.** Fellow of the Royal College of Surgeons; E., of Edinburgh; I., of Ireland; L., of London.  
**Fr. E.** French Ells.  
**Fred.** Frederick.  
**Freq.** Frequentative.  
**F. R. G. S.** Fellow of the Royal Geographical Society.  
**Fri.** Friday.  
**F. R. S.** Fellow of the Royal Society.  
**F. R. S. S. A.** Fellow of the Royal Scottish Society of Arts.  
**Frs.** Frisian, or Frisic.  
**F. R. S. E.** Fellow of the Royal Society, Edinburgh.  
**F. R. S. L.** Fellow of the Royal Society, London, Fellow of the Royal Society of Literature.  
**F. S. A.** Fellow of the Society of Arts, or of Antiquaries; I., of Ireland; L., of London.  
**F. S. A. E.** Fellow of the Society of Antiquaries, Edinburgh.  
**F. S. S.** Fellow of the Statistical Society.  
**Ft.** Fortification.  
**Ft.** Foot, Feet, Fort.  
**F. T. C. D.** Fellow of Trinity College, Dublin.  
**Fth.** Fathom.  
**Fur.** Furlong.  
**Fut.** Future.  
**F. Z. S.** Fellow of the Zoological Society.  
**Γ, or γ. (Gamma.)** Greek G, g.  
**G.** Glucinum, Genitive.  
**G.** Guineas, Guinea, Gulf.  
**G. A.** General Assembly.  
**Ga.** Georgia.  
**Gael.** Gaelic.  
**Gal.** Galatians, Galen.  
**Gal.** Gallon, Gallons.  
**Galv.** Galvanism, Galvanic.  
**G. A. R.** Grand Army of the Republic.  
**G. B.** Great Britain.  
**G. B. & I.** Great Britain and Ireland.  
**G. C.** Grand Chancellor, Grand Conductor, Grand Chapter.  
**G. C. B.** Grand Cross of the Bath.  
**G. C. H.** Grand Cross of Hanover.  
**G. C. L. H.** Grand Cross of the Legion of Honor.  
**G. C. M. G.** Knights Grand Cross St. Michael and St. George.  
**G. C. S. I.** Knight Grand Commander of the Star of India.  
**G. D.** Grand Duke, Grand Duchess.  
**G. E.** Grand Encampment.  
**Gen.** Genesis, General.  
**Gen.** Genitive, Generally.  
**Gent.** Gentleman.  
**Gent. Mag.** Gentlemen's Magazine.  
**Geo.** George, Georgia.  
**Geog.** Geography, Geographer.  
**Geol.** Geology, Geological, Geologist.  
**Geom.** Geometry, Geometer.  
**Geor. Hist. Soc.** Georgia Historical Society.  
**Ger.** Gerund.  
**Ger.** German, Germany.  
**G. F. G.** Governor's Foot Guard.  
**G. H. G.** Governor's Horse Guard.  
**Gi.** Gills.  
**G. L.** Grand Lodge.  
**Gl. (Glossa.)** A Gloss.  
**G. M.** Grand Master  
**G. M. P. K.** Grand Master of the Knights of St. Patrick.  
**G. O.** General Order.  
**Go., or Goth.** Gothic.  
**Gov.** Governor.  
**Gov.-Gen.** Governor-General.  
**G. P. (Gloria Patri.)** Glory to the Father.  
**G. P. O.** General Post-Office.  
**G. R. (Georgius Rex.)** King George, Grand Recorder.  
**Gr.** Greek, Gross, Great.  
**Gr.** Grain or grains.  
**Gram.** Grammar.  
**Gro.** Gross.  
**G. S.** Grand Secretary, Grand Sentry, Grand Sentinel.  
**G. T.** Good Templars, Grand Tyler.  
**Gtt. (Gutta, or guttæ.)** Drop, or drops.  
**Gun.** Gunnery.  
**H. or η. (Eta.)** Greek e long.  
**H.** Hydrogen.  
**H.** Hour, Height, High, Harbor, Husband.  
**H., or hr.** Hour, hours.  
**h. a. (Hoc anno.)** This year.  
**Ha.** Hektare (metric system).

## ABBREVIATIONS.

- Hab. Habakkuk.  
 Hab. corp. (*Habeas corpus*.)  
 You may have the body.  
 Hab. fa. poss. (*Habere facias possessionem*.) (*law*.) A writ to put the plaintiff in possession.  
 Hag. Haggai.  
 Ham. Coll. Hamilton College.  
 Hants. Hampshire.  
 H. B. C. Hudson's Bay Company.  
 H. B. M. His (or Her) Britannic Majesty.  
 H. C. House of Commons, Herald's College.  
 H. C. M. His (or Her) Catholic Majesty.  
 Hdkf. Handkerchief.  
 H. E. His Eminence, Hydraulic Engineer.  
 h. e. (*Hoc est*, or *Hic est*.) That is, or this is.  
 Heb., or Hebr. Hebrew, Hebrews.  
 Hectol. Hectolitre (metric system).  
 H. E. I. C. Honorable East India Company.  
 H. E. I. C. S. Honorable East India Company's Service.  
 Her. Heraldry.  
 Herp. Herpetology.  
 H. F. Holy Father.  
 Hf.-bd. Half-bound.  
 Hf. cf. Half calf.  
 Hg. (*Hydrargyrum*.) Mercury.  
 H. G. Horse Guards.  
 H. H. His Holiness (the Pope), His (or Her) Highness.  
 Hhd. Hogshead, Hogsheads.  
 Hier. (*Hierosolyma*.) Jerusalem.  
 H. I. H. His (or Her) Imperial Highness.  
 Hil. Hilary.  
 Hind. Hindu, Hindustan, Hindustanee.  
 Hist. History, Historical.  
 H. J. S. (*Hic Jacet Sepultus*.) Here lies buried.  
 H. L. House of Lords.  
 Hl. Hectolitre (metric system).  
 H. M. His (or Her) Majesty.  
 H. M. C. His (or Her) Majesty's Customs.  
 H. M. P. (*Hoc monumentum posuit*.) Erected this monument.  
 H. M. S. His (or Her) Majesty's Steamer, Ship, or Service.  
 Ho. House.  
 Hon. Honorable.  
 Hor. Horace, Horizon.  
 Hort. Horticulture.  
 Hos. Hosea.  
 Hosp. Sergt. Hospital Sergeant.  
 Hosp. Stew. Hospital Steward.  
 H. P. Horse Power, Half-pay, High Priest.  
 Hr., Hrn. Mr., sir; Messrs., gentlemen. (German.)  
 H. R. House of Representatives.  
 H. R. E. Holy Roman Emperor, or Empire.  
 H. R. H. His (or Her) Royal Highness.  
 H. R. I. P. (*Hic Requiescit In Pace*.) Here rests in peace.  
 H. S. (*Hic Situs*.) Here lies.  
 H. S. H. His (or Her) Serene Highness.  
 H. S. S. (*Historiæ Societatis Socius*.) Fellow of the Historical Society.  
 h. t. (*Hoc titulo*.) This title, in or under this title.  
 Hum., or Humb. Humble.  
 Hun., or Hung. Hungary, Hungarian.  
 Hund. Hundred, Hundreds.  
 h. v. (*Hoc verbum*.) This word. (*His verbis*.) In these words.  
 Hy. Art. Heavy Artillery.  
 Hyd. Hydrostatics.  
 Hydraul. Hydraulics.  
 Hydros. Hydrostatics.  
 hypoth. Hypothesis, hypothetical.  
 I, or ι. *Ιωτα*. (*Iota*.) Greek I, i.  
 I. Island, Iodine.  
 I, II, III. One, two, three, or first, second, third.  
 Ia. Iowa.  
 Ib., or Ibid. (*Ibidem*.) In the same place.  
 Ice., or Icel. Iceland, Icelandic.  
 I. C. E. Institution of Civil Engineers.  
 Ich., or Ichth. Ichthyology.  
 Icon. Encyc. Iconographic Encyclopædia.  
 I. C. TH. U. S. (Gr. *Iesus Christos, Theou Huios, Soter*.) Jesus Christ, the Son of God, the Saviour.  
 Ictus. (*Turisconsultus*.) Counselor at Law.  
 Id. Idaho.  
 Id. (*Idus*.) Ides.  
 Id. (*Idem*.) The same.  
 I. e. (*Id est*.) That is.  
 I. G. Inside Guardian.  
 I. H. S. (*Iesus [or Jesus] Hominum Salvator*.) Jesus the Saviour of Men.  
 ii. Two.  
 Ill. Illinois.  
 Imp. Imperial. (*Imperator*.) Emperor.  
 Imp., or Imper. Imperative.  
 Imp., or Imperf. Imperfect.  
 Impers. Impersonal.  
 In. Inch, Inches.  
 Inc., or Incor. Incorporated.  
 Incept. Inceptive.  
 Inch. Inchoative.  
 Incog. (*Incognito*.) Unknown.  
 Ind. India, Indian, Indiana, Index.  
 Ind., or Indic. Indicative.  
 I. N. D. (*In Nomine Dei*.) In the name of God.  
 Indef. Indefinite.  
 Ind. Meth. Independent Methodists.  
 Indo. Eur. Indo-European.

## ABBREVIATIONS.

- Ind. T., or Ind. Ter. Indian Territory.
- Inf. (*Infra.*) Beneath or below.
- Inf. Infinitive, Infantry.
- in f. (*in fine.*) At the end of the title, law, or paragraph quoted.
- In lim. (*In limine.*) At the outset.
- In loc. (*In loco.*) In the place, on the passage.
- I. N. R. I. (*Iesus [or Jesus] Nazarenus, Rex Judæorum.*) Jesus of Nazareth, King of the Jews.
- Ins. Inspector, Insurance, Instant.
- Insep. Inseparable.
- Insp. Gen. Inspector General.
- Inst. Instant (the present month).
- Inst. Institute, Institutes, Institution.
- Inst. Act. Institute of Actuaries.
- Inst. Bks. Institute of Bankers.
- Inst. C. E. Institution of Civil Engineers.
- Inst. M. E. Institute of Mechanical Engineers.
- Inst. N. A. Institution of Naval Architects.
- In sum. (*In summa.*) In the summary.
- Int. Interest.
- Int. Interpreter.
- Intens. Intensive.
- Interj. Interjection.
- Intr. Introduction.
- Intrans. Intransitive.
- in trans. (*In transitu.*) In the passage.
- Introd. Introduction.
- Inv. Invoice.
- Io. Iowa.
- I. O. B. B. Independent Order of B'nai B'rith.
- I. O. F. Independent Order of Foresters.
- I. O. F. S. I. Independent Order of the Free Sons of Israel.
- I. O. G. T. Independent Order of Good Templars.
- Ion. Ionic.
- I. O. O. F. Independent Order of Odd Fellows.
- I. O. R. M. Independent (or Improved) Order of Red Men.
- I. O. S. H. Independent Order Sons of Hermann.
- I. O. S. M. Independent Order of the Sons of Malta.
- I. O. U. I owe you. An acknowledgment for money.
- I. P. D. (*In Præsentia Dominorum.*) In presence of the Lords (of Sessions).
- Ipecac. Ipecacuanha.
- I. q. (*Idem quod.*) The same as.
- Ir. Ireland, Irish, Iridium.
- Iran. Iranian, Iranistan.
- Ire. Ireland.
- I. R. O. Internal Revenue Office.
- Irreg. Irregular.
- I. S. Inside Sentinel, Irish Society.
- Is., or Isa. Isaiah.
- Isl. Island.
- I. S. M. (*Iesus [or Jesus] Salvator Mundi.*) Jesus the Saviour of the World.
- It. Italy, Italian.
- I. T. Indian Territory, Inner Temple.
- It., or Ital. Italic, Italian, Italy.
- Itin., or Itiner. Itinerant, itinerary.
- IV. Four or Fourth.
- IX. Nine or Ninth.
- J. Justice or Judge, John, Julius, Julian.
- JJ. Justices.
- J/a. Joint Account.
- J. A. Judge Advocate.
- Jac. Jacob.
- J. A. G. Judge Advocate General.
- Jan. January.
- Jas. James.
- J. C. JESUS CHRIST, Justice Clerk.
- J. C. (*Juris Consultus.*) Jurisconsult.
- J. C. D. (*Juris Civilis Doctor.*) Doctor of Civil Law.
- J. D. (*Juris Doctor.*) Doctor of Law, Junior Deacon.
- Je. June.
- Jeho. Jehosaphat.
- Jer. Jeremiah, Jerusalem, Jericho, Jersey.
- J. G. W. Junior Grand Warden.
- J. H. S. (*Jesus Hominum Salvator.*) Jesus Saviour of Mankind. (See I. H. S.).
- Jno. John.
- Jnt. Joint.
- Jnt. Stk. Joint Stock.
- Jnt. Stk. Co. Joint Stock Company.
- Jo. Joel.
- Jona. Jonathan.
- Jos. Joseph, Josephine.
- Josh. Joshua.
- Jour. Journal, Journeyman.
- J. P. Justice of the Peace.
- J. Prob. Judge of Probate.
- Jr. Junior.
- J. U. D., or J. V. D. (*Juris Utriusque Doctor.*) Doctor of both Laws, Canon and Civil.
- Jud. Judith.
- Judg. Judges, Judge.
- Judge-Adv. Judge-Advocate.
- Jul. July.
- Jun. June.
- Jun., or junr. Junior.
- Jun. Part. Junior Partner.
- Jus. Justice. (Used to denote Associate Justices.)
- Jus. P. Justice of the Peace.
- Just. Justinian, Justice.
- J. V. D. (*Juris Utriusque Doctor.*) Doctor of both Civil and Canon Law.
- J. W. Junior Warden.

## ABBREVIATIONS.

- K., or κ. Κάππα. (*Kappa*.)  
 Greek K, k.  
 K. King, Knight. (*Kalium*.)  
 Potassium.  
 K. A. Knights of St. Andrew (in Russia).  
 Kal. Kalends.  
 K. A. N. Knight of St. Alexander Nevoskoj (in Russia).  
 Kan. Kansas.  
 K. B. King's Bench, Knight of the Bath (in Great Britain).  
 K. B. A. Knight of St. Bento d' Avis (in Portugal).  
 K. B. E. Knight of the Black Eagle (in Russia).  
 K. C. Knight of the Crescent (in Turkey), King's Council.  
 K. C. B. Knight Commander of the Bath (in Great Britain).  
 K. C. H. Knight Commander of Hanover.  
 K. C. M. G. Knight Commander of St. Michael and St. George.  
 K. C. S. Knight of Charles III. of Spain.  
 K. C. S. I. Knight Commander of the Star of India.  
 Ken. Kentucky.  
 Kew Obs. Kew Observatory (England).  
 K. F. Knight of Ferdinand (in Spain).  
 Kg. Kilogram (metric system).  
 K. G. Knight of the Garter (in Great Britain).  
 K. G. C. Knight Grand Cross (in Great Britain), Knight of the Golden Circle (in the United States).  
 K. G. C. B. Knight of the Grand Cross of the Bath (in Great Britain).  
 K. G. F. Knight of the Golden Fleece (in Spain or Austria).  
 K. G. H. Knight of the Guelphs of Hanover.  
 K. V. G. Knight of Gustavus Vasa (in Sweden).  
 K. H. Knight of Hanover.  
 Ki. Kings.  
 Kil. Kilderkin.  
 Kilo. Kilogram.  
 K. J. Knight of St. Joachim.  
 Kl. Kilolitre (metric system).  
 K. L., or K. L. A. Knight of Leopold of Austria.  
 K. L. H. Knight of the Legion of Honor.  
 Km. Kilometre (metric system).  
 Km. Kingdom.  
 K. Mess. King's Messenger.  
 K. M. Knight of Malta.  
 K. M. H. Knight of Merit in Holstein.  
 K. M. J. Knight of Maximilian Joseph (in Bavaria).  
 K. M. T. Knight of Maria Theresa (in Austria).  
 K. N. S. Knight of the North Star (in Sweden).  
 Kut. Knight.  
 K. of H. Knights of Honor.
- K. of P. Knight, or Knights of Pythias.  
 K. P. Knight of St. Patrick.  
 Kr. Kreuzer (German coin).  
 K. R. C. Knight of the Red Cross.  
 K. R. E. Knight of the Red Eagle (in Prussia).  
 Ks. Kansas.  
 K. S. Knight of the Sword (in Sweden).  
 K. S. A. Knight of St. Anne (in Russia).  
 K. S. B. Kersher Shel Barzel.  
 K. S. F. Knight of St. Fernando (of Spain).  
 K. S. G. Knight of St. George (in Russia).  
 K. S. H. Knight of St. Hubert (in Bavaria).  
 K. S. I. Knight of the Star of India.  
 K. S. J. Knight of St. Januarius (of Naples).  
 K. S. L. Knight of the Sun and Lion (in Persia).  
 K. S. M. & S. († Knight of St. Michael and St. George).  
 K. S. P. Knight of St. Stanisla (in Poland).  
 K. S. S. Knight of the Southern Star (in Brazil).  
 K. S. W. Knight of St. Vladimir (in Russia).  
 K. T. Knight Templar, Knight of the Thistle (in Scotland).  
 Kt Knight.  
 K T. S. Knight of the Tower and Sword (in Portugal).  
 K. W. Knight of William (in the Netherlands).  
 K. W. E. Knight of the White Eagle (in Poland).  
 Ky. Kentucky.
- Λ, or γ. Λάμβδα. (*Lambda*.)  
 Greek L, l.  
 L. Fifty or fiftieth, Laity, Latin, Low, Lord, London (after titles), Lithium, (*Liber.*) Book.  
 L. League, Leagues, Lakes, Lane.  
 L., l., or lb. (*Libra.*) A pound in weight.  
 L., £, or l. (*Libra, or Libræ.*) Pound, or Pounds sterling.  
 L., or £, s. d. (*Libræ, solidi, denarii.*) Pounds, shillings, and pence.  
 La. Louisiana, Lanthanum.  
 L. A. C. Licentiate of the Apothecaries' Company.  
 L. A. H. Licentiate of the Apothecaries' Hall.  
 Ladp. Ladyship.  
 Lam. Lamentations.  
 Lapp. Lappish.  
 L. A. S. Lord Advocate of Scotland.  
 Lat. Latitude, Latin.  
 Lb. (*Libra, or Libræ.*) Pound or pounds in weight.  
 l. c. Lower case (in printing).  
 i. c. (*loco citato.*) In the place before cited.

## ABBREVIATIONS.

- £/C. Letter of Credit.  
 L. C. Lord Chancellor, Lord Chamberlain, Lower Canada.  
 L. C. B. Lord Chief Baron.  
 L. C. J. Lord Chief Justice.  
 Ld. Lord.  
 L. D. Lady Day, Light Dragoons.  
 Ldp., Lp. Lordship.  
 Lea. League.  
 Leg. (*Legato*.) Smoothly, Legate.  
 Leg., or Legis. Legislature.  
 Leip. Leipsic, or Leipzig.  
 Lett. Lettish.  
 Lev., or Levit. Leviticus.  
 Lex. Lexicon, Lexicographer, Lexington.  
 L. G. Life Guards, Low German.  
 L. H. A. Lord High Admiral.  
 L. H. C. Lord High Chancellor.  
 L. H. D. (*Literarum Humaniorum Doctor*.) Doctor of Polite Literature.  
 L. H. T. Lord High Treasurer.  
 L. I. Long Island, League Island, Light Infantry.  
 Li. Lithium.  
 Lib. (*Liber*.) Book.  
 Lib. Library, Librarian.  
 Lieut., or Lt. Lieutenant.  
 Lieut. Col. Lieutenant Colonel.  
 Lieut. Gen. Lieutenant General.  
 Lieut. Gov. Lieutenant Governor.  
 Linn. Linnæan, Linnæus.  
 Linn. Soc. Linnæan Society (London).  
 Liq. Liquor.  
 Lit. Literature, Literary.  
 Lit. Literally.  
 Lit. D. (*Literarum Doctor*.) Doctor of Letters.  
 Lith. Lithuanian.  
 Liv. Livre.  
 L. L. Low Latin, Late Latin.  
 L. Lat. Low Latin, Law Latin.  
 LL. B. (*Legum Baccalaureus*.) Bachelor of Laws. [See *B. L.* and *B. LL.*]  
 LL. D. (*Legum Doctor*.) Doctor of Laws. [See *B. LL.*]  
 L. L. I. Lord Lieutenant of Ireland.  
 LL. M. (*Legum Magister*.) Master of Laws.  
 loc. cit. (*loco citato*.) In the place cited.  
 Lon. Longitude.  
 Lon., or Lond. London.  
 Long. Longitude.  
 Lou., or La. Louisiana.  
 Lp., or Ldp. Lordship.  
 L. P. Lord Provost.  
 L. P. S. Lord Privy Seal.  
 L. R. C. P. Licentiate of the Royal College of Physicians.  
 L. R. C. S. Licentiate of the Royal College of Surgeons.  
 L. S. Left Side. (*Locus Sigilli*.) Place of the Seal.  
 L. S. A. Licentiate of the Apothecaries' Society.  
 L. S. D. (*Libræ, Solidi, Denarii*.) Pounds, Shillings, Pence.  
 L. T. (*Lira Turca*.) The Turkish Pound.  
 Lt., or Lieut. Lieutenant.  
 Lt. Batt. Light Battery.  
 Lt., or Lieut. Com. Lieutenant Commander.  
 Lt., or Lieut. Gen. Lieutenant General.  
 Lt. Inf., or Infy. Light Infantry.  
 Lv. Livre, Livres.  
 LX. Sixty or sixtieth.  
 LXX. Seventy or seventieth.  
 LXX. The Septuagint (Version of the Old Testament).  
 LXXX. Eighty or eightieth.  
 M, or  $\mu$ . *Mý*. (*Mu*.) Greek M, m.  
 M. Monday, Middle, Morning, Monsieur. (*Meridies*.) Meridian, or Noon. (*Mille*.) Thousand.  
 m. Married, Metre (metric system).  
 M. Moon, Masculine. Minute, Minutes, Month, Months, Mile, Miles, Mill, Mills. (*Misce*.) Mix. (*Mistura*.) Mixture. (*Mensura*.) Measure, by Measure.  
 M. Minim.  
 —/M. A thousand; as, *e. g.*, 50/m., fifty thousand.  
 M., or Mons. (*Monsieur*.) Sir, Mister.  
 $\bar{M}$ . 10,000.  
 M. A. Master of Arts. [See *A. M.*] Military Academy.  
 Mac., or Macc. Maccabees.  
 Maced. Macedonian.  
 Mach. Machinist, Machinery.  
 Mad. Madam.  
 Madm. Madam.  
 Mad. Univ. Madison University.  
 Mag. Magazine.  
 Maj. Major.  
 Maj. Gen. Major General.  
 Mal. Malachi.  
 Malay. Malayan.  
 Man. Manège, or horsemanship, Manual.  
 Man, Manasses.  
 M. A. N. S. Member of the Academy of Natural Sciences.  
 Manuf. Manufactory, Manufacture, Manufacturing.  
 Mar. March.  
 March. Marchioness.  
 Marg. Margin.  
 Marg. Tran. Marginal Translation.  
 Marq. Marquis.  
 Masc. Masculine.  
 Mass. Massachusetts.  
 Math. Mathematics, Mathematician.  
 Matt. Matthew.  
 M. B. (*Medicinæ Baccalaureus*.) Bachelor of Medicine [See *B. M.*]  
 Mbco. Marks banco.  
 M. B. G. et H. (*Magna Britan*

## ABBREVIATIONS.

- nia, Gallia, et Hibernia.*) Great Britain, France, and Ireland.
- M. C. Member of Congress, Master of Ceremonies, Master Commandant, Master of the Classics.
- M/C. Metallic Currency.
- Mch. March.
- M. D. (*Medicinae Doctor.*) Doctor of Medicine.
- Md. Maryland.
- M/d. Month's date.
- M. E. Middle English (etymological).
- M. E. Methodist Episcopal, Military or Mechanical Engineer, Most Excellent.
- M. E. S. Methodist Episcopal South.
- Me. Maine.
- Meas. Measure.
- Mech. Mechanics, Mechanical.
- Med. Medicine.
- Med. Dir. Medical Director.
- M. E. G. H. P. Most Excellent Grand High Priest.
- Mem. Memorandum, Memoranda. (*Memento.*) Remember.
- Mer. Meridian.
- Merc. Mercury.
- Messrs., or MM. (*Messieurs.*) Gentlemen, or Sirs.
- Met. Metaphysics, metaphor, Metaphorically, Metropolitan.
- Metal. Metallurgy.
- Metaph. Metaphysics.
- Meteor. Meteorology.
- Meth. Methodist.
- Metr., or Metrop. Metropolitan.
- Mex. or Mexic. Mexico or Mexican.
- M. ft. (*Mistura fiat.*) Let a mixture be made.
- mg. Milligram (metric system).
- Mg. Magnesium, Myriagram (metric system).
- M G. Major General.
- M. G., or M. Goth. Moesco-Gothic.
- M. H. G. Middle High German (Etymological).
- M. Hon. Most Honorable.
- M. H. S. Massachusetts Historical Society, Member of the Historical Society.
- Mi. Mississippi.
- Mi Mill, mills.
- Mic. Micah.
- M. I. C. E. Member of the Institution of Civil Engineers.
- Mich. Michigan.
- Mid. Midshipman.
- Mid. Middle (voice).
- Mil. Military.
- Min. Mineralogy.
- Min. Minute, Minutes.
- Minn. Minnesota.
- Min. Plen. Minister Plenipotentiary.
- Min. Res. Minister Resident.
- Miss. Mississippi.
- ml. Millilitre (metric system).
- MI. Myrialitre (metric system).
- M. L. (*Legum Magister.*) Master of Laws.
- M. L. 'A. Mercantile Library Association.
- Mlle. Mademoiselle.
- mm. Millimetre (metric system).
- Min. Myriametre (metric system).
- MM. Their Majesties. (*Messieurs.*) Gentlemen, or Sirs.
- NOTE.—The initial letter of a word is sometimes doubled to signify the plural; as in LL. B., LL. D.
- MM. Thousands.
- Mme. Madame.
- Mmes. Mesdames (pronounced *mādām'*).
- M. M. S. Moravian Missionary Society.
- M. M. S. S. Member of the Massachusetts Medical Society.
- Mn. Manganese.
- M. N. A. S. Member of the National Academy of Sciences.
- M. N. S. Member of the Numismatical Society.
- Mo. Missouri, Month, Molybdenum.
- Mod. Modern. (*Moderato.*) Moderately.
- Mon. Monday, Monastery.
- Mond. Monday.
- Mons. Monsieur, or Sir.
- Monsig. Monsignor.
- Morn. Morning.
- Mos. Months.
- Most. Rev. Most Reverend.
- Mont. Montana.
- M. P. Member of Parliament, Metropolitan Police, Municipal Police, Methodist Protestant, or Protestant Methodist.
- M. P. C. Member of Parliament in Canada.
- M. P. P. Member of Provincial Parliament.
- M. P. S. Member of the Pharmaceutical (or of the Philological) Society.
- M. R. Master of the Rolls.
- Mr. Mister, or Master.
- M. R. A. S. Member of the Royal Asiatic Society, Member of the Royal Academy of Science.
- M. R. C. C. Member of the Royal College of Chemistry.
- M. R. C. P. Member of the Royal College of Physicians.
- M. R. C. S. Member of the Royal College of Surgeons.
- M. R. G. S. Member of the Royal Geographical Society.
- M. R. I. Member of the Royal Institution.
- M. R. I. A. Member of the Royal Irish Academy.
- Mrs. Mistress (*pronounced mîs'sis when written as an abbreviation.*).
- M. R. S. L. Member of the Royal Society of Literature.
- M/S. Month's sight.

## ABBREVIATIONS.

- M. S.** (*Memoria Sacrum.*) Sacred to the memory.  
**M. S.** (*Magister Scientiæ.*) Master of Science.  
**MS.** (*Manuscriptum.*) Manuscript.  
**MSS.** (*Manuscripta.*) Manuscripts.  
**Mt.** Mount, or Mountain.  
**M. T. C.** Marcus Tullius Cicero.  
**Mt. Rev.** Most Reverend.  
**Mts.** Mountains.  
**Mus.** Museum, Music.  
**Mus. B.** Bachelor of Music.  
**Mus. D., Mus. Doc., or Mus. Doct.** Doctor of Music.  
**M. W.** Most Worthy, Most Worshipful.  
**M. W. G. C. P.** Most Worthy Grand Chief Patriarch.  
**M. W. G. M.** Most Worthy (or Worshipful) Grand Master.  
**M. W. P.** Most Worthy Patriarch.  
**M. W. S.** Member of the Wernerian Society.  
**M. W. V.** Mexican War Veterans.  
**Myth.** Mythology.  
**N, or ν. Νύ. (Nu.)** Greek N, n.  
**N.** North, Number, Note, Name, New, Nitrogen, Northern.  
**N.** Noun, Neuter.  
**N. A.** North America, North American, National Academician.  
**N. A. S.** National Academy of Sciences.  
**Na.** (*Natrium.*) Sodium.  
**Nah.** Nahum.  
**Nap.** Napoleon.  
**Nat.** Natural, National.  
**Nat. Hist.** Natural History.  
**Nath.** Nathanael, or Nathaniel.  
**Nat. ord.** Natural order.  
**Naut.** Nautical.  
**Nav.** Navigator, Navy.  
**Nav. Con.** Navy Constructor.  
**N. B.** New Brunswick, North Bristol, North Britain. (*Nota bene.*) Note well, or take notice.  
**N. C.** North Carolina.  
**N. D.** No Date, North Dakota.  
**N. E.** New England, Northeast, Northern Eastern.  
**Neb.** Nebraska.  
**Neg.** Negative.  
**Neh.** Nehemiah.  
**n. e. i.** (*Non est inventus.*) He is not found.  
**Nem. Con.** (*Nemine Contradicente.*) No one contradicting, unanimately.  
**Nem. Diss.** (*Nemine dissentiente.*) No one dissenting, unanimately.  
**Neut.** Neuter (gender).  
**Nev.** Nevada.  
**New Am. Cyc.** New American Cyclopædia.  
**New M.** New Mexico.  
**New Test.** New Testament.  
**N. F.** Newfoundland.  
**N. G.** New Granada, Noble Grand.
- N. H.** New Hampshire.  
**N. H. H. S.** New Hampshire Historical Society.  
**Ni.** Nickel.  
**Ni. pri.** Nisi Prins (law).  
**N. J.** New Jersey.  
**N. L.** (*Non liquet.*) It does not appear, the case is not clear.  
**N. L., or N. Lat.** North Latitude.  
**N. M., or N. Mex. Ter.** New Mexico Territory.  
**N. N. E.** North-Northeast.  
**N. N. W.** North-Northwest.  
**N. O.** New Orleans.  
**No.** (*Numero.*) Number.  
**Nol. pros.** (*Nolle prosequi.*) Unwilling to prosecute, or proceed.  
**Nom.** Nominative.  
**Non Con.** Not content, dissenting, dissentient (House of Lords).  
**Non cul.** (*Non culpabilis.*) Not guilty.  
**Non obst.** (*Non obstante.*) Notwithstanding.  
**Non pros.** (*Non prosequitur.*) He does not prosecute.—a judgment entered against the plaintiff when he does not appear to prosecute.  
**Non seq.** (*Non sequitur.*) It does not follow.  
**Nor. Fr., or Norm. Fr.** Norman French.  
**Norw.** Norway, Norwegian.  
**Nos.** Numbers.  
**Nov.** November.  
**N. P.** Notary Public.  
**N. P. D.** North Polar Distance.  
**N. R.** North River.  
**N. S.** New Style (since 1752), Nova Scotia. (*Notre Seigneur*) Our Lord. Numismatic Society.  
**N. S. J. C.** (*Notre Seigneur Jésus-Christ.*) Our Lord Jesus Christ.  
**N. T.** New Testament, New Translation.  
**N. u.** Name, or names, unknown.  
**Num.** Numeral.  
**Num., or Numb.** Numbers.  
**Numis.** Numismatics.  
**Nux vom.** Nux vomica.  
**N. V. M.** Nativity of the Virgin Mary.  
**N. W.** Northwestern.  
**N. W. T.** Northwest Territory.  
**N. Y.** New York.  
**N. Y. H. S.** New York Historical Society.  
**N. Z., or N. Zeal.** New Zealand.  
**Ω, or ω. Ωμεγα.** (*Omega.*) The great or long O, o, of the Greek alphabet.  
**Ο, or ο. Ομικρον.** (*Omicron.*) Greek O, o.  
**O.** Ohio, Old, Oxygen. (*Octarius.*) A pint.  
**Ob.** (*obiit.*) He or she died.  
**Obad.** Obadiah.



## ABBREVIATIONS.

- Obj. Objective, Objection, Object.
- Obs. Obsolete. Observation.
- Obs. Observatory.
- Obt., or Obdt. Obedient.
- O. C. C. (*Ordinis Carmelitarum Calceatorum.*) Carmelites Calced.
- O. C. D. (*Ordinis Carmelitarum Discalceatorum.*) Carmelites Discalced.
- O. Cist. (*Ordinis Cisterciensis.*) Cistercian.
- Oct. October.
- O. F. Odd Fellow or Odd Fellows, Old French (etymological)
- O. G. Outside Guardian.
- O. H. G. Old High German (etymological).
- O. H. M. S. On His (or Her) Majesty's Service.
- O. K. (Oil Korect.) All right, or correct.
- Ol. (*Oleum.*) Oil.
- Ol., or Olymp. Olympiad.
- Old Test., or O. T. Old Testament.
- Olym. Olympiad.
- O M. Old Measurement.
- O. M. Conv. (*Ordinis Minorum Conventualium.*) Minor Conventuals.
- O. M. I. Oblates of Mary Immaculate.
- O. Min. Cap. (*Ordinis Minorum Capucinatorum*) Capuchins.
- Ont. Ontario.
- O. P., or O. S. D. (*Ordinis Prædicatorum, or Ordinis Sancti Dominici.*) Dominicans.
- Opt. Optics.
- Or. Oregon.
- O. R. C. Order of the Red Cross.
- Ord. Ordnance, Ordinance, Ordinary.
- Ord. Dept. Ordnance Department.
- Orig. Original, Originally.
- Ornith. Ornithology.
- O. S. Old Style (before 1752), Outside Sentinel.
- Os. Osmium.
- O. S. A. (*Ordinis Sancti Augustini.*) Augustinians.
- O. S. B. (*Ordinis Sancti Benedicti.*) Benedictines.
- O. S. F. (*Ordinis Sancti Francisci.*) Franciscans.
- O. T. Old Testament.
- O. U. A. Order of United Americans.
- Oxf. Oxford.
- Oxf. Gloss. Oxford Glossary of Architecture.
- Oxon. (*Oxonian.*) Of Oxford, at Oxford.
- Oz. Ounce.
- Π, or π. Πī. (*Pi.*) Greek P, p.
- P. (*Pondere.*) By weight. (*Pugillus.*) A pugil, the quantity of any substance which may be taken with the ends of the thumb and two fingers.
- P. Page, Part, Participle, Pole, Phosphorus, Pint, Pope.
- P. (*Père.*) Father.
- Pa. Pennsylvania.
- p. a. Participial adjective.
- P. A. Post Adjutant.
- P. A. E. Passed Assistant Engineer.
- Paint. Painting.
- Pal., or Paleon. Paleontology.
- P. A. P. M. Passed Assistant Paymaster.
- Par, or ¶. Paragraph.
- Par., or ||. Parallel.
- Parl. Parliament, Parliamentary.
- Paroch. Lib. Parochial Library.
- Par. Pas. Parallel Passage.
- Part. Participle.
- Pass. Passive.
- Pass. Passionist.
- Past. Pastor.
- P. A. Surg. Passed Assistant Surgeon.
- Pathol. Pathology.
- Pay Dir. Pay Director.
- Pay Ins. Pay Inspector.
- Pay M. Paymaster.
- Payt. Payment.
- Pb. (*Plumbum.*) Lead.
- P. B. (*Philosophice Baccalarius*) Bachelor of Philosophy.
- Φ. Β. Κ. (*Φί. Βήτα, Κάππα.*) Phi Beta Kappa (College Society).
- P. C. (*Patres Conscripti.*) Conscript Fathers, Senators, Privy Council, or Councilor, Police Constable, Principal Conductor, Post Commander.
- P. C. P. Past Chief Patriarch.
- P Cyc. Penny Cyclopaedia.
- P. D. (*Philosophice Doctor.*) Doctor of Philosophy.
- Pd. Paid, Palladium.
- Ψ. E. (*Ψι Εψιλόν.*) Psi Epsilon (College Society).
- P. E. Protestant Episcopal, Presiding Elder.
- Pe. Pelopium.
- P. E. I. Prince Edward Island.
- Penn. Pennsylvania.
- Pent. Pentecost.
- Per., or Pers. Persia, Persian.
- Per, pr., or ꝥ. By the, or per lb., oz., etc.
- Per an. (*Per annum.*) By the year.
- Per cent, or per ct. (*Per centum.*) By the hundred.
- Perf. Perfect.
- Perh. Perhaps.
- Peri. Perigee.
- Pers. Person
- Persp. Perspective.
- Peruv. Peruvian.
- Pet. Peter.
- P. G. Past Grand.
- Pg. Portuguese.
- Phar. Pharmacy.
- Phar. D. Doctor in Pharmacy.
- Phar. G. Graduate in Pharmacy.
- Phar. M. Master in Pharmacy

## ABBREVIATIONS.

- Ph. B.** (*Philosophiæ Baccalareus.*) Bachelor of Philosophy.  
**Ph. D.** (*Philosophiæ Doctor.*) Doctor of Philosophy.  
**Phil.** Philip, Philippians, Philosophy, Philosopher, Philosophical, Philemon.  
**Phil., or Phila.** Philadelphia.  
**Philem.** Philemon.  
**Philomath.** (*Philomathematicus.*) A lover of mathematics.  
**Philos.** Philosophy.  
**Phil. Trans.** Philosophical Transactions.  
**Phonog.** Phonography.  
**Photog.** Photography.  
**Phren.** Phrenology.  
**P. H. S.** Pennsylvania Historical Society.  
**Phys.** Physics, Physiology, Physician.  
**Physiol.** Physiology.  
**Pinx., or pxt.** (*Pinxit.*) He (or she) painted it.  
**P. J.** President Judge, Police Justice.  
**Pk.** Peck.  
**Pks.** Pecks.  
**P. L.** Poet Laureate.  
**Pl.** Place, Plate.  
**Pl., or plur.** Plural.  
**P. L. C.** Poor Law Commissioners.  
**Plff.** Plaintiff.  
**Plin.** Pliny.  
**Plup., or plupf.** Pluperfect.  
**Plur.** Plural.  
**Pm.** Premium.  
**P. M.** (*Postmeridian.*) Afternoon, Evening.  
**P. M.** Post Master, Passed Midshipman, Pay Master, Past Master.  
**P. M. G.** Post Master General, Pay Master General.  
**P/N.** Promissory Note.  
**P. O.** Post-Office.  
**P. O. D.** Post-Office Department.  
**Poet.** Poetry, Poetical.  
**P. O. H.** Patrons of Husbandry.  
**P. of H.** Patrons of Husbandry.  
**Po.** Pole.  
**Pol.** Polish.  
**Poit. Econ.** Political Economy.  
**P. O. O.** Post-Office Order.  
**Pop.** Population.  
**Port.** Portugal, Portuguese.  
**Pos., or Poss.** Possessive.  
**Pp. (or PP.)** Patres, Fathers.  
**P. P.** (*Pater Patriæ.*) The father of his country.  
**P. P.** Parish Priest.  
**Pp.** Pages.  
**p. p.** Past participle.  
**P. P. C.** (*Pour Prendre Congé.*) To take leave.  
**Pph.** Pamphlet.  
**P. P. I.** Policy proof of interest.  
**p. pr.** Participle present.  
**P. Q.** Previous question.  
**Pr.** Priest, Prince.  
**Pr.** Preposition, Prince, **Pro-noun.**  
**Pr., or ꝑ (Per.)** By the.  
**P. R.** (*Populus Romanus.*) The Roman people, Prize ring, Porto Rico.  
**P. R. A.** President of the Royal Academy.  
**P. R. C.** (*Post Romam Conditam.*) After the building of Rome.  
**Preb.** Prebend, Prebendary.  
**Pref.** Preface, Prefix.  
**Prep.** Preposition.  
**Pres.** President.  
**Pres.** Present.  
**Presb.** Presbyterian.  
**Pret.** Preterit.  
**Prim.** Primate, Primitive.  
**Prin.** Principles.  
**prin.** Principally.  
**Print.** Printing.  
**Priv.** Privative.  
**Priv. Chamb.** Private Chamberlain.  
**Prob.** Problem, Probably.  
**Prof.** Professor.  
**Pron.** Pronoun, Pronounced, Pronunciation.  
**Pron. a.** Pronominal adjective.  
**Prop.** Proposition, Properly.  
**Prot.** Protestant.  
**Prot. Ap.** Prothonotary Apostolic.  
**Pro. tem.** (*Pro tempore.*) For the time.  
**Prov.** Proverbs, Proverbially, Provost, Provincial.  
**Prov. Mar.** Provost Marshal.  
**Prov. Sem.** Provincial Seminary.  
**Prox.** (*Proximo.*) Next, or of the next month, in the next.  
**Prus.** Prussia, Prussian.  
**P. S.** (*Postscriptum.*) Postscript, Permanent Secretary, Privy Seal.  
**Ps, or Psa.** Psalm, or Psalms.  
**Pss.** Postscripts.  
**Pt** Part, Pint, Payment, Port, Point.  
**Pt.** Platinum.  
**P. t.** (*Pro tempore.*) For the time.  
**P. T. O.** Please turn over.  
**Ψ. Υ.** (*Ψι \*Υψιλόν.*) Psi Upsilon (College Society).  
**Pub.** Publisher, Publication, Public, Published.  
**Pub. Doc.** Public Documents.  
**Pulv.** (*Pulvis.*) Powder.  
**Pun.** Punccheon.  
**P. v.** Post-village.  
**P. W. P.** Past Worthy Patriarch.  
**Pwt.** Pennyweight, Pennyweights.  
**Pxt.** (*Pinxit.*) He (or she) painted it.  
**Q.** Question, Quintus.  
**Q.** (*Quadrans.*) One-fourth part.  
**Q., or Qu.** Queen, Question, Query, Quintius, Quintus.  
**Q. B.** Queen's Bench.  
**Q. C.** Queen's College, Queen's Counsel, or Council.

## ABBREVIATIONS.

- Q. d.** (*Quasi dicat.*) As if he should say. (*Quasi dictum.*) As if said. (*Quasi dixisset.*) As if he had said.  
**Q. e.** (*Quod est.*) Which is.  
**Q. E. D.** (*Quod Erat Demonstrandum.*) Which was to be demonstrated, or proved.  
**Q. L.** (*Quantum libet.*) As much as you please.  
**Qm.** (*Quomodo.*) By what means.  
**Q. M.** Quarter Master.  
**Q. Mess.** Queen's Messenger.  
**Q. M. G.** Quarter Master General.  
**Q. P., or q. pl.** (*Quantum placet.*) As much as you please.  
**Qr.** Quarter (28 lb.), Farthing, Quire.  
**Qrs.** Quarters, Quires, Farthings.  
**Q. S.** Quarter Sessions.  
**Q. S.** Quarter Section. (*Quantum sufficit.*) Sufficient quantity.  
**Qt.** Quart, Quantity.  
**Qts.** Quarts.  
**Qu.** Queen, Question.  
**Qu., or qy.** (*Quære.*) Inquire, Query.  
**Quad.** Quadrant, Quadrate.  
**Quar.** Quarterly.  
**Ques.** Question.  
**Q. v.** (*Quod vide.*) Which see. (*Quantum vis.*) As much as you please.  
**Qy.** Query.  
**P, or p** **Pw.** (*Rho.*) Greek R, r.  
**R.** (*Recipe.*) Take.  
**R.** Response (in church books).  
**R.** (*Regina.*) Queen. (*Rex.*) King. Railway, Rhodium, Rises, River, Residence.  
**R.** Rood, Roods, Rod, Rods.  
**R. A.** Royal Academy, Royal Academician, Royal Arch, Royal Artillery, Rear Admiral, Right Ascension.  
**R. A. C.** Royal Arch Chapter.  
**Rad.** (*Radix.*) Root, Radical.  
**R. Adml.** Rear Admiral.  
**R. A. K. T. P.** Royal Arch Knight Templar Priest.  
**R. A. M.** Royal Ark Mariners, Royal Academy of Music.  
**Rb.** Rubidium.  
**R. C.** Roman Catholic.  
**R. D.** Royal Dragoons.  
**R. D., or Rur. Dn.** Rural Dean.  
**R. E.** Royal Engineers, Royal Exchange, Right Excellent, Reformed Episcopal.  
**Rec.** Recorder.  
**Rec, or R.** Recipe.  
**Recd.** Received.  
**Recpt.** Receipt.  
**Rec. Sec.** Recording Secretary.  
**Rect.** Rector, Receipt.  
**Ref.** Reference, Reformed.  
**Ref. Ch.** Reformed Church.  
**Reg., or Regr.** Register, Registrar, Registry.  
**Reg., or Regt.** Regent, Regiment.  
**Reg. Prof.** Regius Professor.
- Regr.** Registrar.  
**Regt.** Regiment.  
**Rel.** Religion.  
**Rel. Pron.** Relative Pronoun.  
**Rem.** Remark, or Remarks.  
**Rep.** Representative, Report  
**Reporter, Republican, Republic.**  
**Repub.** Republic.  
**Rev.** Reverend, Revelation (Book of), Review, Revenue, Revise.  
**Revd.** Reverend.  
**Revs.** *Plural* of Reverend.  
**Rev. Ver.** Revised Version (Scriptures).  
**R. G. G.** Royal Grenadier Guards.  
**R. H. A.** Royal Horse Artillery, Royal Hibernian Academy.  
**Rhet.** Rhetoric.  
**R. H. G.** Royal Horse Guards  
**R. I.** Rhode Island.  
**R. I. B. A.** Royal Institution of British Architects.  
**Richd.** Richard.  
**R. I. H. S.** Rhode Island Historical Society.  
**Riv.** River.  
**R. M.** Royal Marines, Royal Mail, Resident Magistrate.  
**R. M. A.** Royal Military Asylum.  
**R. M. S.** Royal Mail Steamer.  
**R. N.** Royal Navy.  
**R. N. O.** (*Riddare af Nordstjerne Orden*) Knight of the Order of the Polar Star.  
**Ro.** (*Recto.*) Right-hand page.  
**Ro., or Robt.** Robert.  
**Rom.** Roman, Romans (Book of).  
**Rom. Cath.** Roman Catholic.  
**R. P.** Regius Professor, The King's Professor.  
**R. R.** Railroad, Right Reverend.  
**R. Rs.** Railroads.  
**R. S.** Recording Secretary, Right side.  
**Rs.** (*Responsum.*) Answer. (*Respondere.*) To answer.  
**Rs.** Rupees.  
**R. S. A.** Royal Society of Antiquaries, Royal Scottish Academy.  
**R. S. C. C.** Republican State Central Committee.  
**R. S. D.** Royal Society of Dublin.  
**R. S. E.** Royal Society of Edinburgh.  
**R. S. L.** Royal Society of London.  
**R. S. V. P.** (*Répondez, S'il Vous Plait.*) Answer, if you please.  
**Rt. Hon.** Right Honorable.  
**Rt. Rev.** Right Reverend.  
**Rt. Wpful.** Right Worshipful.  
**Russ.** Russia, Russian.  
**R. V.** Revised Version (Scriptures).  
**R. W.** Right Worthy, or Right Worshipful, Railway.

## ABBREVIATIONS.

- R. W. D. G. M. Right Worshipful Deputy Grand Master.  
 R. W. G. S. Right Worthy Grand Secretary.  
 R. W. G. R. Right Worthy Grand Representative.  
 R. W. G. T. Right Worthy Grand Treasurer. Right Worshipful Grand Templar.  
 R. W. G. W. Right Worthy Grand Warden.  
 R. W. J. G. W. Right Worshipful Junior Grand Warden.  
 R. W. O. (*Riddare af Wasa Orden.*) Knight of the Order of Wasa.  
 R. W. S. G. W. Right Worshipful Senior Grand Warden.  
 R'y. Railway.  
 R'ys. Railways.  
 Σ, or σ s. Σίγμα. (*Sigma.*) Greek S. s.  
 S. South, Saint, Scribe, Sulphur, Sign, Sextus. (*Semis.*) Half.  
 S. Second, Sun, See, Sets, Solo, Section, Series, Singular, Son. (*Solidus.*) A shilling.  
 S. A. South America, South Africa, South Australia.  
 Sam. Samuel.  
 Sans. Sanskrit.  
 S. A. S. (*Societatis Antiquariorum Socius.*) Fellow of the Society of Antiquaries.  
 Sat. Saturday.  
 Sax. Saxon.  
 Sax. Chron. Saxon Chronicles.  
 Sb. (*Stibium.*) Antimony.  
 S. C. (*Senatus Consultum*) A decree of the Senate, South Carolina, Small Caps.  
 Sc., or Sculp. (*Sculpsit.*) He (or she) engraved it.  
 Sc., or scil. (*Scilicet.*) To wit, namely, being understood.  
 Scan. Mag. (*Scandalum magnatum.*) Defamatory expressions tending to the injury of persons of importance.  
 S. caps. Small capitals.  
 S. C. Hist. Soc. South Carolina Historical Society.  
 Sch., or Schol. (*Scholium.*) A note.  
 Sch., or schr. Schooner.  
 Sci. Science.  
 Sci. fa. (*Scire facias.*) Make known (law).  
 Scil., or sc. (*Scilicet.*) To wit, namely, being understood.  
 S. C. L. Student of the Civil Law.  
 Slav. Slavonic.  
 Scot. Scotland, Scottish, Scotch.  
 Scr. Scruple.  
 Script. Scripture, Scriptural.  
 Sculp. (*Sculpsit.*) He (or she) engraved it.  
 Sculp., or sculpt. Sculpture.  
 S. D. (*Salutem dicit.*) Sends health. South Dakota.  
 S. D. (*Scientiæ Doctor.*) Doctor of Science, Senior Deacon.  
 S. D. U. K. Society for the Diffusion of Useful Knowledge.  
 S. E. Southeast, Southeastern  
 Se. Selenium.  
 Sec. Secretary.  
 Sec. Second, Section.  
 Sec. Leg. Secretary of Legislation.  
 Sec. leg. (*Secundum legem.*) According to law.  
 Sec. reg. (*Secundum regulam.*) According to rule.  
 Sect. Section.  
 Sen. Senate, Senator, Senior.  
 Sep., or Sept. September, Septuagint.  
 Seq., or Sqq. (*Sequentia, or sequentes.*) The following, the next. (*Sequitur.*) It follows.  
 Ser. Series.  
 Serb. Serbian.  
 Serg., or Serj. Sergeant, or Serjeant.  
 Serg. Maj. Sergeant Major.  
 Serv., or Servt. Servant.  
 S. G. (*Salutis Gratia.*) For the sake of safety (*i.e.*, insured.)  
 S. G. Solicitor General.  
 Sh., or s. Shilling.  
 Shak. Shakespeare.  
 S. Hist. Soc. Southern Historical Society.  
 S. H. S. (*Societatis Historicæ Socius*) Fellow of the Historical Society.  
 Si. Silicium.  
 Sing., or Sin. Sine, Singular.  
 S. Isl. Sandwich Islands.  
 Sist. Sister.  
 S. J. Society of Jesus.  
 S. J. C. Supreme Judicial Court.  
 Skr. Sanskrit.  
 S. L. Solicitor at Law.  
 S. L., or L. S. (*Sigilli Locus.*) Place for the Seal.  
 S. L., or S. Lat. South Latitude.  
 Slav. Slavonic, Slavonian.  
 Sld. Sailed.  
 S. M. Short Metre, Sergeant Major, Sons of Malta, Sewing machine.  
 S. M. (*Sa Majesté.*) His (or Her) Majesty.  
 Sm C. Small capitals.  
 S. M. I. (*Sa Majesté Impériale.*) His (or Her) Imperial Majesty.  
 Smith. Inst. Smithsonian Institution.  
 S. M. Lond. Soc. (*Societatis Medicæ Londiniensis Socius.*) Member of the London Medical Society.  
 S. M. Lond. Soc. Cor. (*Societatis Medicæ Londiniensis Socius Cor.*) Corresponding Member of the London Medical Society.  
 Sn. (*Stannum.*) Tin.  
 Soc. Society.  
 Soc. Isl. Society Islands.  
 S of Sol. Song (or Songs) of Solomon.  
 S. of T. Sons of Temperance.

## ABBREVIATIONS.

- Sol. Solomon, Solution, Solicitor.
- Sol. Gen. Solicitor General.
- S. P. (*Sine Prole.*) Without issue, *supra* protest.
- S. P. (*Salutem precatur.*) He prays for his prosperity.
- Sp. Spain, Spanish.
- S. P. A. S. (*Societatis Philosophicæ Americanæ Socius.*) Member of the American Philosophical Society.
- S. P. C. A. Society for the Prevention of Cruelty to Animals.
- S. P. C. K. Society for the Promotion of Christian Knowledge.
- S. P. D. (*Salutem plurimam dicit.*) He wishes much health, or sends his best respects.
- S. P. G. Society for the Propagation of the Gospel.
- Sp. gr. Specific gravity.
- S. P. Q. R. (*Senatus Populusque Romanus.*) The Senate and the People of Rome.
- Sq., or sqq. Square.
- Sq. (*Sequens.*) The following.
- Sq. ft. Square foot or Square feet.
- Sq. in. Square inch or inches.
- Sq. m. Square mile or miles.
- Sq. r. Square rod or rods.
- Sq. yd. Square yards.
- Sq. yds. Square yards.
- Sr. Sir or Senior, Sister.
- S. R. I. (*Sacrum Romanum Imperium.*) Holy Roman Empire.
- S. R. S. (*Societatis Regiæ Socius.*) Fellow of the Royal Society.
- S. S. Sabbath School, or Sunday School, Saint Simplicius (the mark on the collar of the Lord Chief Justice of England).
- SS. Saints.
- SS. (*Scitote.*) Know ye. (*Semis.*) Half.
- S. S. C. Solicitor before the Supreme Court.
- S. S. E. South-Southeast.
- S. S. W. South-Southwest.
- Σ. Τ. (*Σίγμα Ταυ.*) Sigma Tau (College Society).
- St. Stanza.
- St. Saint, Street, Strait.
- Stat. Statute, Statutes.
- S. T. D. (*Sacræ Theologiæ Doctor.*) Doctor of Sacred Theology, Doctor of Divinity.
- Ster., or Stg. Sterling.
- S. T. P. (*Sacræ Theologiæ Professor.*) Professor of Theology.
- Sts. Streets.
- Su. Sunday.
- Subj. Subjunctive.
- Subst. Substantive, Substitute.
- Suff. Suffix.
- Sun., or Sund. Sunday.
- Sup. Supplement, Superfine, Superior, Superlative.
- Sup., or Supr. (*Supra.*) Above.
- Sup. C. Superior Court.
- Super. Superior, Superfine.
- Superl. Superlative.
- Supp. Supplement.
- Supt. Superintendent.
- Surg. Surgeon, Surgery.
- Surg. Gen. Surgeon General.
- Surv. Surveyor, Surveying.
- Surv. Gen. Surveyor General.
- Sus. Susannah.
- S. V. (*Sub verbo, or Sub voce.*) Under the word or title.
- S. W. Southwest, Southwestern, Senior Warden.
- Sw. Swedish, Sweden.
- Switz. Switzerland.
- Syn. Synonym, Synonymous.
- Synop. Synopsis.
- Syr. Syria, Syrian, Syriac, Syrup.
- T, or τ. Ταυ (*Tau*). Greek T, t.
- T. Territory, Town, Township, Ton, or Tun.
- T. (*Tutti.*) All together, Tenor, Titus, Tullius, Tuesday.
- T., or Tom. Tome, Volume.
- Ta. Tantalum (Columbium).
- Tal. qual. (*Talis qualis.*) Just as they come, average quality.
- Tan. Tangent.
- Tart. Tartaric.
- Tb. Terbium.
- T. C. D. Trinity College, Dublin.
- Te. Tellurium.
- T. E. Topographical Engineers.
- Tel. Telegraph, Telegram.
- Ten., or Tenn. Tennessee.
- Ter. Territory.
- Term. Termination.
- Teut. Teutonic.
- Tex. Texas.
- Text. Rec. (*Textus Receptus.*) The Received Text.
- Θ, or θ. Θήτα. (*Theta.*) Greek Th, th.
- Th. Thomas, Thorium.
- Th., or Thurs. Thursday.
- Theo. Theodore, Theodosia.
- Theol. Theology, Theological.
- Theoph. Theophilus.
- Theor. Theorem.
- Thess. Thessalonians.
- Thos. Thomas.
- Thu., Thur., or Thurs. Thursday.
- T. H. W. M. Trinity High Water Mark.
- Ti. Titanium.
- Tier. Tierce.
- Tim. Timothy.
- Tit. Titus, Title.
- Tl. Thallium.
- Tob. Tobit.
- Tom. Tome, or Volume.
- Tonn. Tonnage.
- Topog. Topography, or Topographical.
- Tr. Transpose, Translator, Translation, Treasurer, Trustee.
- tr. (*Trillo.*) A shake.
- Trans. Translator, Translation, Translated, Transaction, Transportation.
- Trav. Travels.
- Trav. Agt. Travelling Agent.

## ABBREVIATIONS.

- Treas. Treasurer.  
 Trin. Trinity.  
 Trin. Coll. Trinity College.  
 Trs., or Trus. Trustees.  
 Ts. Texas.  
 T. T. L. To take leave.  
 Tu., or Tues. Tuesday.  
 Turk. Turkey, or Turkish.  
 Typ., or Typo. Typographer.  
 Typog. Typography, Typographical.  
 Υ, or υ. Υψίλον. (*Upsilon*.)  
 Greek U, u, or y.  
 U. Uranium.  
 U. A. O. D. United Ancient Order of Druids.  
 U. C. (*Urbis Condite.*) From the building of the city (Rome), Upper Canada.  
 U. E. I. C. United East India Company.  
 U. G. R. R. Underground Railroad.  
 U. J. D. (*Utriusque Juris Doctor.*) Doctor of both laws (*i. e.*, the Canon and the Civil Law). See J. U. D.  
 U. K. United Kingdom.  
 U. K. A. Ulster King at Arms.  
 U. L. A. Union League of America.  
 Ult. (*Ultimo.*) Last, or of the last month.  
 Unit. Unitarian.  
 Univ. University, Universally.  
 Up. Upper.  
 U. P. United Presbyterian.  
 U. P. C. United Presbyterian Church.  
 U. S. United States, United Service.  
 U. S. (*ut supra.*) As above.  
 U. S. A. United States Army, United States of America.  
 U. S. Ex. United States Express.  
 U. S. L. United States Legation.  
 U. S. M. United States Mail.  
 United States Marine, United States Mint (Philadelphia).  
 U. S. M. A. United States Military Academy.  
 U. S. M. C. C. United States Mint (Carson City).  
 U. S. M. S. United States Mint (San Francisco).  
 U. S. N. United States Navy.  
 U. S. N. A. United States Naval Academy.  
 U. S. P. United States Pharmacopœia.  
 U. S. R. Usher of the Scarlet Rod.  
 U. S. S. United States Senate, United States Ship (or Steamer).  
 Usu. Usual, or usually.  
 U. S. V. United States Volunteers.  
 U. T. Utah Territory.  
 V. Vanadium, Victoria, Viscount.  
 V. Five or fifth.  
 V. Violin. VV. Violins.  
 V. Verse, Verb, Village, Vocative, volume. (*Versus.*) Against. (*Vide.*) See.  
 V. a. Verb active,  
 V. A. Vicar, or Vicariate, Apostolic, Vice Admiral.  
 Va. Virginia.  
 Vat. Vatican.  
 V. aux. Verb auxiliary.  
 Vb. n. Verbal noun.  
 V. C. Vice Chancellor, Vice Chairman, Victoria Cross.  
 V. C. G. Vice Consul General.  
 V. def. Verb defective.  
 V. dep. Verb deponent.  
 V. D. L. Van Dieman's Land.  
 V. D. M. (*Verbi Dei Minister.*) Minister of the Word of God.  
 Ven. Venerable.  
 Ven., or ven. fa. (*Venire facias.*) A writ to a sheriff to summon a jury.  
 Ven. Ex. (*Venditioni exponas.*) A writ of execution to a sheriff to sell goods, etc.  
 Ver. Verse, Verses.  
 Ver. Vermont.  
 Vet. Surg. Veterinary Surgeon.  
 V. F. Vicar Forane.  
 V. G. Vicar General, Vice Grand.  
 V. g. (*Verbi gratia.*) For example.  
 Vi. (*Vide.*) See.  
 V. i. Verb intransitive.  
 VI. Six or sixth.  
 VII. Seven or seventh.  
 VIII. Eight or eighth.  
 Vic. Ap. Vicar Apostolic.  
 Vice Pres. Vice President.  
 Vic. Gen. Vicar General.  
 Vid. (*Vide.*) See.  
 Vil. Village.  
 V. imp. Verb impersonal.  
 V. irr. Verb irregular.  
 Vis., or Visc. Viscount.  
 Viz. (*Videlicet.*) Namely, to wit.  
 V. n. Verb neuter.  
 Vo. (*Verso.*) Left-hand page.  
 Voc. Vocative.  
 Vol. Volume.  
 Vols. Volumes, Volunteers.  
 V. P. Vice-President.  
 V. R. (*Victoria Regina.*) Queen Victoria, Very Reverend.  
 V. r. Verb reflective, or reflexive.  
 V. Rev. Very Reverend.  
 Vs. (*Versus.*) Against, or in opposition.  
 V. S. Veterinary Surgeon.  
 Vt. Vermont.  
 V. t. Verb transitive.  
 Vul., or Vulg. Vulgate, Vulgar, or Vulgarly.  
 Vv. ll. (*varie lectiones.*) Different readings.  
 V. Y. Various years.  
 W. Wednesday, Welsh.  
 W. West, Western, Warden. (*Wolframium.*) Tungsten.  
 W. Week.  
 W. A. West Australia, West Africa.

## ABBREVIATIONS.

W. & M. Coll. William and Mary's College.	XVIII. Eighteen.
Wall. Wallachian.	XIX. Nineteen.
Wash. Washington.	XX. Twenty.
W. C. Water-closet, West Central.	XXX. Thirty.
W. C. T. U. Women's Christian Temperance Union.	XL. Forty.
Wed. Wednesday.	XC. Ninety.
West Res. Coll. Western Reserve College.	Xdr., or tdr. Crusader.
Wes. Univ. Wesleyan University.	Xmas., or Xm. Christmas.
w. f. Wrong font (in printing).	Xn., or Xtian. Christian.
W. G. C. Worthy Grand Chaplain, Worthy Grand Conductor.	Xnty., or Xty. Christianity.
W. G. G. Worthy Grand Guide, Worthy Grand Guardians.	Xt. Christ.
W. G. H. Worthy Grand Herald.	Xtian. Christian.
W. G. M. Worthy Grand Marshal.	Xty. Christianity.
W. G. S. Worthy Grand Sentinel.	Y. Yttrium.
Whf. Wharf.	Y., or yr. Year.
W. I. West Indies, West India.	Y. B. Year-Book.
Wis., or Wisc. Wisconsin.	Y. C. Yale College.
Wisd. Wisdom (Book of).	Yd. Yard.
Wk. Week, Work.	Yds. Yards.
W. Lon. West longitude.	Y <sup>c</sup> . The or Thee. NOTE.—The Y in this, and similar instances, is a substitute for th.
Wm. William.	Y <sup>m</sup> . Them.
W. M. Worshipful Master.	Y. M. C. A. Young Men's Christian Association.
W. M. S. Wesleyan Missionary Society.	Y. M. Cath. A. Young Men's Catholic Association.
W. N. W. West-Northwest.	Y <sup>a</sup> . Then.
W. P. Worthy Patriarch.	Y <sup>r</sup> . Their.
Wpful. Worshipful.	Yr. Your.
W. R. William ( <i>Rex</i> ) King, West Riding.	Yr. B. Year-Book.
W. S. Writer to the Signet.	Yrs. Yours, Years.
W. S. W. West-Southwest.	Y <sup>s</sup> . This.
W. T. Washington Territory.	Y <sup>t</sup> . That.
Wt. Weight.	Y. W. C. A. Young Women's Christian Association.
W. Va. West Virginia.	Y. W. C. T. U. Young Women's Christian Temperance Union.
Wyo. Wyoming.	Y. W. C. U. Young Women's Christian Union.
Z, or ζ. Ζῆ. ( <i>Xi.</i> ) Greek. X, x.	Z, or ζ. Ζῆτα. ( <i>Zeta.</i> ) Greek
X. Christ. (Χριστος, <i>Christos</i> ).	Z, z.
X. Ten or tenth.	Z. Zero.
X. St. Andrew's Cross, Exchange, His (or her) mark.	Z. Zinc.
XI. Eleven.	Z. Zone.
XII. Twelve.	Z. or Zr. Zirconium.
XIII. Thirteen.	Zach. Zachary.
XIV. Fourteen.	Zeb. Zebulon, Zebedee.
XV. Fifteen.	Zech. Zechariah.
XVI. Sixteen.	Zeph. Zephaniah.
XVII. Seventeen.	Z. G. Zoological Gardens.
	Zn. Zinc.
	Zod. Zodiac.
	Zoöl. Zoölogy or zoölogical.
	Zr. Zirconium.

II. CLASSICAL ABBREVIATIONS.—The following list contains a selection from the abbreviations that occur in the writings and inscriptions of the Romans :—

A. Absolvo, Ædilis, Æs, Ager, Ago, Aio, Amicus, Annus, Antiquo, Auctor, Auditor, Augustus, Aulus, Aurum, Aut.	A.D. Ante diem; <i>e g</i> , A.D.V. Ante diem quintum.
A. A. Æs alienum, Ante audita, Apud agrum, Aurum argentum.	A.D.A. Ad dandos agros.
A. A. Augusti. AAA. Augusti tres.	ÆD. Ædes, Ædilis, Ædilitas.
A. A. A. F. F. Auro argento ære flando feriundo.	ÆM. <i>and</i> AIM. Æmilius, Æmilia.
A. A. V. Alter ambove.	ÆR Ærarium. ÆR.P. Ære publico.
A. C. Acta causa, Alius civis.	A. F. Actum fide, Auli filius.
	AG. Ager, Ago, Agrippa.
	A. G. Animo grato, Aulus Gellius.

## ABBREVIATIONS.

- A.L.Æ. and A.L.E. Arbitrium litis æstimandæ.  
A.M. and A.MILL. Ad milliarium.  
AN. Aniensis, Annus, Ante.  
ANN. Annales, Anni, Annona.  
ANT. Ante, Antonius.  
A.O. Alii omnes, Amico optimo.  
AP. Appius, Apud.  
A.P. Ad pedes, Ædilitia potestate.  
A.P.F. Auro (or argento) publico feriundo.  
A.P.M. Amico posuit monumentum, Annorum plus minus.  
A.P.R.C. Anno post Romam conditam.  
ARG. Argentum.  
AR.V.V.D.D. Aram votam volens dedicavit, Arma votiva dono dedit.  
AT. A tergo. Also A TE. and A TER.  
A.T.M.D.O. Aio te mihi dare oportere.  
AV. Augur, Augustus, Aurelius.  
A.V. Annos vixit.  
A.V.C. Ab urbe condita.  
AVG. Augur, Augustus.  
AVGG. Augusti (generally of two). AVGGG. Augusti tres.  
AVT.PR.R. Auctoritas provincie Romanorum.  
B. Balbus, Balbus, Beatus, Bene, Beneficiarius, Beneficium, Bonus, Brutus, Bustum.  
B. for V. Berna, Bivus, Bixit.  
B.A. Bixit annos, Bonis auguriis, Bonus amabilis.  
BB. or B.B. Bene, bene, i.e., optime, Optimus.  
B.D. Bonæ deæ, Bonum datum.  
B.DD. Bonis deabus.  
B.D.S.M. Bene de se merenti.  
B.F. Bona femina, Bona fides, Bona fortuna, Bonum factum.  
B.F. Bona femina, Bona filia.  
B.H. Bona hereditaria, Bonorum heres.  
B.I. Bonum iudicium. B.I.I. Boni iudicis iudicium.  
B.M. Beatæ memoriæ, Bene merenti.  
B.N. Bona nostra, Bonum nomen.  
BN.H.I. Bona hic invenies.  
B.P. Bona paterna, Bonorum potestas, Bonum publicum.  
B.Q. Bene quiescat, Bona quæsit.  
B.RP.N. Bono reipublicæ natus.  
BRT. Britannicus.  
BT. Bonorum tutor, Brevi tempore.  
B.V. Bene vale, Bene vixit, Bonus vir.  
B.V.V. Balnea vina Venus.  
BX. Bixit, for vixit.  
C. Cæsar, Caius, Caput, Causa, Censor, Civis, Cohors, Colonia, Comitialis (dies), Condemno, Consul, Cum, Curo, Custos.  
C. Caia, Centuria, Cum, the prefix Con.  
C.B. Civis bonus, Commune bonum, Conjugi beneemerenti, Cui bono.  
C.C. Calumniæ causa, Causa cognita, Conjugi carissimæ, Consilium cepit, Curia consulto.  
C.C.C. Calumniæ cavendæ causâ.  
C.C.F. Cæsar (or Caius) curavit faciendum, Caius Caii filius.  
CC.VV. Clarissimi viri.  
C.D. Cæsaris decreto, Caius Decius, Comitialibus diebus.  
CES. Censor, Censores. CESS. Censores.  
C.F. Causa fiduciæ, Conjugi fecit, Curavit faciendum.  
C.H. Custos heredum, Custos hortorum.  
C.I. Caius Julius, Consul iussit, Curavit iudex.  
CL. Clarissimus, Claudius, Claudius, Colonia.  
CL V. Clarissimus vir, Clypeum vovit.  
C M. Caius Marius, Causa mortis.  
CN. Cnæus.  
COH. Coheres, Cohors.  
COL. Collega, Collegium, Colonia, Columna.  
COLL. Collega, Coloni, Coloniae.  
COM. Comes, Comitium, Comparatum.  
CON. Conjux, Consensus, Consiliarius, Consul, Consularis.  
COR. Cornelia (tribus), Cornelius, Corona, Corpus.  
COS. Consiliarius, Consul, Consulares. COSS. Consules.  
C.P. Carissimus or Clarissimus puer, Civis publicus, Curavit ponendum.  
C.R. Caius Rufus, Civis Romanus, Curavit reficiendum.  
CS. Cæsar, Communis, Consul.  
C.V. Claeissimus or Consularis vir.  
CVR. Cura, Curator, Curavit, Curia.  
D. Dat, Dedit, etc., De, Decimus, Decius, Decretum, Decurio, Deus, Dicit, etc., Dies, Divus, Dominus, Domus, Donum.  
D.C. Decurio coloniarum, Diebus comitialibus, Divus Cæsar.  
D.D. Dea Dia, Decurionum decreto, Dedicavit, Deo dedit, Dono dedit.  
D.D.D. Datum decreto decurionum, Dono dedit dedicavit.  
D.E.R. De ea re.  
DES. Designatus.  
D.I. Dedit imperator, Diis immortalibus, Diis inferis.  
D.I M. Deo invicto Mithræ, Diis inferis Manibus.  
D.M. Deo Magno, Dignus Memoria, Diis Manibus, Dolo Malo.



## ABBREVIATIONS.

- D.O.M. Deo Optimo Maximo.  
D.P.S. Dedit proprio sumptu, Deo perpetuo sacrum, De pecunia sua.  
E. Ejus. Eques, Erexit, Ergo, Est, Et, Etiam. Ex.  
EG. Æger, Egit, Egregius.  
E.M. Egregiæ memoriæ, Ejusmodi, Erexit monumentum.  
EQ.M. Equitum magister.  
E.R.A. Ea res agitur.  
F. Fabius, Facere, Fecit, etc., Familia, Fastus (dies), Felix, Femina, Fides, Filius, Flamen, Fortuna, Frater, Fuit, Functus.  
F.C. Faciendum curavit, Fidei commissum, Fiduciæ causa.  
F.D. Fidem dedit, Flamen Dialis, Fraude donavit.  
F.F.F. Ferro flamina fame, Fortior fortuna fato.  
FL. Filius, Flamen, Flaminius, Flavius.  
F.L. Favete, linguis, Fecit libens, Felix liber.  
FR. Forum Fronte, Frumentarius.  
F.R. Forum Romanum.  
G. Gaius (=Caius), Gallia, Gaudium, Gellius, Gemina, Gens, Gesta, Gratia.  
G.F. Gemina fidelis (*applied to a legion*). So G.P.F. Gemina pia fidelis.  
GL. Gloria.  
GN. Genius, Gens, Genus, Gnæus (=Chæus).  
G.P.R. Genio populi Romani.  
H. Habet, Heres, Hic, Homo, Honor, Hora.  
HER. Heres. Herennius. HER. and HERC. Hercules.  
H.L. Hac lege, Hoc loco, Honesto loco.  
H.M. Hoc monumentum, Honestata mulier, Hora mala.  
H.S.E. Hic sepultus est, Hic situs est.  
H.V. Hæc urbs, Hic vivit, Honestè vixit, Honestus vir.  
I. Immortalis, Imperator, In, Infra, Inter. Invictus, Ipse, Isis, Judex, Julius, Junius, Jupiter, Justus.  
IA. Jam, Intra.  
I.C. Julius Cæsar, Juris Consultum, Jus civile.  
ID. Idem, Idus, Interdum.  
I.D. Inferis diis, Jovi dedicatum, Jus dicendum, Jussu Dei.  
I.D.M. Jovi deo magno.  
I.F. In foro, In fronte.  
I.H. Jacet hic, In honestatem, Justus homo.  
IM. Imago, Immortalis, Imminus, Impensa.  
IMP. Imperator, Imperium.  
I.O.M. Jovi optimo maximo.  
I.P. In publico, Intra provinciam, Justa persona.  
I.S.V.P. Impensa sua vivus posuit.  
K. Kæso, Cai, Calumnia, Caput, Carus, Castra.
- K., KAL, and KL. Kalendæ.  
L. Lælius, Legio, Lex, Libens, Liber, Libra, Locus, Lollius, Lucius, Ludus.  
LB. Libens, Liberi, Libertus.  
L.D.D.D. Locus datus decreto decurionum.  
LEG. Legatus, Legio.  
LIB. Liber, Liberalitas, Libertas, Libertus, Librarius.  
LL. Leges, Libentissime, Liberti.  
L.M. Libens merito, Locus monumenti.  
L.S. Laribus sacrum, Libens solvit, Locus sacer.  
LVD. Ludus.  
LV.P.F. Ludos publicos fecit, M. Magister, Magistratus, Magnus, Manes, Marcus, Marius, Marti, Mater, Memoria, Mensis, Miles, Monumentum, Mortuus, Mucius, Mulier.  
M'. Manius.  
M.D. Magno Deo, Manibus diis, Matri deum, Merenti dedit.  
MES, Mensis. MESS, Menses.  
M.F. Mala fides, Marci filius, Monumentum fecit.  
M.I. Matri Idææ, Matri Isidi, Maximo Jovi.  
MNT. and MON. Moneta.  
M.P. Male positus, Monumentum posuit.  
M.S. Manibus sacrum, Memoriarum sacrum, Manuscriptum.  
MVN. Municeps, or municipium; so also MN., MV., and MVNIC.  
M.V.S. Marti ultori sacrum, Merito votum solvit.  
N. Natio, Natus, Nefastus (dies), Nepos, Neptunus, Nero, Nomen, Non, Nonæ, Noster, Novus, Numen, Numerius, Numerus, Nummus.  
N.P. Nepos, Neptunus.  
N.F.C. Nostræ fidei commissum.  
N.L. Non licet, Non liquet, Non longe.  
N.M.V. Nobilis memoriæ vir.  
NN. Nostri. NN., NNO., and NNR. Nostrorum.  
NOB. Nobilis. NOB., NOBR., and NOV. Novembris.  
N.P. Nefastus primo (*i.e.*, priore parte diei), Non potest.  
O. Ob, Officium, Omnis, Oportet, Optimus, Opus, Ossa.  
OB. Obiit, Obiter, Orbis.  
O.C.S. Ob cives servatos.  
O.H.F. Omnibus honoribus functus.  
O.H.S.S. Ossa hic sita sunt.  
OR. Hora. Ordo, Ornamentum.  
O.T.B.Q. Ossa tua bene quiescant.  
P. Pars, Passus, Pater, Patronus, Pax, Perpetuus, Pes, Pius, Plebs, Pondo, Populus, Pest, Posuit, Præses, Prætor, Primus, Pro, Provincia, Publicus, Publius, Puer.

## ABBREVIATIONS.

P.C. Pactum conventum, Patres conscripti, Pecunia constituta, Ponendum curavit, Post consulatum, Potestate censoria.	S.D. Sacrum diis, Salutem dicit, Senatus decreto, Sententiam dedit.
P.F. Pia fidelis, Pius felix, Promissa fides, Publii filius.	S.D.M. Sacrum diis Manibus, Sine dolo malo.
P.M. Piæ memoriæ, Plus minus, Pontifex maximus.	SER. Servius, Servus.
P.P. Pater patratus, Pater patriæ, Pecunia publica, Præpositus, Primipilus, Proprætor.	S.E.T.L. Sit ei terra levis.
PR. Præses, Prætor, Pridie, Princeps.	SN. Senatus, Sententia, Sine.
P.R. Permissu reipublicæ, Populus Romanus.	S.P. Sacerdos perpetua, Sine pecunia. Sua pecunia.
P.R.C. Post Romam conditam.	S.P.Q.R. Senatus populusque Romanus.
PR.PR. Præfectus prætorii, Proprætor.	S.S. Sanctissimus senatus, Supra scriptum.
P.S. Pecunia sua. Plebiscitum, Proprio sumptu, Publicæ salutis.	S.V.B.E.E.Q.V. Si vales bene est, ego quidem valeo.
P.V. Pia victrix, Præfectus urbi, Præstantissimus vir.	T. Terminus, Testamentum, Titus, Tribunus, Tu, Turma, Tutor.
Q. Quæstor, Quando, Quantus, Que, Qui, Quinquennalis, Quintus, Quirites.	T.B., T.L., and TIB. Tiberius.
Q.D.R. Qua de re.	T.B., T.R., and TRB. Tribunus.
Q.I.S.S. Quæ infra scripta sunt; so Q.S.S.S. Quæ supra. etc.	T.F. Testamentum fecit, Titi filius, Titulum fecit, Titus, Flavius.
QQ. Quæcumque, Quinquennalis, Quoque.	TM. Terminus, Testamentum, Thermæ.
Q.R. Quæstor reipublicæ.	T.P. Terminus posuit, Tribunicia potestate, Tribunus plebis.
R. Recte, Res, Respublica, Retro, Rex, Ripa, Roma, Romanus, Rufus, Rursus.	TVL. Tullius, Tullus.
R.C. Romana civitas, Romanus civis.	V. Urbs, Usus, Uxor, Vale, Verba, Vestalis, Vester, Vir, Vivus, Vixit, Volo, Votum.
RESP. and RP. Respublica.	V.A. Veterano assignatus, Vixit annos.
RET. P. and RP. Retro pedes.	V.C. Vale conjux, Vir clarissimus, Vir consularis.
S. Sacrum, Scriptus, Semis, Senatus, Sepultus, Servius, Servus, Sextus, Sibi, Sine, Situs, Solus, Solvit, Sub, Suns.	V.E. Verum etiam, Vir egregius, Vism est.
SAC. Sacerdos, Sacrificium, Sacrum.	V.F. Usus fructus, Verba fecit, Vivus fecit.
S.C. Senatus consultum.	V.P. Urbis præfectus. Vir perfectissimus, Vivus posuit.
	V.R. Urbs Roma, Uti rogas, Votum reddidit.

III. MIDDLE-AGE ABBREVIATIONS.—Of the different kinds of abbreviations in use in the middle ages, the following are examples:—

A.M. Ave Maria.	PP. Papa, Patres, Piissimus.
B.P. Beatus Paulus, Beatus Petrus.	R.F. Rex Francorum.
C.C. Carissimus ( <i>also plur.</i> Carissimi), Clarissimus, Circum.	R.P.D. Reverendissimus Pater Dominus.
D. Deus, Dominicus, Dux.	S.C.M. Sacra Cæsarea Majestas.
D.N.PP. Dominus noster Papa.	S.M.E. Sancta Mater Ecclesia.
FF. Felicissimus, Fratres, Pandectæ ( <i>prob. for Gr. II.</i> ).	S.M.M. Sancta Mater Maria.
I.C., or I.X. Jesus Christus.	S.R.I. Sanctum Romanum Imperium.
I.D.N. In Dei nomine.	S.V. Sanctitas Vestra, Sancto Virgo.
KK. Karissimus ( <i>or -mi</i> )	V. Venerabilis, Venerandus.
MM. Magistri, Martyres, Matrimonium, Merritissimus	V.R.P. vestra Reverendissima Paternitas.
O.S.B. Ordinis Sancti Benedicti.	

Besides the generally current abbreviations given above, other short methods of statement are frequently employed in particular circumstances. In the present work, for instance, in which the saving of space is of great moment, when the title or heading of a subject recurs in the body of the article.

## ABBREVIATIO PLACITORUM—ABD-EL-KADÉR.

it is generally—especially if a proper name—represented by its initial letter: e.g., A. for Abd-el-Kader. Two dates following a name, and separated by a dash, are the dates of birth and death. The meaning of these and similar contractions is in general obvious. See CONTRACTIONS.

ABBREVIATIO PLACITORUM, *āb-brē-vī-ā'-shī-ō plā-sǎ-tō'rūm* [mid. L.]: brief notes of decisions of law-cases in King John's reign; the beginnings of the common law.

A, B, C, *ā, bē, sē* [first three letters of the English alphabet], an alphabet; an elementary reading-book.

ABD, *ābd*, signifies in Arabic 'slave' or 'servant,' and enters, with the name of God, into the composition of many proper names; as, Abd Allah, 'servant of God;' Abd-el-Kader, 'servant of the mighty God;' Abd-ul-Latif, 'servant of the gracious God,' etc. So *Ebed* in Hebrew and Syriac.

ABD-EL-KADER, *ābd'el-kā'der*, properly EL-HADJI-ABD-EL KADER-ULID-MAHIDDIN: 1807-83; b. Ghetna, d. Damascus: third son of a Marabout chief of the race of Haschem, who trace their pedigree to the caliphs of the lineage of Fatima. He was born at an institution of the Marabouts, near Mascara, which belonged to his family. His father, esteemed a very holy man, d. 1834. In 1827, A. visited Egypt, where, in Cairo and Alexandria, he first came in contact with western civilization. Religious enthusiasm and melancholy were prominent in his character. He early showed an uncommonly gifted mind. A. was free from the savage cruelty and sensuality of the Arabs; he maintained purity of manners, and did not permit himself to be misled by anger or passion. Although he firmly adhered to the faith of his nation, and even used their fanaticism, he had no sympathy with their fanatical intolerance. When Algiers was conquered by the French, the Arabian tribes of the province of Oran seized the opportunity to make themselves independent of the Turks, and elected A. as their emir, who soon established his authority over some neighboring tribes. He then attacked the French; and by bloody battles, Dec. 3, 1833, and Jan. 6, 1834, he forced from them a treaty. In the interior his power was spread by victories over neighboring chiefs, and he became master of Miliana and Medeah. All the cities and tribes of the provinces of Oran and Titèri acknowledged A. as their sultan; the distant tribes sent him ambassadors with presents. Soon hostilities broke out between him and the French. The first operations of the French General Tretzel led to that fatal retreat, in which the French army was attacked at Makta, 1835, June 28, by A.'s whole force, nearly 20,000 cavalry, and suffered a disgraceful defeat.

After a struggle of six years, A. took refuge in Morocco, thus drawing upon Morocco the arms of France. After the decisive battle of Isly, 1844, the sultan gave up A.'s cause, but soon found A. at least his equal in power, and that he could not even prevent him from attacking the French again, 1845, Oct., and 1847, March. But he was defeated in a bold night-attack on the Moorish camp, Dec. 11, and was compelled to flee. He might easily have secured his own safety,

ABD-EL-WAHAB—ABDICATE.

but he would not abandon his attached followers, men, women, and children, to the plunder and massacre of the Maroccans. After a heroic combat on Dec. 21, he effected their retreat across the Muluaia into the territory of Algeria, where they mostly surrendered to the French. A., with a few horsemen, resolved to fight his way through to the south; but failed; and surrendered, 1847, Dec. 22, to General Lamoricière and the Duc d'Aumale, on condition that he should be permitted to withdraw either to Egypt or to St. Jean d'Acre. The French government refused to ratify this agreement. A. was sent with his family to Toulon, whence he was removed in 1848 to Pau, and finally to the Château d'Amboise. Liberated in 1852 by Louis Napoleon, he lived at Broussa, in Asia Minor, till its destruction by an earthquake in 1855. He then, for a time, lived in Constantinople, but finally made his home in Damascus. He was of great service to humanity during the Syrian massacres of 1860. In 1865, he visited Paris and England, and was at the Paris Exhibition in 1867. In 1870, he offered to fight against the Germans. He wrote a religious work, translated, 1858, under the title *Rappel à l'Intelligent : Avis à l'Indifférent*.

ABD-EL-WAHAB: see WAHABIS.

ABDERA, n. *ăb-dĕ'ră* [Gr. *Abdērītēs*; L. *Abdērītā*, an inhabitant of *Abdera*], a town of ancient Thrace whose inhabitants were noted for their stupidity: ABDERITE, n. *ăb'dĕr-ĭt*, an inhabitant of Abdera; a stupid person: ABDER'ITAN, a. *-ĭ-tăn*, stupid; very foolish: n. a stupid person.

ABDICATE, v. *ab'dĭ-kăt* [L. *abdicātūs*, rejected, renounced—from *ab*, *dĭco*, I proclaim or make known], to proclaim one's own surrender of a thing or office; to give up a right; to formally renounce an office of dignity: AB'DICA'TING, imp.: AB'DICA'TED, pp.: ABDICATION, n. *ăb'dĭ-kă'shŭn*, the act of giving up; a surrendering; a demission: AB'DICANT, n. *kănt*, also ABDICA'TOR, n. *-kă'ter*, one who: ABDICATIVE, a. *ăb'dĭ-kă'tĭv*, causing or implying abdication.—SYN. of 'abdicate': to abandon; renounce; resign; forsake; give up; vacate; quit; desert; demit.

## ABDICATION.

**ABDICATION** : the act of giving up an office, generally the office of ruler or sovereign. Usually the result of vexation and disappointment. It was perhaps voluntarily, and from being wearied with dominion, that Diocletian, and with him Maximian, abdicated, 305. Christina of Sweden retired from the throne, 1654, out of preference for the freedom of private life, but wished still to exercise the rights of a sovereign. Charles V. laid down the crown, 1556, because his great schemes had failed. Philip V. of Spain did so, 1724, in a fit of melancholy, but resumed it on the death of his son. Amadeus of Savoy abdicated, 1494, to become a priest. Victor Amadeus of Sardinia, who abdicated, 1730, wished to recall the step, but was not allowed. Louis Bonaparte resigned the crown of Holland, because he would not consent to treat that country as a province of France. Charles Emanuel of Sardinia retired from the throne, 1802, not finding himself equal to the crisis; and the same was the case with Victor Emanuel, 1819. William I. of the Netherlands resigned, 1840, as his policy had become impossible from the turn of affairs in Belgium. Foreign force compelled the abdication of Augustus of Poland, 1707, and, later, that of Stanislaus Leszczyński, 1735, and of Poniatowski, 1795; as well as that of Charles IV. of Spain 1808, and of Napoleon, 1814 and 1815. Insurrections have been the most frequent cause of A. The early history of the Scandinavian kingdoms abounds in instances. In England, the compulsory abdication of Richard II., 1399, is an early example. In the case of James II., it was disputed whether the king had 'abdicated' or 'deserted.' More recent times saw Charles X., 1830, and Louis-Philippe, 1848, retire before the storm of revolution, without the conditions they made being regarded. The A. of Ferdinand of Austria, 1848, was an indirect consequence of the events of the year of revolutions; that of Charles Albert of Sardinia, 1849, of the battle of Novara. Of several cases among German princes, the chief is that of Ludwig of Bavaria, 1848. Late instances are those of Amadeus, king of Spain, who gave up his crown, 1873, Feb. 11, and Milan, king of Servia, who did the same, 1889, March 6.

In some countries, the king can abdicate whenever he pleases; but in England, since the constitutional relation between the crown and the nation is of the nature of a contract, the king or queen, it is considered, cannot abdicate without the consent of parliament. It is, however, said that the king does abdicate, or, to speak perhaps more correctly, an A. may be presumed, and acted on by the people, if his conduct politically and overtly is inconsistent with, and subversive of, the system of constitutional government, of which the qualified monarchy of his office forms part.

At the conference between the two houses of parliament previous to the passing of the statute which settled the crown on William III., the word 'abdicated' with reference to King James II. seems to have been used advisedly instead of 'deserted'—the meaning, it is presumed, being that King James had not only deserted his office, but that by his acts, of which the said desertion formed part, he had, in view of

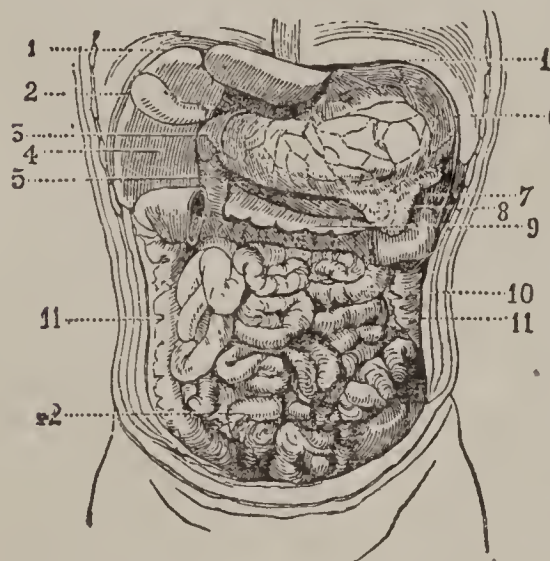
## ABDIEL—ABDOMEN.

the constitution, ceased to have right to the throne. From this it may be inferred that A. was considered to have a twofold political signification, involving maladministration as well as desertion. The Scotch Convention, however, more vigorously and distinctly resolved that King James 'had forefaulted [forfeited] the crown, and the throne was become vacant.'

**ABDIEL**, n. *ăb'dî-ĕl* [Heb. servant of God]: a good and faithful angel; one of the seraphim, who alone boldly withstood Satan when he attempted to stir up the subordinate angels to revolt. See Milton.

**ABDOMEN**, n. *ăb-dŏ'mĕn* [L. *abdŏmĕn*, the lower belly; *abdŏmĭnĭs*, of the lower belly—from *abdo*, I conceal]: the lower part of the belly, containing the stomach and other viscera; the hinder part of the body in arthropoda. **ABDOMINAL**, a. *ăb-dŏm'ĭ-năl*, belonging to the lower belly. **ABDOMINOUS**, a. *ăb-dŏm'ĭ-nŭs*, having a large belly. **ABDOMINALES**, n. plu. *ăb-dŏm'ĭ-nă'lĕz*, in *zool.*, the soft-finned fishes which have their ventral fins placed on the abdomen, behind the pectorals.—**SYN.** of 'abdomen': belly; paunch; stomach.

**ABDOMEN**, *ăb-dŏ'mĕn*: A part of the human body. The trunk of the human body is divided by the diaphragm into two cavities—the upper being the thorax or chest, and the under, the abdomen or belly. Both the cavity and the



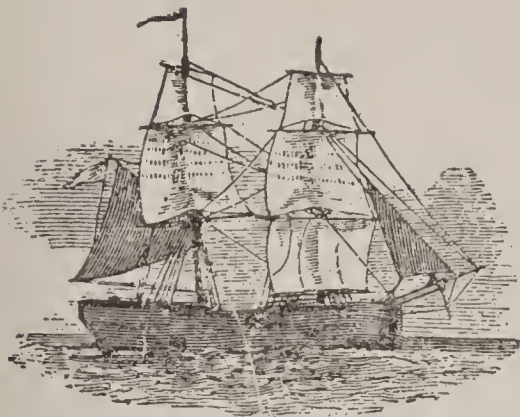
Organs of the Abdomen.

1. Diaphragm. 2. Gall-Bladder. 3. Pyloric end of Stomach. 4. Right Lobe of Liver. 5. Duodenum. 6. Great end of Stomach. 7. Spleen. 8. Piece of Omentum. 9. Pancreas (Sweetbread). 10. Small Intestine (Jejunum). 11. Great Intestine (Colon). 12. Small Intestine (Ilium).

viscera it contains are included in the term A. It contains the liver, pancreas, spleen, and kidneys, also the stomach, small intestine, and the colon. The lower bowel, the bladder, and internal organs of generation lie in the lowest part of the cavity, called the pelvis. The A. is lined by a serous membrane, the peritoneum, which is folded over the viscera, allowing them a certain freedom of motion, but keeping them in their proper relations to each other. The A. is divided externally by two horizontal lines into three principal *regions*—the upper or epigastric, the middle or umbilical, and the lower or hypogastric. These are again subdivided by two vertical lines—the side-divisions being called the hypochondriac, lumbar, and iliac regions respectively; the names epigastric and umbilical are then applied in a restricted sense to the middle divisions of the two upper principal regions; while the middle division of the lower is

PLATE 1

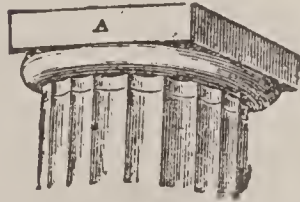
Aback  
Abdomez



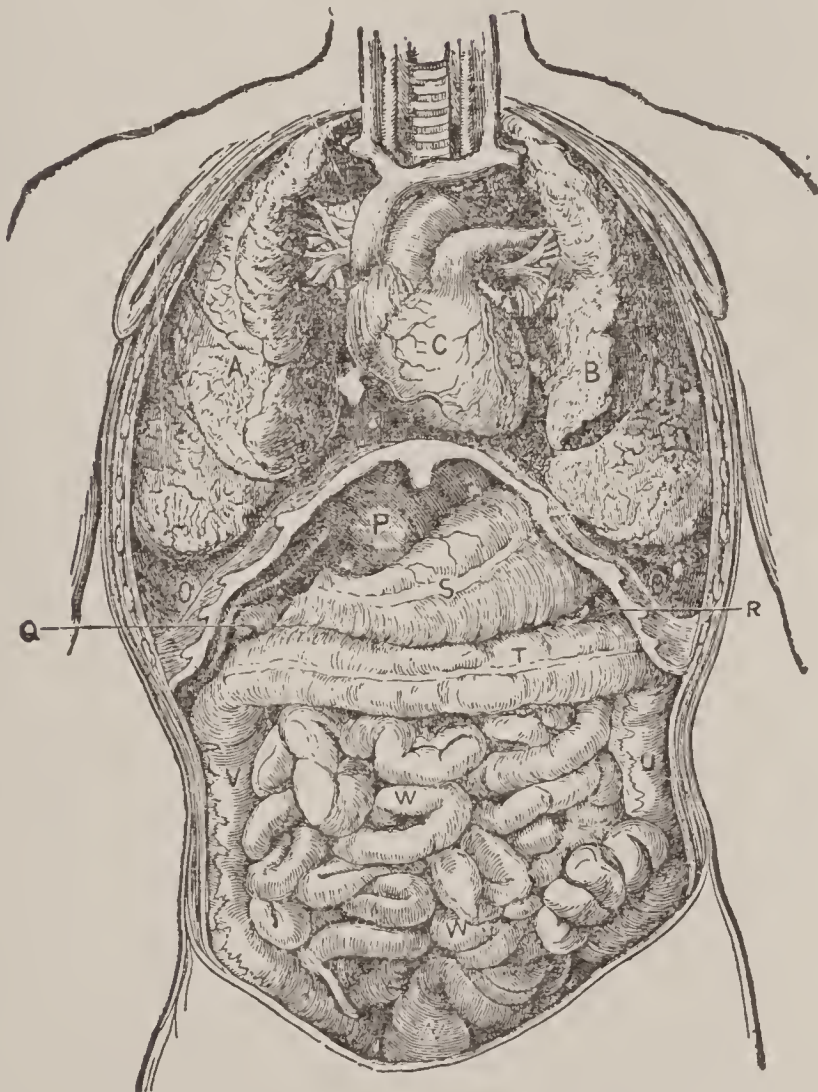
Brig laid aback.



Ionic Capital. A, The Abacus.



Doric Capital. A, The Abacus.



Organs of the Chest and Abdomen. A, B, Lungs; C, Heart; OO, Dia-  
phragm; P, Liver; Q, Gall-bladder; R, Spleen; S, Stomach; TUV, Colon, W  
W, Small intestines.

## ABDOMINALES—ABDUCENT.

called the region of the pubis. Diseases of the abdominal viscera are frequent, and chiefly consist either of chronic disorders of the digestive organs, or of derangements of the nerve-plexuses and ganglia there situated. These disorders announce themselves partly in bodily pain, and partly in mental affections, such as hypochondria and hysterics.

ABDOMEN, in Entomology, the last of the three parts into which the body of an insect is divided. It is composed of a number of rings or segments, frequently nine, more or less distinct from each other. It contains a portion of the intestines and the sexual organs. In the perfect insect, its segments bear no legs nor wings; but the hind-legs of larvæ or caterpillars, which afterwards disappear, are attached to them. In many insects, its last segments bear appendages of various uses and forms, as pincers, stings, borers or ovipositors, etc.

ABDOMINALES, *ăb-dŏm'ŭ-nă'lēz*, or ABDOMINAL FISHES: in the Linnæan arrangement, an order of Fishes including all the Osseous Fishes of which the ventral fins are placed upon and beneath the abdomen, and so behind the pectoral fins. Subsequent naturalists have thought it right in classifying Fishes to give a higher place to other characters; and in the system of Cuvier, the name A. is given to an order of much more limited extent, a subdivision of the *Malacopterygii* or Soft-rayed Osseous Fishes, distinguished by having the ventral fins placed beneath the abdomen and not attached to the bones of the shoulder. It includes the *Cyprinidæ* (Carp, Minnow, etc.), *Esocidæ* (Pike, etc.), *Siluridæ*, *Salmonidæ* (Trout, Salmon, etc.), and *Clupeidæ* (Herring, etc.).

ABDUCE, v. *ăb-dŭs'*, also ABDUCT, v. *ăb-dŭkt'* [mid. L. *abdŭcĕrĕ*, to eject from possession by forms of law or by force; *abductus*, ejected from possession—from L. *ab*, *dŭco*, I lead]: to lead or draw from; to separate; to take away secretly and forcibly. ABDUC'ING, imp. ABDUCED, pp. *ăb-dŭst*. ABDUC'TING, imp. ABDUC'TED, pp. ABDUC'TOR, n. *-tĕr*, one who takes away secretly and forcibly; in *anat.*, a muscle that draws a limb or a part outwards. ABDUCTION, n. *ăb-dŭk'shŭn*, a carrying away by fraud or open violence—generally applied to persons, as females or children; in *med.*, a drawing away from.

ABDUCENT, a. *ăb-dŭ'sĕnt* [L. *abdŭcens* or *abdŭcen'tem*, leading or drawing away—from *ab*, *dŭco*, I lead]: separating; drawing back. ABDUCENTES, n. plu. *ăb'dŭ-sĕn'tēz*, in *anat.*, the 6th pair of cranial nerves which supply those muscles by which the eyes are rotated outwards.



## ABDUCTION.

**ABDUCTION:** the carrying away of any person by fraud or violence, a misdemeanor punishable by indictment—the civil remedies being by recaption, by writ of *habeas corpus*, and by an action for trespass. The statutes of the different states, while varying in regard to the manner of punishment, agree in the definition of this crime in its numerous forms. Thus it includes secret confinement, or imprisonment, without due process of law; also the forcible carrying or sending of persons out of the state; or the inveigling or kidnapping, with intent to confine, or imprison, such persons. Such offense may be tried either in the county in which it has been committed, or in that in or to which the person thus inveigled, kidnapped or imprisoned shall have been taken or confined. Consent on the part of the person thus treated shall not be a defense, unless it shall be made satisfactorily to appear to the jury that such consent was not obtained by fraud nor extorted by duress or threats.

Any person who shall fraudulently and deceitfully entice, or take away any unmarried woman 'of a chaste life and conversation' from her father's house, for improper purposes, and every person who aids and assists in such an abduction, is deemed by the statutes of most of the states to be guilty of a misdemeanor, for which the punishment is imprisonment at hard labor for from one to three years, or fine, either or both, at the discretion of the court. The taking any woman unlawfully, against her will, and, by force, menace, or duress, compelling her to marry any person, is punishable by imprisonment not less than ten years, and the same in case of the act only with intent to commit the crime. The taking away from her father, mother, or guardian, of a female child under the age of fourteen years, without their consent, either for the purpose of prostitution, concubinage, or marriage, is also defined as A., and is punishable by imprisonment for from one to three years, or by fine, or both. Still another form of A. is the malicious, forcible, or fraudulent leading, taking, or carrying away, or decoying or enticing away of any child under the age of twelve years with the intent to conceal and detain the said child from its parent, guardian, or other person having the lawful charge of said child; and this crime is punishable by imprisonment not exceeding ten years, or by fine, or by both. If the father or mother of any child under six years of age, or any other person to whom such a child is confided, abandons the child in the highway, or elsewhere, the act is covered by the same statutes that take cognizance of the crime of A., and the punishment therefor is prescribed by such statutes. In the instance of an unmarried female above the age of consent going with a man of her own volition and with her full consent, an indictment for A. will not lie. In case of the A. of a woman against her will, and of her after-marriage to the defendant with her full consent, it is held that her evidence against her abductor should be allowed, and that if she were a competent witness at any time after the commission of the crime, no subsequent assent to its commission can incapacitate her. If a woman be forcibly taken in one country, and afterwards goes voluntar-

## ABD-UL-HAMID—ABD-UL-LATIF.

ily into another country and is there married or defiled with her own consent, the fact is not indictable in either country, the offense not being complete in either. Kidnapping is an offense at common law. It is considered to be the most aggravated kind of A., and is punishable by fine and imprisonment. In order to constitute the offense of kidnapping a child under ten years of age, it is not necessary that actual force and violence should be used, nor is a transportation to a foreign country necessary to the completion of the offense. At common law, the offense of kidnapping is treated as an aggravated form of false imprisonment, and all the ingredients in the definition of the latter are of course comprehended in the former. The requisites in an indictment seem to be, an averment of an assault, and the carrying away, or transporting the party injured, from his own country into another, unlawfully and against his will. It is not sufficient to charge the defendant with kidnapping, generally; the indictment should state specifically the facts and circumstances which constitute the offense. In A. and kidnapping, not only the misdoers themselves, but the procurers and those who wittingly receive the person so kidnapped or abducted for the purpose of concealment or imprisonment, are frequently made principals by statute.

ABD-UL-HAMID, *âb'dool-hâ'mid*, II., Sultan of Turkey: b. 1842, Sep. 22; was proclaimed sultan in succession to his brother, Murad V., who was deposed in consequence of mental incapacity 1876, Aug. 31. He succeeded, also, to a war with Servia and Montenegro then in progress; and when this was concluded by the proclamation of peace, 1877, March, Russia joined with Roumania in declaring war against Turkey, and invaded Roumelia. Then occurred the fine defense of Plevna and the repulse of the Russians, who were forced to retire to the Shipka pass. Here the Turks were held at bay until reinforcements arrived, when Plevna was captured, Dec. 9. The Turks retreated to Adrianople, and being also defeated at Kars, and driven into Erzeroum, were forced to submit to terms, and the treaty of San Stefano was signed, 1878, March 17. The situation, however, threatened a general war, until the Congress of Berlin, 1878, July 13, concluded peace. The reluctance of Abd-ul-Hamid to carry out the stipulations of the Congress of Berlin in good faith, has kept Europe more or less on the brink of general disorder ever since. In 1879 pressure had to be put upon him by the British government to reduce him to submission. He has been held chargeable with the horrors perpetrated on the Armenians. His triumph over Greece in 1897 greatly increased his prestige.

ABD-UL-LATIF, *âb'dool-lâ-tîf*: 1161-1231; b. and d. Bagdad: celebrated Arabian writer of multifarious acquisitions. During his youth he underwent an amazing amount of mental drudgery, in accordance with the eastern fashion of his time, to fit himself for becoming a scholar. The ordeal consisted in his committing to memory a large number of standard works, such as the Koran, the novels of Hariri, and not a few grammatical treatises. To complete his cult

## ABD-UL-MEDJID-KHAN.

ure in the various branches of Mohammedan lore, he betook himself to Damascus, where the famous Saladin had gathered round him the most learned men of the time. Through the liberality of the sultan, and the kindness of the Vizir Fadhel, he was enabled to proceed to Egypt, where he delivered lectures while Saladin was fighting the Lion-heart at St. Jean d'Acre. Here he became intimate with Moses Maimonides, the great Jewish writer, and devoted himself chiefly to the study of medicine, although while at Cairo, he also wrote his excellent and accurate work on Egypt, translated into Latin by Professor White of Oxford, 1800, and into French by Baron de Sacy, 1810. He died at Bagdad on his way to Mecca.

ABD UL-MEDJID-KHAN, *âbd'ool-mè-jîd'kahn* or *-kân*, the Grand Sultan, 31st sovereign of the race of Osman: 1823-61: succeeded his father, Mahmud II., 1839, July 1. The Turkish empire was then in great danger. The army had been defeated and dispersed by the Egyptians in the battle of Nisib, 1839, June 29, and there was nothing to hinder the victorious Ibrahim Pacha from advancing on Constantinople, where a large party were favorable to the Egyptian power. This party wished to make the viceroy of Egypt, Mehemet Ali, Chakan (the ancient title of the Grand Sultan) of both seas. Had it not been for the intervention of the Christian powers, the House of Osman was lost. The treaty of July, 1840, from which France kept aloof, rescued the young Padishah from sure destruction. Mehemet Ali submitted, 1840, Nov. 27; and the treaty of July, 1841, to which France subsequently adhered, settled the future dependent relation of Egypt to Turkey. The sultan, though not very energetic in body or mind, proceeded in the path of reform begun by Selim III. and Mahmud II. In this he had for his chief adviser Reshid Pacha, an intelligent and humane Mussulman, educated in France. The aim of all his measures was to place the Osman population on a footing with the civilized inhabitants of the west. A. wished the happiness of all his subjects, without respect of creed. A sort of proclamation of their rights was issued in the hattî-sherif of Nov., 1839. This was followed by numerous reforms in all departments; and in 1850, the professors of all religions were decreed equal in the eye of the law. That these decrees remained, in a great measure, a dead letter, is not attributable to the will of the sultan. The chivalrous part acted by A., 1850, in refusing, at the risk of losing his throne, to give up Kossuth and the other political refugees to the menaces of Russia and Austria, will make his name remembered in the annals of humanity.

## ABD-UR-RAHMAN—A'BECKETT.

ABD-UR-RAHMAN, *âbd-êr-râh'mân*, Sultan of Fez and Morocco: 1778–1859; was the rightful heir to the throne when his father died, 1794; but was superseded by an uncle, after whose death he ascended the throne, 1823. His first four years of rule were occupied in quelling insurrections. Next, some danger to the state of Morocco was threatened by the refusal of Austria to pay the tribute for safety against pirates; but the sultan wisely adjusted the dispute by relinquishing this sort of 'black-mail,' formerly levied by Morocco on European ships in the Mediterranean. The religious war under Abd-el-Kader against the French in Algeria involved A.; but was concluded by the battle of Isly, 1844, and the subsequent mediation of England. The piratical habits of his subjects brought A. to the brink of war with more than one European state. He was a zealous Mussulman, without the wild fanaticism common among his countrymen; as a ruler, he was strict, often cruel. He was succeeded, 1859, by his eldest son, Sidi-Mohammed (b. 1803, d. 1873).

ABDURRAHMAN KHAN, *âbd-êr-râh'mân kân*, or ABD-UL-RAHMAN, *âbd-ûl-*, Ameer of Cabul: b. about 1830 (became ameer 1880); nephew of the ameer Shere Ali. During the civil war of 1864, he took the side of his father, Afzul Khan, against his uncle, Shere Ali. He was defeated and fled to Russian territory 1869. In 1879 he went to Cabul, and the following year was elected ameer and recognized by the Brit. govt., which gave him a subsidy of \$800,000 per annum. In 1888 while defending himself against a revolt he was shot at by a sepoy, but though reported dead was uninjured. He died 1901, Oct. 3.

ABEAR, v. *ă-bâr'* [AS. *abéran*—from *a*, on; *beran*, to bear (see BEAR 1)]: in *OE.*, to bear; to comport one's self. ABEARING, imp. ABEARED, pp. *ă-bârd'*.

ABECEDARIANS, *ă-bê-sê-dâ'rî-anz*: small sect among the Anabaptists (q.v.) of Germany in the 16th c., followers of Nicholas Storch. They opposed learning to read, asserting that knowledge of the Holy Scriptures was the only essential to man, and that the true believer received this knowledge by direct communication from the Holy Spirit.

ABECEDARY, *ă-bê-sê-da-rî*, CIRCLES: rings or circles formed of letters and described about a magnetic needle, by means of which it was believed possible for persons at a distance from one another to communicate.

A'BECKETT, *a-bêk'êt*, ARTHUR WILLIAM: author: b. Hammersmith, England, 1844, Oct. 25; youngest surviving son of Gilbert Abbot A. (1811–56), well-known humorous writer and London magistrate. He was appointed to a position in the war office 1862, was afterward private sec. to the Duke of Norfolk, was editor of comic periodicals, and 1870 was a special newspaper correspondent during the Franco-German war. He was called to the bar 1882. He is author of several plays and novels: among the latter, *About Town*, *Long Ago*, and *Faded Flowers*. He has long been on the staff of *Punch*.

## À BECKET—ABEL.

À BECKET, THOMAS: see BECKET.

ABED, ad. *ă-běd'* [AS.]: on or in bed.

ABEL, *ā'běl*: appears in the book of Genesis as the second son of Adam, and a shepherd. He was slain by his elder brother Cain, under the influence of jealousy, because the offering of the latter had been rejected by Jehovah, and that of the former accepted. It is not said in Genesis why Jehovah accepted the sacrifice of Abel; but the Saviour, in the New Testament, speaks of 'righteous Abel,' from which it is concluded that there dwelt in him a spirit of faith or trust in the unseen God, of which his brother was destitute. The writer of the Epistle to the Hebrews opens his enumeration of the 'faithful,' Heb. xi., with these words: 'By faith Abel offered unto God a more excellent sacrifice than Cain.' Such, also, has been in all ages the universal opinion of the Christian Church, which has regarded Abel as a type of innocence and faith.

ABEL, *ă'běl*, CHARLES FREDERICK: 1719-87; b. Koethen, Germany; distinguished musician. He was a pupil of Sebastian Bach, and for some years a member of the famous Dresden band of the Elector of Saxony, king of Poland. In 1758, when nearly forty years of age, he came to England in great destitution; but his talents were quickly recognized. He was appointed chamber-musician to the queen of George III. His peculiar instrument, the *viola da gamba*, a small violoncello, with six strings, was never played by any other in equal perfection. He also obtained reputation as a composer, though his pieces are not now held in very great estimation. His life was shortened by his intemperate habits.

## ABELARD.

**ABELARD, PETER**, *ăb'e-lard*, (Fr. *Abélard* or *Abailard*: Lat. *Abælardus*): 1079–1142; scholastic philosopher and theologian, the boldest thinker of the 12th c., born near Nantes, at Palet, a village which belonged to his parents. An irrepressible thirst for knowledge, and a special pleasure in scholastic logic, moved him to resign his rights of primogeniture in favor of his younger brothers. He left Bretagne for Paris, in order to hear the prelections of William of Champeaux, but soon incurred the hatred of his master, whom he puzzled by his wonderful subtlety. He fled to Melun, and afterwards to Corbeil, persecuted and admired wherever he went. He then returned home for the restoration of his health. With renewed strength he returned to Paris, reconciled himself with his opponents, and molded, by his influence as a lecturer, some of the most distinguished men of his age, among whom were the future Pope Celestine II., Peter Lombard; Berengar, his future apologist, and Arnold of Brescia. At this time, there lived in Paris Heloise, the niece of the Canon Fulbert, then seventeen years of age, and already remarkable for her beauty, talents, and knowledge. She soon kindled in the breast of A., then thirty-eight years old, a violent and overwhelming passion, which was returned by Heloise with no less fervor. By means of Fulbert, A. became teacher and companion of Heloise, and the lovers were happy together until A.'s ardent poetical effusions reached the ears of the canon. He sought to separate the lovers, but it was too late. They fled together to the country, where Heloise bore a son, and was privately married to A., with the consent of her uncle. Not long after, Heloise returned to Fulbert's house, and denied the marriage, that her love might be no hinderance to A.'s advancement in the church. Enraged at this, and at a second flight which she took with her lover, Fulbert, in order to make him canonically incapable of ecclesiastical preferment, caused A. to be emasculated. In deep humiliation A. entered as a monk the abbey of St. Denis, and induced Heloise to take the veil at Argenteuil. But the lectures which he began to give soon exposed him to new persecutions. The synod of Soissons, 1121, declared his opinions on the Trinity heretical. He left St. Denis, and built at Nogent-on-the-Seine a chapel and hermitage called Paraclete, which, after its enlargement by his scholars to a monastic foundation, he, on his appointment as abbot of St.-Gildas-de-Ruys, in Bretagne, gave over to Heloise and her sisterhood for a dwelling. His residence in St.-Gildas was embittered by a continued struggle against his love, and by the hatred of the monks, till at last, in 1140, his doctrine was condemned by Pope Innocent III., and he was ordered to be imprisoned. But Peter the Venerable, abbot of Clugny, after A. had retracted his opinions on the Trinity and Redemption, reconciled him to his enemies. A. died with the reputation of a model of monastic propriety, in the abbey of St. Marcel, not far from Chalons-on-the-Saône. Heloise had him interred at the Paraclete, hoping one day to lie by his side. She survived A. twenty years. The ashes of both were taken to Paris in 1808, and in 1828 were buried

## ABELE—ABENCERRAGES.

in one sepulcher in Père la Chaise.—The doctrines advanced by A. in his controversy with St. Bernhard have a decidedly rationalist tendency; and he, and his predecessor Erigena, may be looked upon as the first avowed representatives of that school. A. laid down the principle that nothing is to be believed but what has been first understood; while the church held that we must believe in order to understand; and Bernhard was for banishing inquiry altogether from the province of religion. In judging of A.'s merits we are not to look so much to his writings as to the influence which his wonderful power of public disputation enabled him to exercise on his age. His character, no less than his doctrine, gave great offense. Until recently, it is chiefly the romantic history of his love that has occupied attention. The chief biographies are by Rémusat (Par. 1845), Wilkens (Gött. 1855), Deutsch (Leip. 1883), and Sauerland (Frankf. 1879). The Latin writings and letters of A. and Heloise were collected by Amboise, and published by Duchesne (Par. 1616). Some works of A. have been recently discovered; among others, *Sic et Non*, a collection of doctrinal contradictions from the Fathers. Cousin, who published the hitherto unedited works in 1836, has given us a complete edition of A.'s works (2 vols., Par. 1849-59).

ABELE, n. *ă-bě'lē* [Pol. *biało*, white]: the white poplar-tree; the *Populus alba*, Ord. *Salicacęæ*. See POPLAR.

ABELITES, *ă'běl-its*, a Christian sect of the 4th c., found chiefly in the neighborhood of Hippo, North Africa. Their chief distinction consisted in marrying, but abstaining from matrimonial intercourse, in order not to propagate original sin. They held that Abel so lived, because the Bible mentions no children of his.

ABELMOSCHUS: see HIBISCUS.

ABENCERRAGES, *ă-běn'se-rāj-ěs*, a noble Moorish race whose struggles with the family of the Zegriz, and tragical destruction in the royal palace of the Alhambra, in Granada, in the time of Abu-Hassan (1466-84), the last but one of the kings of Granada, furnish the materials for a charming Spanish work of fiction, *Historia de las Guerras Civiles de Granada* (Madrid, 1694). From this Chateaubriand composed *Les Aventures du Dernier Abencerrage*, and furnished the text of an opera of Cherubini's. The work, however, seems to be destitute of historical foundation, at least Conde is silent on the subject in his *Historia de la Dominacion de los Arabes en España* (3 vols., Madrid, 1829).

## ABEN-ESRA—ABERCROMBIE.

ABEN-ĒSRA, *á'bĕn-ĕs-rá*, properly ABRAHAM-BEN-MEIR-BEN-ESRA: 1093-1168: b. Spain, d. Rome: one of the most learned Jews of his time. He understood the Hebrew, Arabic, and Aramaic languages; had considerable knowledge of mathematics, astronomy, and medicine; was a scientific observer; and generally distinguished himself as a sagacious thinker. Having left his native land, he visited Lombardy, Provence, France, Egypt, and England, and passed the later years of his life in Rome; everywhere giving lectures on grammar, theology, astronomy, etc., besides writing and translating several works in Hebrew and Arabic. His *Commentaries on the Old Testament* are the most important of his works, which include some treatises on astrology, since published in Latin. The scholastic writers mention Aben-Esra as ABENARE or AVENARD.

ABEOKUTA, *áb-bĕ-o-kó'tá*: city, or rather collection of small towns or villages, cap. of the territory of Egba, in the Yoruba country, on the w. coast of Africa: about 80 m., by the river Ogun, n. of Lagos (on the Bight of Benin), and 240 m. w. of the Lower Niger. It is 567 ft. above the sea-level, on an undulating plain, fantastically broken by masses of gray granite, and covered with bush. A , whose area is 4 m. by 2 m., is surrounded by a wall of hardened mud, 18 to 20 m. in circumference, between 5 and 6 ft. high, without embrasure, with apertures here and there. The houses are square, and built of mud, with tall roofs of thatch; the streets are narrow and irregular, and the only scavengers are the sun, the vulture, and the pig. There are a few European traders and missionaries. There is a trade in palm-oil and grain. Pop. estimated at 150,000. See R. F. Burton's *Abeokuta and the Cameroons Mountains* (1863).

ABER, *áb'ĕr*, is a Celtic word which enters into the composition of several names of places, chiefly in Wales and Scotland. It indicates the mouth or embouchure of a stream, either into the sea, or into another river—as Aberbrothock, at the mouth of the Brothock, in Forfarshire; Abergavenny, at the junction of the Usk and Gavenny, in Wales.

ABERAVON, *ab-ĕr-á'vŏn*, or PORT TALBOT: parliamentary and municipal borough on the s. coast of Wales, in Glamorganshire, near the mouth of the Avon, about 30 m. w. of Cardiff. It is beautifully situated near the valley of Cwm Avon, in which are extensive mining-works belonging to the Bank of England. The town has a good harbor and docks, is a station on the South Wales Railway, and communicates regularly with Bristol by steamers. The valley of the Avon is shut in by lofty hills, while every available space is occupied by copper and iron works. There is a stone bridge of one arch over the river. A. imports ore from Cornwall; and exports copper, tin, and coal. Pop. of municipal borough about 5,000.

ABERBROTHWICK: see ARBROATH.

ABERCROMBIE, *áb'ĕr-krŏm-bĭ*, JOHN, M.D.: 1780-1844; b. Aberdeen: in his own day the most eminent of Scottish physicians; son of a parish minister. He studied



## ABERCROMBIE—ABERDARE.

medicine in Edinburgh, where also he practiced his profession. After the death, 1821, of the celebrated Dr. Gregory, he became recognized as the first consulting physician in Scotland. His professional writings contributed to his celebrity. His works on *The Intellectual Powers* and *The Moral Feelings* (1830, 1833) though without originality or depth of thought, gained repute from the high personal character of the author, and from their genuine religious feeling. Dr. A. received a degree of M.D. from Oxford, the rectorship of Marischal College, the vice-presidency of the Royal Society of Edinburgh, and the office of physician in ordinary for Scotland to the queen of England.

ABERCROMBIE, *äb'ér-krüm-bi*, JOHN JOSEPH: 1802—1877, Jan. 3; b. Tenn. general U. S. A. He graduated at West Point 1822, and 1825–23 served as adjutant in the 1st infantry, being promoted capt. 1836. After service in the Florida war, in which he was made brevet maj., he was engaged on the frontier, and 1845–48 served in the Mexican war, and afterward till 1860 at different stations. He served through the civil war, was wounded at Fair Oaks, brevetted brig.gen., and retired 1865, June 12.

ABERCROMBY, *äb'ér-krüm-bi*, Sir RALPH: soldier: 1734, Oct. 7—1801, Mar. 28; b. Menstry, Clackmannanshire, Scotland. He studied for the bar at the universities of Edinburgh and Leipzig, but turned to a military life; and 1758 went to Germany as a cornet in the 3d dragoon guards. His conduct in the unfortunate campaign, especially during the disastrous retreat in the winter of 1794,5, won him the love and admiration of the army. In command of the expedition to the W. Indies, he took Grenada, Demerara, Essequibo, St. Lucia, St. Vincent, and Trinidad. As commander of the forces in Ireland, his manly remonstrances against the policy of government toward that country occasioned his removal to a similar command in Scotland. On his return from an expedition to Holland, he was appointed to command the expedition to the Mediterranean 1799. His fleet anchored in Aboukir bay 1801, Mar. 2. On Mar. 13th, he drove the enemy within the lines of Alexandria. On the 21st, in the glorious repulse of the enemy's attempt to surprise the British camp, A was struck by a musket-ball in the thigh; but not till he saw the enemy retreating did he show any sign of pain: then he was borne from the field. Seven days afterward he died of the wound. A. was at once gentle and brave, clear-sighted and cool, prompt and daring; he was also a man of liberal accomplishments. A peerage was conferred on his widow.

ABERDARE, *äb'ér-dür'*: town in the county of Glamorgan, about 4 m. s.w. of Merthyr-Tydvil. Coal and iron are abundant in the vicinity, coal being largely exported. A., which is connected with the coast both by rail and canal, is a flourishing centre of iron and tin works. The town has kept pace with the development of its industries; it has many substantial buildings, is well supplied with water, and pos-

## ABERDEEN.

sesses a public park. Pop. (1841), 6,471; (1871), 37,744; (1881) 33,796; (1891) 35,533.

ABERDEEN, *äb'ër-dēn'*: the chief city and seaport in the n. of Scotland, is in the s.e. angle of the county, at the mouth of the river Dee, which forms its harbor, and 111 m. n. of Edinburgh. Its mean annual temperature is 45°.8 F., and rainfall, 30.57 inches. William the Lion made A. a royal burgh in 1179. The English burned A. in 1336, but it was soon rebuilt, and called New Aberdeen. Old A., within the same parliamentary boundary, is a small town a mile to the n., near the mouth of the Don. King's College and University, founded in Old A., 1494, and Marischal College and University, founded in New A., 1593, were, in 1860, united into one institution, the University of Aberdeen. It had about 800 students in 1884, 5; and its general council, with that of Glasgow University, sends one member to parliament. In the 17th c. A. had become an important place, but it suffered much from both parties in the civil wars. It has now a flourishing trade and large manufactures, and its handsome light-gray granite architecture is much admired. The harbor has been much enlarged and deepened, and a new breakwater has been lately built. The total registered shipping of the port in 1885 amounted to 105,341 tons. The chief exports are linens, woolens, cotton-yarns, paper, combs, granite (hewn and polished), cattle, grain, preserved provisions, and fish. A. has the largest comb and granite-polishing works in the kingdom. It has considerable iron-works and much shipbuilding. The A. clipper-bow ships are celebrated as fast sailers. A. has above 60 places of worship, and 10,000 children at school. Pop., 1871, municipal burgh 76,348; parliamentary 88,125; 1881, parliamentary 105,003; (1901) 143,722.

ABERDEEN, *äb-ër-dēn'*: city, cap. of Brown co., S. D.; on the Chicago and Northwestern, the Northern Pacific, the Chicago Milwaukee and St. Paul, the St. Paul Minneapolis and Manitoba, and the Minneapolis St. Paul and Sault Ste. Marie railroads: popularly called 'the railroad hub of the Dakotas.' It contains 3 national banks (cap. \$225,000); 1 private bank (cap. \$100,000); 3 grain elevators; 3 large hotels; 3 railroad depots; railroad round-house and freight-houses; U. S. land office; 5 churches; 3 graded public schools; Acad. of the Sacred Heart (Rom. Cath.); 7 daily and weekly newspapers; 2 electric-light plants; water supply from several artesian wells driven in the James River valley; and substantial business and residence buildings. A. is the *entrepôt* for a large agricultural, lumber, and commercial trade. Pop. (1880) 2,500; (1890) 3,182; (1900) 4,087.

ABERDEEN, GEORGE HAMILTON GORDON, Earl of: 1784-1860; b. Edinburgh; educated at Harrow and at St. John's College, Cambridge, where he took his degree of M.A. in 1804. He succeeded to the earldom 1801, and travelled in Greece, as noted in Byron's line—'The travelled thane, Athenian Aberdeen.' He entered public life as a tory 1806, was intrusted with a delicate mission to Austria 1813, and after the war was elevated to the

## ABERDEENSHIRE,

British peerage as Viscount Gordon. In 1828, he took office in the new ministry under the Duke of Wellington. The general principle of his policy, as Secretary of State for Foreign Affairs, was that of non-interference in the internal affairs of foreign states, which, joined to his well-known sympathy with such statesmen as Metternich, has exposed him—not always justly—to the suspicion of being inimical to the cause of popular liberty. His gradual abandonment of high Tory principles was evinced by his support of the bill for the repeal of the Test and Corporation Acts, and of the Roman Catholic Emancipation Act. From the fall of the Wellington ministry till the Peel administration in 1841, A. was out of office, with the exception of his brief administration of the Colonial Office in the Tory ministry of 1834, 5. In 1841, he again received the seals of the Foreign Office. M. Guizot was at that time foreign minister in France, and the two statesmen acted in cordial alliance. The conclusion of the Chinese War, the Ashburton Treaty, and the Oregon Treaty, were the principal services rendered to the country during his administration of foreign affairs. From the time that the repeal of the Corn Laws became the rallying-point of the Peel party he was in accord with their policy. In 1846, he resigned with Sir Robert Peel. In 1853, on the resignation of Lord Derby, the extraordinary state of parties necessitated a coalition, and A. was selected as the fittest man to head the new ministry, which for some time was extremely popular. The feeble and vacillating policy in the conduct of the war with Russia gradually undermined its stability, and the disastrous mismanagement brought to light in the winter of 1854, in all departments of the public business connected with the war, filled up the measure of the popular discontent. In 1855, Feb. 1, A. resigned office. He was author of an essay on Grecian Architecture, 1822.

ABERDEENSHIRE, *-shér*: a large maritime county in the e. of Scotland, between  $56^{\circ} 52'$  and  $57^{\circ} 42'$  n. lat., and  $1^{\circ} 49'$  and  $3^{\circ} 48'$  w. long.; bounded n. by Banffshire and the North Sea; e. by the North Sea; s. by Kincardine, Forfar, and Perth shires; w. by Inverness and Banff shires. It is the fifth in size of the Scottish counties; greatest length, 102 m.; greatest breadth, 50 m.; with 60 m. of sea-coast, and an area of 1,966 sq. m. It has long been popularly divided into five districts (proceeding from s.w. to n.e.)—Mar, Strathbogie, Garioch, Formartine, and Buchan. A. is generally hilly, and in the s.w. (Braemar) entirely mountainous, the Grampians running along the s. side, and branching off to the n.e. and n. Braemar contains the highest mountains; Ben-Muich-Dhui (next to Ben Nevis, the highest hill in the British Isles), 4,296 ft.; Cairntoul, 4,241; Cairngorm, 4,084; Ben-na-Buird, 3,924; Lochnagar, 3,786. The predominant rocks are granite and gneiss. The granite is very durable, and is much used for building and polishing. The chief rivers are the Dee (87 m. long), Don (83 m.), and Ythan (35 m.), which run eastward into the North Sea; and the Doveran (62 m.), which runs n.e. into the North Sea (see DEE, DON, DOVERAN). On the upper part of the Dee is Bal-

## ABERDEVINE—ABERNETHY.

mioral (q.v.) The Ythan yields the pearl-mussel, but rarely pearls of any value. The mean annual rainfall of A. varies from 30 to 37 inches. Clay soils predominate near the coast, loamy soils near the centre, and poor, gravelly, sandy, and peaty soils elsewhere. The most fertile parts lie between the Don and the Ythan, and in the n.e. angle of the county. Nowhere in the kingdom have the natural disadvantages of soil and climate been more successfully overcome. A. has 188 m. of railway, and 2,359 m. of public roads, the latter supported by rates, and not by tolls. The chief towns and villages are Aberdeen (New and Old), Peterhead, Fraserburgh, Huntly, Kintore, Inverurie, and Turriff. The county returns two members to parliament; the city of Aberdeen, two; and the burghs of Peterhead, Kintore, and Inverurie, with Elgin, Cullen, and Banff, one. About 37 per cent. of the area of A. is cultivated. In 1880, it had 195,316 acres in oats, 16,564 in barley and bere; 92,972 in turnips; and 152,106 cattle. A. produces one-fifth of the turnips, and one-seventh of the cattle reared in Scotland, and is unsurpassed in breeding and feeding stock. The fisheries on the coast are very productive. Above 80 per cent. of the children (5-13 years) are at school. The Dick and Milne bequests for parochial schoolmasters have given A. a high place in the statistics of education. A. has about 290 places of worship, 105 being Established, and 100 Free. Value of real property (exclusive of railways), over £831,333. Pop. (1891) 281,331; (1901) 304,439.

ABERDEVINE, *ă-bĕr'dĕ-vĭn*, or SISKIN (*Fringilla Spinus*): a song-bird, nearly allied to the goldfinch, with which it is placed by Cuvier and others in the new genus *Carduelis*. It is rather smaller than the goldfinch, and less elongated in form. The crown of the head and the throat are black, the nape dusky green, and there is a broad yellow streak above and behind each eye. It is only a winter visitant of Britain, and breeds in the n. of Europe, building its nest in high trees. It is frequently kept as a cage-bird, being easily tamed, and breeds freely with the canary. It feeds on the seeds of the thistle, alder, birch, and elm, and occasionally does great damage to the hop-plantations in Germany. In France it injures the blossoms of the apple trees.

ABERGAVENNY, *ab'ĕr-gă'ne* (the Roman *Gobanium*): market-town of England, in Monmouthshire, 13 m. w. of Monmouth, beautifully situated in the valley of the Usk (the garden of Wales), at the junction of the Usk and Gavenny, and is surrounded by high mountains and thick woods. The town is regularly and compactly built. St. Mary's Church, formerly a fine cruciform structure, containing many interesting monuments, has been seriously marred by alterations. The castle, which is very ancient, is now a ruin. The principal modern building is the lunatic asylum. There are collieries and iron-works in the neighborhood. The Hereford and Tredegar Railway passes near the town. Pop. about 8,000.

ABERNETHY, *ăb'-ĕr-ne-thĕ*, JOHN: 1764-1831; b. Lon-

## ABERRATION.

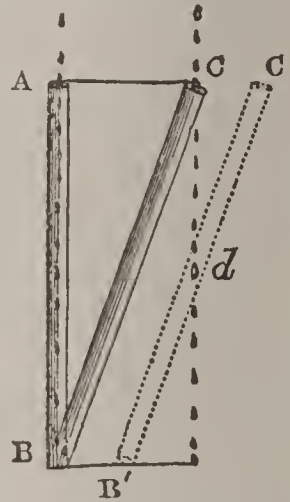
don; d. Enfield: eminent English surgeon. His grandfather was the Bev. John Abernethy, an Irish Presbyterian clergyman, who acquired distinction by his writings, and his bold adoption of Bishop Hoadly's views on the right of private judgment and the subscription of Confessions. A.'s early tastes disposed him to the bar; but in 1780 he was apprenticed to Mr. (afterwards Sir Charles) Blick, surgeon of St. Bartholomew's Hospital. He attended at the same time the lectures of John Hunter and Sir W. Blizard. In 1787, A. was elected assistant-surgeon to St. Bartholomew's, an office which he filled for twenty-eight years, at the end of which time he was appointed surgeon, with a salary. Soon after his election he began to lecture in the hospital on anatomy and surgery, and may be said to have laid the foundation of its character as a school of surgery. At first he manifested extraordinary diffidence, but his power soon developed itself; and his lectures attracted such crowds that, in 1790, it was found necessary to build a lecture-theatre in the hospital for his use. His clear, simple, and positive style, illustrated by an inexhaustible variety of apt anecdotes, made him the most popular medical teacher of his day. In 1813, he was appointed surgeon to Christ's Hospital, and in 1814, Professor of Anatomy and Surgery to the College of Surgeons. His practice increased with his celebrity, which the singular eccentricity and occasional rudeness of his manners contributed to heighten. Notwithstanding, however, the irritability and harshness which he so often exhibited, those who knew him best bear unanimous testimony to the generosity and kindness of his character. He married in 1800, and had several children. Of his works, the most original and important is his *Observations on the Constitutional Origin and Treatment of Local Diseases*, first published, 1806, in which a simple principle, till then little attended to, was made the foundation of much important and ingenious observation. His *Lectures on the Theory and Practice of Surgery* were published, 1830.

**ABERRATION**, n. *ăb'ěr-ră'shŭn* [F. *aberration*—from L. *aberrātiōnēm*, a transient escape from: L. *aberrans* or *aberran'tem*, wandering from or away—from *ab*, *erro*, I wander]: a wandering from the right way, as from truth; moral perversity; mental weakness; an apparent motion of the fixed stars. **ABERRANT**, a. *ăb-ěr'rănt*, differing widely; differing from the customary structure or type. **ABER'RING**, a. wandering. **ABERRANCE**, n. *ăb-ěr'răns*, also **ABERRANCY**, *ăb-ěr'răn-sĭ*, a wandering from the right way. **ABERRATION OF LIGHT**, the deviation of rays of light from a true focus, resulting in an indistinct or colored image. **MENTAL ABERRATION**, a wandering or unsettled state of the mind resulting in incapacity for ordinary mental efforts. **SPHERICAL ABERRATION**, in *optics*, the dispersion of the rays of light in passing through a lens.—**SYN.** of 'aberration': madness; insanity; mania; idiocy; alienation; derangement; lunacy; dementia.

**ABERRATION OF LIGHT**, *ăb'ěr-ră'shŭn*-.: an apparent alteration in the place of a star arising from the motion of

## ABERT.

the earth in its orbit combined with the progressive passage of light. When rain is falling perpendicularly, a drop entering at the top of an upright tube at rest will go through; but if the tube be carried forward horizontally, a drop entering the top will strike against the side before it goes far; and to make the drop go through the tube in motion, we must incline the top of it forward in the direction of the motion. The amount of this inclination will be the greater the more rapid the motion of the tube is compared with that of the falling drops. If in the time that a drop takes to fall through the height  $AB$  of the parallelogram in the annexed cut, the inclined tube  $BC$  is moved horizontally over a space equal to its breadth,  $AC$ , a drop entering the top of the tube will descend without touching the sides. For in half the time the tube will be in the position  $B'C'$ , and the drop in the position  $d$ ; and so for any other portion of the time. This exactly illustrates the astronomical phenomenon in question. The tube is a telescope directed to receive the light of a star; this tube, and the person looking through it, are moving with the earth in its orbit, and the light may be conceived as particles coming from the star like drops of rain, moving much faster, no doubt, still requiring time. That a particle or ray of light from the star may pass through the tube, it must be directed, not straight to the star, but at a slight angle in the direction of the earth's motion. Thus the place where we see the star is not its true place. As the earth's motion, however, is slow compared with the velocity of light, the angle of inclination is small—never exceeding about  $20''$ . The result is, that, if we conceive the true place of a star as a fixed point, the apparent place of the star describes about this true place, in the course of a year, an ellipse whose greater axis is about  $40''$ . The aberration of light was discovered by the English astronomer Bradley, in 1727, while seeking to determine the parallax of certain fixed stars.



**ABERT**, *ā'bért*, JOHN JAMES: soldier: 1788, Sep. 17—1863, Sep. 27; b. Shepherdstown, Va. His father, John A., came to America 1780 with Count de Rochambeau. A. studied at West Point, where he graduated 1811, and obtained a position in the war dept. at Washington. He studied law, and was admitted to practice in the Dist. of Columbia two years later. He had resigned from the army on leaving West Point, but on the outbreak of the war of 1812, enlisted as a private, and 1814 was appointed a topographical engineer with the rank of major. He was placed in charge of the topographical bureau 1829, and promoted to col., and rendered highly efficient service in supervising important national engineering works until 1861, when he was retired.

## A'BERT—ABGAR.

**A'BERT, SILVANUS THAYER:** civil engineer: b. Philadelphia, Penn.: 1828, July 22; son of John J. A. He graduated at Princeton, adopted the profession of engineering, and was employed by the govt. in constructing the James River and Kanawha canal, and continued in the govt. service, being appointed 1859 construction engineer at the Pensacola navy-yard. He served during the civil war, and 1865-6 was in the employ of the Columbian govt., and later in the U. S. engineering corps. He wrote *Notes, Historical and Statistical, on the Projected Route for an Inter-oceanic Ship Canal* between the Atlantic and Pacific oceans (1872.)

**ABERYSTWITH,** *ăb'ēr-ĭst'wĭth:* a seaport of Wales, and one of the Cardigan district of parliamentary boroughs. In 1880, 420 vessels, of a total tonnage of 30,937 tons, entered the port. A. is much resorted to for sea-bathing, and is well provided with good hotels and lodging-houses. Pop. about 7,000.

**ABET,** v. *ă-bĕt'* [AS. *a*, on or in; *betan*, to improve, to kindle: OF. *abetter*, to deceive, to incite: Norw. *abet*, a bait for fish: *abéter*, to bait the hook (see BAIT),—*lit.*, to allure to one's own destruction]: to aid; to incite; to encourage, chiefly in a bad sense. **ABET'ING,** imp. **ABET'TED,** pp. **ABET'TOR,** n. *-tĕr*, one who abets or encourages, usually in a bad sense. **ABET'MENT,** n. the act of abetting.—**SYN.** of 'abet': to encourage; incite; connive at; aid; assist; sustain; back up;—of 'abettor': an accessory: an accomplice; a backer-up.

**ABEYANCE,** n. *ă-bĕ'ăns* [OF. *abayar*, to gape at, to pant after: F. *aboyer*, to bark, to bay—from mid. L. *abbau-bārĕ*: Norm. F. *abbauance*, expectation: Scot. *abeigh*, to stand gaping at a thing (see BAY), *lit.*, state of expectancy]: state of being held back for a time; temporary suppression, as of an inheritance, or titles of honor and dignities. As a legal term it imports that a freehold inheritance, dignity, or office is not vested in any one, but is in expectation, or suspended, until the true owner appears, or the right thereto is determined. Titles of honor are said to be in A. when it is uncertain who shall enjoy them. A parsonage remaining void is also said to be in A. This A. or suspense, being repugnant to the general principles of the tenure of land, is never allowed except when it is unavoidable.

**ABGAR:** name of a line of 28 princes of Edessa, the ancient capital of Mesopotamia. A. derives its sole title to the perpetuation of its name from a legend of Abgar Uchomo, 14th of the line, in which it was alleged that a portrait of Christ, said to have been painted by St. Luke, was sent to A. by the Savior himself, accompanied by a letter. Another relation is that this letter, written in Syriac, and translated by Eusebius of Cæsarea, was in reply to a request from the prince to be healed of a certain disease. Both letters, written in Syriac and translated into Greek by Eusebius of Cæsarea, were declared spurious by Pope Gelasius 494, and are utterly without credit.

## ABHOR—ABIGAIL.

**ABHOR**, v. *ăb-hŏr'* [L. *abhŏrrĕo*, I shrink back from with horror—from *ab*, *hŏrrĕo*, I shake or look terrible: F. *abhorrer*, to abhor]: to shrink back from with shuddering; to hate very much; to disdain; to detest. **ABHORRING**, imp. **ABHORRED**, pp. *ăb-hŏrd'*. **ABHORRENCE**, n. *ăb-hŏr'rĕns*, very great hatred. **ABHOR'RER**, n. the person who abhors. **ABHORRENT**, a. *ăb-hŏr'rĕnt*, hating; detesting; odious; repugnant to. **ABHOR'RENTLY**, ad. *-lĭ*.—**SYN.** of 'abhor': to detest; abominate; loathe; hate; disdain; despise; shrink from. **ABHORRERS**, *ăb-hŏr'rĕrz*: a faction, members of the court party in the reign of Charles II., so named from their opposition to another faction, known as 'Addressers,' whose principles they professed to abhor. The A. were afterward (1679) called tories. Under both titles they opposed all who sought to restrict the royal prerogative; and the signification of the terms was therefore opprobrious.

**ABIB**, *ăbĭb* [Heb. *abib*, a green ear of corn; *ab*, swelling, protuberant]: the month that barley was in the ear; the first month of the Jewish year; also called *Nisan*.

**ABIDE**, v. *ă-bĭd'* [AS. *abidan*; Goth. *beidan*, to expect; Icel. *bida*, to endure: OE. *abĭe*, to remain or endure, to suffer: AS. *abyrgan*, to pay for]: to wait for with expectation; to attend or wait upon; to bear; to support; to tolerate; to pay the penalty. *Note.*—To **BUY** [for *abĭe*] **IT DEAR**, in *OE.*, to suffer loss.

**ABIDE**, v. *ă-bĭd'* [AS. *abidan*, to await]: to dwell or stay in a place; to remain with; to continue; to be firm in. **ABI'DING**, imp. **ABODE**, pt., pp. *ă-bŏd'*: n. a house. **ABIDER**, n. *ă-bĭ'dĕr*, one who. **ABIDINGLY**, ad. *-lĭ*. *Note.*—The two preceding titles are confusedly connected, though given separately.—**SYN.** of 'abide': to sojourn; dwell; live; reside; inhabit.

**ABIES**: see **FIR**.

**ABIETITES**, n. plu. *ă-bĭ'ĕ-tĭ'tĕz*, or *-tĭts* [L. *abĭĕs*, the fir-tree]: a genus of fossil conifers. **ABIETIC**, a. *ăb-ĭ-ĕt'ĭk*, pertaining to the fir-tree.

**ABIGAIL**, n. *ăb'ĭ-gāl* [after *Abigail* of Carmel, who called herself the *handmaid* of David; received an additional significance from *Abigail Hill*, afterwards Mrs. Masham, a waiting-woman of Queen Anne]: a waiting-maid; a maid in attendance; a lady's-maid.



## ABILENE—ABJURE.

**ABILENE**, *ăb'î-lĕn*: city, cap. of Dickinson co., Kan.; on the Kansas river, and the Union Pacific, the Atchison Topeka and Santa Fé, and the Chicago Kansas and Nebraska railroads; 162 m. w. of Kansas City. A. is the centre of the principal corn and wheat country of Kan. It contains one national bank (cap. \$150,000); two private banks; and has Holly water-works, sewerage, and electric-light plant. Its public schools are excellent; here also is St. Joseph's College (Rom. Cath.) for young women. There are daily and weekly newspapers. Pop. (1885) 3,516; (1890) 3,540; (1900) 3,507.

**ABILITY**, n. *ă-bîl'î-tî* [formed from **ABLE**, which see; L. *hăbîlîtas*, fitness or aptitude—from *hăbĕo*, I have: F. *habileté*, ability]: power to do a thing; power to do, whether with the body or mind—as contrasted with *capacity*, power to receive; aptitude; skill; legal right to do—in this sense the opposite is *disability*. **ABILITIES**, plu. *ă-bîl'î-tîz*, mental endowments.—**SYN.** of 'ability': faculty; talent; capacity; capability; aptitude; dexterity; skill; address; cleverness; genius.

**ABINGTON**, *ăb'îng-ton*: town in Plymouth co., Mass.; on the Plymouth branch of the Old Colony R. R. Its chief business interests are manufactures of boots and shoes and machinery. The township includes the villages of North A. and A. The latter has a national bank and a weekly newspaper. Pop. (1890) 4,260; (1900) 4,489.

**ABIOGENESIS**, n. *ăb'î-ô-jĕn'ĕ-sîs* [Gr. *a*, without; *bîōs*, life, *gĕnĕsis*, origin, source]: spontaneous generation; the opposite of sexual generation; the production of life or living beings under certain physical conditions without the intervention of antecedent living forms: see **GENERATION**, **SPONTANEOUS**: **LIFE**: **PROTOPLASM**.

**ABJECT**, a. *ăb'jĕkt* [L. *abjectu*, cast from, downcast—from *ab*, *jactus*, thrown or cast—from *jacĕō*, I throw]: cast down; mean and servile; worthless and despicable. **ABJECTLY**, ad. *-lî*, in an abject manner; meanly and servilely. **ABJECTION**, n. *ăb-jĕk'shŭn*, also **ABJECTNESS**, n., and **ABJECT'EDNESS**, n. a mean or low state; meanness of spirit; servility.

**ABJURE**, v. *ăb-jôr'* [F. *abjurer*—from L. *abjurărĕ*, to deny on oath—from *ab*, *jŭro*, I swear: It. *abjurărĕ*]: to deny or renounce upon oath; to renounce with solemnity. **ABJURED**, pp. *ăb-jôrd'*. **ABJU'RING**, imp. **ABJURATION**, n. *ăb'jă-ră'shŭn*, renouncing upon oath. **ABJU'ROR**, n. *-rĕr*, one who denies upon oath. **ABJU'RATORY**, a. *-ra-tĕr-ĭ*, containing abjuration. **OATH OF ABJURATION**, oath imposed 1701 on all public officials in the United Kingdom, asserting the sole right of the present royal family to the crown, excluding any rights) of the pope or of the Pretender (q.v.); discarded by statutes 1868-71, the oath of Allegiance (q.v.) being substituted for it, with an official oath for all officers other than judges, and a judicial oath for judges. The new forms are so framed as to relieve the consciences of Quakers, Rom. Catholics, and Jews; and one having no religious belief, if he take it 'so help me God' is bound by it. See **OATH**, in Law.—**SYN.** of 'abjure': to renounce; retract; retract; revoke; recall; repudiate.

## ABKHASIA—ABNORMAL.

**ABKHASIA**, *áb-kásh'ěá*, or **ABASIA**, *á-básh'e-u*: district in Caucasia, n.e. of the Black Sea, belonging to Russia, having been finally subdued during the insurrection of 1864. It is mountainous, with fertile and well-watered valleys. The inhabitants are a tribe occupying the coast e. from Pitzunta to the confines of Mingrelia, and though an inferior race are doubtless kindred to the Circassians. In 1878 they numbered about 30,000, but so many have migrated that there are not now more than half as many Abkhasians in the country; thousands have settled in the districts under Turkish rule.

**ABLACTATION**, n. *áb'lák-tá'shŭn* [L. *ablactationem*, the act of withdrawing from milk, weaning—from *ab*, *lacto*, I suckle—from *lac*, milk]: the weaning of a child from the breast; a method of ingrafting, now called inarching.

**ABLATIVE**, n. *áb'lá-tŭv* [L. *ablátivus*, the ablative case—from *ab*, *látus*, carried: It. and Sp. *ablátivo*: F. *ablatif*]: name of a case in Latin nouns, in which the ideas of carrying away or taking from are signified. See **DECLENSION**. **ABLATION**, n. *áb-lá'shŭn*, a taking away. **ABLATIVE ABSOLUTE**, a Latin construction in which a noun and a participle are each put in the ablative case.

**ABLAZE**, ad. *áb-bláz'* [AS. *a*, on; Eng. *blaze*]: on fire; in a blaze.

**ABLE**, a. *áb'bl* [OF. *able*: Norm. F. *hable*, able—from L. *hábilis*, able, fit, adapted—from *hábĕo*, I have, I hold: F. *habile*; It. *abile*, able (see **ABILITY**)]: fit by the possession of sufficient power; having sufficient power to do; qualified; skilful; fitted for. **ABLY**, ad. *áb'blŭ*, with ability. **ABLENESS**, n. *áb'bl-něs*, ability, capability. **A'BLE-BOD'IED**, *-ĭd*, having a sound, strong body; able to work; being a competent and skilled seaman.—**SYN.** of 'able': capable; capacious; qualified; skilful; fit.

**ABLEGATE**, n. *áb'lě-gāt* [L. *ablegatus*, from *ab*, away; and *legare*, to send]: an envoy specially representing the pope, commissioned to foreign lands on important duties, one of which is to bear to a newly appointed cardinal his insignia of office. Ablegates are of two classes, pontifical and papal—the latter being the highest.

**ABLUTION**, n. *áb-ló'shŭn*, [L. *ablutionem*, a cleansing; *abluens*, cleansing—from *ab*, *luo*, I wash]: a washing, cleansing, or purification by water; the water used in washing. **ABLUENT**, a. *áb'ló-ěnt*, cleansing by liquids: N. an attenuant or purifier. See **PURIFICATION**.

**ABNEGATE**, v. *áb'ně-gāt* [L. *abnégatus*, refused, denied—from *ab*, *něgo*, I deny]: to deny; to renounce. **AB'NEGA'TING**, imp. **AB'NEGA'TED**, pp. **AB'NEGA'TION**, n. *-shŭn*, a denial; self-denial. **AB'NEGA'TOR**, n. *-těr*, one who denies or opposes anything.

**ABNORMAL**, a. *áb-nór'mál*, also **ABNOR'MOUS**, a. *-mŭs* [mid. L. *abnormis*, irregular—from L. *ab*, from, away from; *norma*, a rule]: not according to rule; irregular; anything

## ABO—ABOLITIONISTS.

out of the usual or natural course; without rule or precedent. **ABNORMALITY**, n. *ăb'nŏr-măl'ĭ-tĭ*, or **ABNORMITY**, n. *ăb-nŏr'mĭ-tĭ*, irregularity; deformity.—**SYN.** of 'abnormal': aberrant; eccentric; exceptional; erratic.

**ABO**, *ŏ'bŏ*: chief town of the government of Abo, in Finland, now belonging to the Russian Empire; on the river Aurajokki, near its embouchure in the Gulf of Bothnia; pop. (1880), 22,967. The town was founded by the Swedes, 1157, and remained the capital of Finland until 1819. In the year 1827, a great part of the town, including the university buildings, was destroyed by fire, and consequently the university was removed to Helsingfors, now the capital.—The *Peace of Abo*, 1743, between Sweden and Russia, put an end to the war commenced by Sweden, under French instigation, in 1741. In this war, Russia had gained possession of the whole of Finland through the misconduct of the Swedish generals. In this treaty the river Kymene was made the boundary between the territories of Sweden and Russia; but by another peace, concluded 1809, the whole of Finland, as far as the Tornea, was ceded to Russia.—The government of Abo Bjorneborg has 9,450 sq. m.; pop. (1880), 340,602; (1897) 430,194.

**ABOARD**, prep. and ad. *ă-bŏrd'* [**AS.** *a*, on; **Icel.** *bord*, the side of a ship]: on or in a ship or boat.

**ABODE**, n. *ă-bŏd'* [see **ABIDE** 2]: a habitation; a place of residence; stay or continuance; pt. and pp. of *abide*: in *OE.*, stop, delay.

**ABODE**, v. *ă-bŏd'* [**AS.** *a*, intensive; *gebod*, a command, a precept: **AS.** *bodian*; **Icel.** *botha*, to proclaim: **Scot.** *to bode*, to portend]: in *OE.*, to foretoken; to be an omen. **ABOD'ING**, n. presentiment. **ABODEMENT**, n. *ă-bŏd'mĕnt*, a secret anticipation of a future thing, good or bad; an omen.

**ABOLISH**, v. *ă-bŏl'ĭsh* [**L.** *abolĕscĕrĕ*, to decay or wear away: **F.** *abolissant*, abolishing—from *abolir*, to abolish—from **L.** *abolĕrĕ*, to take away, to annul]: to hinder a thing from growing or increasing; to put an end to; to make void; to annul; to destroy. **ABOL'ISHING**, imp. **ABOL'ISHED**, pp. *-ĭsh't*. **ABOL'ISHER**, n. the person that puts an end to. **ABOLISHABLE**, a. *ă-bŏl'ĭsh-ă-bl*, that may be put an end to or destroyed. **ABOLISHMENT**, n. *ă-bŏl'ĭsh-mĕnt*, also **ABOLITION**, n. *ăb'ŏ-lĭsh'ŭn*, the act of putting an end to or destroying; emancipation. **ABOLITIONIST**, n. *ăb'ŏ-lĭsh'ŭn-ĭst*, a person who favors the putting an end to anything, as slavery. **ABOLITIONISM**, n. *ăb'ŏ-lĭsh'ŭn-ĭzm*, the tenets of the abolitionists.—**SYN.** of 'abolish': to abrogate; repeal; revoke; annul; cancel; set aside; nullify; annihilate.

**ABOLITIONISTS**, *ăb'ŏ-lĭsh'ŭn-ĭsts*, a term used to designate a party in the U. S., who sought the immediate and total abolition of slavery. See **SLAVERY**. Abolitionist views had long been held by many, especially by members of the Society of Friends; but the term was not commonly used until an aggressive party spread from New England throughout the North and West, demanding immediate and unconditional emancipation. After about 30 years of agi-

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tation, Abolitionism in a greatly modified form—demanding only the restriction of slavery from entering on new territory, yet almost unconsciously looking towards its entire extinction—gained a political advocacy in the republican party. The ends of the A. were gained when, under Lincoln's administration, slavery was abolished, 1863, Jan. 1.

ABOMASUS, n. *ǎb'ō-mā'zūs*, also AB'OMA'SUM, n. *-zŭm* [new L. *abōmāsus*—from *ab*, *ōmāsum*, tripe]: the fourth stomach of ruminating animals; the part of the paunch nearest the intestines. See RUMINANTIA.

ABOMEY: *ǎb'ō-mā'* the cap. of Dahomey, Africa, is situated in n. lat. 7°, e. long. 2° 4', about 60 m. n. of Whydah, the port of the kingdom. The town is built of clay, surrounded by a moat and mud walls, and occupies a large area, part of which is cultivated. The houses stand apart; there are no regular streets, and the place is very dirty. It has four large market places, and trade is carried on in palm-oil, ivory, and gold, Mohammedan traders from the interior resorting to its markets. The town contains the principal palace of the King of Dahomey. It is the scene of frequent human sacrifices, a 'custom' being held annually, at which many criminals and captives are slain, while, on the death of a king, a 'grand custom' is held, at which sometimes as many as 2,000 victims have perished. The slave-trade is also prosecuted, and the efforts of the British Government to induce the king to abolish it and the 'customs' have proved unsuccessful. Population about 30,000. See DAHOMEY.

ABOMINATE, v. *ǎ-bōm'ī-nāt* [L. *abōmīnātūs*, wished away, detested—from *ab*, *ōmen*, a portent: F. *abomīner*, to loathe]: to loathe as an ill-omened thing; to hate excessively; to detest. ABOM'INA'TING, imp. ABOM'INA'TED, pp. ABOMINABLE, a. *ǎ-bōm'ī-nā-bl*, very hateful; detestable. ABOM'INABLY, ad. *-bli*, in an abominable manner. ABOM'INABLENESS, n. *-bl-nēs*, state of being very hateful. ABOMINATION, *ǎ-bōm'ī-nā-shŭn*, an object of extreme hatred or detestation; evil doctrines or practices; that which causes pollution; shameful vice. THE ABOMINATION OF DESOLATION, probably some notable profanation of the holy Temple at Jerusalem by the zealots before the final siege by the Romans (Matt. xxiv. 15).—SYN. of 'abominate': to abhor; detest; loathe; hate;—of 'abominable': detestable; execrable;—of 'abomination': loathing; detestation; aversion; odiousness; disgust.

ABORIGINES, n. *ǎb'ō-rĭj'ī-nēz* [L. *Abōrigīnēs*, ancestors of the anc. Latins, original inhabitants—from *ab*, *orĭgo*, a beginning or origin, *orĭg'īnīs*, of a beginning]: the first or primitive inhabitants of a country; the original stock, flora or fauna, of a geographical area. ABORIGINAL, a. *ǎb'ō-rĭj'ī-nāl*, first; primitive: N. an original inhabitant of a country. AB'ORIG'INALLY, ad. *-li*, after the manner of aborigines; in primeval times.

ABORIGINES (Lat.): properly the earliest inhabitants of a country. The corresponding term used by the Greeks was *Autochthones*. The Roman and Greek historians, how-

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ever, apply the name to a special people, who, according to tradition, had their original seats in the mountains about Reate, now Rieti; but, being driven out by the Sabines, descended into Latium, and in conjunction with a tribe of Pelasgi, subdued or expelled thence the Siculi, and occupied the country. Who they were, or whence they came, is uncertain. The stories about the landing of Æneas in Italy, after the siege of Troy, represent the A. as at first opposing and then coalescing with the Trojans. The A. then disappear as a distinct people, they and their allies the Pelasgi having taken the name of Latini. The traditions clearly point to the fact that the Latins were a mixed race, a circumstance which is proved by the structure of their language, in which we find numerous words closely connected with the Greek, and also numerous words that are of an entirely different origin. These non-Greek words are mostly related to the dialects of the Oscan tribes. The non-Pelasgic element of the Roman population is supposed to represent these A., who would thus belong to the Oscans or Ausonians. In modern times the term A. has been extended in signification, and is used to indicate the inhabitants found in a country at its first discovery, in contradistinction to colonies or new races, the time of whose introduction into the country is known, e. g., the N. Amer. Indians.

ABORT, v. *ă-bört'* [L. *abörtus*, miscarried; *abörtiō*, a miscarriage—from *ab*, *orior*, I arise]: in *OE.*, to bring forth before the time. ABORT'ING, imp. ABORTED, pp. *ă-bört'əd*, brought forth before its time; imperfect from birth. ABORTIFACIENT, n. *ă-bört'ĭ-fāsh'ĭ-ěnt* [L. *abörtūs*, miscarried; *facio*, I make]: drug or agent that tends to induce the premature expulsion of the fetus. ABORTMENT, n. *ă-bört'měnt*, an untimely birth. ABORTION, n. *ă-bör'shŭn*, anything that has not come to maturity; an untimely birth; failure; a coming to naught. ABOR'TIVE, a. *-tĭv*, that has not come to maturity; immature; premature; empty. ABOR'TIVELY, ad. *-lĭ*, as a thing born before its time; prematurely. ABOR'TIVENESS, n. the condition or state of being abortive.

## ABORTION.

ABORTION, *ă-bŏr'shŭn*: term in Medicine to denote the expulsion of the product of conception (the impregnated ovum) from the womb before the sixth month of pregnancy. If the expulsion takes place after that date, and before the proper time, it is termed a *premature labor* or *miscarriage*. In law, no such distinction is made. The frequency of A. as compared with normal pregnancy is very differently estimated by different writers; but the best evidence leads us to the belief that A. is of far more common occurrence than is generally supposed, and that it takes place on an average in one out of every three or four cases of pregnancy. The following are among the *causes predisposing* to this accident: (1) A diseased condition of either parent, and especially a syphilitic taint. (2) A peculiar temperament on the part of the mother. Those women who present a strongly-marked nervous or sanguine temperament seem to abort with singular facility; and the same tendency is observed in those in whom the catamenial or monthly discharge is abundant or excessive. Again, very fat women, though they have a tendency to sterility, are liable to abort when pregnancy does occur. Any cause interfering with the normal oxidation of the blood—as, for instance, the constant breathing of impure air, may provoke A.—a fact excellently illustrated by the experiments of Brown-Séguard on pregnant animals (rabbits), when he showed that the application of a ligature to the windpipe excited uterine contractions, ending, if the experiment were continued long enough, in A., but ceasing if air was freely readmitted into the lungs. Change of climate, as from India to England, certainly predisposes to this accident; and it has been observed by various writers that great political events, the horrors of war, and famine, exert a similar action. The marvellous events in Paris in 1848 were speedily followed by an extraordinary number of abortions and of still-born children; and a similar fact had been previously noticed by the elder Nagele and Hoffmann during the famine of 1816 and during the siege of Leyden. Among the causes predisposing to A., must be included the employment of such corsets and other garments as by their tightness interfere with the circulation of the blood, and alter the natural position of the womb and of the abdominal viscera. Many diseases supervening during the course of pregnancy, especially the eruptive fevers (as small-pox, scarlatina, etc.), almost invariably lead to A. of a very dangerous character; and it has been known from the time of Hippocrates that intermittent fevers have this effect. Among the *direct causes* of A. may be placed blows on the abdomen, falls, any violent muscular efforts, too long a walk or ride on horseback (indeed, women with a tendency to abort should avoid horseback during pregnancy), a severe mental shock, etc. Moreover, the death of the fœtus from any cause is sure to occasion abortion.

The *symptoms* of A. vary according to the stage of pregnancy at which it is threatened, and according to the exciting cause. Many of these resemble those of congestion of the womb, such as a sensation of weight or painful pres-

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sure in the region of the loins or sacrum, extending to the bladder and rectum (with or without Tenesmus, q.v.); these symptoms being aggravated by standing or walking, and being accompanied by chills, accelerated pulse, loss of appetite, and a general feeling of discomfort. A discharge of serous fluid, sometimes slightly tinged with blood, is then observed. The feeling of weight is replaced by pains, leading to the expulsion of the ovum, which, during the first two months, is so small as commonly to escape detection. In more advanced stages of pregnancy, the pains are more severe, the discharge is more abundant, and consists chiefly of blood; and after more or less time, the product of conception escapes either in whole or in part. In the former case, the patient has little further trouble; in the latter, hemorrhage will probably continue, and the parts retained may putrefy, and give rise to serious symptoms. After about the commencement of the fourth month, the symptoms gradually approximate to those presented in ordinary parturition.

In the *treatment* of A., prophylactics (or the guarding against causes likely to lead to it) hold the first place. Women liable to this affection should, on the slightest threatening, assume as much as possible the horizontal position, avoiding all bodily exertion or mental excitement. They should use non-stimulating foods and drinks, and keep the bowels open by gentle aperients—such as manna and castor-oil, and carefully avoid aloes and other medicines irritating the lower bowel. Moreover, a separate bedroom must be insisted on by the physician. If it is deemed necessary to check hemorrhage before professional aid can be called in, cloths soaked in cold water may be applied locally (care being taken to change them before they grow warm), and iced water containing an astringent, such as a little alum, may be given internally. Further proceedings must be left to the medical attendant.

There are occasional cases (as where the outlet of the pelvis is very contracted) in which it is necessary to induce A. by professional means. All attempts at procuring criminal A., either by the administration of powerful drugs, or the application of instruments, are accompanied with extreme danger to the pregnant woman.

ABORTION, in Criminal Law: the procuring, or using, or advising means for procuring the expulsion of the fœtus of a pregnant woman before the seventh month of utero-gestation—unless necessary to preserve the woman's life. When A. is produced with a malicious design, it becomes a misdemeanor at common law, and the party causing it may be indicted and punished. The criminal means resorted to for the purpose of A. include the use of drugs and the application of mechanical or forcible measures. When, in consequence of the means used to produce A., the death of the woman ensues, the crime is murder, or manslaughter in one or the other degree, according to local statute. By the law of N. Y. the soliciting on the part of a woman pregnant with a quick child of any drug or application for the purpose of producing A. is made a misdemeanor, punishable

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by fine and imprisonment, either, or both. In Mass. the act, where the death of the woman results, is made a felony, punishable by from five to twenty years imprisonment; where death does not ensue it is a misdemeanor. The laws of the States of Conn. and Missouri are similar to these.

ABOUKIR, *á'bó-kēr'*: the ancient *Canopus*, now an insignificant village on the coast of Egypt, about 13 m. n.e. of Alexandria. The castle of Aboukir stands on the w. side of the bay of the same name. This bay is celebrated on account of Nelson's victory here gained over the French fleet, 1798, Aug. 1. The French fleet was stationed in a curved line near a small island guarded by a battery; but Nelson, with his usual intrepidity, forced a passage with half of his fleet of fifteen vessels between the island and the French line of battle, while the other half attacked the enemy in front. The French admiral, De Brueys, was killed by a cannon-ball, and his flag ship, *l'Orient*, was destroyed by fire. Only 60 or 70 men were saved out of a crew of 1,000. The French fleet was completely defeated, and only two vessels escaped.

ABOUND, v. *á-bownd'* [F. *abondér*, to abound: L. *abundo*, I overflow—from *ab*, *unda*, a wave: It. *abbondare*: Sp. *abundar*—*lit.*, to flow, as wave after wave]: to have or possess in great quantity; to be present in great quantity. ABOUND'ING, imp. ABOUND'ED, pp. ABUNDANCE, n. *á-bŭn'dáns*, great store; overflowing quantity. ABUN'DANT, a. plentiful; fully sufficient. ABUN'DANTLY, ad. *-lĭ*, in great quantity; liberally in supply.—SYN. of 'abundant': copious; teeming; ample; plentiful; plenteous; exuberant; overflowing; rich;—of 'abundance': plenty or plenteousness; copiousness; exuberance; overflow; riches; wealth; affluence.

ABOUSAMBUL, *á'bó-sám-ból'*, or IPSAMBUL: a place on the left bank of the Nile, in Nubia, lat. 22° 22', the site of two very remarkable rock-cut temples, perhaps the oldest existing specimens of architecture in the world. The larger temple contains 14 apartments, hewn out of the solid rock. The first and largest of these is 57 ft. long and 52 broad, and is supported by two rows of massy square pillars (four in each row), 30 ft. high. To each of the pillars is attached a standing colossus, reaching to the roof, overlaid with a kind of stucco, and painted with gaudy colors. In front of the temple are four colossal seated figures—the largest pieces of Egyptian sculpture yet discovered. Reproductions of two of these, on the scale of the original (65 ft. in height), form very striking objects in the Crystal Palace at Sydenham, where also may be seen a fac-simile, on a small scale, of the temple itself. These figures are supposed to represent Rameses the Great (or Sesostris), whose achievements are described on the painted walls of the temple.



## ABOUT.

**ABOUT**, prep. *ă-bowt'* [AS. *abutan*—from *a*, on; *be*, by; *utan*, outward; *on-beú-tan*, on by outside]: around by the outside; encircling; near to; concerning: AD. nearly; here and there; round, as the longest way; engaged or employed in. **ABOUT**, or **ABOUT TO**, upon the point; within a very small distance. **TO BRING ABOUT**, to bring to the state desired. **TO COME ABOUT**, to happen or take place as expected. **TO GO ABOUT**, to prepare to do a thing; to endeavor. **TO PUT ABOUT**, to turn a ship at sea by bringing her head to the wind; to tack ship. *To go about*, and *to come about* are nautical terms for the action of the ship when put about.

**ABOUT**, *á-bô'*, EDMUND FRANÇOIS VALENTIN: 1828, Feb. 14—1885, Jan. 17; b. Dieuze, Lorraine: French *littérateur*. He studied at the Lycée Charlemagne and at the École Normale in Paris, where his course was brilliant; and was appointed to study archæology for two years in the French school at Athens. On his return about the end of 1853, he published *La Grèce Contemporaine*, a clever satire which at once attained great popularity. His first novel, *Tolla Feraldi*, in the *Revue des Deux Mondes* (re-published 1855), brought on him a charge of plagiarism which hurt his reputation, until he regained public favor by his series of stories, *Les Mariages de Paris* in the *Moniteur*. His career then became a series of successes. *Les Mariages de Paris* was followed by *Le Roi des Montagnes* (1856), *Germaine* (1857), *Les Échasses de Maître Pierre* (1857), *Le Turco* (1866), *L'Infâme* (1867), and *Les Mariages de Province* (1868). Notable also were his three short fantastic tales, *L'Homme à l'Oreille Cassée*, *Le Nez d'un Notaire*, and *Le Cas de M. Guérin* (all 1862); also his *Trente et Quarante* (1865). In 1859 A. published a political pamphlet—*La Question Romaine*—which being regarded as approved by the emperor of the French, made a sensation throughout Europe; and numerous answers were made by friends of the papacy. A. was decorated with the cross of the Legion of Honor 1868.

To the last he produced novels with unabated popularity; he wrote also several plays, but with no great success. A. was a constant newspaper contributor and correspondent, and 1872 he became editor of *Le XIX me Siècle*. In 1884 he was elected to the Acad., but died before a formal reception.

**ABOVE**, ad. *ă-bŭv'* [AS. *abúfan*—from *a*, on; *be*, by; *ufa*, high: Dut. *boven*]: on the high side; overhead; in a higher position: PREP. higher in place, rank, power, or excellence; in excess. **ABOVE-BOARD**, openly. **ABOVE ALL**, in preference to all other things. **ABOVE CITED**, or **ABOVEMENTIONED**, taken notice of in the preceding part of a book. **ABOVE GROUND**, alive; not buried.

**ABRACADABRA**, n. *ăb' ră kă-dăb'ră*: a word said to be of Persian origin, and to designate in that language Mithra, the sun-god. It was in former times the most venerated of those magical formulas that were constructed out of the let-

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ters of the alphabet, and was supposed to be highly efficacious for the cure of fevers, and especially quartan and semi-tertian agues. Serenus Sammonicus gives the following directions for its use: Write the letters of the word so as to form a triangle, capable of being read many ways, on a square piece of paper. Fold the paper so as to conceal the writing, and stitch it into the form of a cross with white thread. This amulet wear in the bosom, suspended by a linen ribbon for nine days. Then go in dead silence, before sunrise, to the banks of a stream that flows eastward, take the amulet from off the neck, and fling it backwards into the water. If you open or read it, the charm is destroyed. The adjoining is one of the principal forms of arranging this mystic word.

A B R A C A D A B R A  
 A B R A C A D A B R  
 A B R A C A D A B  
 A B R A C A D A  
 A B R A C A D  
 A B R A C A  
 A B R A C  
 A B R A  
 A B R  
 A B  
 A

ABRADE, v. *ă-brād'* [L. *abrādo*, I rub or scrape off—from *ab*, *rādo*, I scrape]: to rub or scrape off; to waste or wear off by friction. ABRA'DING, imp. ABRA'DED, pp. ABRASION, n. *ăb-rā'zhūn* [L. *rāsūs*, scraped]: the operation of wearing away by rubbing or friction; a superficial injury from friction; the matter worn off.

ABRAHAM, *ă'bră-hăm*: the progenitor of the Israelitish nation (see Gen. xi.—xxv): b. in Chaldea. Called of God, he migrated, with his wife Sarah and his nephew Lot, to Canaan, where he lived a nomadic life, and worshipped the one God, Jehovah, in the midst of the polytheistic Canaanites. A. died at the age of 175. Of his sons, Isaac was ancestor of the Israelites; and the Arabs claim to be descended from Ishmael, whose mother was Hagar, a bond-woman. Later traditions ascribe to A. a mastery of astronomy and philosophy, the invention of alphabetic writing, etc. Even among Mohammedans, A. is reckoned a prophet and the friend of God; and they attribute to him the building of the sacred Kaaba at Mecca.—His chronology is unknown; though recent Assyrian discoveries tend to support Hales's conjecture of A.'s arrival in Canaan about B.C. 2153.

ABRAHAM A SANCTA CLARA, *-â sânk'tâ klâ'rá*: 1642–1709; d. Vienna: a very eccentric but popular and useful German preacher. His real name was ULRICH MEGERLE, but he is generally known by the name given to him in his monastery. Uncouth puns, coarse expressions, and strange freaks of humor marked his sermons; but beneath their fantastic shells they had good kernels. A. was an honest, faithful, and devoted priest, as was proved by his self-sacrificing conduct during the plague in 1679. Though very severe in his reproof of vice, he was highly esteemed. The singular style of his writings is indicated by their very titles, e.g., *Gack Gack*, i.e., *Wallfarth Maria Stern in Texa; Heil-sames Gemisch-Gemasch* (Wholesome Hodge podge). His collected works amount to twenty vols. (1835).

## ABRAHAMIC—ABRAXAS STONES.

**ABRAHAMIC**, a. *ā'bră-hăm'ik*: of Abraham or his age. **ABRAHAM'S BOSOM**, the condition of repose of the blessed at death,—named in reference to the ancient custom at meals of the dearest friend leaning his head on one's bosom, as St. John on the bosom of Christ.

**ABRAHAMITES**, *īts*, or Bohemian deists: a number of residents in Bohemia who, trusting in the edict of toleration issued by Joseph II., avowed themselves, 1782, as believers of the doctrine alleged to have been held by Abraham before his circumcision. As early as the 9th c., a sect of the same name had arisen in Syria, and had denied the divinity of Christ. But the Bohemian deists professed to be followers of John Huss, though they held no Christian doctrine beyond that of the unity of God, and accepted nothing of the Bible save the Lord's Prayer. As they would join neither Jewish nor Christian sects, the emperor refused to tolerate them; and in 1783 expelled them from their native land, and scattered them in various parts of Hungary, Transylvania, and Slavonia, where many were made converts to the Roman Catholic Church, while others died as martyrs to their simple creed.

**ABRAHAM-MEN**: a class of sturdy beggars in England who simulated lunacy, and wandered about the country in a disorderly manner; at one time working on the sympathy, and at another on the fears, of women, children, and domestics. They were common in Shakespeare's time, and seem to have existed even as late as the period of the civil wars. The term is a cant one. 'An Abram cove,' as Decker, in his *English Villanies*, calls one of these mendicants, meant one who personated a 'Tom o' Bedlam.' He would 'disguise himself in grotesque rags, with knotted hair, long staff, and with many more disgusting contrivances to excite pity,' but he did not hesitate to live by thieving too, and when detected pilfering or in any species of depredation, he pleaded the immunities of the real Bedlamite, who was formally permitted to roam about the country when discharged from 'Bethlem Hospital.' A verbal relic of this class is still preserved in the slang phrase, 'to sham Abraham.'

**ABRANCHIATA**, n. plu. *ă-brăng'kă-ă'tă* [Gr. *a*, without; *brăngchiă*, the gills of a fish]: applied to animals which are destitute of gills, or organs adapted for breathing air dissolved in water, as the leech, earthworm, etc. **ABRAN'CHIATE**, a. *-kă-ăt*, destitute of gills or branchiæ.

**ABRANTES**, **DUKE OF**: see **JUNOT**.

**ABRAXAS STONES**, *a-brăx'as*:- so called from having the word *abraxas* or *abrasax* engraved on them. They are cut in various forms, and bear a variety of capricious symbols, mostly composed of human limbs, a fowl's head, and serpent's body. These gems, whose value and significance have been greatly exaggerated, are common in collections, and are represented as coming from Syria, Egypt, and Spain. It is certain that the use of the name *abraxas* was at first peculiar to the Gnostic sect of the Basilidians (q.v.); and probably the word, by taking the numerical value of its Greek letters, may signify the number 365, so

## ABREAST—ABROGATION.

that there is no need to have recourse to old Persian or Egyptian, as is sometimes done. The Basilidians, however, did not designate by this name the highest deity, but the spirits of the world collectively. At a later period the doctrines and practices of the sect were carried by the Priscillianists to Spain, whence many of these stones are got. Gnostic symbols were afterwards adopted by all sects given to magic and alchemy; and thus there is little doubt that the greater part of the abraxas-stones were made in the middle ages as talismans.

**ABREAST**, ad. *ǎ-brĕst'* [AS. *a*, on; Eng. *breast*]: side by side; keeping equally forward; opposite to; over against.

**ABRENOUNCE**, v. *ǎb'rĕ-nouns'* [mid. L. *abrĕnun'tio*, I renounce absolutely: L. *ab*, from; Eng. *renounce*]: in *OE.*, to renounce wholly; to reject absolutely. **ABRENUNCIATION**, n. *ǎb'rĕ-nūn-shĭ-ā'shūn*, the act of renouncing absolutely.

**ABREPTION**, n. *ǎb-rĕp'shūn* [L. *abreptus*, seized and carried off—from *ab*, *răpiō*, I seize]: a carrying away.

**ABRIDGE**, v. *ǎ-brĭj'* [F. *abrĕger*; Prov. *abbreujar*, to abridge—from mid. L. *abbrĕviārĕ*—from L. *ab*, *brĕviō*, I shorten]: to shorten by using fewer words; to make anything shorter or less; to epitomize. **ABRIDG'ING**, imp. **ABRIDGED**, pp. *ǎbrĭjd'*. **ABRIDG'ER**, n. one who abridges or makes less. **ABRIDGMENT**, n. *ǎ-brĭj'mĕnt*, a thing made less in size or extent; the substance of a larger work in a shorter form; an epitome. In *OE.*, **TO ABRIDGE FROM** or **OF**, to cut off from; to deprive of.—**SYN.** of 'abridge': to abbreviate; curtail; contract;—of 'abridgment': compendium; epitome; digest; summary; abstract; draught; synopsis; precis.

**ABROACH**, v. *ǎ-brōch'* [AS. *a*, on; Eng. *broach*: mid. L. *brocca*; F. *broche*, a spit, a needle: F. *brocher*, to pierce]: to pierce a barrel of liquor with a sharp instrument; to let out liquor, as from a cask. **AD.** in a position to run out, or yield the contained liquor; in a state to be spread or diffused; afloat.

**ABROAD**, ad. *ǎ-brawd'* [AS. *a*, on; Eng. *broad*]: spread far and wide; at large; in the open air; beyond the limits of a place, as a house; to a foreign country; widely.

**ABROGATE**, v. *ǎb'rō-gāt* [L. *abrōgātus*, annulled, repealed—from *ab*, *rogo*, I ask—*lit.*, to ask permission to do away with]: to repeal; to abolish; to make void. **AB'ROGATING**, imp. **AB'ROGATED**, pp. **ABROGATION**, n. *ǎb'rō-gă-shūn*, the repeal of a law by authority. **ABROGABLE**, a. *ǎb'rō-gă-bl*, that may or can be repealed.—**SYN.** of 'abrogate': to annul; repeal; abolish; make void; set aside; revoke; cancel; recall.

**ABROGATION** of Laws: the destruction, or annulling of a former law, by an act of the legislative power, or by usage. **A.** is express when it is literally pronounced by the new law, either in general, or particular terms. It is implied when the new law contains provisions positively contrary to the former laws, without expressly abrogating such laws. It is implied, also, when the order of things for which

## ABROOD—ABRUZZO.

the law had been made no longer exists, and hence the motives which had caused its enactment have necessarily ceased to operate.

**ABROOD**, ad. *ǎ-bród'* [AS. *a*, on; Eng. *brood*]: in *OE.*, in the act of brooding.

**ABROOK**, v. *ǎ-brook'* [AS. *a*, on; Eng. *brook* (see **BROOK** 3)]: in *OE.*, to bear; to brook; to put up with.

**ABRUPT**, a. *ǎb-rǔpt'* [L. *abruptus*, broken off—from *ab*, *rūptus*, broken—from *rumpo*, I break]: broken off; broken; steep; unconnected; sudden; unceremonious in words or acts; in *bot.*, looking as if a part were cut off. N. in *OE.*, broken steep ground. **ABRUPT'LY**, ad. *-lǐ*, with undue haste; hastily; ruggedly. **ABRUPTION**, n. *ǎb-rǔp'shǔn*, a sudden and violent breaking off. **ABRUPT'NESS**, n. steepness; suddenness; unceremonious haste or vehemence.—**SYN.** of 'abrupt': rugged; rough; broken; hasty; sudden; unexpected; disconnected; blunt; unceremonious.

**ABRUS**, *ǎb'rūs*: a genus of plants of the natural order *Leguminosæ*, sub-order *Papilionaceæ*, of which the only known species, *A. precatorius*, is a shrub, originally belonging to India, where it is chiefly found in clayey soils, but now not uncommon in the West Indies and other tropical regions. The roots possess properties exactly similar to those of the common licorice. The seeds are nearly spherical, as large as small pease, of a scarlet color, with a black scar, and are familiar to most people in Britain, being used as beads. They are narcotic.

**ABRUZZO**, *ǎ-brót'sō*: a district of Italy; formerly the n.e. corner of the kingdom of Naples, and divided into three parts—Abruzzo Ulteriore I. and II., and Abruzzo Citeriore. These three divisions correspond to the present Italian provinces, Chieti, Teramo, and Aquila respectively. The whole district contains about 5,000 sq. m., and 1,951,781 inhabitants. Its chief towns are Chieti, Teramo, Aquila, Sulmona. It forms the wildest and loftiest portion of the Apennines. The streams are numerous, but the only river of any consequence is the Pescara, which flows into the Adriatic. The rent and jagged mountain-groups arrange themselves in picturesque shapes, reaching in Il Gran Sasso d'Italia, or 'the great rock of Italy,' which is the highest of the chain, the elevation of 9,800 ft. The highlands slope precipitously on all sides, but especially towards the n.e. shore. The climate of A. is raw in the higher regions; snow rests on the hills from October to April, and on some of the peaks all the year round; but the valleys are extremely fertile, though husbandry is in a wretched condition, and the low, open plains are left without the slightest protection from inundations of the rivers in spring, or means for irrigation in the arid summer. Dense forests of oak and fir clothe the sides of the mountains; at the base, almond, walnut, and other fruit-trees grow abundantly; olives in the deep-lying valleys. Fine cattle pasture in these regions; herds of swine roam through the lofty pine-woods; and the remoter fastnesses are the haunt of wild animals.

## ABSALOM—ABSCESS.

**ABSALOM**, *ăb'să-lôm*: third son of David, king of Israel, remarkable for his beauty and for his unnatural rebellion against his father. By popular acts he contrived to win the affections of the people, and then stirred up a formidable rebellion. The adherents of the king rallied round him, and a battle was fought in the forest of Ephraim, in which the rebels were defeated. In the flight, as A. was riding under a tree, his hair caught in the branches, and he was left suspended; in which position Joab, the commander of David's army, thrust him through, contrary to the king's express orders that he should be spared. The grief of David for his loss was excessive. See II. Sam. xviii.

**ABSALON**, Archbishop of Lund: see **AXEL**.

**ABSCESS**, n. *ăb'sĕs* [L. *absces'sus*, gone away, departed—from *abs, cĕdo*, I go: OF. *abscecz*; F. *abcès*], or **APOSTEMA**: collection of pus in any organ or tissue of the body, one of the results of inflammation (see **PUS**: **INFLAMMATION**: **SUPPURATION**: **ULCER**: ETC.). Abscesses are divided into two classes, acute and chronic.—The acute A. is characterized by the usual signs of inflammation: heat, pain, swelling, redness, in addition to a distinct elevation and a sense of fluctuation obtained by palpitation; there are also some constitutional disturbances, as fever, loss of appetite, varying in degree according to the severity of the inflammatory process. An A., acute or chronic, is invariably due to the action of Bacteria (q. v.); and though an A. may follow a blow or injury, the pus from such an A. will be found always to contain pus-forming bacteria. The pus formed in any A. will always follow the line of least resistance, which in a superficially seated A. will be toward the surface, whereas in a deep-seated A. the course of the pus will be determined by the opposition that it meets from the tissue which it encounters, particularly from the fascia of muscles. Thus in a psoas A. though the real focus of disease is in the body of one or more of the lumbar vertebræ, the line of least resistance is along the course of the psoas magnus muscle, and the pus will be discharged in the groin at the insertion of the psoas magnus muscle. A chronic or cold A. lacks some of the signs of an acute A., there being no heat or redness, and until in an advanced stage, but little pain. It is due, as is now fairly well proved, in every instance to the bacillus of tuberculosis. The chief characteristic of a cold A. is its lining membrane, erroneously called the pyogenic (pus-forming) membrane, but which is in reality a barrier erected by nature against the further encroachment of pus. A cold A. is sometimes of months' duration, and may reach an enormous size, containing quarts of pus.—The treatment of any A. is for riddance of the pus which it contains, and in most cases the surgeon's knife will bring a more speedy cure than nature unassisted. It is necessary in the case of a chronic A. that the pyogenic membrane be removed or destroyed, as it is on this that tubercle is deposited. An A. is regarded not as an original disease, in itself, but as the result of another disease

## ABSCIND—ABSENTEE.

—inflammation; or as an effort of nature for the removal of injurious matters from the system.

**ABSCIND**, v. *ăb-sĭnd'* [L. *abscin'do*, I tear apart—from *ab*, *scindo*, I cut]: to cut off; to sever. **ABSCIND'ING**, imp. **ABSCIND'ED**, pp.

**ABSCISS**, n. *ăb'sĭs*, or **ABSCISSA**, n. *ăb-sĭs'să*—plu. **ABSCIS'SES**, or **ABSCIS'SÆ**, *-sĭs'ē* [L. *abscis'sus*, torn or cut off—from *ab*, *scindo*, I cut]: a part cut off; a part of the diameter, or a segment of a conic section; the segment of a diameter included between its extremity and its intersection with an ordinate (see **PARABOLA**.) **ABSCISSION**, n. *ăb-sĭzh'ŭn*, a cutting off; sudden termination.

**ABSCOND**, v. *ăb-skŏnd'* [L. *abscondĕrĕ*, to put out of sight—from *abs*, *condo*, I hide: OF. *absconder*, to conceal]: to conceal or hide one's self; to run away; to withdraw one's self in a private manner; to hide one's self, generally to elude the penalties of the law. **ABSCOND'ING**, imp. **N. concealment**; flight. **ABSCOND'ED**, pp. **ABSCOND'ER**, n. one who runs away for concealment.

**ABSENT**, v. *ăb-sĕnt'* [F. *absent*—from L. *absens* or *absentem*, being absent or distant—from *abs*, *ens*, being]: to go away from; to keep away; to withdraw or retire from. **ABSENT**, a. *ăb'sĕnt*, not present; inattentive; at a distance. **ABSENT'ING**, imp. **ABSENT'ED**, pp. **ABSENT'ER**, n. one who takes himself away. **ABSENTEE**, n. *ăb'sĕn-tĕ'*, one who goes away from; one absent from duty without leave. **AB'SENTEE'ISM**, n. *-ĭzm*, the practice of residing or stopping away from one's office or estate. **ABSENCE**, n. *ăb'sĕns* [F. *absence*; L. *absĕntĭa*]: the being away, or at a distance; want; in *law*, want of appearance; inattention of mind. **ABSENCE OF MIND**, the condition of one whose thoughts more or less habitually wander from present scenes or topics, often resulting in ludicrous or painful mistakes.—**SYN.** of 'absent in mind': abstracted; distracted; absorbed; engrossed; diverted.

**ABSENTEE**, *ăb'sĕn-tĕ'*: a term applied, sometimes by way of reproach, to capitalists who derive their income from one country, and spend it in another. It has been especially used in discussions on the social condition of Ireland. As long as Ireland had its own parliament, a great portion of the large landed proprietors lived chiefly in the country during summer, and passed their winters in Dublin; thus spending a large portion of their incomes among their dependents, or at least among their countrymen. The Union changed the habits of the Irish nobility and gentry, who were attracted to London as the political metropolis, or were induced, by the disturbed condition of Ireland, to choose residences on the continent. Such Irish landed proprietors were styled 'absentees;' and it was argued that their conduct was the great source of Irish poverty, as it drained the resources of the land, or, in other words, sent money out of Ireland. One class of political economists—among them M'Culloch—maintain that, economically viewed, absenteeism has no injurious effect on the country

## ABSINTHE—ABSINTHIAN.

from which the absentee draws his revenue. An Irish landlord living in France, it is argued, receives his remittances of rent, not in bullion, but in bills of exchange; and bills of exchange represent, in the end, the value of British commodities imported into France. The remittance could not be made unless goods to the same amount were also drawn from Britain. Thus, although the landlord may consume, for the most part, French productions, he causes, indirectly, a demand for as much of British productions; and his income goes, in the end, to pay for them. His residence abroad, then, does no harm to the industry and resources of the country at large, although it is admitted that it may be felt as an evil in a particular locality. The truth of this doctrine, however, in its full extent, is disputed. Among other objections to it, it is argued that whatever may be true of the amount actually consumed, all the tradesmen and others who supply the absentee's wants have their profits, and have thus the means of accumulating; and that these accumulations, which are thus added to the national wealth of a foreign country, would have been added to the wealth of his native country had he been living at home. The result of the controversy seems to be that absenteeism does, to some extent, act injuriously on the wealth of a country, though it is not true that the whole revenues thus spent are so much clear loss, there being several indirect compensations.—On the evil of absenteeism, in a moral point of view, all are agreed; especially in a country in the condition of Ireland, where nearly the whole wealth is in the hands of extensive landed proprietors, with almost no middle class.

**ABSINTHE**, *ăb'sînth*: spirit flavored with the pounded leaves and flowering tops of certain species of *Artemisia* (q. v.), chiefly wormwood (*A. absinthium*), together with angelica-root, sweet-flag root, star-anise, and other aromatics. The aromatics are macerated for about eight days in alcohol, and then distilled, the result being an emerald-colored liquor. Adulteration is largely practiced, even blue vitriol being sometimes found in so-called A. The best A. is made in Switzerland, the chief seat of the manufacture being in the canton of Neufchatel. It is chiefly used in France, but is of late largely exported to the United States. When to be drunk, the greenish liquor is usually mixed with water. The evil effects of drinking A. are very apparent; frequent intoxication or moderate but steady tippling, utterly deranges the digestive system, weakens the frame, induces horrible dreams and hallucinations, and may end in paralysis or in idiocy.

**ABSINTHIAN**, a. *ăb-sînthî-ăn* [L. *absin'thîŭm*, wormwood]: of or like wormwood. **ABSINTHIATED**, a. *-thî-ăt'éd*, impregnated with wormwood. **ABSINTHE**, n. *ăb'sînth* [F.]: a well-known French liqueur; an alcoholic liquor impregnated with the qualities of *absin'thîŭm* or wormwood. **ABSINTHIC**, a. *-thîk*, pert. to absinthium, or to an acid obtained from it. **ABSINTHINE**, n. *-thîn*, the bitter principle found in absinthium.



## ABSOLUTE—ABSOLUTION.

**ABSOLUTE**, a. *ăb'sō-lôt* [L. *absolūtus*, unfettered, unconditional—from *ab*, *solūtus*, loosened or set free—from *solvo*, I loose: F. *absolu*]: loosened or set free from control; without control; independent of any person or thing; despotic; positive; peremptory. **THE ABSOLUTE**, in mental philosophy, opposed to the conditioned; that which, complete in itself, stands in need of no relation to anything else. **ABSOLUTELY**, ad. *ăb'sō-lôt'ly*, without restriction or limitation; peremptorily. **ABSOLUTISM**, n. *ăb'sō-lôt-izm*, state or principle of despotism. **AB'SOLUT'IST**, n. one who advocates absolutism. **AB'SOLUTENESS**, n. the state of being free from dependence or limits.—**SYN.** of 'absolute': despotic; arbitrary; tyrannical; positive; peremptory; certain; unconditional.

**ABSOLUTE**: opposed to *relative*, and means that the thing is considered in itself, and without reference to other things. In physics, we speak of the *absolute* velocity of a body—i.e., the rate of its motion through space; and of the *relative* velocity of two bodies—i.e., the rate at which they approach or recede from one another, one or both being in motion. In the language of modern metaphysics, the Absolute is the unconditioned, unalterable original—that which is the ultimate cause and ground of the phenomena of the visible world. Absolute, in politics, is applied to a ruler whose authority is unrestricted by constitutional checks.

**ABSOLUTION**, n. *ăb'sō-lô'shŭn* [F. *absolution*—from L. *absolūtĭō'nem*, perfection, completion—from *solūtus*, loosened or set free]: a sentence of acquittal; a declaration of innocence; a remission of sin pronounced by the priest over the penitent who confesses. **ABSOLUTORY**, a. *ăb-sôl'ū-tēr-ĭ*, that absolves. See **ABSOLVE**.

**ABSOLUTION**: originally a term of Roman law, signifying acquittal; now used in an ecclesiastical sense. In the primitive Christian Church, its form was this: Members that had given scandal by gross and open sins were excluded from the Lord's Supper, or from the congregation altogether, and could be readmitted only if they repented and underwent the penance laid upon them by the church. When they had done so, the presbyter, with the elders, pronounced the A. in presence of the congregation—meaning that the congregation forgave the offense, on theirpart, and received the sinner again into their number. Until the 3d c., the concurrence of the congregation continued to be necessary to A. But by the 4th c. it had become a right of bishops to absolve, and the public confession had gradually turned into a private confession before the priest, who now imposed the penance of himself, modified or remitted it, and then absolved. A. had, as yet, been extended mostly to open and gross sins; but when the fourth Lateran Council, 1215, had made auricular confession, at least once a year, obligatory, confession and its attendant A. were extended to all sins; and the A. was held to convey forgiveness both by the church and in the sight of God. The formula, *Deus* or *Christus absolvit te*, which was used till the

## ABSOLVE—ABSORPTION.

12th c., was changed into *Ego absolvo te*; thus ascribing to the priest the power to forgive sins in the sight of God. This is the received theory of absolution in the Roman Catholic Church, sanctioned by the Council of Trent, and grounded on John xx., 21.—The Protestant churches differ in their views of A., some holding it only as declarative of the Divine promise of forgiveness on condition of repentance; others, as declarative of the Divine fact of forgiveness as already established; others, as in one or another sense, effectuate in making actual the Divine forgiveness. See CONFESSION: PENANCE.

**ABSOLVE**, v. *áb-zól'v'* [L. *absol'vērē*, to loose from some thing—from *ab, solvo*, I loose, I set free: Prov. *absolver*: F. *absoudre*]: to loose or set free from control; to release from some burden or penalty; to acquit; in *OE.*, to finish; to complete. **ABSOLV'ING**, imp. **ABSOLVED**, pp. *áb-zól'v'ed'*. **ABSOLV'ER**, n. one who. **ABSOLVATORY**, a. *áb-zól'v'á-tēr'í*, that contains absolution, pardon, or release.—**SYN.** of 'absolve': to acquit; exonerate; clear; exculpate; shrive.

**ABSONANT**, a. *áb-sō-nánt* [L. *absōnans* or *absonan'tem*, discordant, harsh—from *ab, sōnus*, sound; *sono*, I sound]: sounding discordantly; deviating from the true sound, tone, or harmony; absurd.

**ABSORB**, v. *áb-sōrb'* [L. *absorbērē*, to swallow up—from *ab, sorbēō*, I drink up or suck in]: to drink in, as a sponge; to swallow or suck up; wholly to engage; to engross; to be absorbed. **ABSORB'ING**, imp. **ABSORBED**, pp. *áb-sōrb'ed'*. **ABSORBENT**, a. *áb-sōrb'ēnt*, drinking in or sucking up; imbibing. **N.** that which sucks up or imbibes, or a vessel which imbibes or takes up. **ABSORB'ENTS**, n. plu. substances, such as magnesia and chalk, which remove acidity in the stomach. **ABSORBABLE**, a. *áb-sōrb'á-bl*, what may be sucked up. **ABSORBABILITY**, n. *áb-sōrb'á-bíl'í-tí*, the capacity for being absorbable. **ABSORPTIVE**, a. *áb-sōrp'tív* [L. *absorptus*, sucked up]: having the power to suck up. **ABSORPTION**, n. *áb-sōrp'shūn* [F.—L.]: the act of drinking in or sucking up; the act or process of taking up digested and assimilated matter by absorbents. **ABSORBING GROUND**, in *paint.*, the ground which has been prepared for a picture in oil-colors, and which, at sucking in the oils, imparts a strength and brilliancy to the colors.—**SYN.** of 'absorb': to swallow up; engulf; engross; imbibe.

**ABSORBENTS**: see **LACTEALS** and **LYMPHATICS**.

**ABSORPTION**, *áb sōrp'shūn*, in Botany: it is believed that plants absorb carbonic acid gas, and also to some extent fluids, by their leaves and other aërial organs; and it is supposed that this absorption takes place principally through the *stomata* of the leaves (see **LEAVES**), and both by the upper and under surface of the leaf, in some plants by both surfaces indifferently, in others much more powerfully by the one surface or the other. But plants depend principally upon their roots for nourishment, and it is at the extremities of their fibrils that absorption takes place most rapidly, according to a peculiar process to which has been given the name of **ENDOSMOSE** (q.v.).

## ABSTAIN—ABSTRACT.

**ABSTAIN**, v. *áb-stān'* [L. *abstīnērē*, to hold or keep away from—from *abs*, *tenēō*, I hold: F. *abstenir*: Sp. *abstenerse*: Norm. F. *abstiegner*]: to hold or keep away from, as from an object of desire; to keep or refrain from; to forbear. **ABSTAIN'ING**, imp. **ABSTAINED**, pp. *áb-stānd'*. **ABSTAIN'ER**, n. one who keeps from. **ABSTENTION**, n. *áb-stěn'shūn* [F. *abstention*: L. *abs*, *tēntus*, held]: the act of holding off or abstaining. **ABSTINENCE**, n. *áb'stīn-ěns* [F. *abstinence*: L. *abstīnēntīa*]: the practice of keeping from, especially from certain kinds of food or drink. **AB'STINENT**, a. *-ěnt* [F. *abstinent*: L. *abstīnens*]: refraining from, especially in the use of food or drink; temperate. **AB'STINENT'LY**, ad. *-lī*.—**SYN.** of 'abstain': to forbear; refrain; give up; relinquish; withhold;—of 'abstinent': sober; abstemious; temperate; moderate.

**ABSTEMIOUS**, a. *áb-stě'mī-ūs* [L. *abstēmīus*, temperate or sober—from *abs*, *tēmētum*, an intoxicating liquor, as wine—*lit.*, not being wet or moistened with wine]: sparing in the use of food or strong drinks; temperate; holding back from excess or too much pleasure. **ABSTE'MIOUSLY**, ad. *-lī*. **ABSTE'MIOUSNESS**, n. being sparing in the use of food or strong drink.

**ABSTENTION**, **ABSTINENCE**, **ABSTINENT**, ETC.: see under **ABSTAIN**.

**ABSTERGENT**, a. *áb-stěr'jěnt* [F. *abstergent*—from L. *abster'gens*, wiping dry—from *abs*, *tergēō*, I rub off]: having a cleansing property—thus fuller's earth is an abstergent. **ABSTERSIVE**, a. *áb-stěr'sīv* [mid. L. *abstersīvūs*; F. *abstersif*, useful to clean]: cleansing.

**ABSTINENCE** [see **ABSTAIN**]: see **FASTING**. **ABSTINENCE SOCIETIES**: see **TOTAL ABSTINENCE**.

**ABSTRACT**, a. *áb-strākt* [L. *abstrāctus*, drawn or dragged away from—from *abs*, *tractus*, drawn—from *trāho*, I draw: F. *abstraire*, to abstract—*lit.*, drawn away from something]: apart or separate from something else; existing in the mind only, as opposed to *concrete*; difficult; abstruse: N. a summary or epitome; an abridgment: in *phar.*, a preparation containing the soluble principles of a drug evaporated and mixed with sugar of milk: its strength is twice that of the crude drug or fluid extract, and about ten times that of the tincture: V. *áb-strākt'* to separate; to mentally separate only one part or quality of an object; to epitomize; to purloin. **ABSTRACT'ING**, imp. **ABSTRACT'ED**, pp. separated; absent in mind. **ABSTRACT'EDLY**, ad. **ABSTRACT'EDNESS**, n. state of being separated from a real existence. **ABSTRACT'ER**, n. one who. **ABSTRACTION**, n. *áb-strāk'shūn* [F.—L.]: the act of the mind when considering some part or property of a body by itself, as *hardness*; absence of mind; deep thought; purloining. **AB'STRACTNESS**, n. being in a separate state; not being connected with any object. **ABSTRACT'IVE**, a. *-tīv*, having the power to abstract. **ABSTRACT'IVELY**, ad. *-tīv-lī*, taken as an abstraction. **ABSTRACTLY**, ad. *áb-strākt'lī*, in an abstract manner. **ABSTRACT NAME**, a name standing for an attribute, or a quality of a thing—as opposed to *con*

## ABSTRACTION—ABSURD.

*crete name*, a name which stands for a thing. **ABSTRACT IDEA**, an idea separated from other accompanying ideas. **ABSTRACT NUMBERS**, numbers used without application to things, 2, 3, 6. **CONCRETE NUMBERS** are such as 2 lb., 3 oz., 6 doz.—**SYN.** of 'abstract, v.': to separate; draw off; distinguish;—of 'abstract, n.': epitome; abridgment; compendium; synopsis.

**ABSTRACTION**, *ǎb-strǎk'shǔn*: that intellectual process by which the mind withdraws (*abstraho*) some of the attributes of objects from the others, and thinks of them to the exclusion of the rest. The abstract is opposed to the concrete. John, William, my brother, form concrete images in my mind, each with a multitude of attributes peculiar to himself. But they have also certain attributes common to them and to all individuals of the race; I can overlook the other attributes and attend to these, and thus form a notion or conception, which is called *a man*. Man is, therefore, an abstract notion, the word connoting, as it is called, a certain though not very well defined number of attributes. With the exception of proper names, all nouns are thus abstract. There are degrees, however, in abstraction. The abstract notion *animal* rises above that of *man*, embracing all men and innumerable organized beings besides. An *organized being*, again, is a still higher stage, and embraces both animals and plants. Being, time, space, are among the highest abstractions. The higher abstractions rise, the fewer attributes are implied or connoted in the name; hence the propriety of the phrase, *empty abstractions*. On the other hand, the number of objects to which the name is applicable increases; and thus reasoning in abstract terms has the advantage of being general or extensive in its application. But such reasoning is apt to become vague and fallacious, unless constant regard is had to concrete instances. Abstract language is best adapted for scientific exposition; concrete, for graphic and poetical effect.

**ABSTRACTED**, a. *ǎb-strǎkt'ĕd* [L. *ab, strictus*, drawn tight]: unbound.

**ABSTRINGE**, v. *ǎb-strǎnj'* [L. *abstringĕrĕ*—from *ab, stringo*, I bind or tie tight]: to unbind. **ABSTRIN'GING**, imp. **ABSTRINGED**, pp. *ǎb-strǎnjd'*.

**ABSTRUSE**, a. *ǎb-strós'* [L. *abstrūsus*, thrust away from one, hidden—from *abs, trūdo*, I thrust]: thrust away from one's sight; concealed; difficult to be understood; obscure in meaning. **ABSTRUSE'LY**, ad. *-lĭ*, in an abstruse or hidden manner. **ABSTRUSENESS**, n. *ǎb-strós'nĕs*, darkness in meaning; obscurity.—**SYN.** of 'abstruse': recondite; obscure; curious.

**ABSURD**, a. *ǎb-sĕrd'* [L. *absurdus*, irrational—from *ab, surdus*, deaf, that will not hear]: not agreeable to the ears, or not fit to be heard; not agreeable to reason or common sense; what is plainly opposite to the truth; contemptibly foolish. **ABSURD'LY**, ad. *-lĭ*. **ABSURD'ITY**, n. *-dĭ-tĭ*, what is absurd; that which is not in accordance with reason or common-sense. Also **ABSURD'NESS**, n.—**SYN.** of 'absurd': foolish;

## ABT—ABULFARAJ.

irrational; preposterous; incongruous; inconsistent; ridiculous; nonsensical.

ABT, *ápt*, FRANZ: musical composer: 1819. Dec. 22—1885, Mar. 31; b. Eilenburg, Prussian Saxony. A writer of popular songs, the best known of his 200 compositions being *When the Swallows Homeward Fly*.

ABU, *á'bó*: mountain of India, in the territory of Serolie, Rajpootana, rising far above any other of the Aravulli ridge, and said to be about 5,000 ft. above the sea. The base is broad, its circuit being estimated at forty or fifty m.; the summit is very irregular, and divided into many peaks. It is a celebrated place of pilgrimage, especially for the Jainas, who have a magnificent group of four temples at Dilwara, about the middle of the mountain, one of which is described as 'the most superb of all the temples in India.' Before it is an equestrian statue of the founder, Bimul Sah, a Jain merchant of Anhulwara. All the temples exhibit symptoms of decay. The summit of A. is about 40 m. n.e. from the British cantonment of Deesa, and it has lately begun to be used as a sanatorium.

ABU, or BU (Arab. for 'father'): prefixed to many Arabic proper names, as the equivalent syllable *Ab* is prefixed to Hebrew names: e.g., Abu-bekr, 'Father of the virgin' (Ayeshah). But *Abu*, like *Ab*, often signifies merely possessor; as in Abulfeda (possessor of fidelity), 'the Trusty'; Abner, 'the Brilliant'—literally, 'father or possessor of light.'

ABU-BEKR, *á'bó-běk'r* ('Father of the virgin' Ayeshah, the wife of Mohammed): 572–635: a man of great influence in the Koreish tribe, who, in 632, when Mohammed died, was made the first caliph or successor of the Prophet. After defeating his enemies in Arabia, and warring successfully against Babylonia, Syria, and the Byzantine emperor Heraclius, A. died, and was buried at Medina, near the remains of Mohammed and his wife Ayeshah (q.v.).

ABULFARAJ, *á'ból-fá'ráj* (Lat. *Abulfaragius*), called also Barhebræus—i.e., Son of the Hebrew, as being by birth a Jew, though afterwards a Christian: 1226–86; b. Malatia, in Armenia: so distinguished for knowledge of the Syriac, Arabic, and Greek languages, and of philosophy, theology, and medicine, that he was called the phoenix of the age. At the age of twenty he was made bishop of Gula, and afterwards of Aleppo; and rose to the rank of maphrian, the highest dignity among the Jacobite Christians next to patriarch. Of his numerous Syriac and Arabic writings, most of which lie buried in the library of the Vatican, the best known is a *Chronicle*, in Syriac, of universal history from Adam down to his own time. The first part of it was published at Leipzig, 1789, the rest (3 vols.) at Louvain, 1872–74. A. himself abridged this work in Arabic, under the title of *History of the Dynasties* (edited by Pococke, Arab. and Lat. Oxf. 1663). Among his theological writings may be mentioned his *Magazine of Mysteries*, a Commentary on the Syriac Version of the Bible.

ABULFEDA—ABUT.

**ABULFEDA**, *ábū-fédá*: 1273–1331; b. Damascus: a Moslem prince, known as a writer of history. During his youth he distinguished himself in several campaigns against the Christian kingdom founded by the Crusaders. From 1310 till his death, he ruled the principality of Hamat, in Syria, and was a true ally of the sultan. A. visited Egypt and Arabia, patronized literature and science, and left several important works in Arabic, among which are his Annals, the earlier portion of which has been edited by Fleischer, under the title of *Historia Anteislamica* (Leip. 1831), and the rest by Reiske, in the *Annales Moslemici* (Copenh. 1789–94). This work was in great part compiled by A. from earlier Arabic authors, and is a valuable source of history, especially of the Arabic Empire. He also wrote a geography, which has been edited with a French translation, by Reinaud and De Slane (Par. 1848), and by Reiske (Dresden, 1842).

**ABUNDANCE, ABUNDANT, ETC.**: see under **ABOUND**

**ABUSE**, v. *ábūz'* [F. *abus*, misuse; *abuser*, to misuse, to deceive—from L. *abusus*, misused, abused—from *ab*, *usus*, used]: to use improperly; to treat wrongly or ill; to misuse anything; to violate, to revile; in *OE*, to deceive; to impose on. N. *ábūs'*, ill use of anything; rude reproach; misapplication. **ABUS'ING**, imp. **ABUSED**, pp. *ábūzéd'*. **ABU'SER**, n. *-zér*, one who. **ABUSE'FUL**, a. full of abuse. **ABUSIVE**, a. *ábū'siv*, employing bad language; treating ill; reviling; containing abuse. **ABU'SIVELY**, ad. *-lī*, in the manner of abuse; by an improper or wrong use. **ABU'SIVENESS**, n. the quality of being abusive; rudeness or foulness of language.—**SYN.** of 'abuse, v.': to misuse; revile; vilify; reproach; deceive; injure; maltreat;—of 'abuse, n.': invective; reproach; insult; scurrility; opprobrium; contumely;—of 'abusive': scurrilous; offensive; reviling; opprobrious; insulting; insolent; injurious.

**ABUSHEHR**, *ábū-shēr'* (variously written Bushehr, Bushire, in Pers. Bendershehr): seaport on the e. coast of the Persian Gulf, at the extremity of a peninsula. The district is liable to be devastated by earthquakes and the simoom, and is deficient in water; but the situation is so favorable for commerce that the trade is valued at \$3,000,000 a year, of which three-fourths represent imports. It is the land terminus of the Indo-European telegraph line; the headquarters of the English naval squadron in the Persian Gulf, and a chief station of the British Indian Steam Navigation Co. The exports are horses, fruits, shawls, pearls, silk, rosewater, asafoetida, copper, gall-nuts, etc.; imports, sugar, indigo, iron, cotton goods, etc. Pop. nearly 20,000.

**ABUT**, v. *ábūt'* [F. *aboutir*, to meet at the end: *OF*. *botter*, to strike: F. *bout*, end. Eng. *butt*, to strike with the head, as a goat: Mid. L. *abutto*, I terminate or bound]: to border upon, particularly at the end; to touch; to be contiguous. **ABUT'ING**, imp. **ADJ.** facing each other and contiguous. **ABUT'TED**, pp. **ABUTTALS**, n. plu. *ábūt'áls*, the buttings or boundaries of lands, particularly at the ends—the sides or the breadth of lands are properly adja-

## ABUTILON—ABYSS.

ent or bordering, and the ends in their length abutting or bounding. **ABUTMENT**, n. *ă-büt'měnt*, that which borders upon; what supports the end of a bridge. **ABUT'TER**, n. that which abuts.

**ABUTILON**, n. *ă-bū'til-ŏn* [F. *abutilon*, a marsh-mallow]: a genus of Malvaceæ, or the mallow family, annual or shrubby plants, some favorite garden plants, have heart-shaped leaves, and axillary pendulous flowers.

**ABUTMENT**, *ă-büt'měnt*, in Architecture: the part of a pier or wall from which an arch springs, and which resists the outward thrust. The term *impost* is used when the arch is a semicircle, so that the pressure is vertical. In reference to a bridge, the abutments are the walls adjoining the land, which support the ends of the roadway, or the extremities of the arch or arches.

**ABY**, **ABUY**, or **ABIE**, v. *ă-bī'* [AS. *abyrgan*, to redeem, to pay the purchase-money—from *a*, intensive; *byrgan*, to buy: Scot. *aby*; OE. *abeye*, to suffer for—see **ABIDE**]: in Scot. and OE., to pay the penalty; to suffer the consequences of anything. **ABUY'ING**, imp. paying the penalty.

**ABYDOS**, *a-bī'dos*: a town in Asia Minor, at the narrowest part of the Hellespont, opposite Sestos. It is celebrated as the place whence Xerxes and his vast army passed into Europe, B.C. 480; also as the scene of the story of Hero (q.v.) and Leander. In the later antiquity, the people of A. were reproached for their effeminate and dissolute manners.

**ABYDOS**, in Upper Egypt (Thebais): a town on the left bank of the Nile, and on the main route of commerce with Libya. Even in the time of Strabo, this town was in ruins. Here the remains of the Memnonium, and of a temple of Osiris are still remarkable. In the former, W. J. Bankes, 1818, discovered the celebrated Tablet of A., bearing in hieroglyphics, a genealogy of the eighteenth dynasty of the Pharaohs. It is now in Paris, and copies have been published. In 1900 Prof. Flinders Petrie discovered the tombs of kings of first dynasty, together with records extending from 4,000 to 5,000 B.C.

**ABYSS**, n. *ă-bīs'* [Gr. *abus'sos*, without a bottom—from *a*, without; *bussos*, a bottom]: that which is bottomless; a very deep place; a deep mass of waters; a gulf. **ABYSMAL**, a. *ă-bīz'māl*, pert. to the greatest depths; deep as an abyss; unending. **ABYSM**, n. *ă-bīzm'* [OF. *abisme*; Sp. *abismo*—from mid. L. *abys'simus*, the deepest depth]: an abyss.

## ABYSSINIA.

ABYSSINIA, *ăb-î-sîn'î-a*, called Habesh by the Arabs. the large tract of highlands in the c. of Africa. From the Red Sea on the n.e., it rises in terraces towards the s.w. Between the highlands and the Red Sea lies a flat tract called Adal, narrow at the n. (lat. 15° 30'), and widening to the s. The plains of Nubia and Kordofan form the boundaries on the n. and w., while the s. limits are not well known; about 200,000 sq. m.; pop. 3,000,000 to 4,000,000. The country consists of high table-lands, intersected by deep ravines formed by the rivers, and steep sandstone terraces. Numerous mountain-chains, mostly of volcanic origin, rise above the table-lands; the highest are the mountains of Samen or Samien, rising to about 15,000 ft. above the sea-level. Some of the plains have an elevation of 7,000 to 10,000 ft. A. gives rise to numerous rivers, the largest of which are the Abai or Nile (Bahr-el-Azrek or Blue River), and the Takkazie, an affluent of the Nile. In the s. is the Hawash—from which the country takes its name—which flows e. into the salt-lake of Assal in Adal. The largest lake is that of Tzana or Dembea, through which the Abai or Blue Nile flows. The climate in the elevated tracts of Abyssinia is temperate and salubrious; in the low tracts along the coast, and in the n. and n.w., the heat is excessive, and the climate noxious. On the whole, A. is a country of great fertility; but, like the climate, the productions of the soil vary greatly with the different degrees of elevation. Wheat and barley are cultivated, also maize, the grains called Teff (*Poa Abyssinica*), and Toccusso (*Eleusine Toccusso*), various leguminous plants, cotton, coffee, sugar-cane, tobacco, etc. The coffee-plant grows wild. Among wild animals, the lion, leopard, hyena, wolf, jackal, elephant, buffalo, rhinoceros, and zebra are found.

The people of A. belong mostly to the Shemitic race, and resemble the Arabs both in physical characteristics and structure of language. See ETHIOPIA. The ethnology of the country is variously given by different authorities. According to Ruppell, there are three principal races. The aboriginal Abyssinians, inhabiting the greater part of Amhara, numerous also in Tigré, are of middle size, with oval faces, lips not thicker than those of Europeans, pointed noses, and straight or slightly curled hair. In this race he includes the Falashas, or Jews, the Gamant, and the Agows. A second race, abounding most in the n. of Tigré, have thick lips, noses blunt and somewhat curved, and thick hair, verging on wooliness. The third are the Gallas, inhabiting the s. of Shoa and the regions w. of Lake Dembea and the Abai; a large-bodied race, round-faced, short-nosed, with a depression between the nose and brow, deep-set lively eyes, and thickish lips. The color of these races is brown of various shades. The only negroes in A. are slaves from the country of the Shangallas to the w.

The oldest accounts of the Abyssinians are full of fables, but seem sufficient to prove that they attained some civilization even in remote antiquity. Christianity was introduced about the middle of the 4th c., and soon prevailed extensively. Axum was at that time the capital. Two centuries



## ABYSSINIA.

later, the Abyssinians were powerful enough to invade Arabia, and conquer a part of Yemen. In the subsequent struggles against the invading Moslem, the coast-land Samhara and the country of Adal were lost. In the 10th c., a Jewish princess overthrew the reigning dynasty, the surviving representative of which fled to Shoa. After three centuries of confusion, the empire was restored under Icon Amalach, and some progress was made in improvement. Early in the 15th c., the Abyssinians entered into close relations with the Portuguese, by whose assistance the empire was saved, in 1540, from falling into the hands of the invader Granie, sultan of Adal. The southern provinces, however, were lost, and the seat of empire was removed from Shoa to Gondar. Under the influence of the Portuguese missionaries, the royal family adopted the Roman Catholic faith; and the old Coptic Church was formally united to the see of Rome. The people and ecclesiastics obstinately resisted the innovation; the emperor gave way; and ultimately, 1632, the Romish priests were expelled or put to death. In consequence of the commotions thus excited, the monarchical power declined, while that of the governors of provinces greatly increased, till it became almost absolute. The people were under petty local tyranny.

In consequence of invasions and civil warfare, the present social and political condition of A. is very unfavorable. The kingdom of Shoa is in better circumstances than the other states. Though Christianity is still the professed religion of the majority of Abyssinians, it exists among them only in its lowest form, and is little more than ceremonial. Their church is national and independent, but the visible head, or *Abuna* ('our father') is ordained by the Coptic patriarch of Alexandria. The doctrines of the Abyssinian coincide with those of the Coptic Church, especially in the monophysite heresy; but several peculiar rites are observed, including circumcision of both sexes, and observance of the Mosaic laws respecting food, etc.; love-feasts, and adult baptism. The oldest Abyssinian churches are hewn out of rocks. The modern churches are mostly small, round, or conical buildings, thatched with straw, and surrounded by pillars of cedar. Statues and bass-reliefs are not tolerated in churches, but paintings are numerous. The state of manners and morals in A. is as low as might be looked for in a country so long a prey to anarchy and violence. Human life is lightly valued, the administration of justice is barbarously negligent and corrupt, and the marriage-bond is tied and loosed with extreme facility. The land generally yields at least two crops annually; but the agriculture is miserable, and the condition of the lower classes proportionally wretched. Among fruits, the fig is the most plentiful. Wine is used only for the Eucharist; the common drink is *bouza*, a kind of sour beer, made from the fermentation of bread. The manufactures of A. are rude, but sufficient, with a few exceptions, for the wants of the natives; cotton stuffs and leather goods are the staple articles. The foreign trade is carried on principally through Massowah; the chief exports being slaves, gold, butter, musk-horns, wax, and ivory

## ABYSSINIA.

In 1862, King Theodore, enraged that personal letters to Queen Victoria and Emperor Napoleon were not personally answered, imprisoned the English and French consuls, and many missionaries and other Europeans. In 1864, the British govt. sent envoys with presents to the king to treat for the release of the prisoners, but the envoys also were imprisoned. A British expedition was then fitted out, under command of Gen. (afterward Lord) Napier, the fortress of Magdala was taken by storm 1867, Apr. 13; and King Theodore killed himself before the surrender. Prince Kassai of Tigré was proclaimed emperor of Tigré and Amhara 1872, as Johannes I., but failed to establish his rule over the whole country. Frontier difficulties with Egypt were kept up till 1882, when Egypt evacuated the Soudan. In 1885, Massowah was occupied by Italians, and 1887, Jan. 26, three companies of Italian soldiers were slaughtered by the Abyssinians. The latter act led the Italian govt. to determine on a regular war. After the Italians had fortified Massowah, Johannes wished to treat for peace, but declined the Italian proposals. The Italians made a league with Menelek, King of Shoa, who had risen against Johannes 1888, by which the latter was supplied with munitions of war, and resumed operations against Johannes. On the death of Johannes in battle, 1889, Mar. 11, Menelek proclaimed himself emperor of all Ethiopia, which includes the modern A. His pretensions were disputed by Mangascia, son of Johannes, who, however, after a show of military opposition, was acknowledged by him as king of Tigré. The Italians claimed that Menelek violated his first treaty with them, and made another with him 1889, by which Italy was virtually given a protectorate over all Ethiopia. But 1890 Menelek denied that he had accepted an Italian protectorate, and the Italian ambassador who had negotiated the treaty with him, failing to induce him to change his attitude, broke off all negotiations 1891, Feb. 11. During 1891 King Mangascia, Ras Alula, and other native leaders attacked and routed chief Debeb, who had claimed Menelek's throne. The same year protocols were signed at Rome, establishing a new line of demarkation between the possessions of Great Britain and Italy in e. Africa.

In 1895, Jan. 13, Ras Mangascia, at the head of 10,000 men, besieged the Italians at Kassala, numbering 1,500 men. Gen. Baratieri, the commander-in-chief, immediately set out from Keren with a relief expedition of 4,000 men. Arriving before Kassala on the 14th, he defeated the enemy and raised the siege. To prevent an invasion of Erythrea by the Abyssinians Gen. Baratieri left Adigrat early in October with 8,000 men. On the 9th, the Italian advance-guard came upon Mangascia's troops and, attacking them in the rear, routed them. Placing Gen. Arimondi at the head of a detachment with orders to pursue Mangascia, Gen. Baratieri turned his attention to his defenses. He fortified Adowa, Adigrat, and Makale. Meanwhile Mangascia retreated to the Vogeral mountains, closely followed by the vanguard of Arimondi's force,

## ABYSSINIAN—AC.

1,500 or 2,500 strong, under Major Toselli. In an attempt to prevent a junction, which the Abyssinians sought to effect before Gen. Arimondi could come up with his main body, Toselli and his detachment were almost annihilated, and Arimondi was forced to retire.

In the middle of December, the Abyssinians advanced in two columns on Adowa and Asmara. Ras Mangascia attacked Makale, Dec. 20th, was repulsed, but renewed his attack every two or three days, until 1896, Jan. 23, when, the ammunition and rations being short and the water-supply cut off, the garrison under Col. Galliano surrendered, accepting the magnanimous terms offered by Menelek—that they take all their arms and equipment and march out unmolested to rejoin the main body of the Italian army at Adigrat.

Before advancing on Adigrat, Menelek sent an envoy to the Italian camp there with an offer of peace. This offer Gen. Baratieri was unable to accept, and negotiations were broken off. Meanwhile in Italy the conduct of the war was vigorously attacked in the Italian parliament, and Gen. Baratieri was superseded, Feb. 24, by Gen. Baldissera.

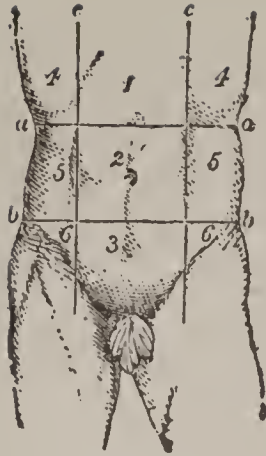
While Baldissera was on his way to Massowah with reinforcements, Baratieri advanced against the Abyssinians concentrated at Adowa. With about 20,000 men he attacked Menelek's army of 60,000 and was hopelessly defeated, his men throwing away their arms in the precipitate retreat that followed. The Italian loss in killed is estimated at 3,000 men; there are no records of the number of wounded. Fifty-two guns and thousands of rifles and other war material fell into the hands of the Abyssinians.

This disaster caused considerable rioting throughout Italy and brought about a change of ministry—the Marquis di Rudini succeeding Premier Crispi. Negotiations for peace which were reopened made little progress until after May 4th, when Gen. Baldissera relieved Adigrat. On the 19th, the troops which had occupied Adigrat retired behind the frontier of Erythrea, and Menelek released all the Italian prisoners in his hands, and the war was ended. The provisions of the treaty of peace were as follows: an offensive and defensive alliance; the conclusion of a commercial treaty; the annulment of the treaty of Uccialli; Tigré to be made a buffer state under Ras Makonnen; the establishment of an Italian frontier at Marel; the support of Italy in putting the Abyssinian finances on a sound basis.

In 1902 an agreement was made with England not to build any work which would interfere with the flow of the Blue Nile, or Lake Tsana. A treaty was also signed permitting the construction of a railroad through Abyssinian territory from the Sudan to Uganda. Est. area 300,000 sq. m.; pop. 3,500,000.

**ABYSSINIAN**, a. *ăb'î-sîn'î-an*, of or pert. to Abyssinia.

**AC**, *ăk*, a Latin prefix, a form of *ad*, meaning *to*; the forms of *ad*, meaning *to*, are *a*, *ac*, *af*, *ag*, *al*, *an*, *ap*, *ar*, *as*, *at*, so varied for the sake of euphony, according to the commencing letter of the part of the word of which it forms the prefix.



Abdominal Regions, 1, Epigastric; 2, Umbilical; 3, Pubic; 4, 4, Right and left hypochondriac; 5, 5, Lumbar; 6, 6, Iliac and inguinal. Above the upper line *aa*, is called the epigastric region; between the upper line *aa*, and lower line *bb*, the umbilical; below the lower line *bb*, the hypogastric.



Abraxas Stone.



Fig. 1, Acacia (*A. Arabica*).



1, Abrupt Root; 2, Abrupt Leaf; 3, Abrupt-pinnate,



Fig. 2.

Fig. 2, *Acacia heterophylla*; Fig. 3, Bipinnate leaves;

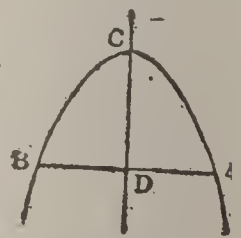


Fig. 3.

Fig. 4, Thistle, decurrent leaves.



Fig. 4.



Abscissa.

## ACACIA.

ACACIA, n. *ä-kä'shĭ-ä* [L. *acaciä*; Gr. *akakiä*, a thorn]: genus of plants of the natural order *Leguminosæ*, sub-order *Mimoseæ*.



Acacia Arabica (Gum-arabic Tree).

The genus *A.* differs from *Mimosa* in the greater number of its stamens (10—200), and in the want of transverse partitions in its bivalvular legumes. The acacias are diffused over all quarters of the globe except Europe. The greater number of them have a singular appearance, because of the leaf-stalks spreading out in a leaf-like form (*phylloodium*); while the leaflets are more or less stunted in appearance, and frequently are altogether absent. Other species have bipinnate leaves, with a great number of leaflets, and are extremely beautiful. Many are of great importance in an economical point of view, because of the juice which

flows from them, which, when inspissated, becomes an article of commerce under the name of Gum (q. v.). The species called *A. gummifera*, *A. Seyal*, *A. Ehrenbergii*, *A. tortilis*, *A. Nilotica*, and *A. vera*, natives of Africa, produce gum-arabic, also *A. speciosa* and *A. Arabica*, natives of the south of Asia. *A. Arabica* is called the Babul-tree in India, and its gum, babul. A gum similar to gum-arabic is produced by *A. decurrens*, *A. mollissima* (the Silver Wattle), and *A. affinis* (the Black Wattle), in New Holland, and by *A. karroo*, at the Cape of Good Hope. Gum Senegal is the pro luce of *A. Verek* and *A. Adansonii*, natives of the western coast of Africa. Yet *A. Verek* is also said to yield true white gum-arabic. Catechu (q.v.) is obtained from the wood of *A. catechu*. The astringent bark and pods of some species are used for tanning. The bark of *A. Arabica* is administered in India as a powerful tonic medicine. The pods of *A. concinna* form an article of commerce in India, its seeds being saponaceous and used in washing. A decoction of the pods of *A. Arabica* is sometimes used in the same way. A considerable number of species afford useful timber. The flowers of many species are fragrant. A number of species from New Holland and other countries have been introduced into the s. of Europe. Some are of frequent occurrence in green-houses in Britain; and a few of the Australian species succeed tolerably in the open air in the s. of England. The foliage of the acacias with bipinnate leaves shows a peculiar sensitiveness to changes of weather; when a thick cloud obscures the sun, the opposite leaflets close together, and so remain till the sun reappears. The Locust-tree of North America (*Robinia pseud acacia*) is often called *A.* both in Britain and upon the continent of Europe. Other species of *Robinia* also receive the same name. See LOCUST-TREE and ROSE A. *Flores Acaciæ* (A. Flowers) is an old medical name for Sloe flowers.

## ACADEMY.

**ACADEMY**, n. *ă-kăd'ě-mĭ* [F. *académie*—from L. *Acădē-mĭa*; Gr. *Akădēmĭa*, at Athens, name of a garden or grove where Plato taught in ancient times]: a public or private school; a society of learned men. **ACADEMIC** or **ACADEMICAL**, a. *ăk'ă-dēm'ĭk* or *ăk'ă-dēm'ĭ-kăl*, pert. to a college or university. **AC'ADEM'ICALLY**, ad. -*ĭ*. **ACADEMICIAN**, n. *ă-kăd'ě-mĭsh'ăn*, or **AC'ADE'MIAN**, n. a member of a university or learned society. Also **ACAD'EMIST**, n.

**ACADEMY**: a name originally applied to the philosophical school of Plato, derived from the place in which that philosopher was accustomed to meet and converse with his pupils. This was a garden or grove in the suburbs of Athens, said to have once belonged to the hero Academus, and by him to have been presented to the citizens for a gymnasium. The spot is at this day known under the name of *Akadimia*. The variations of doctrine among the successors of Plato gave rise to the distinctive titles of *Old*, *Middle*, and *New A.* The first is applied to the philosophic teaching of Plato himself and his immediate followers; the second, to that modification of the Platonic philosophy taught by Arcesilaus (q.v.); and the third, to the half-skeptical school founded by Carneades (q.v.).

In its common English acceptation, the word academy is loosely applied to any species of school which professes to communicate more than the mere elements of instruction. This, however, though perhaps more in affinity with the original application of the term, must be regarded as an abuse of its more general and strict acceptation in modern usage, as signifying a society of savans or artists, established for the promotion of literature, science, or art. The first institution in ancient times that seems to merit the name, in this sense, of academy, was the celebrated *Museum* founded at Alexandria B.C. 3d c., by Ptolemy Soter, which concentrated in that intellectual capital all that was most eminent in science, philosophy, poetry, and criticism. After this model the Jews, and, at a later period, the Arabians, founded numerous institutions for the promotion of learning. During the middle ages, with the exception of the Moorish institutions at Granada and Cordova, in which poetry and music formed prominent subjects of study, we find nothing corresponding to the modern idea of an academy save the learned society established by Charlemagne in his palace, at the suggestion of his teacher Alcuin. This association was dissolved by the monarch's death; and not till the middle of the 15th c., when the conquest of Constantinople drove many learned Grecks to seek asylum in Italy, do we find trace of a similar institution. Under the enlightened patronage of Lorenzo and Cosmo de' Medici, the lovers of Greek learning and philosophy were united in the bond of a common pursuit, and zealously labored to revive the long extinguished light of classic literature. After the decline of the Greek and Platonic Academies of Florence there arose institutions of a more comprehensive character, the example of which spread from Italy throughout all the states of Europe.

Academies may be divided into those established for

## ACADEMY.

general ends, and such as contemplate specific objects. The members are usually classified as *Ordinary*, *Honorary*, and *Corresponding*. The results of their labors in their various departments are reported at the periodic meetings, and printed in the records of the academy. Prizes are generally established as the rewards of distinguished merit in original discovery, or excellence in the treatment of subjects proposed for competition. Among general academies, deserving of mention in the first place is the *A. of Sciences*, at Paris, established by Colbert, 1666, now a branch of the *Institut de France*. See INSTITUTE. The first scientific academy founded in modern times was the *Academia Secretorum Naturæ*, established at Naples, 1560, afterwards put down by a papal interdict. It was succeeded by the *A. of the Lincei*, founded at Rome by Prince Ceci, which attained distinguished success. Galileo was one of its members. Subsequently arose the *A. del Cimento*, at Florence, and the *A. degl' Inquieti*, of Bologna, afterwards incorporated into the *Acad. della Tracca*, and finally, 1711, merged in the Institute of Bologna, or Clementine *A.*—The *Berlin A. of Arts and Sciences*, founded, 1700, by Frederick I., was, 1710, divided into four sections: 1. Physics, Medicine, and Chemistry; 2. Mathematics, Astronomy, and Mechanics; 3. German Language and History; 4. Oriental Literature, in special connection with missions. The first president was Leibnitz, whose extraordinary versatility of genius qualified him for a leading place in all its departments. Under the Great Frederick, new life was infused into the academy by the encouragement offered to learned men of all countries to settle at Berlin. Maupertuis was now appointed president, and the academy was reorganized under the four classes of Physics, Mathematics, Philosophy, History and Philology. The public meetings are held twice a year. The transactions did not appear regularly till after 1811. They were formerly published in French, but are now in German. The *Imperial A. of Sciences of St. Petersburg* was planned, 1724, by Peter the Great, with the advice of Leibnitz and Wolf. It was established in the following year by Catherine I., and liberally supported by the empress; fifteen members received pensions as professors of various branches. Of these were Wolf, Bülfinger, Nicolas and Daniel Bernouilli, and the two De Lisles. After various fluctuations, the academy attained eminence and utility under the patronage of Catherine II. Among the most important results of her liberality are the travels and researches of such men as Pallas and Klaproth. The academy is still composed of fifteen salaried members, besides a president and director, and four pensioned supernumeraries, who attend the meetings and succeed to the vacant chairs. It possesses an extensive library and a very valuable museum. The first series of its transactions (1725-47) bears the name of *Commentarii*; the second (1748-77), of *Novi Commentarii*; the third (1777-82), of *Acta*. Before this date they were written in Latin; thenceforth in Latin or French. From 1783 to 1795 they are called *Nova Acta*; from that time to the present, *Memoirs*.—The *A. of Sciences at Stockholm*, founded 1739,

## ACADEMY.

consisted at first of six members, one of whom was the celebrated Linnæus. It received a royal charter 1741, but no endowment. Its publications since 1779 are distinguished as *New Transactions*. Papers on agriculture are separately published, under the title of *Œconomica Acta*. In 1799 it was divided into six classes: 1. Political and Rural Economy, 15 members; 2. Commerce and Mechanical Arts, 15; 3. Swedish Physics and Natural History, 15; 4. Foreign Physics and Natural History, 15; 5. Mathematics, 18; 6. History, Philology, and Fine Arts, 12. The resident members preside in rotation, during a term of three months: the transactions appear quarterly. At the annual meeting in April, prizes are distributed.—The *Royal A. of Sciences at Copenhagen* owes its origin, like the last-mentioned, to six learned men, employed by Christian VI. in 1742 to arrange his cabinet of medals. In 1743 the king, on the recommendation of Count Holstein, their first president, took the academy under his protection, endowed it, and ordered that natural history, physics, and mathematics should be embraced within the sphere of its operations, at first limited to the national history and antiquities. The academy's transactions are in Danish; some of them are translated into Latin.—The *A. of Sciences of Mannheim* was founded, 1761, by the Elector-palatine Karl Theodor, and divided into the sections of History and Physical Science; the latter was subdivided in 1780 into Physics proper and Meteorology. The transactions under the two former heads are published under the title of *Acta*; the meteorological memoirs are entitled *Ephemerides*.—The *A. of Sciences of Munich* was founded, 1759. Soon after the erection of Bavaria into a kingdom, it was reorganized on a very extensive footing, under the presidency of Jacobi. Its memoirs are published under the title of *Abhandlungen der Baiерischen Akademie*.—The *A. of Lisbon*, established 1779, has three sections—Natural Science, Mathematics, and Portuguese Literature. It is liberally endowed by govt., and has a library, museum, observatory and printing office; its *Memorias* have appeared since 1787.—The *Royal Irish A.*, whose origin was chiefly from the Univ. of Dublin 1782, and whose plan was afterward extended, published its first volume of transactions 1788.—The *A. of Sciences at Vienna*, founded 1846, has sections of History and Philology, Mathematics and Natural Science, Philosophy, Political Economy, and Medicine; its published *Reports* date from 1848, its *Memoirs* from 1850.—The *American A. of Arts and Sciences* was established at Boston 1780, having been in another form instituted by Franklin; its first vol. of transactions was pub. 1785.—The *National A. of Sciences (U. S.)* was incorporated by congress 1863; the A., comprising largely specialists and experts, when called on by any governmental dept. is to investigate, experiment, and report on any specified subject, at the expense of the govt. See SCIENCES, NATIONAL ACADEMY OF. See also SCIENCE, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF.

Among the academies established for the cultivation of particular departments of knowledge are the following:—1. LANGUAGES. The *Accademia della Crusca*, or *Accademia Fur-*



## ACADEMY.

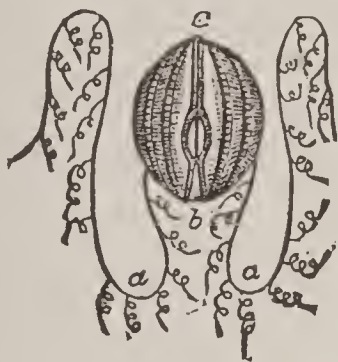
*furatorum*, was founded at Florence, 1582, chiefly for the purpose of promoting the purity of the Italian language, whence its somewhat fantastic designation—*crusca* signifying chaff or bran. It first drew attention by its attacks on Tasso. Its principal service has been the compilation of an excellent dictionary, and the publication of correct editions of the older Italian poets. A new edition of this dictionary is at present in preparation, but from the slow rate of its progress it is calculated that many centuries must elapse before its completion. For an account of the *Académie Française*, instituted, 1629, as a private society, see INSTITUTE. The *Royal Spanish A.* was founded at Madrid, 1714, by the Duke of Escalona, for the cultivation and improvement of the national language, in which it has done good service, particularly by the compilation of a Spanish dictionary. A similar institution was founded at St. Petersburg 1783, afterwards united to the Imperial A. At Stockholm a similar academy was established 1786; and at Pesth (for the cultivation of the Magyar language), 1830.—2. ARCHÆOLOGY. At the head of antiquarian institutions stands the *Académie des Inscriptions*, founded at Paris, 1663, by Colbert. See INSTITUTE. For the elucidation of northern languages and antiquities, an academy was founded, 1710, at Upsala, in Sweden; a similar institution was established at Cortona, Italy, 1727. Both have issued valuable works. The *A. of Herculaneum* was founded at Naples, 1755, by the Marquis of Tanucci, for the elucidation of Herculanean and Pompeian antiquities. Its publications, commencing in 1775, bear the title of *Antichità di Ercolano*. An academy for the investigation of Tuscan antiquities was established at Florence 1807; and at Paris, 1805, a Celtic A. for the elucidation of the language, history, and antiquities of the Celts, especially in France. This society changed its name, 1814, to *Société des Antiquaires de France*.—3. HISTORY. The *Royal A. of Portuguese History* was founded at Lisbon, 1720, by John V. At Madrid, 1730, a learned association was formed for the elucidation of Spanish history. It was constituted an academy in 1738 by Philip V. It has published editions of Mariana, Sepulveda. Solis, and the ancient Castilian chronicles, some of which had never before been printed. A historical academy has existed for some time at Tübingen.—4. MEDICINE. The *Academia Naturæ Curiosorum* was established at Vienna, 1652, by the physician Bauschius, for the investigation of remarkable phenomena in the animal, vegetable, and mineral kingdoms. In honor of Leopold I., who patronized it liberally, it took the additional name of *Cesareo-Leopoldina*; and since 1808 has had its chief seat at Bonn. Its valuable memoirs have appeared at irregular intervals under the title of *Miscellanea*, *Ephemeries*, and *Acta*. The *Académie de Médecine* of Paris was founded, 1820, for the prosecution of researches into all matters connected with the public health, such as epidemics, etc. The Surgical A. of Paris (whose functions have partly descended to the preceding) was founded 1731. It was dissolved during the troubles of the first revolution. The Vienna A. of Surgery, established 1783, is, properly speak-



## ACALEPHÆ.

the old term *Acalephæ*—such as the *Physalia*, or ‘Portuguese-man-of-war’—sting severely, the effects on the human subject persisting for days or even weeks. For description of jelly-fish, see *MEDUSÆ*.

In recent zoology the term *Acalephæ* is much restricted when used at all. Formerly, in the Cuvierian sub-kingdom *Radiata*, the term was used for a class, with the general name jelly-fishes, and included all animals below mollusks except echinoderms, polyps, and protozoans. The three orders, originally designated by mode of locomotion (Pulmonigrades, Physogrades, and Ciliogrades), came to be known as 1. *Discophora*, the medusæ, or jelly-fish proper; 2. *Siphonophora*, such as the Portuguese-man-of-war; and 3. *Ctenophora*, such as globular forms like *Berœe*, or ribbon-like, that move by means of cilia. The



*Berœe*.

*a a*, tentacula; *b*, mouth;  
*c*, termination of intestine.



*Physalia*.

hydroids (see *HYDRA*), previously put among polyps, were, in the arrangement of Agassiz, placed among acalephs, and the *Siphonophora* were included in the order *Hydroidea*. Since the sub-kingdom *Radiata*, and the class *Acalephæ* have been broken up, the new sub-kingdom *Cœlenterata* includes three classes: 1, *Hydrozoa* (hydroids and acalephs); 2. *Actinozoa* (sea-anemones and coral-polyps); 3. *Ctenophora*. The class *Hydrozoa* has three orders: 1. *Hydroidea*; 2. *Discophora*; 3. *Siphonophora*. It should be noted that some of the hydroids, by a process of budding, throw off free-swimming and bell-shaped forms, which are termed Gonophores (q.v.), and are bisexual, producing an embryo which becomes sessile and grows to a branching hydra-like organism, which again throws off gonophores. These are called medusoid, but differ only in details from medusæ, such as ‘naked eyes’ and more simple canal-system. The *Discophora*, or True Jelly-fish are ‘true’ only as the word is convenient in classification, having no other meaning. The order is divided into sub-orders: 1. *Trachymedusæ*, small jelly-fish having some points in common with hydroids; 2. *Lucernariæ*, attaching themselves at will to seaweeds, and with eight marginal tufts; 3. *Acalephæ* (in the restricted sense), of which the large jelly-fish, often cast upon our shores, are examples. These are produced directly from their own eggs, or pass through curious intermediate stages.

## ACANTHACEÆ—ACANTHOTEUTHIS.

Thus the egg of a Medusa may be seen to give rise to a little rooted organism, like a little *Hydra* (q.v.) in form, and which is named the *Hydra-tuba*. This latter organism then becomes divided transversely into a number of saucer-like segments, and is named the *Strobila* (Sars); ultimately, the segments become detached; each swimming away as a young Medusa, and being known as an *Ephyra*. These animals feed on minute crustacea, fishes, and the like; and very many exhibit a phosphorescent light, or animal luminosity.

ACANTHACEÆ: see ACANTHUS.

ACANTHOCEPHALA, n. plu. *ă-kăn'thō-sěf'ăl-ă* [Gr. *akantha*, a thorn; *kephālē*, the head]: a class of parasitic worms, in which the head is armed with spines.

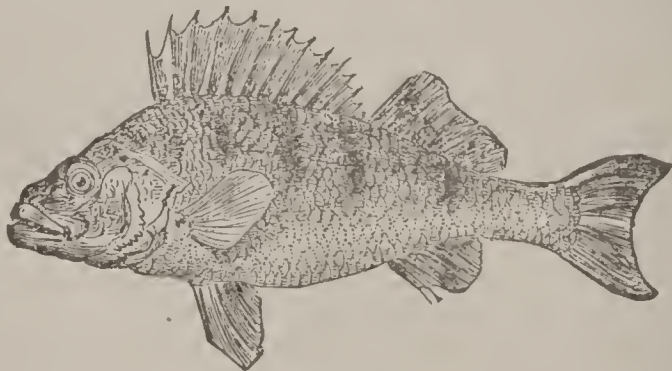
ACANTHODES, n. plu. *ă-kăn'thō-dēz* [Gr. *akantha*, a spine]: a genus of fossil ganoid fishes having thorn-like fin-spines—the type of the family ACANTHODIDÆ, *ăk'ăn-thōd'î-dē*.

ACANTHOMETRINA, n. plu. *ă-kăn'thōm-ě-trī'nă* [Gr. *akantha*, a spine; *mētra*, a womb]: a family of protozoa, characterized by having radiating siliceous spines; a sub-order of Radiolarians.

ACANTHOPHŒNIX, n. *ă-kăn'thō-fē'nîks* [Gr. *akantha*, a spine; *phœnix*, a fabulous Egyptian bird]: a genus of elegant palms, one species bristling with black spines.

ACANTHOPTERYGIAN, a. *ăk'ăn-thōpt'ēr-î'î-ăn* [Gr. *akantha*, a spine; *ptēru'gion*, a winglet or fin]: a term applied to fishes having the back or dorsal fin composed of spiny rays, as the perch, gurnard, etc. ACANTHOPTERYGII, *-î'î-î*, the group of bony fishes so named.

ACANTHOPTERYGII, in Zoology: one of the two primary divisions of the *Osseous Fishes* in the system of Cuvier, distinguished by spinous rays in the first portion of

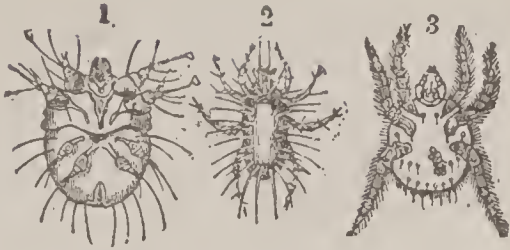


Example of a Fish (Perch) belonging to the division *Acanthopterygii*. the dorsal fin or in the first dorsal, if there are two. The name is derived from the Greek *akantha*, a thorn, and *pteryx*, a wing. The A. are divided by Cuvier into fifteen families, among which are *Percidæ* (Perch, Bass, etc.), *Triglidæ* (Gurnard, Flying-fish, etc.), and *Scomberidæ* (Mackerel, Tunny, etc.).

ACANTHOTEUTHIS, n. *ă-kăn'thō-tū'thîs* [Gr. *akantha*, a thorn; *teuthis*, a cuttle-fish]: a genus of fossil cuttle-fishes.



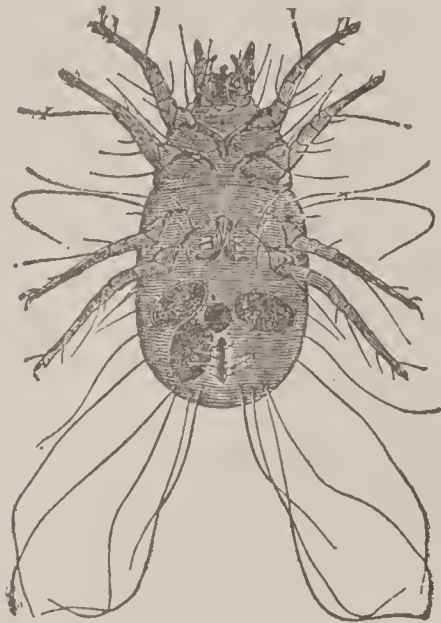
Acacia Arabica.



Acaridæ. 1, Itch-mite (*Sarcoptes scabiei*); 2, Cheese-mite (*Acarus domesticus*); 3, Harvest-tick (*Leptus autumnalis*).



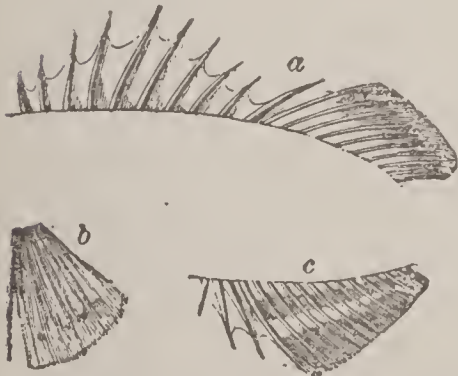
Acalephæ. 1, Medusa pellucens;  
2, Rhizostoma Cuvieri.



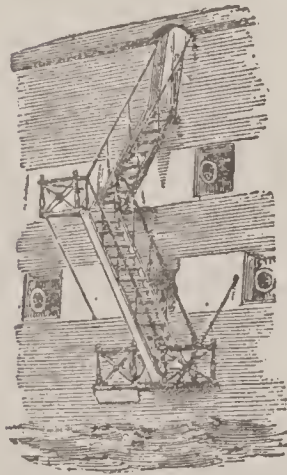
Acaridæ. Cheese-mite.



Acanthus.



a, b, c. Spines of the dorsal, anal, and ventral fins of *Acanthopterygii*.



Accommodation Ladder.

## ACANTHUS.

ACANTHUS, n. *ă-kăn'thŭs* [Gr. *akanthos*; L. *acanthus*, the acanthus]: the herb bear's-breech; a genus of herbaceous, prickly plants, Ord. *Acanthaceæ*; in arch., an ornament resembling the foliage or leaves of the acanthus, or rather the *Acanthus mollis*, whose sinuated lobes are said to have given rise to the capital of the Corinthian pillar. ACANTHACEOUS, a. *ăk'ăn-thă'shŭs*, also ACANACEOUS, a. *ăk'ă-nă'shŭs*, armed with prickles. ACANTHINE, a. *ă-kăn'thĭn*, pertaining to or like the acanthus.

ACANTHUS: name given by the Greeks and Romans to the plants sometimes called Brancursine, of which it is also the botanical generic name. *A. mollis* and *A. spinosa*, natives of the s. cf Europe, are the species best known. The twining habit of the plants their large white flowers,



*A. spinosus*, natural.

Ornamental *A.* Leaf.

and, above all, the beautiful form of their dark and shining leaves, have led to their artistical application, especially in the capitals of Corinthian columns. See ORDERS OF ARCHITECTURE. Roman drinking-cups have been found whose handles are twined with *A.* leaves.—The ancients made the *A. mollis* chiefly their pattern; but in Gothic ornaments more use is made of the smaller and less beautiful leaves of *A. spinosa*.

The genus *A.* is the type of the natural order *Acanthaceæ*, which contains nearly 1,400 known species. They are herbaceous plants or shrubs, chiefly tropical; dicotyledonous. The greater part are mere weeds, but the genera *Justicia*, *Aphelandra*, and *Ruellia* contain some of the finest hot-house flowers. The genus *Thunbergia* has cultivated varieties; they are slender climbers, growing rapidly, used for trailing over trellises; the flowers, abundant and large, are white, buff, or orange, mostly with a dark eye. Of our native genera, *Dianthera*, of the e. and s. United States, is called the Water-willow, from its leaves and wet situations, and has two-lipped purplish flowers in long-stemmed auxiliary spikes; the pod obovate, fat, 4-seeded. *Ruellia*, with showy blue or purple funnel-form flowers, is represented westward and southward by *R. ciliosa*, with the corolla-tube twice the length of the calyx; in *R. strepens*, but little longer than the calyx; both have a narrow pod. In this family the pods are usually flattened transversely to the partition, with the seeds on hooks;

## A CAPELLA—ACARUS.

embryo curved or straight; cotyledons large; radicle sub-cylindrical, next the hilum.—Some of the *Acanthaceæ* are used in their native countries as medicines. A valuable deep-blue dye, called Room, is obtained in Assam from a species of *Ruellia*.

A CAPELLA, *â-kâ-pël'lá*, or A LA CAPELLA, in Music: means, in the church style; it is equivalent to *Alla Breve* (q. v.), a time-signature frequent in church-music. It also denotes that the instruments are to play in unison with the voices, or that one part is to be played by a number of instruments.

ACAPULCO, *â-kâ-pól'kô*: town in Mexico, of considerable commercial importance, having the best harbor on the Pacific coast of that country; lat.  $16^{\circ} 50'$  n.; long.  $99^{\circ} 48'$  w. So well sheltered that deeply laden vessels may lie safely at anchor close to the granite rocks. The town, defended by Fort Diego, on an eminence, has a very unhealthy site, and is one of the places most frequently visited by cholera, which proves especially fatal to new settlers. The population is composed of pearl-fishers, sailors, and husbandmen. Chief exports are cochineal, indigo, cocoa, wool, and skins; imports are cottons, silks, spices, and hardware. Pop. abt. 3,000.

ACARIDÆ, n. plu. *ă-kăr'î-dē*, or ACAR'IDES, n. plu. *î-dēz* [L. *acarus*; Gr. *akári*, a mite]: a term applied to such insects as the mite, the tick, the water-mite, etc. ACARUS, n. *ăk'ăr-ŭs*, or ACARI, n. plu. *ăk'ăr-î*, a numerous genus of insects of the acarides. ACARINA, n. *ăk'ăr-î'nă*, a division of the Arachnida, of which the cheese-mite is the type.

ACARNANIA, *ăk'ăr-nă'nă-ă*: country in ancient Greece, separated from Epirus on the n. by the Ambracian Gulf, now the Gulf of Arta; from Ætolia on the e. by the river Achelóus; and washed s. and w. by the Ionian Sea. With Ætolia it forms one of the *nomes* or departments of the modern kingdom of Greece. The w. part of A.—from the mouth of the Achelóus or Aspropotamo to Cape Actium in the n.w.—is occupied by a mass of rocky and thickly-wooded mountains, rising abruptly from the indented coast and culminating in the summit of Berganti. A considerable part of A. is overgrown with wood—a rare feature in modern Greece. There is no town of importance in the whole district, though naturally it is not destitute of resources.

ACARUS, *ăk'ăr-ŭs*: a genus of *Arachnides* (q. v.), of the order *Trachearia*, the type of a tribe called *Acarides*, which corresponds with the genus *Acarus* as defined by Linnæus. The species of the *Acarides* are very numerous. All of them are small; many microscopical. Some are familiar to us under the names of Mites (q. v.), Ticks (q. v.), etc. Some live upon the juices of plants; some in the dung of animals; many species are found in the vegetable and animal substances used for human food, especially when these have been kept for a considerable time, as in cheese, flour, sugar, on the

## ACARUS FOLLICULORUM.

surface of preserves, of dried fruits, etc.; others are parasites upon the bodies of animals, particularly in diseased conditions, as in cases of itch. A minute species has been detected in the follicles of the human skin, and others even in the human brain and eyes. Some insects, particularly beetles, are often covered with Acarides. A species (*Trombidium holosericeum*) common in gardens in spring is remarkable for its blood-red color; and a nearly allied but much larger



Acarus (Mite):  
highly magnified.

species (*T. tinctorum*), found in the East Indies, yields a fine dye. A Persian species (*Argas Persicus*) is poisonous, and causes sores. The bite of many species is annoying, as of the common Harvest-bug (*Leptus autumnalis*). The Acarides have eyes. Some of them have the mouth furnished with mandibles, others with a sucker. They are oviparous, and extremely prolific. They have generally

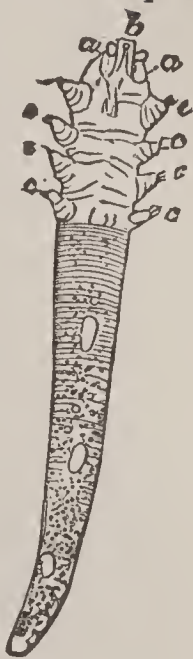
eight legs, but when young many of them have only six. A few are aquatic, and have hairy legs.

**ACARUS FOLLICULORUM**: the most generally accepted name for a microscopic parasite residing in the sebaceous sacs and hair-follicles of the human skin. It is known also as the *Demodex folliculorum*, the generic name being derived from the Greek words *demos*, lard, and *dēx*, a boring worm. It was first described by Dr. Simon of Berlin, 1842, under the title of *Acarus folliculorum*, which was suggested by the eminent zoologist, Erichsen of Berlin. In the following year Mr. Erasmus Wilson made it the subject of an elaborate memoir in the *Philosophical Transactions*, in which, as there are doubts as to its exact zoological position, he simply terms it the *Entozoon folliculorum*. According to Professor Owen, who gave it the name *Demodex*, it represents the lowest form of the class *Arachnida*, and makes a transition from the *annelids* to the higher *articulata*. As regards the size and form of these animals there is much variety; they pass their whole existence in the fatty matter of the sebaceous cells, moulting repeatedly during their growth, and being finally expelled from the follicles with the secretions of these organs. Their presence has no reference, according to Mr. Wilson, to disease of the skin or of the follicles. They are met with in almost every person, but are most numerous in those in whom the skin is torpid, in invalids, and in the sick. They vary in length from  $\frac{1}{50}$ th to  $\frac{1}{100}$ th of an inch, and the accompanying figure represents the magnified parasite. Their number is various; in some persons not more than two or three can be found in a follicle, while in others Mr. Wilson has seen upwards of fifteen. The head is always directed inwards, and when a number are present they seem to be collected into a conical bundle, the larger end of the cone being formed by their heads. The situation in which they are most commonly found is the skin of the face, and particularly that of the nose, but they have been met with also in the follicles of the back, the breast, and the abdomen. It is not known that they are ever found on the limbs.



## ACATALECTIC—ACCELERATE.

A reference to the figure shows that the animal possesses eight thoracic appendages (*c, c*) of the simplest and most rudimentary kind, each of which is terminated by three short setæ. The integument of the abdomen is very finely annulated. The mouth is suetorial or probosciform, consisting of two small spine-shaped maxillæ (*b*), and an extensive labium capable of being elongated or retracted; it is provided on each side with a short, thick, maxillary palp (*a, a*), consisting of two joints with a narrow, triangular labrum above. The sexes are distinct, but the differences between the male and female are not well recognized. Ova are frequently seen, both in the body of the female and in detached discharged masses. Any one may readily observe the *acarî* from his own skin, by collecting between two pieces of thin glass the expressed fatty matter from a nasal follicle, and moistening it with a drop of olive-oil. Very similar if not identical animals have been found in the contents of the pustules of mangy dogs.



*Acarus folliculorum*, magnified.

**ACATALECTIC**, a. *ă-kăt'ă-lĕk'tĭk* [Gr. *akatalēktos*, not defective at the end—from *a*, not; *katalēgo*, I cease]: not halting short; without defect. N. in poetry, a verse having the complete number of syllables.

**ACATER**, n. *ă-kă'tĕr*, or **ACHATOUR**, n. *ă-kă'tŏr* [Norm. F. *achatour* and *acater*; OF. *achater*, to purchase: F. *achat*, a purchase (see **CATER** and **CATES**)]: in *OE.*, a purveyor. **ACATES**, n. plu. *ă-kătz'*, provisions; dainties.

**ACATHISTUS**, *ăk-ă-thĭs'tŭs*: a hymn sung in the ancient Greek Church in honor of the Virgin.

**ACAULOUS**, a. *ă-kaw'lŭs*, also **ACAULINE**, a. *ă-kaw'lin* [Gr. *a*, without; *kaulos*, a stalk]: in *bot.*, applied to a plant without a visible stalk; stemless. **ACAULESCENT**, a. *ăk'-aw-lĕs'ĕnt*, having no stem; acaulous.

**ACAYUCAN**, *ă-kĭ ô-kăn'*: a town of Mexico, a military port, about 100 m. s.s.e. of Vera Cruz, having trade in cochineal. Pop. 6,000.

**ACCAD**: ancient **BABYLONIA** (q.v.).

**ACCEDE**, v. *ăk-sĕd'* [L. *accĕdo*, I assent to, I approve—from *ad*, *cĕdo*, I go, I yield: F. *accĕder*, to consent—*lit.*, to go to]: to agree to the proposal or request of another; to comply. **ACCE'DING**, imp. **ACCE'DED**, pp.—**SYN.** of 'accede': to assent; yield; acquiesce; agree; coincide; concur; comply; conform; consent; accord.

**ACCELERANDO**, *ă-chăl'ĕr-ăn'dŏ* (Ital.), in Music with gradually increasing velocity of movement.

**ACCELERATE**, v. *ăk-sĕl'er-ăt* [L. *accĕlĕrātus*, accelerated—from *ad*, *celĕro*, I hasten; *cĕlĕr*, swift]: to add swiftness to; to quicken; to hasten; to cause to move faster; to bring on before its time, as fruit. **ACCEL'ERA'TING**, imp. **ACCEL'ERA'TED**, pp. **ACCELERATION**, n. *ăk-sĕl'ĕr-ă'shŭn*.

## ACCELERATED MOTION—ACCENT.

the act of increasing speed or motion: the act of hastening. ACCELERATIVE, a. *ăk-sĕl er-ă'tiv*, also ACCELERATORY, a. *ăk-sĕl'ĕr-ă-tĕr'ĭ*, quickening, hastening. ACCELEA'TOR, n. he who or that which accelerates or hastens.—SYN. of 'accelerate': to expedite; quicken; urge; instigate; hasten; speed; dispatch.

ACCELERATED MOTION, in Mechanics: motion in which the velocity is continually increasing. When the increments of velocity are equal in equal times, the motion is said to be *uniformly* accelerated. The best example of such a motion is that of a falling body. It is found that near the earth's surface, a body, descending from a state of rest, falls  $16\frac{1}{2}$  ft. in the first second. Now, a little consideration will show that at the end of the first second, it is moving at the rate of  $32\frac{1}{2}$  ft. per second. For, since the velocity was nothing at first, and increased uniformly,  $16\frac{1}{2}$  ft. must have been the *mean* velocity, i. e., the velocity at the middle of the time; and therefore the velocity at the end must be double, or  $32\frac{1}{2}$  ft.:  $32\frac{1}{2}$  ft. is thus the measure of the accelerative force of gravity. At the end of the second and third seconds, the velocity is found to be doubled, trebled, etc., or  $64\frac{1}{2}$ ,  $96\frac{1}{2}$  ft.

ACCELERATION OF THE MOON. It was observed first by Halley, that the time of the moon's revolution round the earth has for several thousand years been decreasing, or her velocity has been increasing. This phenomenon remained for a considerable time inexplicable; at last, Laplace, in 1787, discovered the cause in the varying eccentricity of the earth's orbit, which has been on the decrease since about 12,000 years B. C. Since that time the moon has been gradually coming nearer to the earth; and this will go on till 36,900 after Christ, when the eccentricity of the earth's orbit will begin again to increase.

ACCELERATION OF THE FIXED STARS is the excess of a mean solar day over a sidereal day; i. e., a day measured by the transits of a star over the meridian; the excess is about  $3' 56\frac{1}{2}''$  sidereal time.

ACCENDIBLE, a *ăk-sĕn'dĭ-bl* [L. *accendo*, I set fire to]: capable of being inflamed or kindled. ACCENDIBILITY, n. *ăk'sĕn-dĭ-bĭl'ĭ-tĭ*.

ACCENT, n. *ăk'sĕnt* [F. *accent*—from L. *accen'tus*, accent—from *ad, canto*, I sing with energy]: that which is sung with energy; the stress or force of voice put upon a syllable or word; the mark indicating the same; manner of speaking; language or words. ACCENT, v. *ăk-sĕnt'*, or ACCENTUATE, v. *ăk-sĕn'tū-ăt*, to pronounce a word or syllable with a particular stress or force of voice. ACCENT'-ING, imp. ACCENT'ED, pp. ACCEN'TUAT'ING, imp. ACCEN'TUAT'ED, pp. ACCEN'TOR, n. in *music*, one who leads. ACCENTUAL, a. *ăk-sĕn'tū-ăl*, relating to accent. ACCENTUA-TION, n. *ăk-sĕn'tū-ă'shūn*, the placing accents on syllables; the act of pronouncing words and syllables properly.

ACCENT, in Grammar: a special stress of voice upon one syllable of a word, by which it is made more prominent than the rest; the accented syllable is sometimes indicated

## ACCENT—ACCEPT.

by a mark, as *away'*, *for'tify*. Every word in English has one syllable thus brought markedly into notice. When the accented syllable falls near the end of a long word, there may be one or more secondary accents, as in *rec'ommend'*, *subor'dina''tion*. Sometimes these are so slightly marked as to be scarcely traceable. A. depends upon force of vocal or articulative effort, not upon highness or lowness of pitch. Variations of pitch produce what elocutionists call *inflection*. It is the confounding of A. with a rise of tone, and the contrasting of it with a sinking of tone, that has produced so much confusion on this subject, especially as regards the accents of the ancients. In English, many nouns are converted into verbs simply by transposing the A., as *ob'ject—object'*. It is A., and not quantity, that determines English measures or metres in versification. No rule can be given as to what syllable of a word shall be accented. There seems to be an increasing tendency in our language to throw the A. towards the beginning of words. In the Finnish language, the A. is said to be invariably on the first syllable. —*Emphasis* is to sentences what A. is to words; it is a stress upon one word of a sentence to make it prominent. If A. is syllabic emphasis, emphasis is logical A.

ACCENT, in Music: analogous with A. in language; consists of a stress or emphasis given to certain notes or parts of bars in a composition, and may be divided into two kinds—grammatical, and rhetorical or æsthetic. The first kind of A. is perfectly regular in its occurrence—always falling on the first part of a bar. It is true that long or compound measures of time have, besides the chief A. in every bar, some subordinate accents; but these are only slightly marked. As a general rule, we may observe that the grammatical or regular A. must not be exaggerated. It should be marked only so far as to give a clear sense of rhythm. The æsthetic A. is irregular, and depends on taste and feeling, exactly as does the A. and emphasis used in oratory. In vocal music well adapted to words, the words serve as a guide to the right use of æsthetic accents.

ACCEPT, v. *ăk-sĕpt'* [F. *accepter*—from L. *acceptāre*, to receive—from *ad*, *captus*, taken—from *capĭō*, I take]: to take; to take what is offered; to agree or consent to; to acknowledge or promise to pay, as a bill. ACCEPT'ING, imp. ACCEPT'ED, pp. ACCEPT'ER, or ACCEPT'OR, n. one who accepts. ACCEPTABLE, a. *ăk-sĕpt'ă-bl*, pleasing or gratifying to a receiver; agreeable in person or by services; welcome. ACCEPTABLY, ad. *ăk-sĕpt'ă-blĭ*, in an acceptable manner. ACCEPTABLENESS, n. ACCEPTABIL'ITY, n. *-bĭl'ĭ-tĭ*, quality of being acceptable. ACCEPTANCE, n. *ăk-sĕpt'ăns*, the receiving with approval; a written promise or engagement to pay money at a specified date—also called a *bill of exchange*; the meaning or sense of a word as generally understood. ACCEPT'OR, n. *-ĕr*, the person who gives a written promise to pay money. ACCEPTATION, n. *ăk-sĕp-tă' shŭn* [F.—L.] reception; the meaning or sense in which a word or expression is generally understood. TO ACCEPT SERVICE, in *law*, to agree between parties that a

## ACCEPTANCE—ACCESS.

legal writ or process has been formally served when such has not been the case.—**SYN.** of 'accept': to receive; take; admit.

**ACCEPTANCE**: in contracts, an agreement to receive something which has been offered, and to complete the contract the acceptance must be absolute and past recall. A. may be express, as in the case where the party to be bound openly declares it; or implied, as where the party acts as if he had accepted. The offer and A. must be by some means understood by both parties, and this may be by language, symbolical, oral, or in writing: as deaf and dumb persons may contract either by symbolical or written language, and at auction sales a nod or a wink and the knocking down of a hammer may legally complete the contract.—*Bill of Exchange.* The A. of a bill of exchange is the act by which the drawee or other person conveys his assent or intention to comply with, and be bound by, the request contained in the bill of exchange to pay the same; or, in other words, it is an engagement to pay the bill when due. The A. must be made by the drawee himself, or by some one authorized by him, and such drawee must have capacity to contract and to bind himself to pay the amount of the bill. A bill may either be accepted at the time, or before, or after it is drawn; when the bill is presented, the drawee must accept within twenty-four hours, or it should be treated as dishonored. On refusal to accept, even within the twenty-four hours, it should be protested. The A. may, however, be made after the time appointed for its payment. An A. may be in writing on the bill itself, or on another paper, or it may be verbal. A., also, may be express—a positive undertaking to pay; or implied, where the agreement to pay is to be inferred by any acts of the drawee, as if he write 'seen,' 'presented,' or the day upon which it becomes due upon the bill, this, until otherwise explained, will constitute an A. An A. may be either absolute, conditional, or partial. An absolute A. is a positive agreement to pay the bill according to its tenor, and is usually made by writing upon it 'accepted' and subscribing the drawee's name, or by either writing his name at the bottom or across the bill. In order to bind another than the drawee, it is essential that his name should appear. A conditional A. is one which will subject the drawee or acceptor to the payment of the money on a contingency. The holder is not bound to receive such an A.; but if he do receive it, he is bound by its terms. A partial A. is one which varies from the tenor of the bill, either in agreeing to pay only a part of the sum for which the bill is drawn, or to pay at a different time, or at a different place.

**ACCESS**, n. *āk-sēs'* or *āk'sēs* [L. *accessus*, a coming to, approach—from *ad*, *cēdo*, I go: F. *accès*]: admission to; approach, or means of approach; an increase. **ACCESSIBLE**, a. *āk-sēs sī-bl*, that may be approached; affable. **ACCESSIBLY**, ad. *-sī-blī*. **ACCESSIBILITY**, n. *-bīl'ī-tī*, the quality of being accessible. **ACCESSION**, n. *āk-sēs'h'ŭn* [F.—L.]: an increase; an addition; an arriving at; that which is added; the acquisition of authority; the coming to the throne of a

## ACCESSARY—ACCIDENT.

king. **ACCESSIONAL**, a. *āk-sēsh un-āl*, additional. **ACCESSORIAL**, a. *āk'sēs-sō'ri-āl*, relating to an accessory. **ACCESSARY**, a. *āk-sēs'sēr-ĭ*, also spelt -SORRY, -*sēr-ĭ*, aiding in doing something, or privy to it; additional. N. anything additional; one who aids or gives countenance to a crime. **ACCESSARILY**, ad. -*ĭ-lĭ*. **ACCESSARINESS**, n. the state of being accessory. **ACCESSION TO THE CROWN**, the act of coming into the possession of sovereign power. **ACCESSORY BEFORE THE FACT**, a person who conspires with another to commit a crime, or is privy to a crime and abets it before its commission, though absent from the criminal act. **ACCESSORY AFTER THE FACT**, a person who assists a criminal in any way, as to elude justice.—Syn. of 'accession': augmentation; increase; addition; enlargement.

**ACCESSARY**, or **ACCESSORY**, *āk-sēs'sēr-ĭ* or *āk'sēs-sēr-ĭ*: in criminal law, one who is not the chief actor in a felony, nor even present at its perpetration, but who is in some way concerned, either *before* or *after* the fact committed. An A. *before* the fact is one who procures or counsels another to commit a crime, he himself being absent. An A. *after* the fact is a person who, knowing a felony to have been committed, receives, protects, or assists the felon. In sudden and unpremeditated offenses there can be no accessaries *before* the fact; and in all crimes under the degree of *felony* there are no accessaries at all, either before or after the fact, but all persons concerned therein are held to be equally guilty as principals.

There are no accessaries in treason, but all are principals, on account of the heinousness of the crime.

**ACCESSION**, in Law: (*Property*) the ownership of a thing, whether it be real or personal, movable or immovable, carries with it the right to all products of the thing, and to all that becomes united to it, either naturally or artificially; this is called the right of A. The doctrine of property arising from A. is grounded on the right of occupancy. The original owner of anything which receives an A. by natural or artificial means, as by the gradual addition to lands by deposit from rivers, the growth of vegetables, the pregnancy of animals, the embroidering of cloth, or the conversion of wood or metal into vessels or utensils, is entitled to his right of possession to the property of it, under such, its state of improvement, but the owner must be able to prove the identity of the original materials. See **ALLUVION**, in Law. (*International Law*.) A. in international law is the absolute or conditional acceptance by one or several States of a treaty already concluded between other sovereignties.

**ACCIACCATURA**, n. *āk'chē-āk'ā-tō'rá* [It.—from *acciac-cāta*, a grace note]: in *music*, a grace-note, being one semitone below the note to which it is prefixed.

**ACCIDENT**, n. *āk'sĭ-dēnt* [F. *accident*—from L. *accidentem*, slipping, happening to—from *ad*, to; *cādo*, I fall: *accidentia*, in *mid. L.*, that which happens]: that which happens or befalls; chance; something taking place unexpectedly; an event not foreseen; a quality not essential. **ACCIDENTAL**, a. *āk'sĭ-dēnt'āl*, happening by chance; casual.

## ACCIDENTAL COLORS—ACCLAIM.

N. anything non-essential. AC'CIDENT'ALLY, ad. -lĭ, in an accidental manner. AC'CIDENT'ALNESS, n. ACCIDENCE, n. *ăk sĭ-dĕns*, a book containing the declensions and conjugations of words, *lit.* as their terminations fall from or succeed each other—applied to Latin or Greek grammars, or to any grammar. BY ACCIDENT, by chance; accidentally.—SYN. of 'accident': contingency; casualty; incident; chance;—of 'accidental': casual; incidental; contingent; fortuitous; occasional; unintentional.

ACCIDENTAL COLORS : see LIGHT.

ACCIDENTS, in Music : occasional sharps, flats, and naturals placed before notes in the course of a piece.

ACCIDENTS, in Logic : opposed to Essentials, or to Substance. An accident is a property of an object which may be modified, or even be altogether abstracted, without the object ceasing to be essentially what it is. But many of the distinctions made by the older philosophers between accidental and essential are fallacious.

ACCIPITRES, n. plu. *ăk-sĭp'i-trĕz* [L. *accĭpĭter*, a hawk—from *accĭpio*, I seize]: in *ornith.*, a term applied to the birds of prey, as eagles, falcons, hawks, etc. ACCIPITER, n. *ăk-sĭp'i-ter*, one of the birds of prey; in *surg.*, a peculiar bandage placed over the nose—so named from its appearing as the claw of a hawk. ACCIPITRINE, a. *ăk-sĭp'i-trĭn*, hawk like; rapacious.

ACCIPITRES (plural of the Lat. *accĭpĭter*, a hawk) : name given by Linnæus to an order of Birds, including, according to his system, the genera *Vultur* (Vultures), *Falco* (Eagles, Falcons, Hawks, etc.), *Strix* (Owls), and *Lanius*



Head and Foot of Golden Eagle.

(Shrikes), and principally distinguished by a hooked bill, short, strong feet, and sharp hooked claws. The name has not been generally adopted by subsequent ornithologists, but the order, as a truly natural one, has been retained under the names *Rapaces*, *Raptores*, etc.; the Shrikes, however, being generally excluded from it.

ACCITE, v. *ăk-sĭt'* [L. *accĭtus*, summoned, called—from *ad, cĭo*, I move, I excite]: in *OE.*, to cite; to summon; to excite. ACCIT'ING, imp. ACCIT'ED, pp.

ACCLAIM, v. *ăk-klām'* [L. *acclāmo*, I cry out to—from *ad, clāmo*, I cry out: F. *acclamer*, to proclaim]: to call out; to applaud. N. a shout of joy or praise. ACCLAIM'ING,

## ACCLIMATE—ACCLIMATE.

imp. **ACCLAIMED**, pp. *-klāmd'*. **ACCLAMATION**, n. *āk'klā-mā'shŭn* [F]: applause expressed in an audible manner. **ACCLAMATORY**, a. *āk'klām'ā-tēr'ī*, expressing joy or applause. —**SYN.** of 'acclamation': outcry; exclamation; vociferation; bawling; shouting; tumult.

**ACCLIMATE**, v. *āk-klī'māt*, also **ACCLIMATE**, v. *āk-klī'mā-tīz* [L. *ac* for *ad*; Eng. *climate*, which see: F. *acclimater*, to accustom to a climate]: to inure to a foreign climate; to accustom the body to live in a foreign country, to inure a plant or animal to a climate not natural to it. **ACCLIMATING**, imp. **ACCLIMATED**, pp. *āk-klī'mā-tēd*. **ACCLIMATION**, n. *āk'klī-mā'shŭn*, the act or process of becoming habituated to a foreign climate. **ACCLIMATIZING**, imp. *āk-klī'mā-tīz'īng*. **ACCLIMATIZED**, pp. *āk-klī'mā-tīzd'*. **ACCLIMATIZATION**, n. *āk-klī'mā-tī-zā'shŭn*, the act of inuring to a foreign climate; acclimation. **ACCLIMATURE**, n. *āk-klī'mā-tūr*, the state of being acclimated.

**ACCLIMATE**, or **ACCLIMATE**: to accustom an animal or plant to a climate not natural to it. The process varies widely, according to the amount of difference between the old and the new climate. Where the difference is extreme, important changes take place in the constitution, and are often attended with certain diseases described as 'diseases of acclimatization.' Thus, Europeans settling in tropical parts are liable to disease of the liver, while natives of tropical lands, when resident in England, are exposed to pulmonary disease. The power of bearing changes of climate is greatest in the Anglo-German race, and usually bears a direct ratio to the intellectuality of a race. Civilized people display greater ingenuity and strength of will than savages in accommodating themselves to changes of climate, by making careful corresponding changes in their mode of life. Ulloa and Humboldt assert that persons of and above middle age best stand transportation to tropical climates. Among animals, we find great powers of adaptation to various climates in the horse, dog, cat, rat, etc.; and among plants, in the various cereals, in potatoes, and several weeds common to almost all climates; but there seems to be a limit to the power, at least as seen in the individual. To A. beyond a certain point is the work of some few generations. Almost all the domestic animals now commonly spread over Europe and even in high northern latitudes, were originally natives of warm climates. The change produced by the acclimatizing of animals may be either an improvement or a deterioration; of the latter, we have an instance in the Shetland pony; of the former, we see an example in the merino sheep of Spain. As an instance of want of the faculty of being acclimatized, the reindeer may serve. Removed from the cold north to the fertile valleys of a temperate clime, the reindeer degenerates and dies. On the other hand, the horse, whose native land is the East, arrives at its highest development in England; and the Syrian sheep, brought northwards as far as Spain, becomes remarkable for its fine fleece. Spain, on the whole, has a climate much warmer than that of Silesia

## ACCLIVITY—ACCOMMODATE.

and Pomerania; and yet the merino sheep bred in these countries have become superior to their ancestors imported from Spain. This is a proof that art may do very much in modifying the influences of climate. Silk-worms, brought from China first into Italy, have been acclimatized not only in the south of France, but even on the coast of the Baltic. Recently, attempts have been made to A. in France the llama, the vicugna, and the alpaca of Peru, and with some success in the last instance, as alpacas have been found to thrive in the Pyrenees. It has been generally believed that plants may become gradually inured to a climate so different from that to which they have been accustomed, that if they had been at once transferred to it, they would have perished. On the other hand, it is maintained that each species of plant has certain limits of temperature within which it will succeed, and that alleged instances of acclimatizing have been merely instances of plants formerly supposed to be more delicate than they really were. But as it is certain that different varieties of the same species are often more and less hardy, it would seem that in the production of new varieties by seed there is still a prospect of the acclimatizing, to a certain extent, of species of which the existing varieties are too delicate to grow well in the open air. Of late years numerous Acclimatization Societies have been formed, the best known being the Paris *Société d'Acclimatation*.

ACCLIVITY, n. *äk-kliv'ĩ-tĩ* [L. *acclivitas*, a rise, an ascent—from *acclivus*, ascending—from *ad*, *clivus*, a slope]: a slope upwards; rising ground; the face of a hill in going up: *declivity*, the face of a hill in coming down.

ACCLOY, v. *äk-kloy'* [L. *ac* for *ad*; Eng. *cloy*, which see]: in *OE.*, to stuff or fill; to crowd; to fill to satiety. ACCLOY'ING, imp. ACCLOYED, pp. *äk-kloyd'*.

ACCOLADE, n. *äk'ö-lád'* [F. *accolade*, an embrace, a kiss—from L. *ad*, *collum*, the neck—*lit.*, a falling on the neck, or an embrace]: the ceremony of conferring knight-hood by a gentle blow of a sword on the neck or shoulder. The grand-master, in receiving the neophyte, embraced him by folding the arms round the neck (*ad collum*).

ACCOLADE, in Music: the couplet uniting several staves, as in part-music or pianoforte-music.

ACCOMMODATE, v. *äk-köm'mō-dāt* [L. *accommodatus*, fitted or adapted to a thing—from *ad*, *commōdatus*, adjusted according to a common measure—from *ad*, *con*, together, *mōdus*, a measure, a limit: F. *accommoder*, to suit—*lit.*, to fit or adapt to according to measure]: to make suitable for; to adjust; to adapt to; to supply; to help; to lend. ACCOM'MODA'TING, imp. ADJ. disposed to afford accommodation; obliging. ACCOM'MODA'TED, pp. ACCOMMODATION, n. *äk-köm'mō-dā'shŭn*, suitable convenience; adjustment, as of differences; agreement; what is furnished to supply a want. ACCOM'MODA'TIVE, a. *-dā'tiv*, furnishing accommodation; obliging. ACCOM'MODATE'NESS, n. fitness. ACCOM'MODATOR, n. one who. ACCOMMODATION BILL, an instrument or bill of exchange drawn and accepted entirely with the



## ACCOMPANIMENT—ACCOMPANY.

view of raising money by its discount, and not, as in the case of a *bonâ fide* bill, for value received, or in payment of a debt. ACCOMMODATION LADDER, a light ladder hung over a ship's side to facilitate descent and ascent.—SYN. of 'accommodate': to adjust; adapt; conform; suit; aid; assist; serve; oblige; reconcile; arrange;—of 'accommodating': civil; polite; courteous; complaisant; considerate; obliging.

ACCOMPANIMENT, in Music: the performing, with the vocal or with a solo part, of other parts for harmony or effect: it may consist of a whole orchestra, or a single instrument, or even subservient vocal parts. It serves to elevate and beautify, and is subject to certain rules for composition as well as for performance. It must be subservient, and therefore should not predominate. In this point of view, modern composers have often erred by making the A. too full, and causing it to stand out so independent and engrossing, that the principal part is lost. This abuse not only destroys the effect, but also tends to ruin the vocal organ of the singer. In proper A., after faithfully fulfilling its duty, there always remains opportunity enough for display in the ritornells and symphonies. The Italians in their best period were celebrated for the simplicity and effectiveness of their A. Now they have entirely lost this claim. In A. the composer must keep three principal points in view—namely, harmony, rhythmical figure, and suitable choice of instrumentation, in respect to number and character of tone; but all must be subservient to the ruling character of the part accompanied. Right or proper harmony may be said to be born at the same time with the melody, and only requires to be here and there adjusted with care. Otherwise there arises a double character, which interrupts or destroys the melody. The figure of the A. should be so conformed as to supply expression as requisite: it may also, by a succession of secondary ideas, render clear and certain the individuality of the principal part, such as the blustering of the poltroon, the daring of the courageous, or the fear of the timid. The A. should also, by its certainty and firmness, prevent wavering. All qualified orchestras view A. as of high importance. The word also means the art of playing harmony from a figured bass; this, though more in use formerly, is still a necessary study for the A. of recitative. See FIGURED BASS.

ACCOMPANY, v. *ăk-kŭm'pă-nŭ* [OF. *acompaaignier*, to associate with: F. *accompagner*, to accompany—from *compagnie*, company: L. *ac* for *ad*; mid. L. *compānŭm*, a tent companion or company—from *com*, together with; *pānis*, bread]: to go with as a companion; to attend or escort; to be an associate. ACCOMPANYING, imp. ACCOMPANIED, pp. *ăk-kŭm'păn-ŭd*. ACCOMPANIER, n. *ăk-kŭm'pă nŭ-ŕ*. ACCOMPANIMENT, n. *ăk-kŭm'păn-ŭ-mĕnt*, that which accompanies or attends; something that attends or is added by way of ornament or improvement; in *music*, the subordinate part or parts, generally instrumental, which perform with the singer for harmony or effect. ACCOMPANIST, n. *ăk-kŭm'păn-ŭst*, in *music*, the person who accompanies the voice

## ACCOMPLICE—ACCOUCHEUR.

on some instrument.—**SYN.** of ‘accompaniment’: concomitant; adjunct; companion.

**ACCOMPLICE**, n. *äk-köm'plis* [L. *ac* for *ad*; mid L. *complicēs*, associates in crimes, accomplices—from *con*, *plīco*, I fold: F. *complice*, privy to]: a companion in doing something wrong; a confederate, usually in an ill sense.—**SYN.** of ‘accomplice’: an accessory; confederate; assistant; coadjutor; associate; abettor. See **APPROVER**.

**ACCOMPLISH**, v. *äk-köm'plish* [F. *accomplissant*, accomplishing: mid L. *accōplēo*, I complete fully—from L. *ad*, *complēo*, I fill completely—from *plēō*, I fill]: to fill completely; to complete; to finish entirely; to bring to pass. **ACCOMPLISHING**, imp. **ACCOMPLISHED**, pp. *-plisht*. **ADJ.** rich in acquired qualities and manners; elegant; refined. **ACCOMPLISHMENT**, n. the finishing entirely; attainment; fulfilment; completion; polite manners or education. **ACCOMPLISHER**, n. one who. **ACCOMPLISHABLE**, a. *äk-köm'plish-ä-bl*. **ACCOMPLISHMENTS**, n. plu. polite acquirements.—**SYN.** of ‘accomplish’: to effect; execute; perform; achieve; fulfil; realize; furnish; acquit; perfect; obtain; complete.

**ACCOMPT**, **ACCOMPTANT**, old spellings of **ACCOUNT**, etc., which see.

**ACCORD**, v. *äk-kawrd'* [mid L. *accordārē*; F. *accorder*, to make a bargain, to agree—from L. *ad*, *cor*, the heart; *cordis*, of the heart: Sp. *acordar*: It. *accordare*]: to make to agree from the heart; to make to agree or correspond; to grant or give; to be suitable. **N.** agreement; consent; harmony. **ACCORDING**, imp. **ADJ.** agreeing; granting; suitable. **ACCORD'ED**, pp. **ACCORD'ER**, n. one who. **ACCORDANCE**, n. *äk-körd'äns*, agreement with a person; conformity. **ACCORD'ANT**, a. agreeable to; corresponding to. **ACCORD'ANTLY**, ad. *-li*. **ACCORD'INGLY**, ad. *-li*, agreeably; suitably; in conformity with. **ACCORDING TO**, prep. phrase. **OWN ACCORD**, of one's own free will; voluntarily.

**ACCORDION**, n. *äk-kör'di-ön* (from *accord*, to agree, which see): a keyed wind-instrument producing musical tones by the vibrations of metallic tongues, while wind is supplied by the action of bellows—so named from its agreeable sounds, though it is but little better than a toy. The *concertina* and the *harmonium* are superior instruments, constructed on the same principle—the action of a gust of air on metallic tongues. **ACCOR'DIONIST**, n. *-ön-ist*, a performer on the accordion.

**ACCOST**, v. *äk-köst'* [F. *accoster*, to join side to side, to come up to—from mid L. *accostārē*, to adjoin, to touch at the side—from L. *ad*, *costa*, a side: Sp. *accostar*: It. *accostiare—lit.*, to set one's self side by side with another]: to speak first to; to address or salute. **ACCOSTING**, imp. **ACCOST'ED**, pp. **ACCOSTABLE**, a. *äk-köst'ä-bl*, fit to be accosted; easy of access.—**SYN.** of ‘accost’: to salute; address; greet; hail; welcome.

**ACCOUCHEUR**, n. *äk'koo-shér'* [F.—from F. *à*, L. *ad*, to; F. *couche*, a bed: L. *ac* for *ad*, *collocārē*, to lie down, to

## ACCOUNT—ACCOUTRE.

**lay:** OF. *accoucher*, to lie down in bed]: a surgeon who attends women in child-birth. **ACCOUCHEMENT**, n. *äk-koosh'-mōng*, lying in child-birth. **ACCOUCHEUSE**, n. *äk'koo-shēz'*, a mid-wife.

**ACCOUNT**, n. *äk-kownt'* [OE. *accomp̄te*, to tell, to recount—from L. *ad, compūtārē*; F. *compter*, to sum up; to reckon—this word used to be written *accomp̄t*]: a sum stated; state or result of a summing up; a sum stated on a slate or paper; a narrative or statement; regard; profit; worth; consideration; advantage; explanation; a statement of prices; expenses, etc. **V.** to reckon or compute; to judge; to esteem; to value; to give reasons; to explain; to be liable. **ACCOUNT'ING**, imp. **ACCOUNT'ED**, pp. **ACCOUNTABLE**, a. *äk-kownt'ä-bl*, liable to answer for one's conduct. **ACCOUNT'ABIL'ITY**, n. *-ä-bil'ĩ-tĩ*, being liable to answer for one's conduct. **ACCOUNT'ABLY**, ad. *-bli*. **ACCOUNT'ABLENESS**, n. **ACCOUNT'ANT**, n. one skilled in accounts and general book-keeping; one who audits the books and prepares balance-sheets of public companies. **ACCOUNT'ANTSHIP**, n. the office of an accountant. **ACCOUNTANCY**, n. *äk-kownt'än-sĩ*, the state or condition of being an accountant. **TO TURN TO ACCOUNT**, to cause to yield a good return; to produce advantage. **TO FIND AN ACCOUNT**, to make it worth while. **TO OPEN AN ACCOUNT**, to have one's name entered in the books of a trader, merchant, or banker, as a customer. **TO GIVE A GOOD ACCOUNT OF THEM**, to deal with them so as to defeat their schemes and punish them. **TO MAKE ACCOUNT OF**, to value; to esteem. **TO ACCOUNT OF**, to pay in behalf of. **TO MAKE OF NO ACCOUNT**, to consider of no importance; not to take into the computation. **ON NO ACCOUNT**, for no possible reason or consideration. **ON ACCOUNT OF**, for the sake of; in behalf of; for the advantage of. **ACCOUNT CURRENT**, a plain statement or bill of particulars showing the Dr. and Cr. side of business transactions between two parties during a given time. **ACCOUNT-DAYS**, on the *Stock Exchange*, the settling-days, in which money differences are arranged between brokers. **ACCOUNTANT-GENERAL**, an officer of Chancery, who is appointed to receive all the money paid into that court.—**SYN.** of 'account, n.': computation; reckoning; recital; value; relation; detail; advantage; consideration; importance; narration; narrative; explanation; description; end; sake; a bill; record; history; tale; memoir; story;—of 'accountable': amenable; responsible; liable; answerable; obnoxious.

**ACCOURAGE**, v. *äk-kür'āj* [L. *ac*; Eng. *courage*]: in *OE.*, to animate; to encourage. **ACCOURT**, v. *äk-kört'* [L. *ac*; Eng. *court*]: in *OE.*, to engage in earnest courtship; to show acts of courtesy.

**ACCOUTRE**, v. *äk-kó'tér* [F. *accoutrer*, to dress or equip—from mid. L. *custos*; OF., *cousteur*, the vestry-keeper—*lit.*, one who invests the priest with the habiliments of his office]: to dress or equip for military service; to arm. **ACCOUTRING**, imp. *äk-kó'trĩng*. **ACCOUTRED**, pp. *äk-kó'térd*. **ACCOUTREMENTS**, n. plu. *äk-kó'tér-měnts*, military dress or equipments, as the belts for the support of the soldier's arms, his

## ACCOY—ACCUMULATE.

pouch or pouches, and sometimes his sash; trappings, ornaments.

ACCOY, *v.* *äk-koy'* [L. *ac*, to; and *coy*, which see]: in *OE.*, to render coy; to make diffident; to caress.

ACCRA, or ACRA, *äk'rä*: capital (since 1875) of the Gold Coast. Pop. (1901) 14,842. See GUINEA.

ACCREDIT, *v.* *äk-krëd'it* [F. *accréditer*, to accredit: L. *accréditus*, believed, given credit to—from L. *ad*, *credo*, I believe or trust in]: to give trust to; to procure honor or credit for; to stamp with authority. ACCREDITING, *imp.* ACCREDITED, *pp.* *äk-krëd'it-ëd.* ADJ. authorized to appear as one possessing the confidence of another, or as a public character.—SYN. of 'accredit': to delegate; depute; commission; intrust.

ACCRETION, *n.* *äk-krë'shün* [L. *accrētīōnēm*, an increase—from L. *ad*, *cresco*, I grow]: a growing into; increase by external addition of new matter. ACCRETIVE, *a.* *äk-krë'tiv*, growing to by external additions. ACCRESCENCE, *n.* *äk-krës'ëns*, increase to anything by additions, as in the growth of plants, as distinguished from *excrescence*, a protuberance or growth on a body. ACCRESCENT, *a.* *äk-krës'ënt*, in *bot.*, growing after flowering.

ACCRINGTON, *äk'rīng-tōn*: manufacturing town of England, in Lancashire, which has recently increased much in size and importance, lies in a deep valley, surrounded by hills, about 34 m. n.e. of Liverpool, and 13 m. e. of Preston, on the banks of the Hindburn. Christ Church is a fine Gothic building, erected in 1838. The inhabitants are mostly employed in cotton factories, weaving, and calico-printing. A. is considered the centre of the cotton-printing business. There are coal-mines in the neighborhood, in which many of the inhabitants find employment. Pop., including Old A. (1881) 31,435; (1891) 38,603. —OLD A. is an adjacent chapelry, also with cotton-manufactures.

ACCUBATION, *äk-kū-bā'shün*: act of reclining; applied specifically to the ancient custom of reclining, or lying extended on a couch or bench, at meals. The custom prevailed among the orientals, and was adopted from them by the Greeks and Romans. The mode was to lie flat on the breast, or supported by the left elbow, the table being lower than the couches.

ACCRUE, *v.* *äk-krô'* [F. *accrue*, growth, increase of the land by the receding of the sea: *OF.* *accreu*; F. *accru*, increased—from L. *ad*, *cresco*, I grow]: to increase by growing to; to arise from; to proceed; to come to; to be added, as increase or profit. ACCRU'ING, *imp.* ACCRUED, *pp.* *äk-rôd'*. ACCRU'MENT, *n.* addition; increase.

ACCUMBENT, *a.* *äk-kūm'bënt* [L. *accumbens* or *accumben'tem*, laying one's self down upon—from *ad*, *cumbo*, I lie down]: leaning upon; reclining at meals. ACCUM'BENCY, *n.* -*sī*, the state of being accumbent.

ACCUMULATE, *v.* *äk-kū'mū-lāt* [L. *accūmūlātūs*, heaped up, accumulated—from *ad*, *cūmūlūs*, a heap. F. *accumuler*, to accumulate]: to heap or pile up; to collect or

## ACCURACY—ACE.

gather together; to increase greatly. **ADJ.** heaped; collected. **ACCUMULA'TING**, imp. **ACCUMULA'TED**, pp. **ACCUMULA'TION**, n. *-lā'shŭn* [F.—L.]: the act of heaping up or collecting together; the things accumulated. **ACCUMULA'TIVE**, a. taken as a whole or in the mass. **ACCUMULA'TIVELY**, ad. *-lā'tiv-lī*. **ACCUMULA'TOR**, n. *-tēr*, one who gathers or amasses.—**SYN.** of 'accumulate': to amass; heap together; pile up; collect; gather; aggregate.

**ACCURACY**, n. *āk'kū-rā-sī* [L. *accūrātus*, careful, exact—from *ad*, *cūra*, care]: state of being prepared with care; correctness; exactness. **ACCURATENESS**, n. *āk'kū-rāt'nēs*, freedom from error or mistake. **ACCURATE**, a. *āk'kū-rāt*, prepared with care; very exact; free from error or mistake. **ACCURATELY**, ad. *-lī*, exactly: without error.—**SYN.** of 'accurate': exact; precise; correct; nice; just; punctual; particular; strict.

**ACCURSE**, v. *āk-kērs'* [L. *ae* for AS. *a*, intensive; AS. *corsian*, to execrate by the sign of the cross]: to devote to utter destruction; to call down evil or misery upon. **ACCURSED**, pp. *āk-kērst'*. **ADJ.** *āk-kēr'sēd*, doomed; wicked; execrable. **ACCURSEDLY**, ad. *āk-kēr'sēd-lī*, after the manner of him who is accursed

**ACCUSATIVE CASE**: see **DECLENSION**.

**ACCUSE**, v. *āk-kūz'* [F. *accuser*, to accuse—from L. *acūso*, I blame—from *ad*, *causa*, a cause—*lit.*, to bring to a judicial process]: to charge with a crime or fault; to blame. **ACCUSING**, imp. **ACCUSED**, pp. *āk-kūzd'*. **ACCUSATION**, n. *āk'kū-zā'shŭn* [F. *accusation*; L. *accusatio*]: being declared guilty of a crime or fault; the charge brought against any one. **ACCUSER**, n. one who blames or charges some one with a fault or crime. **ACCUSABLE**, a. *-zā-bl*, chargeable with a crime. **ACCUSATORY**, a. *āk'kū-zā-tēr-ī*, that blames; tending to accuse. **ACCUSATIVE**, a. *āk'kū-zā-tiv* [L. *accusativus*; F. *accusatif*]: the name for the case in Latin which is called in English the *objective*; censuring. **ACCUSATIVELY**, ad. *-tiv-lī*, after the manner of the accusative case.—**SYN.** of 'accuse': to charge; impeach; arraign; blame; censure; indict;—of 'accusation': censure; charge; crimination; impeachment.

**ACCUSTOM**, v. *āk-kū's'tŭm* [L. *ac*, for *ad*; F. *coutume*; OF. *coustume*, and *costume*; mid. L. *costūma*, custom, habit: F. *accoutumer*, to accustom]: to make familiar with by habit or use; to inure to. **ACCUSTOMING**, imp. **ACCUSTOMED**, pp. *-tŭmd*. **ADJ.** frequent; usual. **ACCUSTOMARY**, a. *-ēr-ī*, usual; customary. **ACCUSTOMARILY**, ad. *-ī-lī*, according to common or usual practice.—**SYN.** of 'accustom': to inure; familiarize; habituate; exercise; train.

**ACE**, n. *ās* [F. *as*; It. *asso*, a single point of cards or dice—from L. *as*, a pound or unit]: a unit; a trifle; a single figure or mark on a card, as ace of clubs. **WITHIN AN ACE**, within a very small quantity or degree; very nearly. *Note.*—The L. *as*, a pound, came to signify the unit of measure, and thence was applied to the card or side of a dice-cube which is marked with a single point (see *Brachet* by Kit-

ACELDAMA—ACETABULIFERA.

chen): others affirm there is no connection between L. *as* and Eng. *ace*.

ACELDAMA, n. *ă-sěl' dă-mă* or *ă-kěl'* - [Chald. *akel*, a field; *dama*, blood]: a field near Jerusalem, so named because bought by Judas with the price of blood, and the scene of his violent death by his own hands; a place where much blood has been shed.—Acts. i. 19.

ACEPHALA, n. plu. *ă-sěf' ă-lă* [Gr. *a*. without; *kephālē'*, the head]: applied to those mollusks that have no distinct head—as the oyster, the scallop, etc.; the Lamellibranchiata. See MOLLUSCA. ACEPHALOUS, a. *ă-sěf' ă-lūs*, headless; distinguished from *encephalous*, having a distinct head; in *bot.*, applied to the style which is lateral, and does not surmount the ovary. ACEPHALOCYST, n. *ăs'ěf-ăl ō sīst* [Gr. *kusts*, a bladder]: a species of internal parasite consisting of an oval vesicle filled with fluid.

ACER, and ACERACEÆ: see MAPLE.

ACERB, a. *ă-sərb'* [F. *acerbe*—from L. *acer'bus*, unripe, sour: F. *acerbité*; L. *acer'bitas*, harshness, acerbity]: sour; bitter. ACERBITY, n. *ă-sərb'î-tî*, also ACERBITUDE, n. *ă-sərb'î-tūd*, sourness with bitterness; sharpness of temper and manners.

ACERIC, a. *ă-sér'îk* [L. *ăcer*, a maple-tree]: of the maple-tree—as *aceric acid*, an acid found in its juice.

ACEROSE, a. *ăs'ér-ōz*, also ACEROUS, *ăs'ér-ūs* [L. *ăcus*, a needle; *ăcer*, sharp]: in *bot.*, linear and sharp-pointed, applied to the leaves of the fir tribe. ACEROSE, a. [L. *ăcus*, chaff]: husky, chaffy.

ACERRA, *ă-chěr'ră* (anc. *Acerræ*): town in s. Italy, in the province of Caserta, 9 m. n.e. of Naples, with which it is connected by railway. It was once fortified, but the walls are now crumbling into ruins. It has a cathedral and seminary. The country around is fertile, but extremely unhealthy through malaria, caused partly by the sluggish artificial channels called the Regj Lagni, the representatives of the *Clanius non æquus Acerris* of Virgil; and partly by the flax-grounds, where the stalks are left to macerate. Pop. 15,000.

ACERVAL, *ă-sér'văl* [L. *acer'vus*, a heap]: in heaps ACERVATE, v. *ă-sér'văt*, to heap up. ACER'VATING, imp. AC'ERVAT'ED, pp. ACERVATION, n. *ăs'ér-vă'shūn*, act of heaping up. ACERVULI, n. plu. *ă-sér'vū-lî*, little heaps or clusters. ACERVULINE, a. *ă-sér'vū-lîn*, filled up in irregular heaps—applied in *zool.* to the shells of certain Foraminifera.

ACESCENT, a. *ă-sěs'ěnt* [L. *aces'cens* or *ăcescen'tem*, becoming sour]: slightly sour; tending to acidity. ACESCENCE, n. *ă-sěs'ěns*, or ACESCENCY, n. *ă-sěs'ěn-sî*, tendency to acidity.

ACETABULIFERA, n. plu. *ăs'ě-tăb'ū-lîf'ér-ă* [L. *acētab'ulum*, a sucker, a vinegar-cruet; *fero*, I bear or carry]: those cuttle-fishes whose arms or tentacles are furnished with rows of little cups or suckers. AC'ETAB'ULUM, n. *ă-lūm*, plu. AC'ETAB'ULA, in *zool.*, applied to such organs as the

## ACETAL—ACETIC ACID.

cup-like sucking-disks on the arms of the cuttle-fish; in *anat.*, the socket of the hip joint. AC'ETABU'LIFORM, a. -ū'li·*favorm*, cup-shaped.

ACETAL, *ă-sē' tāl*,  $C_2H_4(OC_2H_5)_2$ : colorless liquid, of an agreeable odor, and a flavor said to resemble that of the hazel-nut. It is one of the products of the slow oxidation of alcohol under the influence of finely-divided platinum, or of chlorine, or of dilute sulphuric acid and peroxide of manganese. Its specific gravity is 0.821, and it boils at  $221^\circ$ . It yields various reactions and products of interest in organic chemistry.

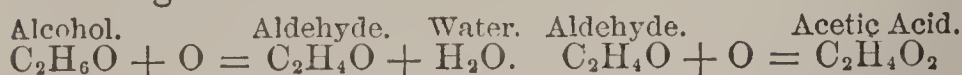
ACETANILIDE, n. *ăs-ēt-ăn' i-līd* or *-īd* [from *acetate* and *aniline*], or ANTIFEBRIN: a pure white crystalline powder (formula  $C_6H_5.C_2H_3O.NH$ ), odorless, but of slightly burning taste. It is obtained by the action of glacial acetic acid on aniline; neutral in reaction, melting at  $113^\circ C.$ , and distilling at  $292^\circ C.$  A. reduces the bodily temperature, and allays pain, but depresses the heart's action.

ACETARIOUS, a. *ăs' ē-tā' rī-ūs* [L. *acētum*, vinegar]: applied to plants used as salads. ACETARY, n. *ăs' ē tēr' i*, the acid pulp of certain fruits. ACETATE, n. *ăs' ē-tāt*, a salt of acetic acid; a compound of acetic acid with another element, as lead, which is then called 'acetate of lead'. AC'ETAT'ED, a. combined with vinegar. ACETIC, a. *ă-sēt' ik*, of vinegar; sour. ACET'IC ACID, the pure acid of vinegar.

ACETIC ACID, *ă-sēt' ik*: the sour principle in vinegar is the most common of the vegetable acids. If alcohol, diluted with water, be mixed with a ferment, such as yeast, and exposed to the air at, or a little above, its ordinary temperature, it is rapidly converted into vinegar or A. A. The views held by Liebig regarding the part that wood-shavings, sand, ash, etc., play in condensing oxygen, and transmitting it to the alcohol, are now supplanted by those of Pasteur, who maintains that the true acetifying matter is a very minute mycoderma—a special vegetable organized being. It is impossible to conceive a more simple form of vegetation, consisting of extremely minute spores arranged in chains; each spore having a mean diameter not exceeding  $\frac{1}{1700}$  of an inch, and the length being about twice as great. The rapidity of the development of these spores, under favorable circumstances, is almost inconceivable; and the power which they possess in fixing the oxygen of the air, and of transmitting it to the alcohol, and of establishing an incomplete combustion of the latter, is no less wonderful. A surface of a square yard, covered with this plant, is able, in the course of 24 hours, to fix the oxygen of more than 1,000 quarts of air. The temperature of the surface of the fluid at which this slow combustion is proceeding is considerably raised, and often remains for several days at  $21^\circ$  or  $25^\circ$  above that of the surrounding air. The process which has just been described bears a very close analogy to the respiratory process, the oxygen of the air being in one case fixed by minute vegetable cells, and in the other by the blood-corpuscles. The change is accompanied by the absorption of oxygen, one atom of which combines with 2 of hydrogen to form water, alde-

## ACETIFY—ACETYLENE.

hyde being left. Further oxidation then takes place; acetic acid being formed thus:



From the mode in which A. A. combines with bases to form salts, it is evident that one atom of the hydrogen differs from the other atoms in being replaceable by a metal or an alcohol radical (as Ethyl,  $C_2H_5$ ), and on this account A. A. is called a monatomic acid, and its formula is usually represented as  $HC_2H_3O_2$ ; that of acetate of potash being  $KC_2H_3O_2$  and of acetate of ethyl  $C_2H_5C_2H_3O_2$ . A striking experiment may be made illustrating the mode in which alcohol is converted into A. A. If slightly diluted alcohol be dropped upon *platinum-black*, the oxygen condensed in that substance acts with great energy on the spirit, and A. A. is evolved in vapor. Here the whole office of the platinum is to determine the oxygen of the air, and the hydrogen of the alcohol to unite. In the commercial processes for manufacturing vinegar, some vegetable substance containing nitrogen (one of the albuminous principles) takes the place of the platinum-black, and determines the same change. Pure A. A. is a crystalline solid at ordinary temperatures. The salts of A. A., called ACETATES, are numerous and important in the arts. The most important is acetate or sugar of lead. See LEAD. For the commercial processes of manufacturing A. A., see VINEGAR.

ACETIFY, v. *ă-sĕt'ĭ-fĭ* [L. *acĭtum*, vinegar; *fĭō*, I am made]: to convert or change into acetic acid or vinegar. ACETIFYING, imp. ACETIFIED, pp. *fĭd*. ACETIFIER, n. *fĭ-ĕr*, that which changes into vinegar. ACETIFICATION, n. *ă sĕt'ĭ-fĭ-kă'shŭn*, the act or operation of making sour or changing into vinegar. ACETONE, n. *ă'sĕ-tŏn*, a colorless inflammable liquid of peculiar odor, obtained from the destructive distillation of acetates, also from citric acid, starch, sugar, etc. ACETOSE, a. *ă'sĕ-tŏz*, also ACETOUS, a. *ă-sĕ'tŭs*, sour; sharp. ACETOSITY, n. *ă'sĕ-tŏs'ĭ-tĭ*, the quality of being sour or sharp. ACETIMETER, n. *ă'sĕ-tĭm'ĕ-tĕr* [Gr. *metron*, a measure]: an instrument for measuring the strength of acetic acids.

ACETYL, n. *ă'sĕt'ĭl* [L. *acĕtum*, acid; Gr. *hulĕ*, matter]: organic radical not yet isolated, but supposed to exist in acetic acid and its derivatives; the rational formula for acetic acid being on this hypothesis  $(C_2H_3O)OH$ . See TYPES, CHEMICAL. The reason for assuming the existence of this radical in the acetic compounds is, that the formula to which it leads affords the simplest explanation of the most important reactions of acetic acid. Thus, when acetic acid is treated with a metallic oxide or hydrate, the basic atom of hydrogen is replaced by a metal, and an acetate of the metal  $(C_2H_3O)OM$ , is produced. The term *acetyl* was formerly applied to the radical  $C_2H_3$ , and the anhydrous acid was regarded as a binoxide of this radical.

ACETYLENE, n. *ă'sĕt'ĭl-ĕn*: hydrocarbon having the formula  $C_2H_2$ . The most brilliant of illuminating gases, produced by the action of water on calcium carbide.



## ACHÆAN—ACHEILLARY.

ACHÆAN, or ACHEAN, or ACHAÏAN: see ACHAÏA.

ACHÆMENIDES, *ăk-ē-mĕn' ĭ-dĕz*: ancient Persian dynasty. named from Achæmenes, who founded the family and whose name was the Greek form of the Persian Hak-hâmanis. From being a mere family his descendants succeeded in drawing together the Persians until they formed a kingdom, which was ruled by the A. under the suzerainty of the Medes. This dynasty reigned in Persia until B.C. 330, when it was overthrown by Alexander the Great.

ACHAÏA, *a-kă'ya*, or ACHÆA, *a-kĕ'ya*: small Greek dist. in the n. of the Peloponnesus, divided into 12 little states; bounded e. by the Saronic Gulf, n. and w. by the Bay of Corinth, and s. by Arcadia and Elis. The land, rising gradually from the coast to the hills of the interior, was famed, in ancient times, for fertility in the produce of oil, wine, and fruits. When the Romans divided the whole of Greece into Macedonia and A., the latter included all Greece excepting Thessaly. In the modern kingdom of Greece, A. forms, with Elis, a *nome* or department, in the extreme n.w. of the Morea, and its chief town is Patras (q.v.). Excepting the w. coast, the land is fertile, and produces corn, wine, and oil.—The ancient Achæans were, in a great measure, separated from the other people of Greece. Their twelve little towns, of which Ægium was the chief, formed a confederacy which was dissolved in the Macedonian times, but was renewed B.C. 280, and subsequently extended itself, under the name of the *Achæan League*, throughout Greece, until B.C. 146, when Grecian liberty fell under the power of Rome.

ACHALGANJ': town of British India, in the s. part of the chief-commissionership of Oude, 4 m. n.e. from the Ganges, n. lat. 26° 25', and e. long. 80° 35'. Pop. 5,000, of whom 500 are Mohammedans, and the rest Hindus.

ACHARD, *â-shar'*, FRANZ KARL: 1754–1821; b. Berlin: meritorious naturalist and chemist, distinguished by his improvements in the process of preparing sugar from beet-root. His experiments, under the patronage of the King of Prussia, after years of experiment, resulted in complete success, through his discovery of the true method of extracting the sugar. In this he had the aid of Neubeck, a medical man, and the use of a model farm in Lower Lusitania. Afterwards, A. was called to Berlin as director of the physical class in the Academy of Sciences. He wrote, with other essays, one on the *European Manufacture of Sugar from Beet* (Leip. 1809).

ACHE, n. *ăk* [AS. *æce*, an ache, a pain: Gr. *achos*, grief, pain either in body or mind: Ger. *ach*, alas, applied to grief]: a continued pain more or less severe. V. to be in continued bodily pain; to suffer grief. ACH'ING, imp. N. same sense as *ache*. ADJ. having a continued pain in a moderate degree. ACHED, pp *ăkd*.

ACHEILLARY, a. *ăk-ĭl'ĕr-ĭ* [Gr. *a*, without; *cheilos*, a lip]: in *bot.*, having the labellum undeveloped, as in an orchid.

## ACHELOUS—ACHIEVE.

**ACHELOUS**, *ăk'ē-lō'ūs*, now called **ASPROPOTAMO**, *ăs-pro-pot'â-mo* (i.e., White River, from the cream-color of its waters): the largest river in Greece, rises in Mount Pindus, flows through the land of the Dolopians, divides Ætolia from Acarnania, and falls into the Ionian Sea. The extensive alluvial deposits at the mouth of this river have been observed from ancient times. It is said that the banks of the A. were anciently the haunt of lions.

**ACHENE**, n. *ăk'ē'ně*, also **ACHENIUM**, n. *ăk'ē'nĭ-ŭm*: **ACHENIA**, plu. [Gr. *achā'nēs*, not gaping, not opening the mouth—from *a*, not; *chā'nō*, I yawn or crack, as ripe fruit]: a term now frequently employed by botanists to designate a dry, hard, one-seeded, indehiscent fruit, in which the integuments of the seed are closely applied to it, but distinct from it. Such are what are popularly called the *seeds* of borage, and other plants of the same natural order. They were termed nuts by Linnæus. Sometimes the achenia are aggregated upon a common receptacle, forming what is called an *etaerio*, as in the ranunculus, in which they are placed upon a dry receptacle, or in the strawberry, in which the receptacle is fleshy. Sometimes the aggregated achenia are inclosed within the fleshy tube of the calyx, as in the rose. The fruit of the *Compositæ* is also sometimes called an A.; but a different appellation (*cypsela*) has been given to it, because the tube of the calyx coheres with the fruit, the name A. being limited to *superior* fruits. **ACHENIDIUM**, n. *ăk'ē-nō'dĭ-ŭm* [the Latinized postfix, *odē*, signifying 'fulness of']: a fruit composed of many achenia.

**ACHERON**, *ak'e-ron*: name given to several rivers by the ancients, always with reference to some peculiarity, such as black or bitter waters, or mephitic gases. The A. in Thesprotia, which flows through the lake Acherusia, and pours itself into the Ionian Sea; another river of the same name in Elis, now called Sacuto; and several streams in Egypt, were supposed to have some communication with the infernal world. According to Pausanias, Homer borrowed from the river in Thesprotia the name of his infernal A., which later poets surrounded with many imaginary horrors.

**ACHERONTIA**: see **DEATH'S-HEAD-MOTH**.

**À-CHEVAL POSITION**, *a-shě vâl*: when troops are arranged so that a river or highway passes through the centre and forms a perpendicular to the front, they are said to be drawn up in A. P. Wellington's army at Waterloo was *à-cheval* on the road from Charleroi to Brussels. In cases where a river forms the perpendicular to the front, secure possession of a bridge is necessary; otherwise one half of the troops might be routed, while the remainder stood idly as spectators.

**ACHIEVE**, v. *ă-chēv'* [F. *achever*, to perfect, to complete—from *à*, to; *chef*, head: L. *ad*, *caput*, the head—*lit.*, to bring to a head]: to finish or complete successfully; to carry on progressively to an end. **ACHIEV'ING**, imp. **ACHIEVED**, pp. *ă-chēvd'*, gained. **ACHIEVE'MENT**, n. a shield of armorial bearings, particularly applied to the funeral shield, called a *hatchment*; something done by continued exertion.

## ACHILL—ACHILLÆA.

ACHIEV'ER, n. one who. ACHIEVABLE, a. *ă-chēv'ă-bl*, that may be effected or completed. ACHIEV'ANCE, n. *-ăns*, performance.—SYN. of 'achieve': to accomplish; effect; perform; execute; fulfil; complete; realize; obtain;—of 'achievement': exploit; feat; deed; accomplishment; performance; completion.

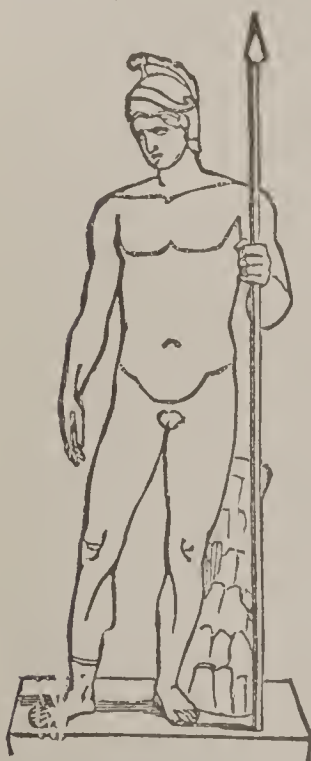
ACHILL, *ak'il*, or 'EAGLE' ISLE: off the w. coast of Ireland; reckoned within the county of Mayo. It is 15½ m. long by 12½ m. broad, and has a very irregular coast line, though its general shape is almost that of a right-angled triangle. It has a wild and desolate appearance; most of the surface is boggy; of the 35,000 acres which the island contains, not half a thousand are cultivated. There are three villages in A., and a number of hovels or huts scattered over its barren moors, sometimes in small clusters, forming hamlets, but so wretched as hardly to be fit for beasts. A. rises towards the n. and w. coast, where the mountains attain an elevation of 2,000 ft. One of them, composed, like the rest of the island, wholly of mica-slate, presents, towards the sea, a sheer precipice from its peak to its base, a height of 2,208 ft. There is a mission-station in the island, an exception to the general wretchedness of the houses. Pop., gradually decreasing from emigration and other causes, amounts to 6,700.

ACHILLÆA, *ă-kĭl-l'ă*: genus of plants of the natural order *Compositæ* (q.v.), having small flowers (heads of flowers) disposed in corymbs, and the receptacle covered with chaffy scales (small bractææ). The florets of the ray are female, and have a short, roundish tongue or lip; the florets of the disk are hermaphrodite, the tube of the corolla flatly compressed and two winged; the involucre is imbricated. The common yarrow or milfoil (*A. millefolium*) abounds in all parts of Europe and in some parts of North America—into which it has perhaps been carried from Europe—growing in meadows, pastures, etc. It is about a foot in height; its leaves bipinnate, the pinnæ deeply divided, the segments narrow and crowded. It has white or rose-colored flowers. The leaves have a bitterish aromatic, somewhat austere taste, and little smell; the flowers have a strong aromatic smell, with an aromatic bitter taste, and contain an essential oil, a resin, bitter extractive, gum, several salts, and traces of sulphur. Both leaves and flowers are used in medicine as a powerful stimulant and tonic. The leaves were formerly much used for healing wounds, and are still so employed by the common people in the Highlands of Scotland and in some parts of the continent. The expressed juice is a popular spring medicine in Germany. Yarrow is often sown with grasses intended to form permanent pasture for sheep; and *A. moschata*, sometimes called musk milfoil, is cultivated as food for cattle in Switzerland. *A. moschata*, *A. atrata*, and *A. nana*—all natives of the Alps—are very aromatic, and bear the name of genipi or genipp. The inhabitants of the Alps value them very highly, and use them for what is called *Swiss Tea*. They are very stimulating and tonic; as are also *A. setacea* and *A. nobilis*, both

## ACHILLES.

natives of Switzerland and other middle parts of Europe, and *A. ageratum*, a native of the s. of Europe, used by the French as a vulnerary, and called *Herbe au Charpentier*.— Sneezewort (*A. Ptarmica*) is a native of Britain and other parts of Europe, 1 to 3 ft. high, with lanceolate leaves, and much larger flowers than the common milfoil. It grows in meadows and damp places. The root, which is aromatic, is used as a substitute for *Pellitory of Spain* (q.v.), and the whole plant is pungent and provokes a flow of saliva.

ACHILLES, *Ἀχιλλεύς*, the hero of Homer's *Iliad*: son of King Peleus and Thetis, a sea-goddess, belonging to a line descended from Jove. Of his life before the Trojan war, and of his death after the fall of Troy, the poets after Homer first profess to give accounts. We are told that he was dipped in the river Styx by his mother, and was thus made invulnerable, except in the heel, by which he was held during the process; hence 'the heel of A.' became a proverbial phrase to denote any vulnerable point in a man's character. It had been prophesied at his birth that his life would be short; and, therefore, when the seer Calchas announced that without A. Troy could not be taken, his mother, to keep him from the dangers of the expedition, concealed him at the court of King Lycomedes, among whose daughters the boy lived disguised as a girl. But Ulysses discovered him by a stratagem. He offered to the young ladies a number of articles, some of feminine attire and others of arms; and the young warrior was betrayed by his choice. A., in the Greek campaign against Troy, appeared with fifty vessels manned by his followers, the Myrmidons; but remained sullen and inactive during a great



Achilles, from an ancient statue.

part of the contest. When the city of Lyrnessus was taken, he had seized and carried away the beautiful Briseis. A pestilence in the Greek camp being ascribed to the anger of Apollo, whose priest had been robbed of his daughter, Chryseis, by Agamemnon, Agamemnon was compelled by the army to send Chryseis back to her father. On this, he took away Briseis from A., which greatly offended the latter. With this incident the *Iliad* begins. Neither the splendid offers made by Agamemnon nor the disasters of the Greeks could afterwards move A. to take any part in the contest, until his friend Patroclus was slain by Hector. The hero then buckled on his armor, which had been made for him by Vulcan, and of which the shield is described at great length by Homer. The fortunes of the field were now suddenly changed in favor of the Greeks; and the vengeance of A. was not satiated until he had slain a great number of the Trojan heroes, and lastly Hector, whose body he fastened to his chariot, and dragged into the

## ACHILLES' TENDON—ACHROMATIC.

Grecian camp. He then buried his friend Patroclus with great funeral honors. King Priam, the father of Hector, came by night to the tent of A., and prayed that the body of his son might be given back to the Trojans. A. consented; and with the burial of Hector the *Iliad* closes. We are told that soon after the fall of Hector, A. made a contract of marriage with Polyxena, the daughter of the Trojan king, but was slain by her brother Paris in the temple of Apollo, where the marriage should have been celebrated. According to other accounts, he was slain by Apollo, who assumed the likeness of Paris as a disguise. His ashes were placed in an urn, with those of his friend Patroclus, and were buried on the promontory of Sigeum, where, after the fall of Troy, the princess Polyxena, who had been made a prisoner, was offered as a propitiatory sacrifice.

ACHILLES' TENDON, n. *ă-kĭl' lēz tēn'dōn* [L. *Achillis tendo*, the tendon of Achilles]: named from the vulnerable tendon or part in the heel of Achilles; attaches the soleus and gastrocnemius muscles of the calf of the leg to the heel-bone. It is capable of resisting a force equal to a 1,000 lbs. weight, and yet is frequently ruptured by the contraction of these muscles in sudden extension of the foot. Ancient surgeons regarded wounds or serious bruises of the A. T. as fatal.

ACHIMENES, n. *ăk' i mē'nēz* [a word of unknown meaning, originally given by Dr. Patrick Browne]: an elegant and free-flowering extensive genus of plants, of the natural order *Gesneriæ* (q. v.), tropical and sub-tropical, and furnished with scaly underground tubers. The species are numerous—natives of the warm parts of America.

ACHLAMYDEOUS, a. *ăk'lām-ĭd' ē-ŭs* [Gr. *a*, without; *chlamus*, a loose warm cloak]: in *bot.*, having no floral envelope; denoting naked flowers. ACHLAMYDÆ, n. plu. *ăk'lām ĭd' ē ē*, the class of naked flowers having only the essential organs and no floral envelope.

ACHMIN: see ΕΚΗΜΙΜ.

ACHMITE, n. *ăk'mīt* [Gr. *akmē*, a sharp point or edge]: a silicate of iron and soda, found in long greenish-black crystals, terminating in sharp points.

ACHOR, n. *ăk'ōr* [Gr. *achor*, a soreness of the head]: a species of scald-head with soft and scaly eruptions.

ACHORÉS (see ΑΧΟΡ): one of the forms of pustules—viz., that in which the pustules are very small, but have large inflamed bases. They are most common on the faces of children, and their secretion forms those large, thick, irregular scabs, resembling dried honey, which are so common on children's chins. They seem to be inflamed hair sacs or sebaceous follicles. Their treatment is the same as that for Impetigo (q. v.).

ACHROITE, n. *ăk'rō-īt* [Gr. *a*, without; *chrōā*, color]: applied to the colorless varieties of tourmaline.

ACHROMATIC, a. *ăk'rō-măt' ik* [Gr. *achrōmătos*, colorless—*from a*, without; *chrōmā*, color]: free from color; *lenses* are *achromatic* when their spherical aberration is corrected.

## ACHROMATIC—ACID.

and the production of prismatic colors thereby avoided. **ACHROMATISM**, n. *ă-króm'ă-tizm*, also **ACHROM'ATIC'ITY**, n. *-tis'î-tî*, state or property of being achromatic.

**ACHROMATIC** (without color): name applied to lenses and telescopes through which objects are seen without false colors, or, in other words, free from that colored fringe which, in the old telescopes, surrounded the object, and diminished its distinctness. The white, or rather colorless ray of light is composed of several colored rays which have various degrees of refrangibility. See **REFRACTION**; **LIGHT**; **COLOR**. When the direct ray is refracted, it divides itself into colored rays, deviating in various degrees from the right line of the primitive ray. The rays thus refracted by the convex object-glass do not meet exactly in one point, the focus of the glass, but rather at several points, so as to produce the various colors, red, blue, and yellow, which surround the object. Newton, misled by imperfect experiments, believed it impossible to find any remedy for this defect; but Euler, in 1747, expressed his conviction that the desired A. improvement was practicable, and this belief was confirmed by the researches of the Swedish mathematician Klingenstierna. The practical solution of the difficulty was reserved for John Dollond; though, when he obtained a patent for his A. telescope, a priority of invention was claimed for a gentleman of the name of Hall. Dollond succeeded in forming an A. object-glass by a combination of crown-glass and flint-glass, which follow one law as to their relative refractive powers, and another as to their powers of dispersing the colors. By uniting a convex lens of crown-glass with a concave one of flint-glass, in certain relative dimensions, a reunion of the colored rays may be effected, and the object will be seen without false colors. In the construction of A. telescopes, Dollond was followed by his son Peter, and also by the optician Ramsden. A further improvement was made by Fraunhofer of Munich, who succeeded in producing perfectly pure glass—very difficult with flint glass. An important improvement of the A. telescope is due to the Viennese optician Plössl, who has lately invented what he calls the dialytic telescope, in which the several kinds of glass composing the compound object-glass are placed not close together, but at regulated distances apart. This arrangement allows a shortening of the tube. See **TELESCOPE**.

**ACICULAR**, a. *ă-sîk'û-lér* [L. *ăcûs*, a needle; *acic'ulă*, a little needle]: formed like a needle, applied to mineral crystals which occur in slender needle-like prisms or prickles. **ACIC'ULAR'LY**, ad. *-lér'î*. **ACICULITE**, n. *ă-sîk'û-lît*, needle-ore; an ore of bismuth found embedded in quartz in long, thin, steel-gray crystals. **ACIFORM**, a. *ăs'î-fawrm* [L. *ăcus*, *forma*, shape]: needle-shaped.

**ACID**, n. *ăs'îd* [L. *ăcidûs*, sharp to the taste, sour—from *acĕō*, I am sharp or sour—connected with *ăcus*, a needle]: something which causes sourness to the taste; in *chem.*, a body which unites with bases to form salts. **ADJ.** sour; sharp; biting to the taste. **ACIDITY**, n. *ă-sîd'î-tî*, also

## ACIDASPIS—ACIDS.

**ACIDNESS**, n. *ās'īd-nēs*, the quality of being sour. **ACIDIFEROUS**, a. *ās'īd-īf'ēr-ūs* [L. *fērō*, I bear]: containing acid. **ACIDIFY**, v. *ā-sīd'ī-fī* [L. *fīō*, I am made]: to make a body sour; to change into an acid. **ACIDIFYING**, imp. **ACIDIFIED**, pp. *-fid*. **ACIDIFICATION**, n. *ā-sīd'ī-fī-kā'shūn*, the act or process of changing into an acid. **ACIDIFIER**, n. *ā-sīd'ī-fī'ēr*, that which changes something into an acid. **ACIDIFIABLE**, a. *ā-sīd'ī-fī'ā-bl*, that may be converted into an acid. **ACIDIMETER**, n. *ās'ī-dīm'ē-tēr* [L. *acidūs*; Gr. *mētron*, a measure]: an instrument used in testing the strength of acids. **ACIDIMETRY**, n. *-ē-trī*, the process by which the free acid in a substance is determined. **ACIDIC**, a. *ā-sīd'īk*, in *geol.*, denoting one of the two great groups into which the igneous rocks are divided, in which the *silica* ranges from 50 to 80 per cent; the other being the *basic*, in which the *silica* is less, and the heavier bases, as magnesia, lime, etc., predominate—*Acids* are chemical compounds distinguished by the property of possessing one or more hydrogen atoms replacable by metals, thus forming salts (q.v.) The most striking characteristics of acids are their sour taste, and influence on vegetable coloring matters (e.g.) turning blue litmus red, etc. They mostly are oxidized bodies; and at one time oxygen was considered essential, as the name oxygen (acid producer) may be thought to indicate. There is an important class of acids (hydrochloric, hydrodic acids and others) which contain no oxygen, and some are devoid of the sour taste or the influence on vegetable coloring matters. The oxygen acids by far the most numerous, are composed of compounds of higher oxides of elements (of sulphur, nitrogen, etc.), or of organic radicals (of ethenyl, etc.) with water. The oxidized group is called the anhydride (q.v.) of the acid. The elements that form the most powerful acids with oxygen (powerful in displacing other acids from combination with metals and bases) are non-metallic, generally have several oxides, and the higher the oxide forming the acid is, the stronger is that acid. Generally, some of the oxides are acid-forming and some not. Thus sulphur has two acid-forming oxides, sulphurous and sulphuric anhydrides ( $\text{SO}_2$  and  $\text{SO}_3$ ), each combines with one molecule of water to form respectively sulphurous and sulphuric acids ( $\text{H}_2\text{SO}_3$ , and  $\text{H}_2\text{SO}_4$ ). Nitrogen forms five acids, of these, two form acids the nitrous and nitric anhydrides ( $\text{N}_2\text{O}_3$ , and  $\text{N}_2\text{O}_5$ ) giving nitrous and nitric acids on combination with water ( $\text{HNO}_2$  and  $\text{HNO}_3$ ). Here an explanation may be given: Nitric anhydride ( $\text{N}_2\text{O}_5$ ) + water ( $\text{H}_2\text{O}$ ) give *two* molecules of nitric acid =  $2 \text{HNO}_3$ . The same kind of division is done in the case of nitrous acid, and this kind of division (viz.:  $\text{H}_2\text{N}_2\text{O}_6 = \text{HNO}_3$ ) is quite common in other cases. The organic acids are not necessarily restricted to hydrocarbon radicals; oxalic acid is based on a combination of  $\text{C}_2\text{O}_3$  a hypothetical radical with water ( $\text{H}_2\text{O}$ ) giving  $\text{H}_2\text{C}_2\text{O}_4$ . In an organic acid nitrogen, sulphur, and other elements also can be present. The basicity of an acid depends on the number of replacable atoms of hy-

## ACIDASPIS.

drogen which it contains. This in the case of oxygen acids depends on the number of hydrogen atoms that enter into its molecule in the water molecules; in the case of organic acids on the number of atoms of hydrogen combined directly with the oxygen and only indirectly with a carbon atom, through the oxygen atom only. Thus in organic acids the hypothetical radical oxatyl (COOH) is found. The basicity of the acid depends on how many times this group enters. In oxalic acid it enters twice

$\left. \begin{array}{l} \text{COOH} \\ \text{COOH} \end{array} \right\}$ ; therefore oxalic acid is bibasic or has two atoms of replacable hydrogen. Lactic acid has only one group of oxatyl
  $\left. \begin{array}{l} \text{CH}_2\text{OH} \\ \text{CH}_2 \\ \text{COOH} \end{array} \right\}$ ; therefore it is mono-basic.

A third class of acids may be termed hydrogen or heloid acids as they contain no water. They are such as hydrochloric acid, HCl; hydrocyanic HCN, and a few others. Though comparatively few they are of the greatest importance in the arts. The oxygen acids can be brought into analogy with the hydrogen acids. Thus oil of vitriol or sulphuric acid, instead of being considered a combination of the saturated molecules sulphuric anhydride and water ( $\text{SO}_3 + \text{H}_2\text{O} = \text{H}_2\text{SO}_4$ ), can be considered a combination of the unsaturated monad molecule sulphion ( $\text{SO}_4$ ) and hydrogen ( $\text{SO}_4 + \text{H}_2 = \text{H}_2\text{SO}_4$ ). Here the unsaturated radical sulphion plays the same part that the atom of chlorine plays in hydrochloric acid ( $\text{Cl} + \text{H} = \text{HCl}$ ). Hence has arisen the general definition of acids as "salts of hydrogen." Frankland has given a good definition of an acid "as a compound containing one or more atoms of hydrogen, which becomes displaced by a metal when the latter is presented to the compound in the form of a hydrate." Sulphuric acid and sodium hydrate combine forming sodium sulphate and set water free.  $\text{H}_2\text{SO}_4 + 2\text{NaOH} = \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O}$ . This includes weak acids that would not dissolve the metals with whose hydrates they would combine. But there are many acids that would not be included even in this definition. Other acids are based on oxygen acids with the admission of organic radicals or replacement of oxygen by sulphur and other elements replaced. The most characteristic inorganic acids (hydrochloric, nitric, phosphoric, sulphuric) are used in medicine in a very dilute condition as tonics and astringents, and to allay thirst in fevers. They corrode the teeth, however, and if long administered tend to disorder digestion; so they must be used with caution. Most of the group have special, some (as hydrocyanic, oxalic) extremely poisonous actions. The stronger acids, when concentrated, are powerful caustics.—See CHEMISTRY.

ACIDASPIS, n. *ās'ī-dās'pīs* [Gr. *akis*, a spear-point; *aspis*, a buckler]: certain fossil crustaceans, so called from the central lobe of the head-plate projecting over the body in the form of a pointed stomacher.



ACIDULATE—ACKNOWLEDGE.

**ACIDULATE**, v. *ă-sîd' ū-lăt* [L. *acid'ulūs*, a little sour—from *acidus*, sour]: to make slightly sour; to make moderately acid. **ACID'ULA'TING**, imp. **ACID'ULA'TED**, pp. **ACID'ULOUS**, a. *-ŭ-lūs*, slightly sour. **ACIDULÆ**, n. plu. *ă-sîd' ū-lē*, mineral springs rich in carbonic acid.

**ACINACEOUS**, a. *ăs'ŭ-nŭ'shŭs* [L. *acĭnŭs*, a stone or seed in a berry]: full of kernels. **ACINOSE**, a. *ăs'ŭ-nōz*, also **AC'INOUS**, a. *-nŭs*, applied to mineral textures and surfaces which have a granulated appearance like the raspberry; consisting of minute granular concretions.

**ACINACIFORM**, a. *ăs'ŭn-ăs'ŭ-fawrm* [L. *acĭnăcēs*; Gr. *akinŭkēs*, a straight sword or sabre; *forma*, shape]: in bot., shaped like a Turkish sword or scimitar.

**ACINUS**, n. *ăs'ŭ-nŭs*, **ACINI**, n. plu. *ăs'ŭ-nī* [L. *acĭnŭs*, a berry, or seed of a berry]: the smallest subdivision, or ultimate secreting lobule, of a gland.

**ACIPENSERIDÆ**, n. plu. *ăs'ŭp-ĕn-sĕr'ŭ-dē* [L. *acĭpen'ser*, the sturgeon]: the sturgeon family—a limited group of ganoid fishes; the existing species are chiefly of large size.

**ACI REALE**, *ă'chē rā-ă'lā*: town of Sicily, in the district of Catania; at the foot of Mount Etna, on the coast, where the small river Aci, flowing from Etna, enters the sea. The town is built of lava, is defended by a fortress. Pop. over 37,000, employed chiefly in the manufacture of linen and silk; it also has considerable trade in flax and grain. Many of the edifices are very handsome. A. R. is famed for its mineral waters, and for the cave of Polyphemus and the grotto of Galatea in its vicinity.

**ACIS**, *ă'sis*: personage in Roman mythology; said to have been son of Faunus, who was grandson of Saturn, and to have fallen a victim to the jealousy of Polyphemus. The legend was that A. was beloved by the nymph Galatea, and Polyphemus caused his death by crushing him beneath a rock, whereupon Galatea changed his blood into the river Acis.

**ACKNOW**, v. *ăk-nō'* [see **ACKNOWLEDGE**]: in *OE.*, to acknowledge; to confess; to recognize. **ACKNOW'ING**, imp. **ACKNOWEN**, pp. *ăk-nōn'*.

**ACKNOW**, v. *ăk-nō'* [see succeeding entry]: in *OE.*, to acknowledge; to confess; to recognize. **ACKNOW'ING**, imp. **ACKNOWEN**, pp. *ăk-nōn'*.

**ACKNOWLEDGE**, v. *ăk-nōl'ěj* [L. *ad*, to; and *OE. knowlechen*, to acknowledge—corrupted from *OE. aknow*; *AS. oncnáwan*, to know, to perceive—from *AS. a* for *on*, *cnawan*; *Icel. kná*; L. *gnosco*, I know; and *Icel. leik*, like]: to own the knowledge of; to own; to confess; to admit to be true; to assent to. **ACKNOWL'EDGING**, imp. **ACKNOWL'EDGED**, pp. *ăk-nōl'ējđ*. **ACKNOWLEDGMENT**, n. *ăk-nōl'ěj-mĕnt*, the owning to be true; confession; the expression of thanks for a benefit received; a receipt. **ACKNOWL'EDGER**, n. one who.—**SYN.** of 'acknowledge': to own; confess; avow; recognize; proclaim; admit; concede; allow;—of 'acknowledgment': admission; confession; recognition; avowal.

## ACLASTIC—ACNE.

**ACLASTIC**, a. *ă-klās'tik* [Gr. *a*, without; and *klās'tos*, breaking]; in *nat.-philos.*, not refracting.

**ACLINIC**, a. *ă-klīn'ik* [Gr. *a*, without; *klī'nō*, I incline]: without inclining. **ACLINIC LINE**, the magnetic equator; an irregular imaginary line connecting all points where the magnetic needle remains horizontal, i.e. with the 'dip', such as it has increasingly when carried toward the magnetic poles of the earth. The line does not coincide with the geographical equator, but crosses it in the central Pacific ocean, touching S. America about on the s. line of Ecuador, continuing s. to the region of Bahia, crossing the Atlantic to the Gulf of Guinea, then to Abyssinia, the s. extremity of Hindustan, and so on.

**ACME**, n. *ăk'mē* [Gr. *akmē*, the point]: the highest point; the top; maturity or perfection; the height or crisis of any condition or state.

**ACNE**, n. *ăk'nē* [Gr. contr. from *akmai*, pimples on the face]: a skin disease; an eruption of small hard pimples, chiefly on the face, forehead, back, and shoulders. It is classed by some dermatologists with *Pustulae*; by others with *Tubercula*, which includes hard elevations of the skin larger than *Papulae*. The sebaceous follicles of the skin (q.v.) are the primary seat of the affection. Their natural secretion accumulates in their interior, and there is, at the same time, a tendency to inflammation of the follicle and surrounding tissue. It is not rare to find on the face and shoulders of young persons about or above the age of puberty a number of black spots, each of which is placed on a slightly raised pale base. These black points are called *comedones*. Pressure at the base occasions the expulsion of a little, elongated, spiral, white mass, with a black point or anterior end, commonly but erroneously regarded as a worm. In the midst of the white mass of sebaceous matter, a parasite, *Acurus folliculorum* (q.v.) is, however, often found. Interspersed are other spots, with the base more raised and inflamed, which become more or less perfect pustules, each of which rests on a comparatively large red base. In some of the inflamed follicles, coagulated lymph (to use the old phraseology) is thrown out, and a small hardened mass is the result. According as one or other of these appearances preponderates, we have different varieties of this disease. When the pustule is the most striking feature, the affection is called *Acne simplex* or *vulgaris*; when the black points abound, it is *Acne punctata*; and when there is decided induration, it is *Acne indurata*. This affection is never seen in children, and is rare in aged persons.

As long as there is no inflammation, the treatment simply aims at favoring the escape of the contents of the sebaceous follicles, by rubbing the face and other affected parts with cold cream at bedtime, washing on the next morning with soap and water, and gentle subsequent friction with a soft towel. When acute inflammation is present, and the pustules are very tender, there is no better application than tepid water, with or without a little gelatine in solution; and subsequently the ointment of the hypochlorite of sulphur has been found useful by Wilson and others. *Acne indurata*,

## A-COCKBILL—ACONITE

is the least tractable of the three forms. In all these cases the digestive organs must have careful attention.

*Acne Rosacea*, regarded by some writers as a special disease, to which they assign the name *Rosacea* (q.v.), is properly hyperæmia of the face accompanied by acne.

A-COCKBILL, adv. or a. *ă-kök'-bîl*: having the ends pointing upward; applied to the yards or the anchor of a vessel.

ACOLYTE, n. *ăk'ô-lît*, also ACOLYTH, n. *ăk'ô-lîta* [mid. L. *acolythus*, a follower—from Gr. *akôlou' thêō*, I follow as a servant]: in the R. Cath Ch., one whose duty it is to assist in the performance of religious rites, lighting the candles, attending on the officiating priest, presenting the wine and water at the communion, etc. The name occurs first about the 3d c. Acolytes were considered as in holy orders, and ranked next to sub-deacons. These services have, since the 7th c., been performed by laymen and boys, improperly called acolytes; but in the Roman Church aspirants to the priesthood are still at one stage consecrated as acolytes. See ORDERS, HOLY. A., in astronomy, is an attending or companion star.

ACONCAGUA, *ă-kôn-kú gwá*: an extinct volcano, the highest peak of the Andes (q.v.), height 22,422 ft.; about 150 m. e.n.e. of Valparaiso, on the frontier of Chili and the Argentine Republic. It is about 1,000 ft. higher than Chimborazo.

ACONITE (*Aconitum*): a genus of plants of the natural order *Ranunculaceæ* (q.v.), having five petaloid sepals, of which the upper one is helmet-shaped, and two hammer-headed petals concealed within the helmet-shaped sepal. The fruit consists of 3-5 follicles. *A. Napellus*, the common wolf's bane or monk's-hood, often cultivated in flower-gardens for its erect racemes of blue flowers, is a native of Europe, Asia, and the Rocky Mt. region. Two other species occur in the Alleghanies. *A. Napellus*, root and all, is poisonous, containing an alkaloid, called *Aconita* or *Aconitine*, one of the most virulent of all known poisons; but an extract of the leaves is a valuable medicine, administered in small doses for nervous and other diseases. An A., sometimes called *A. Stoerkianum*, but generally regarded as a variety of *A. Cammarum* (also known as *A. paniculatum*) was brought into great repute on the Continent during the last century by



Monk's-hood (*Aconitum Napellus*):  
a, fruit; b, root.

## ACONITE—ACORUS.

Dr. Stoerck, an Austrian imperial physician, and is still much cultivated for medicinal use. The same properties seem in greater or less degree to belong to a number, if not to all, of the species of this genus, and they contain the same alkaloid. The virulent *bikh* poison of India, equally fatal in its effects whether introduced into wounds or taken into the stomach, is prepared from the roots of several species. The *A. ferox* of Nepaul, from which much of it is obtained, has been identified by Drs. Hooker and Thomson with *A. Napellus*. Two other Himalayan species, *A. palmatum* and *A. luridum*, are equally employed in its preparation. *A. album*, or white-flowered monk's-hood, a native of the Levant, and *A. lycoctonum*, yellow-flowered monk's-hood, or wolf's-bane, a native of the Alps, are frequent in flower-gardens.

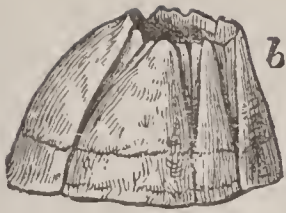
ACONITE, n. *āk'ō-nīt*, also ACONITUM, n. *āk'ō-nī'tūm* [L. *acōnītūm*: Gr. *akonītōn*]: the herb wolf's-bane, or monk's-hood; the *Aconitum napellus*, Ord. *Ranunculacææ*; a deadly poison extracted from it. ACONITIN, n. *ā-kōn'ī-tin*, or ACONITA, *āk-ō-nīsh'ia* (C<sub>30</sub>H<sub>47</sub>NO<sub>7</sub>), the alkaloid of *Aconitum Napellus*, a strong narcotic poison, used for neuralgia; ACONITIC a. *āk'ōn īt īk*, of or pertaining to *A.*

ACONTIA, n. plu. *ā-kōn'shī-ā* [Gr. *akōntion*, a small dart, a javelin]: long filaments with thread-cells, attached to the free edges of the mesenteries of sea anemones.

ACORN, n. *ā'kaworn* [AS. *æcern*; Icel. *akarn*; Dut. *aker*, an acorn—from Icel. *akr*, a field: Goth. *akran*, fruit—from *akrs*, a field]: fruit of the field or wild country; the fruit of the oak-tree, formerly used as human food. *Note.*—*Acorn* is related etymologically neither to *oak* nor to *corn*, though the original postfix *ern* has been changed into *orn* from the mistaken notion that *æcern* meant an *oak-corn* (see Skeat).

ACORN-SHELL: see *BALANUS*.

ACORUS, n. *āk'ō-rūs* [L. *acōrūs*—from Gr. *akōrōn*]: a genus of plants of the natural order *Aroideæ* (see *ARUM*); or, according to other botanists, of the natural order *Orontiacææ*, regarded as a connecting-link between *Aroideæ* and *Junceææ*. The plants of this genus have a leaf-like scape, which bears upon its side a dense, cylindrical, greenish spike of flowers, with 6-partite herbaceous perianth and six stamina in each flower. To this genus belongs the sweet flag (*A. calamus*), which was long ago brought from Asia, and in the 15th c. was planted in the gardens of princes and rich men, but has now become naturalized in England, Germany, and America, growing in marshes and ditches. Its root (rhizome) is perennial, divided into long joints about the thickness of the thumb, has a bitterish acrid taste, and is very aromatic. It is a powerful medicine of transient tonic effect, occasionally used, especially in cases of weak digestion. It is cut into slices and prepared with sugar as confectionery: it is also used to correct the empyreumatic odor of spirits, and to give them a peculiar flavor. It is called *Calamus Root* by perfumers in the manufacture of hair-powder.—The other species of *A.* are likewise aromatic,



a, Pelagic larva of Acorn-shell b, External shell of adult; c, Vertical section of adult. (From Darwin's Monograph).



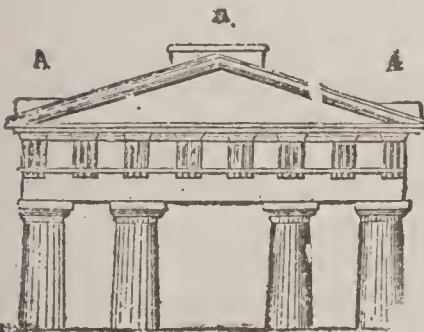
Acorn-shells in the skin of a whale. (From Brown's Thier-Reich.)



Head of Addax (*Hippotragus maculatus*).



Acuminate Leaf.



A, A, A, Acroteria.



Acotyledones. 1, Spores of lichens, germinating; 2, Spores of horse-tails (*Equisetaceae*), germinating; 3, Spores of mosses, germinating.

## ACOSTA—ACOUSTICS.

and applied to the same uses. *A. gramineus* is cultivated in China.

ACOSTA, *á kôs'tá*, GABRIEL D': 1587-1640 (or 47); b. Oporto: a Portuguese nobleman, descended from a Jewish family. After being educated in the doctrines of the Roman Catholic Church, he became skeptical, and leaving Portugal, went to Amsterdam, where he adopted the Jewish faith, changing his name Gabriel to Uriel. He did not remain long contented with his new creed; but wrote against the Pentateuch, disputed the doctrine of the soul's immortality, and became involved in controversy with his rabbinical teachers. On account of his work, entitled *Examen de Tradiçoens Phariseas conferidas con à ley Escripta* (Examination of Pharisaic Traditions compared with the Scriptures), 1624, he was charged with atheism by the Jews before a Christian magistracy. Having lost his property, and being sentenced to a seven years' excommunication, he sought reconciliation with the synagogue, and submitted to very ignominious chastisements, repeatedly inflicted as often as his religious doubts arose again; until, in a state of insanity, he ended his career by suicide, though of this there may be some doubt. His autobiography was published in Latin and German (Leip. 1847).

ACOTYLEDON, n. *ă-kôt'î-lē'dôn* [Gr. *a*, without; *kōtū-lēdon*, a seed-lobe]: in *bot.*, a plant whose embryos or germs have no seed-lobes. ACOTYLEDONOUS, a. *ă-kôt'î-lē'dō-nūs*, having no seed-lobes.

ACOTYLEDONOUS PLANTS (*Acotyledones* of Jussieu): one of the great primary classes into which the vegetable kingdom is divided, according to the structure of the seed and whole development therewith connected. See COTYLEDON. The class of *Acotyledones* contains those plants which, in the Linnæan system, form the class Cryptogamia (q.v.). It consists partly of *Aerogenous Plants* (q.v.), as Ferns and Mosses, and partly of *Thallogenuous Plants* (q.v.), as Lichens, Fungi, and Algæ. It thus includes the vegetable tribes of lowest organization, whose embryo exhibits no distinct seed-lobes (cotyledons), but is a mere cell or *spore*, with granular matter in its interior, and germinates indifferently from any point of its surface.

ACOUSTICS, n. plu. *ă-kow'stīks* [Gr. *akous'tōs*, that may be heard—from *akouō*, I hear]: the science that treats of the cause, nature, and phenomena of sounds; remedies for deafness. ACOUSTIC, a. *-stīk*, also ACOUSTICAL, a. *-stī-kāl*, relating to hearing or sound.

ACOUSTICS: the science of sound; more commonly, a special practical branch of the science of sound which deals with the construction of public halls and auditoriums so as to secure the accurate hearing of speech or music. Taken in this sense, A. is in a very backward state. In general it is easy to point out the acoustical defects of *a complete building*; but it is quite another matter to design a building which shall *certainly* be free from such defects. One reason for this is obviously the lack of data on which to reason, due to the enormous cost which would be in-

## ACQUAINT—ACQUIESCE.

volved in a thorough experimental treatment of the subject. The consequence is that when by chance one successful attempt has been made, architects prefer to copy it rather than attempt some new form, which might probably entail failure. Even this expedient does not always succeed: some unavoidable though slight variation in dimensions or materials may change the effect. One of the phenomena in A. has a curious illustration in the whispering gallery in St. Paul's Cathedral, London.

The improvement of the acoustic properties of a building must be determined by the ascertained defects, so that no general rules could be laid down. One great point is the prevention of echoes, unless these reach the ear almost at the same moment with the original sound. This can be effected in many cases by lowering the ceiling so as to expedite the echo; also by hanging carpets or heavy tapestry on the walls, and especially in the corners of the building. These have the effect of abolishing it. Attempts are often made to secure the same results by stretching wires across in various directions. Such devices find no support in any known scientific principles as to the mode in which sound is propagated. For the science of A. in the larger sense, see SOUND. See also EAR: ECHO.

**ACQUAINT**, v. *äk-kwānt'* [mid. L. *accognītārĕ*, and *adcognītārĕ*; F. *accoīnter*; OF. *acoīnter*, to make known—from L. *ad*, *cognītus*, known]: to make known to; to inform; to give notice of; to make familiar with. **ACQUAINT'ING**, imp. **ACQUAINT'ED**, pp. **ADJ.** familiar; well known. **ACQUAINTANCE**, n. *äk-kwānt'āns*, familiar knowledge; a person merely known, or familiar to. **ACQUAINT'ANCESHIP**, n. state of being acquainted; knowledge of, either intimate or but a little.—**SYN.** of 'acquaint': to inform; apprise; instruct; teach; advise; disclose; communicate; make known;—of 'acquaintance': familiarity; intimacy; knowledge; fellowship.

**ACQUAVIVA**, *äk'kwā-vĕ'vā*: town of s. Italy, in the province of Bari, 16 m. s. of the town of Bari, in a healthy situation at the foot of the Apennines. It is surrounded with walls and ditches, has a handsome parish church, several convents, two hospitals, etc. Pop. 7,600.

**ACQUESTS**, n. plu. *äk-kwĕsts'* [F. *acquet*; OF. *acquest*, acquisition—from mid. L. *āquāsitus*]: in *law*, property acquired by purchase or otherwise, but not by inheritance.

**ACQUI**, *äk'kwī* (Lat. *Aquæ Statiellæ*): walled town of n. Italy, on the left bank of the Bormida, 18 m. from Alessandria. It derives its name from its hot sulphur springs, known to the Romans, and now much frequented by invalids. The town is of great antiquity, and contains many remarkable ecclesiastical buildings. Pop. 7,400.

**ACQUIESCE**, v. *äk'kwī-ĕs'* [L. *acquĭscĕrĕ*, to cease from activity—from *ad*, *quĭscō*, I am quiet: F. *acquiescer*, to acquiesce: It. *acquiescere*—*lit.*, to become physically quiet]: to agree in; to rest satisfied with; to assent quietly. **AC'QUIES'ING**, imp. **ACQUIESCED**, pp. *äk'kwī-ĕst'*. **AC'QUIES'**

## ACQUIRE—ACRE.

CENCE, n. *-ēs'sēns* [F.]: agreement in; satisfaction with, also AC'QUIES'GENCY, n. *-sēn-sĭ*. AC'QUIES'CENT, a. *-ēnt*, easy; submitting; resting apparently satisfied with. To ACQUIESCE, to comply with, or submit to without opposition.—SYN. of 'acquiesce': to rest; repose; yield; accede; assent; consent; agree; coincide; conform; submit; comply; concur; accord.

ACQUIRE, v. *āk-kwīr'* [L. *acquīrĕrĕ*, to procure in addition—from *ad, quæro*, I seek; F. *acquĕrir*, to acquire]: to gain; to gain possession of something as one's own, as money or knowledge; to earn or attain. ACQUIR'ING, imp. ACQUIRED, pp. *āk-kwīrd'*. ADJ. gained; not natural. ACQUIRE'MENT, n. something gained by study—as grammar, arithmetic, etc. ACQUIR'ABLE, a. *-ā-bl*, capable of being acquired.—SYN. of 'acquire': to obtain; gain; win, earn; attain; procure; secure; get.

ACQUISITION, n. *āk'kwī-zĭsh'ŭn* [F. *acquisition*, an acquisition—from L. *acquĭsĭtiōnem*—from *ad, quæsitus*, sought]: the act of acquiring; the thing acquired, as a good name; something gained, as property; attainment in knowledge. ACQUISITIVE, a. *āk-kwīz'ĭ-tĭv*, acquired or gained. ACQUISITIVELY, ad. *-tĭv-lĭ*. ACQUISITIVENESS, n. *āk-kwīz'ĭ-tĭv-nĕs*, in *phren.*, the faculty of the mind for gaining or possessing.

ACQUIT, v. *āk-kwīt'* [F. *acquitter*, to set free, to clear—from mid. L. *acquĭĕtārĕ*—from L. *ad, quĭĕtŭs*, kept quiet—*lit.*, to set at rest]: to clear from blame or guilt; to discharge. ACQUITTING, imp. ACQUITTED, pp. ACQUIT'TAL, n. a setting free; the being found not guilty. ACQUIT'TANCE, n. *-tāns*, a release from a debt; the writing or receipt to show this.—SYN. of 'acquit': to absolve; exonerate; clear; exculpate, forgive; pardon.

ACRE, a section of territory the ownership of which was long held in dispute by Brazil and Bolivia, but which was ceded to Brazil in February, 1903, after that country had presented an ultimatum for its possession. Acre is known for its large rubber industry, which greatly figured in bringing the controversy to an issue.

ACRE: a measured portion of land: the German *acker* means both 'a field' and a 'measure of land.' Most nations have some measure nearly corresponding; originally, perhaps, the quantity which one plow could plow in a day; uniformity, therefore, is not to be looked for.

The A. in the United States is the English statute A., consisting of 4,840 sq. yards. The chain with which land is measured is 22 yds. long, and a sq. chain will contain  $22 \times 22$ , or 484 yds.; so that 10 sq. chains make an acre. The A. is divided into 4 roods, a rood into 40 perches, and a perch contains  $30\frac{1}{2}$  sq. yds. The Scotch A. is larger than the English, and the Irish than the Scotch. 121 Ir. ac. = 196 Eng. nearly; 48 Sc. ac. = 61 Eng. The following table shows the values of the more important corresponding measures compared with the English A. or the A. in the United States. The German morgen below are becoming obsolete,



## ACRE—ACRIMONIOUS.

as the German Empire has adopted the French metrical system.

English acre.....	1.00
United States acre.....	1.00
Scotch acre.....	1.27
Irish acre.....	1.62
Austria, Joch.....	1.42
Baden, Morgen or Acre.....	0.89
Belgium, Hectare (French).....	2.47
Denmark, Tcende .....	5.5
France } Hectare (= 100 ares). .....	2.47
} Arpent (common) .....	0.99
Hamburg, Morgen.....	2.38
Hanover, ".....	0.64
Holland, ".....	2.10
Naples, Moggia.....	0.83
Poland, Morgen.....	1.38
Portugal, Geira.....	1.43
Prussia } Little Morgen.....	0.63
} Great Morgen.....	1.40
Russia, Deciatina.....	2.70
Sardinia, Giornate.....	0.93
Saxony, Morgen.....	1.36
Spain, Fanegada.....	1.06
Sweden, Tunneland .....	1.13
Switzerland, Faux.....	1.62
" Geneva, Arpent.....	1.27
Tuscany, Saccata.....	1.22
Württemberg, Morgen.....	2.40
Roman Jugerum (ancient).....	0.66
Greek Plethron (ancient).....	0.23

ACRE, ST. JEAN D', (*sǎng zhǒng dǎ'kér*), or ACCA: the Biblical *Accho*, known as *Ptolemais* in the middle ages; seaport on the coast of Syria, not far from the base of Mount Carmel. The harbor is partly choked with sand, yet is one of the best on this coast. A. has often been the arena of warfare, and has suffered many changes of fortune. In 1004, it was taken by the Genoese; in 1187, by the Sultan Saladin; afterward it became the chief landing-place of the Crusaders, the seat of a bishop and of the Order of St. John; next, it fell into the hands of the Egyptians; and in 1517 was captured by the Turks; in 1799, it was besieged by the French for sixty-one days, but was successfully defended by the garrison, aided by a body of English sailors and marines under Sydney Smith. In 1832, it was stormed by Ibrahim Pacha, son of the viceroy of Egypt, and continued in his possession till it was bombarded and taken, in 1840, by a combined English, Austrian, and Turkish fleet. Pop. 10-15,000. See EGYPT.

ACRI, *á'krî*: town of s. Italy, in the province of Cosenza, 13 m. n.e. of the town of Cosenza, in a beautiful and healthy situation, with a fertile country around. Pop. 4,500.

ACRID, a *ǎk'rîd* [L. *ācēr*, or *ācrēm*, sharp]: hot and bitter; of a sharp or biting taste; corrosive. AC'RIDNESS, n., or ACRIDITY, n. *ǎk-rîd'î-tî*, sharpness; bitterness.

ACRIMONIOUS, a. *ǎk'rî-mō'nî-ŭs* [L. *acrīmōnîŭs*, sourness—from *ācēr*, sharp]: sharp; severe; sarcastic—applied to manner of speaking. AC'RIMO'NIOUSNESS, n. *-nî-ŭs-nēs*, the state or quality of being acrimonious; asperity. AC'RIMO'NIOUSLY, ad. *-lî*. ACRIMONY, n. *ǎk'rî-mōn-ŭ*, sharpness

## ACRITA—ACROGEN.

or bitterness in speaking. **ACRITUDE**, n. *äk'rĭ-tūd*, bitterness.—**SYN.** of 'acrimony'; asperity; animosity; tartness; harshness; severity; bitterness.

**ACRITA**, n. plu. *äk'rĭ-tă* [Gr. *akritos*, indistinct] the name given by Prof. Owen, 1835, to a medley (hydroids, some worms, infusoria, and even diatoms) in which nerves, etc., are 'confusedly blended with tissues.'

**ACRITICAL**, a. *ă-krĭt'ĭ-kăl* [Gr. *akritos*, indistinct]: applied to a disease in which no regular crisis has been indicated.

**ACRITOCROMACY**, *äk'rĭ-tŏ-krŏ'mă-sĭ* [Gr. *akritos* and *chromatia*, which, when associated, imply 'inability to discriminate between colors']: a term which seems likely to supersede *Color Blindness*, *Daltonism*, *Achromatopsia*, etc.

**ACROAMATIC**, a. *äk'rŏ-ă-măt'ĭk*, also **AC'ROAMAT'ICAL**, a. *-ĭ-kăl* [Gr. *akroāmă*, a hearing]: originally in the Aristotelian schools applied to lectures heard by the more advanced scholars; hence, pertaining to the more obscure or deeper parts of learning; abstruse; oral.

**ACROBAT**, n. *äk'rŏ-băt* [F. *acrobate*—from Gr. *akrobătēs*, one who goes on tiptoe—from Gr. *akros*, high; *baino*, I go]: a rope-walker or dancer; a vaulter; a tumbler: one who performs difficult feats, vaulting, sliding, tumbling, and dancing on a slack or tight rope, stretched either horizontally or obliquely. These feats require great skill, suppleness, and steadiness. For a long time, acrobats were contented to divert and astonish children or the most ignorant of the populace; but the extraordinary skill of some recent performers has given this perilous art celebrity. Within the present century, Farioso, Madame Saqui, and Signor Diavolo, and especially Blondin, have been notable. The acrobats of antiquity appear to have closely resembled those of our own day.

**ACROBRYA**, n. plu. *äk'rŏ-brĭ'ă* [Gr. *akros*, at the highest point; *bruō*, I bud forth or germinate]: plants in which the growth is formed by additions in an upward direction.—**SYN.** of 'acrogens.'

**ACROCARPI**, n. plu. *äk'rŏ-kăr'pĭ* [Gr. *akros*, at the highest point; *karpos*, fruit]: mosses having their fructification terminating the axis. **ACROCARPOUS**, a. *äk'rŏ-kăr'pŭs*, having the fructification terminating the axis.

**ACROCEPHALIC**, a. *äk'rŏ-sĕ-făl'ĭk* [Gr. *akros*, high; *kephălĕ*, the head]: high-headed, or pyramidal-headed—applied to the high-skulled tribes of the human family.

**ACRODONTA**, n. plu. *äk'rŏ-dŏn'tă* [Gr. *akros*, high; *odous* or *odonta*, a tooth]: certain fossil saurians having their teeth immovably fixed to the summit of the jaw. **ACRODUS**, n. *äk'rŏ-dŭs*, certain fossil fish-teeth, characterized by their enamel being covered with fine grooves—known by the name of *fossil leeches*.

**ACROGEN**, n. *äk'rŏ-jĕn* [Gr. *akros*, high; *gennăō*, I produce]: in *bot.*, applied to plants which increase by growth at the summit or growing point. **ACROGENOUS**,

## ACROGENOUS PLANTS—ACROLEIN

a. *á-kroj'ě-nŭs*, increasing by growth at the summit of growing points—as the *tree ferns*.

ACROGENOUS PLANTS, *á-kroj'ě-nŭs*. plants whose stem-structure is *acrogenous*—that is, in which the vascular bundles are developed simultaneously, and not in succession, the stem increasing by the coherence of the bases of the leaves



Section of Acrogenous stem.



Tree Fern.

and by elongation at the summit. In a transverse section of the stem, a circle of vascular tissue is found near the circumference, and the centre is composed of cellular tissue, some portion of which frequently disappears, so that the stem, though solid when young, becomes hollow in a more advanced stage of its growth. Tree-ferns afford the finest specimens of the acrogenous stem. All A. P. have *stomata*, or breathing-pores, on the surface. In general, they have a distinct stem and leaves arranged with most perfect symmetry. Some plants, in which the distinct stem is absent, are ranked with A. P., because the *thallus* has the texture of leaves, and exhibits a higher organization than in *Thallogenuous Plants* (q.v.). A. P. are all *Acotyledonous* (q.v.); and under this designation are included *Ferns*, *Equisetaceæ*, *Lycopodiaceæ*, *Marsileaceæ*, *Mosses*, and *Hepaticæ*.

ACROGNATHUS, n. *á-k'rög-ná'thŭs* [Gr. *akros*, high, pointed; *gnáthos*, the jaw-bone]: a genus of fossil fishes from the lower chalk, characterized by their deep jaws.

ACROLEIN, *á-k-rŭl'ě-in* [L. *acer*, sharp, or Gr. *akros*, on the top, from its lightness; [L. *oleum*, oil] ( $C_2H_3COH$ ): a colorless, limpid, volatile, strongly refracting liquid, lighter than water, and having its boiling-point at about  $126^\circ$ . It constitutes the acrid principle produced by the destructive distillation of fatty bodies, and is in part due to the decomposition of glycerine. It is best prepared by distilling a mixture of glycerine and anhydrous phosphoric acid, the object of the latter being to effect the removal of the element of four atoms of water from the glycerine ( $C_3H_8O_3$ ), which contains the elements of ( $C_3H_4O$ ) + those of two atoms of water ( $2H_2O$ ). In its state of vapor, it is extremely irritating to the eyes, nostrils, and respiratory organs—a property to which it owes its name. The pungent smell given off by

## ACROLITH—ACROPOLIS.

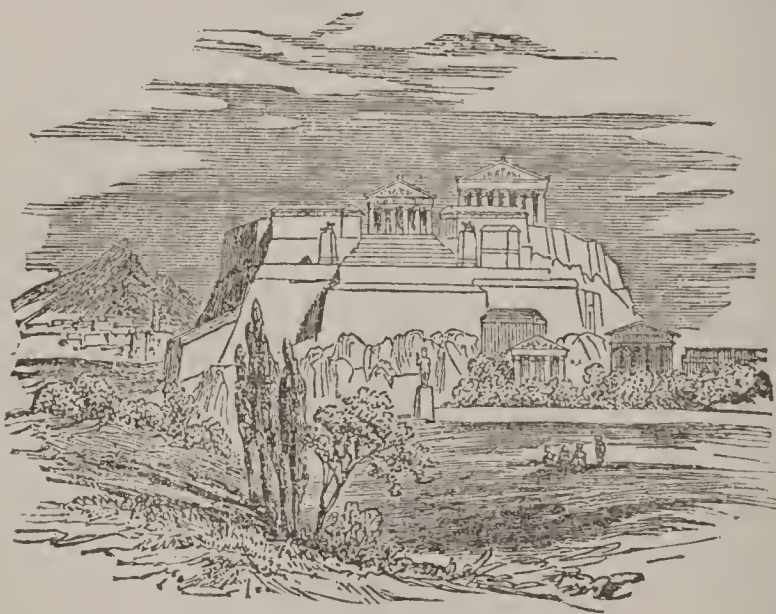
the smouldering wick of a candle just blown out is due to the presence of A. When A. is mixed with a solution of potash or soda, the irritating odor disappears, and is replaced by one of cinnamon, while a brown resinous substance is formed; and certain oxidizing agents, as oxide of silver, convert it into *acrylic acid*,  $C_3 H_4 O_2$ .

ACROLITH, *äk-rō-lith*, or ACROLITE, n. [Gr. *akros*, extreme; *lithos*, a stone]: statue having trunk of wood, extremities of stone; as the oldest works of Greek plastic art, in which wood-carving is seen in transition into marble statuary. The trunk of the figure is still, in the old style, of wood, covered with the usual temple-vestments; but the extremities—head, arms, feet—which are meant to appear naked from below the drapery, are of stone. ACROLITHIAN, a. *äk-rōl'ī-thän*, pertaining to or constructed like an acrolith. See SCULPTURE.

ACROMIUM, n. *äk-rō'mī-üm*, also ACRO'MION, n. *mī-ön* [Gr. *akros*, high, extreme; *ōmos*, a shoulder]: the projecting or outer part or process of the scapula or shoulder-blade. ACROMIAL, a. *äk-rō'mī-äl*, of or belonging to the acromium.

ACRONYC, a. *ä-krön'ik*, also ACRON'YCAL, a. *-ī-käl* [Gr. *akros*, high, extreme; *nux* or *nukta*, night]: in *astron.*, a term applied to the stars when they either appear above or sink below the horizon at the time of sunset. ACRON'YCALLY, ad. *-lī*.

ACROPOLIS, n. *ä-kröp'ō-līs* [Gr. *akros*, high; *polis*, a city]: the citadel of Athens; the highest part or citadel of a city. Many of the important cities of Greece and Asia Minor were protected by strongholds so named. The A. occupied a lofty position, commanding the city and its



Acropolis of Athens.

environs; inaccessible on all sides except one, which usually had artificial defenses. It contained some of the most important public buildings, especially temples, besides affording a last refuge in case of a hostile attack. The A., like the castle of the middle ages, had formed the centre or

## ACROSAURUS—ACROSTIC.

nucleus around which the town gradually grew. Among the most celebrated ancient Acropolises was that of Argos, whose name Larissa, indicates its Pelasgic origin; that of Messenia, which bore the name of Ithome; that of Thebes, called Cadmea; that of Corinth, known as Acro-Corinthus; but especially that of Athens, which was styled pre-eminently the A. See ATHENS.

ACROSAURUS, n. *ăk'rō-saw'rūs* [Gr. *akros*, high; *sauros*, a lizard]: an extraordinary fossil reptile found in South Africa.

ACROSPIRE, n. *ăk'rō-spīr* [Gr. *akros*, high, extreme; *speira*, a spiral line]: the shoot or sprout at the end of a germinating seed; the first sprouting leaves or 'braird' of corn. AC'ROSPIRED, a. *-spīrd*, having sprouts; having sprouts at both ends of the grain.

ACROSS, prep. ad. *ă-krōs'* [AS. *a*, at, on; Icel. *kross*, a cross]: from side to side; laid over something so as to cross it; denoting position beyond.

ACROSTIC, n. *ă-krōs'tīk* [Gr. *akros*, high, extreme. *stichos*, a row or line], adj. pertaining to. ACROS'TICALLY, ad. *-lī*. A short succession of lines or verses, the first letters of which follow some predetermined order, usually forming a word—most frequently a name—or a phrase or sentence. Sometimes the final letters spell words as well as the initial, when the poem is called a Double A., and the peculiarity may even run down the middle of the poem like a seam. Sir John Davies composed twenty-six *Hymns to Astrea* (Queen Elizabeth), in every one of which the initial letters of the lines form the words ELISABETHA REGINA. The following is one of the twenty-six:

E v'ry night from ev'n to morn,  
L ove's chorister amid the thorn  
I s now so sweet a singer;  
S o sweet, as for her song I scorn  
A pollo's voice and finger.

B ut, nightingale, sith you delight  
E ver to watch the starry night,  
T ell all the stars of heaven,  
H eaven never had a star so bright  
A s now to earth is given.

R oyal Astrea makes our day  
E ternal with her beams, nor may  
G ross darkness overcome her;  
I now perceive why some do write  
N o country hath so short a night  
A s England hath in summer.

In the A: poetry of the Hebrews the initial letters of the lines or of the stanzas were made to show the letters of the alphabet in their order. Twelve of the psalms of the Old Testament are written on this plan. The Psalm cxix. is the most remarkable. It is composed of twenty-two divisions or stanzas (corresponding to the twenty-two letters of the Hebrew alphabet), each stanza consisting of eight couplets; and the first line of each couplet in the first stanza begins, in the original Hebrew, with the letter *aleph*, in the second stanza, with *beth*, etc. The divisions of the psalm are

## ACROTERION—ACT.

named each after the letter that begins the couplets, and these names have been retained in the English translation. With a view to aid the memory, it was customary at one time to compose verses on sacred subjects after the fashion of those Hebrew acrostics, the successive verses or lines beginning with the letters of the alphabet in their order. Such pieces were called *Abecedarian Hymns*. See *Hook's Church Dictionary*.

**ACROTERION**, *ăk'ro-tě'ri-on* (Gr., the summit or extremity) in Architecture: a statue or other ornament placed on the apex or at one of the lower angles of a pediment. Some understand by A., the pedestal on which such ornament stands.

**ACROTIC**, a. *ă-kröt'ik* [Gr. *akros*, extreme, high]: pertaining to or affecting the external surface.

**ACRYLIC**; a. *ă-kri'lik* [a word formed from *acrolein*, which see]: in *chem.*, denoting an acid in the form of a colorless liquid having a slightly empyreumatic odor, produced by oxidation of acrolein; denoting a colorless pungent liquid—also called *allylic alcohol*: acrylic aldehyde = acrolein.

**ACT**, n. *ăkt*, **Acts**, n. plu. *ăks* [F. *acte*, an action—from L. *actus*, an act]: something done; a deed; a doing; power exerted; an exploit; a decree or law; one of the principal divisions of a play. **V.** to do; to exert power; to perform. **ACT'ING**, imp. **ACT'ED**, pp. **ADJ.** feigned; false. **ACTION**, n. *ăk'shŭn* [F.—L.]: the state of acting or moving; force exerted by one body on another; a deed; a battle; a process at law for the remedy of a wrong, or the establishment of a right; gesture. **ACTIONABLE**, a. *ăk'shŭn-ă-bl*, something in word or deed that may be carried to a court of law. **ACTIONABLY**, ad. *-bli*, in a manner that may subject to an action at law. **ACTIONIST**, n. one who. **ACTIONLESS**, a. *-lĕs*, dull; slothful; torpid. **ACTIVE**, a. *ăk'tiv* [F. *actif*—from L. *activus*]: nimble, lively; not dull. **ACTIVELY**, ad. *-li*, in an active manner; nimbly. **ACTIVITY**, n. *ăk-tiv'ĭ-tĭ*, nimbleness; the habit of diligence. **ACTOR**, n. *ăk'tĕr*, he that acts or performs; a stage-player—fem. **ACTRESS**. **ACTUAL**, a. *ăk'tŭ-ăl* [L. *actuālis*]: real; what truly exists. **ACTUALLY**, ad. *-li*, in effect; really. **ACTUALITY**, n. *ăk'tŭ-ăl'ĭ tĭ*, reality. **ACTUALIZE**, v. *ăk'tŭ-ăl-ĭz'*, to realize; to make actual. **ACTUALIZ'ING**, imp. **ACTUALIZED**, pp. *ăk'tŭ-ăl-ĭz'd'*. **ACTUATE**, v. *ăk'tŭ-ăt*, to move, to incite to action. **ACTUATING**, imp. **ACTUATED**, pp. **ACTUATION**, n. *ăk'tŭ-ă'shŭn*, the bringing into action; operation. **TO ACT UP TO**, to fulfil, as an engagement or promise. *Act of Bankruptcy*: see **BANKRUPTCY**. **ACT OF FAITH**, in Spain and Portugal, formerly the burning of Jews and heretics by the Inquisition, on account of their religion; an *auto-da-fé*. **ACT OF GOD**, in *law*, any event generally calamitous, beyond human foresight, control or precaution; (e.g.) storm, lightning, flood. Losses by such events one is not bound to make good to another, unless by special contract. **ACT OF CONGRESS**, any statute or law passed by both the Senate and the House of Representatives. and then sanc-

## ACT.

tioned by the signature of the President: see BILL IN LEGISLATION: STATUTES, LEGISLATIVE: CONGRESS, UNITED STATES. ACT OF PARLIAMENT, any statute, law, or edict made by both Houses of Parliament, and sanctioned by the sovereign: see PARLIAMENT: BILL IN LEGISLATION: STATUTES, LEGISLATIVE. ACTS OF SEDERUNT, *sē dē'rūnt*, rules and regulation agreed upon by judges of the Supreme Court of Scotland, *sitting in session*, and issued by them as orders for regulating the forms and procedure in the administration of justice. ACT OF SETTLEMENT in Great Britain, the statute by which the crown was limited to the family to which Queen Victoria belongs: (see ELIZABETH STUART, Queen of Bohemia). ACT OF TOLERATION: see TOLERATION, ACT OF. ACT OF UNIFORMITY: see NON-CONFORMISTS. ACTION SERMON, in *Scot.* a sermon or address delivered to communicants immediately before the administration of the Communion or Lord's Supper.—ACTUAL CAUTERY, in *med.*, a red-hot iron, or fire itself, as opposed to caustic chemicals.—SYN. of 'act, v.': to do; make; work; operate;—of 'action': an act; work; operation; deed; battle; gesture; gesticulation; posture; attitude; agency;—of 'active': diligent, industrious; laborious; brisk; agile; nimble; busy; officious; assiduous; sedulous; alert; vigorous; lively; quick; sprightly; prompt;—of 'activity': alertness; agility; nimbleness; quickness; liveliness; briskness; energy;—of 'actor': player; performer; agent;—of 'actual': real; positive; certain; true; veritable, genuine;—of 'actuate': to impel; induce; move; incite, animate; rouse; instigate.

ACT, in the Drama: a distinct part of the general plot or action, whose end is usually marked by a fall of the curtain. An act should be, in a certain sense, complete in itself, and at the same time should form a necessary part of the whole drama. As every dramatic plot naturally divides itself into three parts—the exposition, the development and the conclusion or catastrophe—a division into three acts would seem most natural; but in practice it has been found inconvenient to enclose extended plots in such limits, and since the time of the ancient Greek tragedy, *five* acts have generally been considered necessary. In the first act the general nature of the drama is indicated, the characters are introduced, and the action commences. The plot should rise in interest in the second, and reach its climax in the third act. In the fourth act, the conclusion or catastrophe should be prepared, but should by no means be anticipated so as to weaken the effect of the *dénouement*, which must occupy the fifth act. This is not an easy task; accordingly, many dramas fail in the fourth act.

ACT, in Law: term with various technical meanings; e.g. a legal document; a record of a public or official transaction—from the Roman *Acta* (q.v.) Act denotes also something done for which the person doing is responsible; a transaction by a corporation or association, or by a court; a proceeding by a public legislature, e.g. an act of congress. In general legal use an act is the solemn accomplishment (or the record thereof) of some distinctive proceeding.

## ACTA—ACTEA.

ACTA, n. *ăk'tâ* [L.]—acts: specifically, proceedings, or minutes of proceedings, in a court legal or ecclesiastical. In modern times the term is applied to the transactions, journals or records of learned societies. In ancient Rome, *Acta Diurna* (also *Urbana*, *Publica*, etc.) was a kind of official gazette posted in public places, and recounting the public transactions and events of the day often including general news and gossip. They are thought by some to have taken the place, after B. C. 131, of the more dignified *Annales* (see ANNALS).

ACTÆON, *ăk-tē'on*: a mythical personage, grandson of Cadmus: trained as a hunter by Chiron. Having once surprised Diana while bathing in a fountain, he was changed by the offended goddess into a stag, and his own dogs, not knowing him, tore him in pieces. According to Euripides, Diana was jealous because A. had boasted that he had excelled her in hunting.

ACTA SANCTORUM or MARTYRUM, *ăk'tă sank-tō-rum*, *măr'tăr-ŭm* (Acts of Saints or Martyrs): collective title given to several old writings, respecting saints and martyrs, in the Greek and Roman Catholic churches, but now applied especially to one extensive collection begun by the Jesuits in the 17th c., and intended as a better arrangement of the materials found in ancient works. This great undertaking, commenced by the Jesuit, Heribert Rosweyđ of Antwerp, has importance, not only in a religious and ecclesiastical point of view, but also with regard to history and archæology. After Rosweyđ's death, 1629, J. Bowland was commissioned by the order of Jesuits to continue the work; and with the assistance of G. Henschen, he prepared two volumes, which appeared, 1643. After the death of this editor, 1665, the work was carried on by a society of learned Jesuits, who were styled 'Bollandists,' until 1794, when its further progress was prevented through the invasion of Holland by the French. The lives, which are arranged in the order of the calendar, had at that time reached the middle of October, so that the great work was approaching completion. In 1837 the undertaking was resumed; and, 1846, the 54th volume was published at Brussels. A new edition of the first 54 vols., with 6 vols. of the continuation, appeared, 1863-67. At present, 63 vols. have appeared, with an Index (1875). See BOLLANDISTS.

ACTEA, n. or ACTÆA, *ăk-tē'ă* [Gr. *aktaia*, the elder-tree: L. *racēmōsus*, full of clusters, clustering]: genus of the Crowfoot family of plants (*Ranunculaceæ*); having 4-5 deciduous sepals; 4-10 petals on claws; the many stamens with white filaments; pistil single; fruit a berry with seeds crowded in two rows. The kindred genus *Cimicifuga* (q.v) has the fruit a dry pod.—The White Baneberry (*A. alba*) has oblong raceme, berries white, sometimes red; petals narrow; most common in w. and s. states.—The red Baneberry (*A. spicata*), old name Herb Christopher is common at the north; also in the northern part



## ACTEOSAURUS—ACTINIA.

of Europe, found in bushy places in some parts of England. It is a perennial herbaceous plant, about 1-2 ft. high, with triternate leaves, and the leaflets deeply cut and serrated, the flowers in racemes, the berries black and poisonous. The root is anti-spasmodic, expectorant, and astringent, and sometimes useful in catarrh. *Cimicifuga racemosa* (A. *racemosa* of Linnæus) is a native of the United States, whose roots are said to possess similar qualities, and are also reputed as a remedy for the bite of the rattlesnake.

ACTEOSAURUS, n. *ăk'tě-ō saw'rūs* [Gr. *aktē*, the sea-shore; *sauros*, a lizard]: a fossil lizard-like animal of the chalk period having very small extremities.

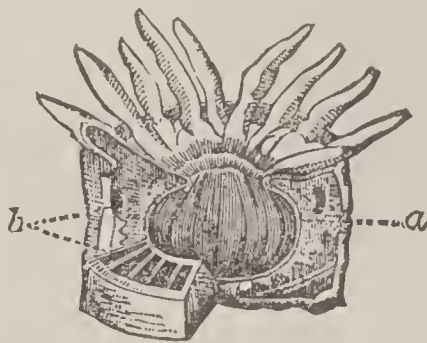
ACTIAN GAMES : see ACTIUM.

ACTINENCHYMA, *ăk'tin-ěng'kīm-ă* [Gr. *aktin*, a ray; *engchymă*, juice, the substance of organs]: in *bot.*, cellular tissue having a star-like or stellate form; stellate parenchyma. plu. ACTINIÆ, *ăk-tin'î-ē*.

ACTINIA, n. *ăk-tin'î-ă* [Gr. *aktin*, a ray]: a genus of marine animals, belonging to the sub-kingdom *Cœlenterata* (see SUB-KINGDOMS, ANIMAL), and to the class *Actinozoa*, of which latter group the genus is thoroughly typical. The animals included in this genus are familiarly known as 'Sea-Anemones.' They are found attached by their bases to rocks and stones, and present the appearance of cylindrical fleshy bodies, possessing a mouth surrounded by numerous tentacles at the free extremity. These tentacles in the genus *Actinia* are of simple, tubular conformation.



Actinia seen from above.



Section of Actinia :  
a, cavity of stomach ; b, surrounding chambers.

They are perforated at their tips, and also possess sucker-like disks. The mouth leads into a stomach-sac, which (as in all Cœlenterate animals) communicates freely below with the general body-cavity, and thus comes to resemble a pocket with the bottom cut out. The stomach-sac is kept in its place by a series of vertical radiating plates, named *lamellæ* or *mesenteries*, to the faces of which the reproductive organs are attached. The Actiniadæ are capable of slow movements by expanding and contracting the muscular bases of their bodies. They may be cut and divided in various ways, with the result of producing new individuals by *artificial fission*. Some species may attain a great age, as proved by the well-known case of a common Actinia (*A. mesembryanthemum*), which, taken from the Firth of Forth

## ACTINISM—ACTION.

by Sir John G. Dalyell, 1823, made a public appearance at the Fisheries Exhibition at Edinburgh, 1882. This remarkable animal—'Grannie' by name—has at various times given birth to numerous young; and as more than one of her progeny have in turn become parents, her cognomen is not merely complimentary. See ANEMONE, SEA.

ACTINISM, n. *ăk'tĭn-ĭzm* [Gr. *aktin*, a ray]: the chemical property of light, as the sun's rays in photography. ACTIN'IC, a. *-ĭk*, pertaining to. ACTINIFORM, a. *-ĭ-fărm* [L. *forma*, shape]: resembling a ray. ACTINOGRAMS, n. plu. *ăc-tĭn'ō-grăms* [Gr. *gramma*, a letter]: the results recorded by the actinograph. ACTINOGRAPH, n. *ăk-tĭn'ō-grăf* [Gr. *grapho*, I write]: an instrument for recording the quantity of actinism present. ACT'INOGRAPHY, n. *-răf-ĭ*, a description of the rays of light.

ACTINISM: the property of the sun's rays which produces chemical changes: see SPECTRUM.

ACTINOCARPOUS, a. *ăk'tĭn-ō-kăr'pŭs* [Gr. *aktin*, a ray; *karpos*, fruit]: having trophosperms radiated like the rays of star-fruit.

ACTINOCRINUS, n. *ăk'tĭn-ōk'rĭ-nŭs*, also ACTINOCRINITE, n. *ăk'tĭn-ōk'rĭ-nĭt* [Gr. *aktin*, a ray; *krinon*, a lily] a genus of encrinites characterized by the thorn-like side-arms which project from the main column.

ACTINOID, a. *ăk'tĭn-ōyd* [Gr. *aktin*, a ray; *eidōs*, resemblance]: resembling a ray. ACTINOLOGY, n. *ăk'tĭn-ōl'ō-jĭ* [Gr. *logos*, discourse]: the doctrine of the rays of light.

ACTINOLITE, n. *ăk-tĭn'ō lit* [Gr. *aktin*, a ray; *lithos*, a stone]: a mineral composed of radiating or thorn like crystals of a green or greenish-gray color; the glassy and fibrous varieties of hornblende; also ACTINOTE, n. *ăk'tĭn-ōt*.

ACTINOMERES, n. plu. *ăk'tĭn-ōm'ēr-ēz* [Gr. *aktin*, a ray; *meros*, a part]: the lobes mapped out on the surface of the body of the Ctenophora, by the ctenophores or comb-like rows of cilia.

ACTINOMETER, n. *ăk'tĭn-ōm'ēr-tēr* [Gr. *aktin*, a ray; *metron*, a measure]: an instrument for measuring at any instant the direct heating power of the solar rays.

ACTINOSOMA, n. *ăk'tĭn-ō-sō'mă* [Gr. *aktin*, a ray; *soma*, a body]: the entire body of any actinozoön, whether simple, as in the sea-anemones, or composed of several zoöids, as in most corals. ACTINOZOON, n. *ăk'tĭn-ō-zō'ōn*. ACTINOZO'OA, n. plu. *-zō'ă* [Gr. *zōon*, an animal]: the division of the Cœlenterata, of which the sea-anemones and corals are the type.

ACTINOTROCHA, n. plu. *ăk'tĭn-ō-trō'kă* [Gr. *aktin*, a ray; *trochos*, a wheel]: that form of invertebrate larva, seen in such as the Annelides, in which exist a circlet of cilia round the anterior extremity.

ACTION, in Law: in its general sense, a judicial proceeding before a competent tribunal for the attainment of justice; and in this sense it is applied to procedure, whether

## ACTIONARY—ACTIUM.

*criminal* or *civil*. In its more limited acceptation, it is used to signify proceedings in the *civil* courts, where it means the form prescribed by law for the recovery of a right, or what is one's due.

A criminal A. is a prosecution in a court of justice, in the name of the government, against one or more individuals accused of crime. A civil A. is a legal demand of one's right, or it is the form given by law for the recovery of that which is due. An A. is real or personal, according as realty or personalty is recovered; not according to the nature of the defense. Real actions are those brought for the specific recovery of lands, tenements, or hereditaments. Personal actions are those brought for the specific recovery of goods and chattels; or, for damages or other redress for breach of contract, or other injuries, of whatever description. Mixed actions participate both of personal and real actions. Such are the actions of partition, and to compel parties to put down boundaries or landmarks. See COMMON LAW, COURTS OF, and EQUITY.

ACTIONARY, n. *ăk'shŭn-ēr'ĭ* [F. *actionnaire*—from L. *actiōnem*, an action—from L. *actus*, done]: the owner of shares in French or Continental companies; a shareholder.

ACTIUM, *ăk'shĭ-ŭm*, now AZIO, *ăd'zē-ō*: town and promontory on the w. coast of Greece, at the entrance of the Ambraciot bay, now the Gulf of Arta: memorable for the sea-fight near it, 31 B. C., Sep. 2, between Octavianus (afterwards the Emperor Augustus) and Marcus Antonius. These two had for some time ruled the Roman world between them—the former in the west, the latter in the east; it now came to a struggle for the sole sovereignty. The two armies were encamped on the opposite shores of the gulf: Octavian had 80,000 infantry, 12,000 cavalry, and 260 ships of war; Antony, 100,000 infantry, 12,000 cavalry, and 220 ships. Antony's ships were large, and well provided with engines for throwing missiles, but clumsy in their movements; Octavian's were smaller and more agile. Antony was supported by Cleopatra, Queen of Egypt, with sixty vessels, who induced him, against the opinion of his most experienced generals, to determine upon a naval engagement. The battle continued for some hours undecided; at last, Agrippa, who commanded Octavian's fleet, succeeded, by a skilful maneuver, in compelling Antony to extend his line of battle, whose compactness had hitherto resisted all attempts of the enemy to break through. Cleopatra, whose ships were stationed behind Antony's line, apprehensive of that line being broken, took to flight with her auxiliary fleet, and Antony recklessly followed her with a few of his ships. The deserted fleet continued to resist bravely for some time, but was finally vanquished; the land-army, after waiting in vain seven days for Antony's return, surrendered to Octavian. As a memorial of the victory that had given him the empire of the world, and out of gratitude to the gods, Octavian enlarged the temple of Apollo at A., dedicated the trophies he had taken, and instituted games to be celebrated every five years. He also built, on the spot where his army had

## ACTON—ACULEATE.

been encamped, the splendid city of Nicopolis (city of victory), near where Prevesa now stands.

ACTON, *ák-tôn'*, JOHN FRANCIS EDWARD: prime-minister of Ferdinand IV. of Naples: 1736-1811; b. Besançon, d. Palermo: son of a physician. After serving in the Tuscan navy, he entered the Neapolitan service, and became the favorite of Queen Caroline. His anti-French measures were cruel and intolerant, and ultimately caused a popular reaction against the royal family of Naples. A. was removed from power, on the demand of France, 1804. In 1791 he had succeeded to an English baronetcy. He is often confounded with his brother Joseph, also in the Neapolitan service, whose daughter he married, by a papal dispensation.

ACTS OF THE APOSTLES, the fifth book in the New Testament, often quoted by the early Christian writers, and never ascribed to any other writer than the Evangelist Luke. Beginning with the ascension of Christ, it gives an account of the spread of the Christian Church; confined, however, chiefly to the part taken by the Apostle Paul. Notwithstanding its title, little is said of the other apostles, with the exception of Peter. The narrative closes with the year 62, Paul being then a prisoner at Rome. The book has always been received as canonical, except by a few Manichæan heretics; though its historical character has been impugned by a few modern writers. Spurious ACTS were put in circulation by early Christian sects.

ACTS, TEST AND CORPORATION: see TEST ACTS.

ACTUAL, ACTUALIZE, ACTUATE, ACTUATION, etc.: see under ACT.

ACTUARY, n. *ák'tū-ēr'ī* [mid. Lat. *actuārius*, one who writes deeds, a clerk—from L. *actus*, done]: one who specially deals with the calculations of probabilities; a notary. The *Actuarii*, in ancient Rome, were clerks who recorded the *Acta* of the senate and other public bodies. The term might, therefore, so far as its etymology is concerned, be applied to men of business in general. But in the constantly increasing tendency to subdivide labor and specialize functions, there has arisen, in recent times, a distinct branch of business, embracing all monetary questions that involve a consideration of the separate or combined effect of Interest and Probability, especially as connected with the duration of human life; and it is to one who is officially busied in this department that the name has been specially assigned. The investigations and calculations of the A. supply the principles of operation for the numerous institutions now engaged in the transaction of Life Assurance, Annuity, and Reversionary business. His functions may be briefly defined as *the application of the doctrine of probabilities to the affairs of life*.

ACULEATE, a. *ák-kū'lē-āt*, or ACU'LEAT'ED, a. *-āt'ēd* [L. *acūlēus*, a prickle or thorn—from *acus*, a needle]: in *bot.*, sharp-pointed; thorny; prickly: in *zool.*, having a sting or prickles. ACULEIFORM. a. *ák'ū-lē'ī-fawrm* [L. *forma*,

## ACULEUS—ACUPRESSURE.

shape]: formed like a prickle or thorn. **ACULEUS**, n. *ă-kū' lě-ūs*, a prickle forming a process of the bark only, as in the rose. **ACULEI**, plu. *ă-kū' lě-ī*.

**ACU'LEUS**, in Botany: see **PRICKLE**.

**ACUMEN**, n. *ă-kū'měn* [L. *acūmēn*, a point, acuteness; *acūmīnis*, of a point—from *ăcūō*, I sharpen]: sharpness; quickness; penetration; sagacity. **ACUMINATED**, a. *ă-kū'mī-nā'těd*, sharpened to a point; also **ACU'MINATE** and **ACU'MINOUS**, a. *-nūs*. **ACUMINATION**, n. *ă-kū'mī-nā'shūn*, termination in a sharp point; a pointed head. **ACUMINULATE**, a. *ăk'ū mīn'ū-lāt*, in *bot.*, having a very sharp, tapering point.

**ACUPRESSURE**, n. *ă'kū-prěsh'ūr* [L. *ăcus*, a needle; *pressus*, pressed], in Surgery: a mode of arresting hemorrhage from cut arteries, by the use of needles instead of ligatures, suggested by Sir James Y. Simpson in a paper before the Royal Soc. of Edinburgh, 1859. There are several modes of A.; but in general it consists in passing the needle through the flaps or sides of the wound, so as to cross over and compress the orifice of the bleeding artery, just as in putting a flower in the lapel of one's coat, one crosses over and compresses the flower-stalk with a pin pushed twice through the lapel. The middle portion of the needle—the only part of it which is in immediate contact with the fresh surface of the wound—bridges over and compresses the artery at its bleeding orifice, or perhaps a line or two more on its cardiac side. The head and point of the needle are exposed externally on the cutaneous surface of the flap or side of the wound. A. is now rarely used. The hæmostatic forceps, introduced by Sir Spencer Wells, has been adopted by all operative surgeons. It has the great advantage of being easily applied; moreover at the end of the operation, the smaller vessels grasped by it are found occluded by the mere pressure, and the larger vessels may be readily ligated.

**ACUPUNCTURE**, n. *ă'kū-pŭngk'tūr* [L. *ăcus*, a needle; *punctus*, a pricking]; in *surg.*, the pricking a diseased part with a needle with the view of lessening pain; also **ACU-PUNCTURA'TION**, n. *-rā'shūn*: a very ancient remedy, practised extensively in the east, for the cure of headaches, lethargies, etc. In Europe it is principally employed to relieve neuralgic pains, and those of chronic rheumatism. Steel needles are used, about three inches long, set in handles. The surgeon, by a rotatory movement, passes one or more to the desired depth in the tissues, and leaves them there from a few minutes to an hour. Their insertion is accompanied by no pain, except the first prick—a fact of which the quacks of the 16th c. did not fail to take advantage. According to Jerome Cardan, they travelled from place to place practising A., and before inserting the needle, they rubbed it with a peculiar kind of magnet, either believing, or pretending, that this made the operation painless. The relief to pain afforded by this simple operation is sometimes astonishing, and the wounds are so minute as to be perfectly harmless.—The needles are sometimes used as conductors of the galvanic current to deep-seated parts, and

## ACUTE—ADAGIO.

are sometimes made hollow—on the suggestion of Dr. Alexander Wood of Edinburgh—to allow of a small quantity of some sedative solution being injected into the tissues, by which even the terrible pain of *tic douloureux* may be almost immediately relieved. See NEURALGIA.

**ACUTE**, a. *ă-kūt'* [L. *acūtūs*, sharp-pointed]: sharp-pointed; sharp; penetrating; opposed to *dull* or *stupid*; high or shrill as opposed to *grave* or *low*; in *med.*, attended with symptoms that come speedily to a crisis—opposed to *chronic*. **ACUTE'LY**, ad. *-lī*, in an acute manner; sharply. **ACUTE'NESS**, n. the quality of being pointed or acute; force or quickness of intellect. **ACUTE ANGLE**, in *geom.*, an angle less than a right angle or 90°. **ACUTE-ANGLED TRIANGLE**, a triangle or three-sided figure with its three angles acute.—**SYN.** of 'acute': sharp; keen; sagacious; shrewd; penetrating; ingenious; subtle;—of 'acuteness': keenness; penetration; shrewdness; sagacity; ingenuity.

**AD**, *ăd* [L.]: Latin prefix meaning *to*; *ad* assumes, for the sake of euphony, the various forms of *a*, *ac*, *af*, *ag*, *al*, *an*, *ap*, *ar*, *as*, *at*, according to the first letter of the primitive or root.

**ADA**, *ăd'ăh*: town of the Austrian Empire, in Hungary, 8 m. s. of Zenta. Pop. 10,000.

**ADACTYL**, n. *ă-dăk'tīl* [Gr. *a*, without; *daktūlōs*, a finger]: in *zool.*, a hand without fingers; a foot without toes.

**ADAFUDIA**, *ă-dă-fō'dē-ă*: town of the Felattah country, w. Africa, about 400 m. s. e. from Timbuktu, about 13° 6' n. lat., and 1° 3' e. long. It is in a dry, healthy, and fertile plain, and is surrounded by a mud wall. A large trade is carried on, and slaves form a principal part of the merchandise. Pop. supposed about 24,000.

**ADAGE**, n. *ăd'ăj* [F. *adage*—from L. *adāgĭum*, a proverb]: a proverb; an old or wise saying which has been handed down from olden times.—**SYN.** of 'adage': proverb; byword; aphorism; axiom; maxim; saying; saw; truism; apophthegm.

**ADAGIO**, n. *ă-dă'jĭ-ō* [It.]: ad. slowly: a slow movement or measure of time in Music. between *largo*, *grave*, and *andante*. In more extended compositions of instrumental or chamber music, the second or third *movement* is generally marked *adagio*, and serves as a contrast with the rapid and energetic movement of the preceding and following parts of the sonata or symphony. The A. must be written in a measure of time which will afford scope for a flowing and expressive slow melody with a gracefully varied accompaniment. Without contrasted movement and a lively variety in the accompaniment, the slow air would have a monotonous or dull effect. A clear and expressive execution of the A. is a sure test of ability and good taste in the player or singer, as it demands a pure and beautiful intonation, a true reading and phrasing of the cantilena, even in its most minute details, and a careful attention to all points of effect. The finest specimens of the A. are found in the works of the

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old masters, Haydn, Mozart, and Beethoven, and are as distinct in their features as were the composers in their personal characteristics. Recent composers have generally succeeded better in their rapid movements than in the A.

ADAL and ADEL, *â-dâl'*: the name Adal is applied by geographers to the flat country lying between Abyssinia and the Red Sea, from Massowa in n. lat.  $15^{\circ} 40'$ , to the bay of Tadjurra, lat.  $11^{\circ} 30'$ . Adel seems to designate the coast-country from Tadjurra to Cape Guardafui, part of which is known as the country of the Somauli.

ADALIA, *â-dâl'êâ*, anciently *Attalia*: chief seaport on the s. coast of Asia Minor; n. lat.  $36^{\circ} 52'$ ; e. long.  $30^{\circ} 45'$ . The streets rise like the seats of a theatre, up the slope of the hill behind the harbor. Pop. 13,000.

ADAM, n. *ăd'ăm* [Heb. *adamah*, ground, earth]: the first man mentioned in Genesis. ADAMIC, a. *ă-dăm'îk*, pertaining to. AD'AM'S AP'PLE, n. the prominent part of the throat; the larynx. ADAM'S NEEDLE, a plant of New Mexico, the *Yucca gloriôsa*, Ord. *Liliacææ*. ADAMITES, n. plu. *ăd'ă-mîts*, a religious sect of the first, and revived in the fifteenth century, who professed an exact imitation of the primitive state of innocence in their public assemblies. ADAMITIC, a. *ăd'ă-mît'îk*, pertaining to the time of Adam. PRE-ADAMITE, a. *prê-ăd'ă-mît*, before the time of Adam.

ADAM and EVE: the earliest man and woman of the human race. The narrative of their creation and fall is in Genesis. To the scriptural account, the later Jewish writers in the Talmud have made many tasteless additions. They tell us that the stature of A., when first created, reached to the heavens, while the splendor of his countenance surpassed that of the sun. The very angels stood in awe of him, and all creatures hastened to worship him. Then the Lord, in order to show the angels his power, caused a sleep to fall on A., and removed a portion of every limb. A. thus lost his vast stature, but remained perfect and complete. His first wife was *Lilith*, the mother of demons; but she fled from him, and afterwards E. was created for him. At the marriage of A. and E., angels were present, some playing on musical instruments, others serving up delicious viands; while the sun, moon, and stars danced together. The happiness of the human pair excited envy among the angels, and the seraph Sammael tempted them, and succeeded in leading them to their fall from innocence.—According to the Koran, all the angels paid homage to A., excepting Eblis, who, on account of his refusal, was expelled from paradise. To gratify his revenge, Eblis seduced A. and E., and they were separated. Adam was penitent, and lived in a tent on the site of the temple of Mecca, where he was instructed in the divine commandments by the archangel Gabriel. After 200 years of separation, he again found E. on Mount Ararat. Many other traditions of the Jews and the Mohammedans respecting A. and E. may be found in Herbelot's *Bibliothèque Orientale*.—In the system of the Christian Gnostics and Manichæans, A. is one of the highest Æons.—According to the Calvinistic

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theology, A. was the *covenant head* or *federal representative* of the whole human race, who were thus involved in the consequences of his breach of the *Covenant* (q.v.) which God made with him at his creation. This view is supported by reference to the parallel drawn between A. and Christ, Rom. v. and 1. Cor. xv., in the latter of which chapters Christ is called, in contradistinction to A. 'the second man,' and 'the last A.'

ADAM (OF BREMEN): d. 1076: old historical writer, whose work entitled *Gesta Hammenburgensis Ecclesiæ Pontificum*, gives a history of the archbishopric of Hamburg from 788 to the death of the Abp. Adalbert in 1072. This work has great historical value; in addition to its notices of ecclesiastical affairs, it gives accounts of the northern Slavonic tribes, which the author collected during a visit to the Danish king Svend-Estrithson. A. was canon and *magister scholarum* at Bremen from 1067 till his death.

ADAM, *â-dông'*, ADOLPHE CHARLES: 1803, July 24—1856; b. Paris, France: musical composer. Beginning in 1848, he was prof. of composition in the Paris Conservatoire, at the same time contributing to newspapers. His style was that of Boieldieu. His most popular works were his comic operas, the chief of which is the *Postillion de Longjumeau* produced 1835, still presented on the stage.

ADAM, ALEXANDER, LL.D.: eminent Scottish scholar and teacher: 1741, June 24—1809, Dec. 18; b. near Forres, Elginshire; of a family in humble circumstances. With great struggles and under much deprivation through poverty, he pursued his studies; entered Edinburgh Univ. 1757; and from 1768, for nearly 40 years, was rector of the High School of Edinburgh, gaining a distinguished reputation. Among his pupils were Scott and Jeffrey. He introduced reforms in teaching in the face of an opposition that now seems incredible. His *Roman Antiquities* (1791) was long the best manual of its kind. Among his works were *Summary of Geography and History* (1794); *Classical Biography* (1800); and an abridged *Latin Dictionary* (1805). This teacher's last words were: "But it grows dark, boys; you may go."

ADAM, JULIETTE (LAMBER): French author and editor: b. Verberie, France, 1836. She was married first to M. La Messine; and after his death to Edmond Adam, deputy for the dept. of the Seine, and a life senator (d. 1877). She has published many works of fiction, essays, etc.; and founded the *Nouvelle Revue* 1879, of which she continued editor till 1886, when she retired in failing health. Mme. A. is a writer of marked ability, especially on politics. Her *salon* was a feature of Parisian life—reminiscence of those of the first empire.

ADAM, ROBERT; 1728--92; b. Edinburgh: a distinguished architect: son of William Adam of Maryburgh, Fifeshire, also an architect. After receiving a university education, A. went, 1754, to Italy, and thence to Dalmatia, where he explored and made drawings of the ruins of Diocletian's palace



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at Spalatro. On his return to Britain he rapidly rose to distinction, was appointed architect to the king, and obtained extensive employment. In opposition to the heavy style of architecture prevalent, A. introduced a taste for lightness and decoration, which, however, tended to the opposite extreme of weakness and triviality. Yet those who form the lowest estimate of the general character of his designs, grant him the merit of having effected great and general reforms in British domestic architecture. In 1768 A. was elected M.P. for the county of Kinross. During upwards of twenty-five years his practice, in partnership with his brother James, was more extensive than that of any other architect of the time. In 1773 the brothers began to publish a series of engravings of their chief designs, which was continued for some years. A. was buried in Westminster Abbey. The most generally admired of his works is the Register House, Edinburgh. Kedleston Hall, near Derby, is regarded by some as his greatest work. Among his other principal works are the University buildings and St. George's Church, Edinburgh (both altered from the original design), the Glasgow Infirmary, the Adelphi buildings, London; the screen to the Admiralty, Caen Wood House, Luton House (altered), Lansdowne House, etc.

**ADAMANT**, n. *ăd'ă-mănt* [OF. *adamant*—from L. *ad-ămās* or *adăman'tem*, a hard stone—from Gr. *adămas*—from *a*, not; *damăō*, I subdue]: what cannot be broken, tamed, or subdued; a stone or metal of impenetrable hardness; the diamond. **ADAMANTINE**, a. *ăd'ă-măn'tin*, exceedingly hard; hard-hearted; not to be broken or subdued; also **AD'AMANTE'AN**, *-tē'ăn*, hard as adamant.

**ADAMANTINE SPAR**: see **CORUNDUM**.

**ADAMBULACRAL**, a. *ăd-ăm'bū-lă'krăl* [L. *ad*, to; *ambūlăcrum*, a walk or path]: in *zool.*, applied to the small bones which bound the ambulacral grooves in the starfishes. See **OSSICLE**.

**ADAMITES**: a sect of fanatics who spread themselves in Bohemia and Moravia in the 15th and 16th centuries, but had no connection with the Hussites. One Picard is said to have been the founder of the sect about 1400. He styled himself Adam, the son of God, rejected the sacrament of the supper and the priesthood, and advocated the community of women. After his death his followers spread themselves in Bohemia under several leaders. They even fortified themselves on an island in a tributary of the Moldau, and committed depredations around. They were detested as much by the followers of Huss as by the Roman Catholics. Ziska (q.v.) made war against them, and slew great numbers; but they were never entirely rooted out. Even as recently as 1849, when the Austrian government declared religious liberty for all its subjects, certain members of this sect appeared and endeavored to gain proselytes. The official investigation into their character which took place at that time represents their creed as a mixture of freethinking, quietism, and communism. The members belong to the peasant or laboring class; and both men and

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women are generally industrious, temperate, and discreet in their ordinary course of life; but at their nightly meetings, at which they dispense with clothes, the utmost licentiousness is said to prevail.—As early as the 2d c., there was a sect of Gnostic tendency, called *Adamites*, who sought, by abstaining from all indulgence of the senses, to recall the state of innocence men were in before the fall. They therefore rejected marriage, and in order to exercise the virtue of continence, went naked. They held that for those who had once attained the state of innocence, all actions were alike indifferent—neither good nor evil. This doctrine led directly to the greatest licentiousness. Aberrations of this kind, under various disguises and modifications, have made their appearance from time to time in all ages of the world.

ADAMNAN, *ad'am-nan'*, SAINT: b. abt. 625 in the county of Donegal; d. 704: a member of the early Irish Church, to whom the world is deeply indebted for the information which he left about that remarkable community. His name was properly Adam, of which Adamnan is a diminutive. It is one of the peculiarities of that early church that the genealogies of its eminent members have been preserved with a minuteness scarcely rivalled in the days of peerages. In the words of Dr. Reeves concerning A.: 'His father, Ronan, was sixth in descent from Conall Gulban, the head of one of the two great races of the Northern Hy Neill, and in virtue of his birth, claimed kin to St. Columba and many of the sovereigns of Ireland. The father of Ronan was Tinne, from whom came the patronymic *Ua Tinne*, or grandson of Tinne, an appellative which is occasionally found coupled with A.'s name. Ronnat, the mother of A., was descended from Enna, a son of Niall, whose race, the Cinel Enna, possessed themselves of the tract lying between the channels of the Foyie and Swilly, which was called the Tir Enna, or land of Enna, and answers to the modern barony of Raphoe. He was, like many of the eminent Irish clergy, a statesman as well as an ecclesiastic, and we hear of his being sent on missions from his own people to Alfred, king of Northumbria. In 679, he was elected Abbott of Iona. His rule over that community was not, however, peaceful and fortunate. The views held by the Irish Church about the holding of Easter and the form of the tonsure are now known as a chapter in the history of the church. However little their own importance might be, they are significant as the object of a bitter contest in which that church resisted the rules promulgated from Rome. In his intercourse with the Saxon Church, A. had adopted the Roman or orthodox views, as they are termed, and endeavored to put them in practice in his own community. He was thwarted in this object, and it is said that mortification at the failure caused his death. Sept. 23, the date of his death, is the day of his translation in the calendar. He left an account of the Holy Land, containing matters which he says were communicated by Arculfus, a French ecclesiastic who had lived in Jerusalem. It is valuable as the earliest information we possess of Palestine in the early ages of Christianity. But far more valuable is

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his *Vita Sancti Columbæ*, his Life of St. Columba, the converter of the Picts, and founder of Iona. With accounts of miracles and many other stories palpably incredible, this book reveals a great deal of distinct and minute matter concerning the remarkable body to which both the author and his hero belonged. The standard edition of the book is that of Dr. Reeves, edited in 1857 for the Bannatyne Society of Edinburgh, and the Irish Archæological Society, which (with an English trans.) forms the 6th vol. (1875) of *Scottish Historians*. Nearly all the information to be had about the early Scoto-Irish Church is comprised in that volume.

ADAMS: town in Berkshire co., Mass., on the Hoosick river, and on the Boston and Albany railroad, about 10 m. n. n.w. of Pittsfield. There are four villages: North A., South A., Maple Grove, and Blackinton. At North A. is the west end of the Hoosac tunnel. A. is a thriving manufacturing town. It is overlooked by Greylock Mt., 3,500 ft. high. Pop. (1890) 9,213; (1900) 11,134.

ADAMS, CHARLES FRANCIS, LL.D.: 1807-86; b. Boston; son of John Quincy. His boyhood was passed mostly in the European capitals, but he returned to the United States in 1817; studied at the Boston Latin schools, and in 1825 graduated from Harvard Univ. He studied law, and was called to the Boston bar, but never practiced. In 1830 he was elected to the legislature of Massachusetts as a representative from Boston, and was afterwards returned to the state senate. He became a 'free-soiler' in politics, and was nominated by that party in 1848 for vice-president on the Van Buren ticket, but Taylor and Fillmore were elected, and on the formation of the republican party, a combination of the free-soilers and old-line whigs, Mr. A. attached himself to the new organization, and in 1859 was sent to congress. In 1861 president Lincoln appointed Mr. A. minister to England, and there his hitherto untried diplomatic talents had opportunity, and gained for him the highest respect of the statesmen of Europe and of his own country. It was largely due to the judicious conduct of Mr. A. that the difficult questions of the Mason and Slidell capture, of the building in English ship-yards of blockade-runners, and those connected with the Lancashire cotton famine, were settled or successfully tided over. He held his post in London till 1868, when, at his own request, he was recalled. On the ratification, 1871, of the treaty of Washington, A. was appointed by Pres. Grant the American arbitrator for the settlement of the claims under that treaty. Here, again, his remarkable diplomatic skill was exercised to the advantage of his country, in securing the Geneva award. A. was a candidate for nomination for the presidency by the liberal republicans in 1872, but was defeated in the convention by Horace Greeley. He afterwards retired from the republican party, and in 1876 was nominated by the democrats for the governorship of Massachusetts, but was defeated. A. was the author of biographies of his grandfather and of his father.

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ADAMS, CHARLES FRANCIS, (2d): railroad pres. and writer: b. Boston, 1835, May 27; son of Charles Francis A. (1st). After studying at Harvard College, and graduating 1856, he gave two years to legal study, and was admitted to the bar 1858. He served through the civil war, being col. 5th Mass. (colored) cav., which he commanded when the city of Richmond capitulated, entering at the head of his regt. with the federal army. He was mustered out 1865, July, with the rank of brevet brig.gen. Appointed a member of the railroad commission of Mass. 1869, he became widely known as an expert writer on transportation. He interested himself also in public questions generally, especially education. He was a member of the board of overseers of Harvard Univ. 1882. In 1890 he was elected pres. of the Union Pacific railroad. In collaboration with his brother, Prof. Henry Brooks A., he is author of *Chapters of Erie, and other Essays*, pub. 1871; also of a vol. on *Railroad Accidents*.

ADAMS, CHARLES KENDALL, LL.D.: educator and historical scholar: 1835, Jan. 24—1902, July 27; b. Derby, Vt. He removed to Iowa, afterward to Mich., and graduated at the Univ. of Michigan 1861. He was asst. prof. of history and Latin in that univ. 1862-67; prof. of history 1867-85; and was appointed non-resident prof. of history at Cornell Univ. 1881. He succeeded Andrew D. White in the presidency of Cornell 1885, after a canvass whose excitement called forth a charge of plagiarism against A.—a charge which, on thorough investigation, entirely failed of support. He received the degree LL.D. from Harvard 1886. In 1892 he resigned the presidency of Cornell, and became pres. of the Univ. of Wisconsin; also editor-in-chief of *Johnson's Universal Cyclopaedia*. Dr. A. was made pres. of the American History Association 1890. He published *Democracy and Monarchy in France* (3d ed. 1877); *Manual of Historical Literature* (3d ed. 1889); *Representative British Orations* (3 vols. 1883); *Christopher Columbus* (1892). His contributions were numerous in American and European magazines and reviews.

ADAMS, HENRY: author: b. Boston, 1838, Feb. 16; third son of Charles Francis A. (1st). He studied at Harvard College, graduating 1858. On his father's appointment as U. S. minister to the Court of St. James, he accompanied him to England, acting as his private sec. 1861-68; after his return, became asst. prof. of history at Harvard, which position he held 1870-77, being editor of the *North American Review* during the latter portion of that period. He is author of *Essays in Anglo Saxon Law* (1876); *Documents Relating to New England Federalism, 1800-1815*, (1877); *Life of Albert Gallatin* (1879); *Writings of Albert Gallatin*, edited 3 vols. (1879); *John Randolph* (1882); and *History of the U. S. During Administrations of Jefferson and Madison*,

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ADAMS, HERBERT BAXTER, PH.D.: educator: b. Amherst, Mass., 1850, Apr. 16. He studied in the schools at Amherst, at Phillips Exeter Acad., graduated at Amherst College 1872, and took the degree PH.D., at Heidelberg 1876. He entered Johns Hopkins Univ. 1876, as fellow in history; and rose to be full prof. 1883. He wrote *The Germanic Origin of the New England Towns; Saxon Tithing-Men in America; Norman Constables in America; Village Communities*, etc. He died 1901, July 30.

ADAMS, JOHN, second president of the United States: 1735-1826: b. Braintree, Mass., in that portion of the township which afterwards became the town of Quincy. His great grandfather was Henry Adams, a Puritan, who emigrated from Devonshire, Eng., 1632, with his six sons all married. At the age of fifteen, John was offered his choice of a vocation in life, and chose a college education, with the understanding that that portion of the estate which would be his at the death of his father should instead be expended on his education. He entered Harvard College, 1751, and graduating, four years later, went to Worcester, where he became a tutor in a grammar school, at the same time studying law in the office of Israel Putnam. In 1764 A. married Abigail Smith, daughter of the minister of Weymouth. He soon began to be prominent in politics, particularly among those who vehemently opposed the operation of the 'Stamp Act.' In 1768 he settled in Boston, and began to write political articles for the newspapers. So highly were the abilities of A. esteemed, even at this early period of his life, that the royalist, Governor Barnard, desiring to gain him over to the king's party, offered him the important office of advocate-general in the Admiralty court. This proposition he declined, but was soon after chosen a representative in the provincial congress, and in 1774 was one of the five members from Massachusetts in the general congress. In a letter written at the age of nineteen, A. foreshadowed with wonderful prophetic power the political conditions in which he afterwards held so important a part. He said: 'Soon after the Reformation, a few people came to this new world for conscience sake. Perhaps this apparently trivial incident may transfer the great seat of empire to America. It looks likely to me; for if we can remove the turbulent Gallic (the French in Canada), our people, according to the exactest computation, will in another century become more numerous than England itself. Should this be the case, it will be easy to obtain the mastery of the seas, and then the united force of all Europe will not be able to subdue us. The only way to keep us from setting up for ourselves is to disunite us.' The organization of the Continental Congress was the crucial test of the patriotism of John Adams. Besought by his nearest friend and closest associate, Jonathan Sewall, to alter his determination to be a member of the congress, he gave utterance to the following thrilling expression of his patriotic opinions: 'I know that Great Britain has determined upon her system, and that very fact determines me on mine. You know I have been constant and uniform in opposition to her

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measures; the die is now cast; I have passed the Rubicon; to swim or sink, live or die, survive or perish with my country, is my unalterable determination.' He joined the congress and became at once one of its most active and earnest leaders. He was a member of the committee which framed the Declaration of Independence, and Mr. Jefferson said of him: 'The great pillar of support to the Declaration of Independence, and its ablest advocate and champion on the floor of the house, was John Adams.' The selection of Washington for the chief command was largely the work of A., and he was particularly useful in the Naval committee of congress, and our present naval code is founded upon the rules which he then prepared. In 1775 A. was appointed chief justice of Massachusetts, but declined the office. In congress he recommended local self government for the colonies, and succeeded in carrying a measure to that effect 1776, May 13; from this grew the succeeding confederation, with its adoption and application of the treaty-making power, and so, essentially, the general powers and limitations of the government. Being made chairman of the congressional board of war, A. was practically secretary of war, and created the war department that conducted the military movements of the Revolution. In 1777 he was appointed a commissioner to France, to replace Silas Deane, and in 1779 was commissioned to England to negotiate a peace, and was empowered to form a commercial treaty with Great Britain. Trouble with Count de Vergennes, the French minister, interfered with his mission, and he went to Holland, where he negotiated a loan of \$2,000,000 and a treaty of commerce

When peace was declared. A. was appointed the first ambassador to London, and remained there until 1787, when he returned to America, to receive the thanks of his countrymen, and the office of vice-president with Washington. In the mean time A. had published his *Defense of the American Constitution* and his *Discourses on Davila* which made a profound impression upon the leading minds of Europe for their fearless expression of new and unpopular views of government. A. was retained as vice-president during the second administration of Washington, though he had by this time separated in opinion from Jefferson on the question of the French revolution, and the latter's great influence and popularity were used to defeat him. On the retirement of Washington, A. was chosen president, against Jefferson, Jay, Hamilton, and Thomas Pinckney, as rival candidates, and by only two votes in the electoral college more than Jefferson, who under the then existing law became vice-president. Adams' administration was beset with difficulties from the beginning. He had quarrelled with Hamilton on the question of the antagonisms raised during the election, and the federal party was in its last days. Complications arose with France, which were still further entangled by the impolitic conduct of James Monroe, minister to that country, who was no match for Talleyrand, the French minister of state. The slave power was also beginning to be a factor in domestic politics, under the leadership

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of Jefferson, and so on the election of his rival to the presidential chair, A. vacated the office without even waiting to see his successor take his seat. He retired with dignity to his native place, and thereafter took no further active interest in public life. He was not, however, suffered to rest in peace, after his arduous and patriotic endeavors in the service of his country, but was hounded by the mischievous and the time-serving of both parties, whose frivolous and baseless charges the old man answered in able defense of his public career in the press. In his 86th year he was honored by the citizens of his own state by his election as a delegate to the convention to revise the constitution of Massachusetts, in which body he showed a degree of liberality of opinion which had been hitherto foreign to his habit of mind. On the 4th of July, 1826, the semi-centennial anniversary of American independence, Thomas Jefferson, at his home in Monticello, and John Adams at the family mansion, in Quincy, Mass., died almost at the same hour—an impressive coincidence. During the later years of their life the two great statesmen had renewed the friendship which political differences had temporarily broken, and corresponded frequently.

A. was of rather more than the average stature, with a fine head, and genial, kindly expression. His manner was dignified and manly, and made a favorable impression abroad. He was a cultivated scholar, and a forcible, and at the same time elegant writer, a brilliant conversationalist and admired in society. His temper was hot, but he never bore malice, though he was always impatient of opposition. Few figures of the revolutionary period of our history outranked him in the public esteem—until fierce faction struggles blinded his political adversaries to his many high qualities as a man and as a statesman.

ADAMS, JOHN COUCH: 1819, June 15—1892, Jan. 24; b. Eng., discoverer, simultaneously with Le Verrier, of the planet Neptune. He early showed aptitude for mathematics; and after the usual school-training, he was sent to St. John's college, Cambridge, where he attained the honor of senior wrangler, and became a mathematical tutor. In 1841, he undertook to find out the cause of the irregularities in the motion of Uranus, anticipating, indeed, his own and Le Verrier's discovery—namely, that they are due to the influence of a planet then unknown. Le Verrier did not commence his researches till the summer of 1845; but published the results of his calculations, Nov. 10, demonstrating the existence of an unknown planet, declaring it to be the cause of the known disturbance, and assigning to it almost the same place as A. had done in a paper which he left with the Astronomer Royal at Greenwich Observatory in the previous October, but which he had neglected to publish. Le Verrier has thus acquired, naturally, the whole honor of the discovery; but the merit of A. is not less. The researches of the latter began earlier; his discovery, too, was earlier; he was behind only in publication. The council of the Royal Astronomical Society showed that they appreciated A.'s labors, by awarding equal honors to both. In

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1358, A. was appointed to the chair of mathematics in St. Andrew's, which, however, he vacated in a few months, on being nominated to the Lowndean professorship of Astronomy, Cambridge.

ADAMS, JOHN QUINCY: 1767, July 11—1848, Feb. 23; b. Braintree, Mass.; eldest son of John. He accompanied his father to Paris, when he was 11 years old, and during the latter's negotiations with the Dutch at the Hague, attended the Univ. of Leyden. Returning to America, he graduated at Harvard Univ., 1788; studied law in the office of Theophilus Parsons three years, and was admitted to the bar, 1791. In the mean time, he had travelled somewhat extensively in Europe, having been officially attached to the mission of Francis Dana to St. Petersburg, and resided also in London and Paris. After his admission to the bar he contributed a number of political letters to a Boston newspaper, which brought him prominently before the public as an able and thoughtful writer. In 1794, Washington appointed him minister to the Hague, and on his father's succession to the presidency, he was appointed minister to Berlin, from which post he was recalled on the election of Jefferson. While in Berlin, Mr. A. learned German, and translated Wieland's *Oberon* into English. On his return to this country, he resumed the practice of law in Boston, and in 1802 was elected to the state senate from Suffolk co. In 1803, he was elected to the United States senate by the Federalists, but eventually parted from them on Jefferson's 'embargo' proposition, for which he voted—a course of conduct which brought him into much controversy, and resulted in his resigning from the senate. From 1806 to 1809, Mr. A. was prof. of rhetoric and belles-lettres in Harvard Univ., where his lectures—the first in that department ever read in an American univ., attracted much attention. On retiring from his professorship, Mr. Adams visited Washington, where he denounced the federal leaders to Jefferson, accusing them of a design to subvert the government and erect a northern confederacy. This charge was very seriously made and sustained, and for a long time lowered the standing and influence of those who, it was alleged, were affected by it. In 1809, Madison on assuming the presidency, appointed Mr. A. minister to St. Petersburg, a position which the latter accepted against the wish of his father, and which he continued to hold, declining the office of associate justice of the supreme court of the United States, which was offered him while he was in Russia. On the outbreak of the war of 1812 between Great Britain and the United States, his influence at the court of the Czar enabled him to induce that monarch to offer his services as a mediator, but they were declined by England. In 1813, with Henry Clay, Albert Gallatin, and Jonathan Russell, Mr. Adams was appointed a commissioner to negotiate a treaty of peace, and this was satisfactorily accomplished at Ghent, where the signatures were affixed, 1814, Dec. 24. During the next two years, Mr. Adams served as Minister to England, being recalled in 1817 to take the place of secretary of state in Mr. Monroe's



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cabinet. His most important act in this position was the conclusion of a treaty with Spain settling all disputes regarding Florida and Louisiana. During his incumbency of the secretaryship, he made an elaborate report on weights and measures which was highly esteemed by scientific men, and is still constantly referred to as an authority. The presidential election of 1824 was thrown into the house, the candidates being Andrew Jackson, John Quincy Adams, and William H. Crawford, when Mr. A. received the votes of thirteen states, Jackson of seven, and Crawford of four; and A. was accordingly declared elected. His administration was marked chiefly by the bitterness of his political enemies, of which there were many, and the fact, that before its close, he had both houses of congress arrayed against him. It was at this period that the system of high tariff was begun, and also that the first of the many fruitless attempts to gain possession of Cuba by purchase was made. A. vainly sought re-election in 1828; he was defeated by Andrew Jackson by 178 votes to 83, and on the latter's inauguration, he retired to Quincy. But so far was he from now closing his political life, that, although sixty-three years of age, he accepted the nomination for congress, was elected, and retained his seat during seventeen years. In 1834, he was a candidate for governor of Massachusetts, and again for senator, and both times was defeated by John Davis. In congress, Mr. Adams became noted as the friend of the people, and especially as the determined champion of the right of petition. This right he asserted, and battled for, in season and out of season, even to the extent, on one occasion, of presenting a petition from slaves—and, not only that, but forcing its acceptance. He secured the repeal of the outrageous 'gag-rule' denying the privilege of petition on the subject of slavery, after having fought the question for nine years. It was this strenuous advocacy of free-speech which eventually drove him into the ranks of the abolitionists. On Nov. 26, 1846, while on his way from Boston to attend congress, Mr. Adams was seized with an attack of paralysis, and was unable to be in his seat for four months, though he afterwards returned to it, but spoke infrequently. On Feb. 21, 1848, he was seized with a second paralytic stroke while in his seat in the house of representatives. He was removed to the speaker's room, and lingered until the second day afterwards, when he expired; his last words were—'This is the last of earth: I am content.' Mr. A. married in 1797 the daughter of Joshua Johnson, a retired merchant of Nantes. He was, in religious belief, a Unitarian of the earlier or moderate type, as his father had been. He left voluminous writings upon a multitude of topics, political and others, published after his death in complete form, edited by his son, Charles Francis. He ranked higher as diplomatist than as statesman; in the latter capacity his judgment sometimes suffered from the strength of his prejudices.

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ADAMS, JOHN QUINCY, 2d: lawyer: b. Boston, 1833, Sep. 22; eldest son of Charles Francis A. (1st). He attended Harvard College, graduating 1853; studied law and was admitted to practice at the Suffolk bar 1855. He was engaged in the civil war, being a member of Gov. Andrew's staff. The town of Quincy, elected him to the legislature 1866, but having declared his approval of the policy of Pres. Andrew Johnson, he failed of re-election. He was again a member of the legislature, however, in 1869-70. He was defeated as the democratic candidate for gov. of Mass. 1867 and 71. He was chosen a member of the corporation of Harvard 1877; and has not since been prominent in public life, having applied himself to the practice of his profession.

ADAMS, SAMUEL: 1722, Sept. 27—1802, Oct. 2; b. Boston: one of the most renowned patriots of the American Revolution: great-grandson of Henry, an English emigrant, ancestor also of Pres. John Adams. He received his education at Harvard College, and took the degree of A.M. in 1740. He made various attempts at the choice of a vocation, having first studied for the bar, and not liking that profession, made an effort in mercantile business, but found his true sphere in politics, and soon became prominent in the discussion of the important questions then beginning to interest the colonial mind. He was a member of the Massachusetts legislature 1766-1774, and as early as 1764 had raised his voice in public protest against the practice of taxation without representation. In 1774, he was sent to the first congress of the confederation, and so important was his action while in that body, in its influence in bringing about the final separation of the colonies from the mother country, that, with John Hancock, he was named as an exception to the free offer of pardon made by Gen. Gage to those rebels who should return to their allegiance. He was one of the warmest advocates of the adoption of the declaration of independence, of which he was also one of the signers. In 1781, A. retired from congress, and was active in the convention which framed the constitution of Massachusetts. Being elected to the state senate, he presided over the deliberations of that body for several years. In 1789, he was elected lieut. gov., which office he continued to hold till 1794, when, on the death of John Hancock, he was elected gov., and annually re-elected till 1797, when he retired from public life. In a work by a Mr. Galloway (London, 1780) on 'The American Rebellion,' Mr. Adams is thus described: 'He eats little, drinks little, sleeps little, thinks much, and is most indefatigable in the pursuit of his object. It was this man, who, by his superior application, managed at once the factions in congress at Philadelphia, and the factions in New England.' A. was a natural democrat, and even accused his countrymen of aristocratic tendencies, because of their confidence in Washington, whom he persistently underrated, both as a general and as a statesman. He was narrow in his views and dogmatic in the expression of them, impatient of opposition, and self-opinionated; but a man of rare integrity, lofty principle, great courage and determina-

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tion, and splendid fidelity to his convictions. He opposed the federal constitution, and, in politics, was a staunch adherent of Jefferson and of Jeffersonian democracy. In person, A. is described as of medium height, with light complexion and blue eyes, possessing an erect and dignified carriage, his usual costume being a red cloak, tie-wig, and cocked hat. He was twice married, and it is related that in his early days of wedded life, when he pursued the unprofitable path of politics, his wife supported both him and herself by her own labor. He was never even in comfortable circumstances until the death of a son, in the latter part of his life, brought him a bequest, sufficient in amount to sustain him. He wrote numerous state papers of recognized merit, and contributed political articles to the newspaper literature of the day. He left one daughter, but none of his blood to transmit his name to posterity.

ADAMS, WILLIAM TAYLOR (pen-name OLIVER OPTIC): author of books for boys. b. Medway, Mass., 1822. July 30. For 20 years a teacher in the public schools of Boston, he gave his leisure to writing, and eventually gained wide popularity as author of works of fiction, especially for the young. He was a contributor to periodical literature, and founded and edited *Oliver Optic's Magazine for Boys and Girls*. He wrote *Army and Navy*, *The Boat Club*, *Great Western*, *Lake Shore*, *Woodville*, *Young America Abroad*, *The Starry Flag*, *Onward and Upward*, *Yacht Club*, *Riverdale Story Books*, *In Doors and Out*, *The Way of the World*, *Living too Fast*, and other series and single books. He died 1897, March 27.

## ADAM'S BRIDGE—ADANSON.

**ADAM'S BRIDGE:** a chain of shoals extending across the gulf of Manaar, between Ceylon and the peninsula of Hindustan; a great obstruction to vessels.

**ADAM'S PEAK:** name of a mountain summit in the s. after them by Europeans, to a mountain summit in the s. of Ceylon, 7,420 ft. high (not, however, the highest of the group). The native name is Samanhela. The cone forming the summit is a naked mass of granite, terminating in a narrow platform, in the middle of which is a hollow, 5 ft. long, having a rude resemblance to a human footstep. Mohammedan tradition makes this the scene of Adam's penitence, after his expulsion from Paradise; he stood 1,000 years on one foot, and hence the mark. To the Buddhists, the impression is the *Sri-pada*, or sacred footmark, left by Buddha on his departure from Ceylon, while the Hindoos claim it as the footprint of their god Siva. Over the sacred spot stands a wooden canopy, and multitudes of devotees, Buddhist, Hindu, and Mohammedan, frequent it.

**ADANA, á-dá'ná:** a Turkish ejalet or province in s. e. Asia Minor, derives its name from its chief city Adana, containing 25,000 inhabitants. The city is almost 30 m. from Tarsus, on the way to Aleppo, commands the pass of the Taurus mountains, and carries on a considerable trade between Syria and Asia Minor. Pompey peopled the territory of A. with pirates. The Syrian kings made the place a city, under the name of *Antiochia ad Sarum*, and on the ruins of Antiochia the caliph Haroun al Raschid built A. The present inhabitants are mostly Turks, mixed with some Greeks and Armenians.

**ADANSON, á-dǒn-sǒn' MICHEL:** 1727-1806; b. Aix: celebrated French botanist. He soon left the clerical profession, for which he had been educated, and devoted himself to the study of natural history. In his early career, he had the ambition of superseding the Linnæan system by a clearer and more comprehensive method of arrangement. When about twenty-one years old, he went to Senegal in Africa, and, fearless of the unwholesome climate, stayed there five years, returning to France, with a large collection of specimens. Soon after his return, he laid before the French East India Company his plan of a colony on the African coast, in which all colonial produce was to be raised without slave-labor; but his plan was neglected. He published, 1757, his *Histoire Naturelle du Sénégal*; and, 1763, his *Familles des Plantes*, in which he endeavored to give a new form to botany; but he could not prevail against the established Linnæan system. His next undertaking was on a vast scale—nothing less than a complete Encyclopedia, for which he hoped to gain the patronage of Louis XV. and the Academy; but though his bold plan was regarded with admiration, he received little substantial encouragement. This, however, did not check his enthusiasm; he proceeded with the work until he exhausted his means. During the Revolution he fell into very indigent circumstances. When invited to become a member of the National Institute, he answered that he was unable to attend for want of a pair of shoes. Afterwards, he received a pension, and until the time of his death he was

## ADANSONIA—ADD.

earnest in the prosecution of his plan, too vast to be carried out by an individual.

ADANSONIA, *ăd-ăn-sŏ'nĭ-ă* [named by Linnæus in honor of the botanist *Adanson* (q.v.)]: a genus of the natural order *Sterculiaceæ* (q.v.), sub-order *Bombaceæ*, distinguished by a simple deciduous calyx, a very long style, with numerous stigmas, and a woody capsule containing a farinaceous pulp. The only known species, *A. digitata*, the *Baobab*, also called the Monkey-bread Tree, is a native of the tropical parts of w. Africa, but now introduced into the East and West Indies. It is one of the very largest trees—not rising to a great height, but exceeding almost all other trees in the thickness of its trunk (20–30 feet). Even its branches (60–70 feet long) are often as thick as the stems of large trees, and they form a hemispherical head of 120–150 feet in diameter; their outermost boughs drooping to the ground. The leaves are digitate or 7-fid; the flowers are white and extremely large, on drooping peduncles a yard in length. The fruit (*Monkey-bread*) is of the size of a citron. The bruised leaves (*Lalo*) are mixed with the daily food of the inhabitants of tropical Africa; and Europeans in that country use them as a remedy for diarrhœa, fevers, and diseases of the urinary organs. The pulp of the fruit, which is slightly acid and pleasant to the taste, is eaten with or without sugar; and the expressed juice mixed with sugar is much esteemed as a beverage, being very refreshing, effectual in quenching thirst, and regarded as a specific in putrid and pestilential fevers. The bark is said to be powerfully febrifugal.

ADAPT, v. *ă-dăpt'* [F. *adapter*, to fit to, to adapt—from L. *adaptāre*—from *ad*, to; *apto*, I fit—*lit.*, to fit to a thing]: to fit; to make to suit. ADAPT'ING, imp. ADAPT'ED, pp. ADAPTABLE, a. *ă-dăpt'ă-bl*, that may be suited. ADAPTABILITY, n. *ă-dăpt'ă-bl'ĭ-tĭ*, also ADAPT'ABLENESS, n. *-ă-bl-nĕs*, the being fitted or suited for. ADAPTATION, n. *ăd'ăp-tă'shŭn* [F. *adaptation*—from L. *adaptātiōnem*]: the act of making suitable; fitness, as of one thing to another. ADAPT'EDNESS, n. state of being adapted.

ADAW, v. *ă-dăw'* [AS. *a*, intensive; *dagian*, to become day, to dawn]: in *OE.*, to wake out of sleep, or out of a swoon. ADAW', v. [Goth. *thahan*; M.H. Ger. *dagen*; Icel. *thagga*, to be silent, to silence, to hush]: to reduce to silence; to still or subdue. ADAW'ING, imp. ADAWED, pp. *ă-dawd'*.

ADAYS, ad. *ă-dăz'* [AS. *a*, on, and *days*]: in the daytime; every day. NOWADAYS, ad. at the present time; in this age.

ADD, v. *ăd* [L. *adāĕrĕ*, to put to or unite with—from *ad*, to; *do*, I give—*lit.*, to put to or near another]: to put together; to join; to unite. AD'DING, imp. ADDED, pp. *ăd-dĕd*. ADDIBLE, a. *ăd'dĭ-bl*, also ADDITIVE, a. *ăd'dĭ-tĭv*, that may be added. AD'DIBILITY, n. the state, or possibility of being added. ADDITION, n. *ăd-dĭsh'ŭn*, an increase; uniting two or more numbers into one sum; something put to. ADDITIONAL, a. *ăd-ăĭsh'ĭ-n-ăl*, something more. ADDITIONALLY, ad. *-lĭ*, in a manner to add to.—SYN. of 'add': **te**

## ADDA—ADDISON.

annex; append; join; unite; coalesce;—of 'addition': accession; augmentation; increase; adjunct; appendage.

**ADDA**, *ád'dá*, the Latin *Addua*, a river of Lombardy, rising in the Rhætian Alps above Bormio. It flows into the Lake of Como, issuing from which, below Lecco, it traverses the plain of Lombardy in a direction s.s.c., passing Lodi and Pizzighetone, and falls into the Po about 8 miles above Cremona.

**ADDAMS, JANE**, philanthropist; b. in Cedarville, Ill., 1869, Sept. 6. She became an active social reformer; inaugurated the establishment known as Hull House in 1889; and lectured on the condition of the poor.

**ADDER**, n. *ád'dér* [AS. *næddre* or *attr*; Ger. *natter*; Low Ger. *adder*; W. *neidr*; Icel. *nadr*; Goth. *nadr̥s*]: a poisonous serpent; a viper; the *Pelias bērus*. **ADDER-FLY** or **ADDER-BOLT**, n. dragon-fly. **ADDER'S TONGUE**, a genus of small ferns, whose seeds are produced on a single spike, supposed to resemble a serpent's tongue; the *ophioglossum*, which see. **ADDER**: n. machine for adding figures.

**ADDER**: common English name of the viper (q.v.), but also often more vaguely used for poisonous serpents of the family *Viperidæ*. Where the name occurs in the English version of the Scriptures, it appears to be in this vague sense; for although the four Hebrew words rendered *Adder* doubtless had some precise distinction from each other, the distinctions cannot now be traced with certainty. A very venomous serpent of New South Wales (*Acanthopis tortor*) is sometimes called the *Death* or *Black A*.

**ADDICT**, v. *ád-díkt'* [L. *addictus*, adjudged, assigned: mid L. *addictāre* for *indictāre*, to accuse—from *ad*, *dictus*, said, named—from *dicere*, to say, to proclaim]: to give one's self up to, as to a custom or habit—usually in an ill sense. **ADDICT'ING**, imp. **ADDICT'ED**, pp. **ADDICT'ED-NESS**, the quality of being addicted. **ADDICTION**, n. *ád-dík'shūn*, the state of being addicted.—**SYN.** of 'addict': to devote; apply; dedicate; consecrate.

**ADDISCOMBE**: see **CADET**.

**ADDISON**, *ád'i-sōn* **JOSEPH**: 1672, May 1—1719: b. Milston, near Amesbury, Wiltshire: son of an eminent clergyman of the Church of England. He entered the university of Oxford when only fifteen years of age, where he greatly distinguished himself, especially by the facility with which he wrote Latin verse. He was originally intended for the church, but various circumstances conspired to draw him aside into literature and politics, the principal of which were his acquaintance with Dryden, who honored the young poet with his patronage, and his intimacy with Lord Somers, whose favor he gained by dedicating a poem to him on one of King William's campaigns. In 1699 he received a pension of £300 a year, and then set out on a continental tour. While in France, he perfected himself in the language of the country. On the outbreak of the Spanish war of succession, he departed to Italy, where he penned his charming *Letter* to Lord Halifax. Towards the end of

## ADDISON.

1703, he returned home by way of Switzerland and Germany; but his expectations of a 'place' were disappointed, for the Whigs were out of office. The battle of Blenheim, however, in the next year, presented a brilliant opportunity to him. The ministry wished the victory commemorated in verse, and A. was appointed to do it. Lord Godolphin, the treasurer, was so excessively delighted with the first half of the triumphal poem, that before the rest was finished he made A. a commissioner of appeals. The poet was now fairly involved in politics. He accompanied Halifax to Hanover; became under-secretary of state, 1706, and in 1709 went to Ireland as secretary to the lord-lieutenant, where he also obtained the office of keeper of the records, worth £300 a year. In the same year, his friend Steele commenced *The Tattler*, to which A. soon became a frequent contributor. He also wrote political articles in the *Whig Examiner*. On the 1st of March, 1711, appeared *The Spectator*, the most popular and elegant miscellany in English literature then and for a long time subsequent. With an interruption from 1712, Dec. 6, to 1714, June 15, during part of which time *The Guardian*, a similar periodical, took its place, *The Spectator* was continued to 1714, Dec. 20. A.'s fame is inseparably associated with this periodical. The quality of his genius is now determined by it, rather than by the artificial rhetoric of his *Cato*. He was the animating spirit of the magazine, and by far the most exquisite essays which appeared in it are by him. In 1713 appeared *The Tragedy of Cato*, the popularity of which, considering its total want of dramatic power, was amazing. It was generally understood to have a political as well as a poetical inspiration; but so prudently had A. expressed himself, that both parties, whig and tory, received its frigid declamation with rapture. It was translated into various European languages; and even the monarch of French criticism, Voltaire, held Shakespeare a barbarian in tragedy compared with our author. 'All the laurels of Europe,' says Thackeray, 'were scarcely sufficient for the author of this "prodigious" poem.' Every one in England praised it except Dennis. A. was called the 'great Mr. A.' after that wonderful night in the theatre, when, as Pope says, 'the numerous and violent claps of the whig party on the one side were echoed back by the tories on the other.' This enthusiasm was a delusion which time has effectually dispelled. In 1716, A. married the dowager countess of Warwick, and in the following year was appointed secretary of state. For neither of his new situations was he at all suited. Lady Mary Wortley Montagu, in a letter to Pope, expressed her fear that 'a day might come when he would be heartily glad to resign both.' He was so extremely timid and awkward in large companies, that it was out of the question for him to attempt debating in parliament—a thing indispensable to one in his position. He consequently resigned, 1718. Then as to the other matter, Dr. Johnson sarcastically remarks, that 'the lady was persuaded to marry him on terms much like those on which a Turkish princess is espoused—to whom the sultan is reported to pronounce "Daughter, I give thee this man for thy slave."' No one

## ADDISON'S DISEASE--ADDLE.

can doubt that this marriage was a mistake on the part of A. His health had been for some time very precarious; and at length, after an illness of a few months, he died at Holland House, Kensington, 1719, June 17, three years after what Thackeray calls 'his splendid but dismal union.' A. had appointed Mr. Tickell his literary executor, who published his works shortly afterwards in 4 vols. quarto. Besides his writings above alluded to, A. wrote *A Treatise on the Usefulness of Ancient Medals, Especially in relation to the Latin and Greek Poets*, which, however, excited little interest. He also left an unfinished work on *The Evidences of the Christian Religion*. But the most delightful and original of all his productions is that series of sketches in *The Spectator* of which Sir Roger de Coverley is the central figure, and Sir Andrew Freeport and Will Honeycomb the side ones. Sir Roger himself is an absolute creation; the gentle yet vivid imagination, the gay and cheerful spirit of humor, the keen, shrewd observation, and fine raillery of foibles which A. has displayed in this felicitous characterization, render it a work of pure genius. But A. in prose is always excellent. He has given a delicacy to English sentiment, and a modesty to English wit which it never knew before. Elegance, which in his predecessors had been the companion of immorality, now appeared as the advocate of virtue. Every grace was enlisted in the cause of a benign and beautiful piety. His style, too, is perfect after its fashion. There are many nobler and grander forms of expression in English literature than A.'s, but there are none comparable to it in sweetness, propriety, and natural dignity. 'Whoever wishes,' says Dr. Johnson, 'to attain an English style, familiar but not coarse, and elegant but not ostentatious, must give his days and nights to the volumes of A.' His various writings, but especially his essays, fully realized the purpose which he constantly had in view, 'to enliven morality with wit, and to temper wit with morality.' They materially helped to reform the manners of their time, and created, in addition, that class of readers which has now become so prodigious in numbers, and on which all literature now depends for its support—the middle class. It must, however, be admitted that since the beginning of the present century, their popularity has had considerable decline. The chief cause of this is, that much in them relates to temporary fashions, vices, rudenesses, and absurdities, now out of date. Yet, after making every abatement, it is certain that there are in the collected works of A. so many admirably written essays on subjects of abiding interest and importance, on characters, virtues, vices and manners, which will chequer society while the human race endures, that a judicious selection can never fail to present indescribable charms to the man of taste, piety, philanthropy, and refinement. See Courthope's *Life* (1884).

ADDISON'S DISEASE: see SUPRARENAL CAPSULES.

ADDLE, *v.* *ăd'dl* [AS. *adl*, disease: prov. Sw. *adel*, urine]: to make corrupt. ADDLE or ADDLED, *a.* *ăd'dli*. diseased; putrid; rotten—applied to eggs; barren. ADD'LING, *imp.* ADDLED, *pp.* *ăd'dld*. AD'DLE-HEAD'ED, *a.* *ot* weak intellect; also AD'DLE-PA'TED, *a.* *-pă'těd*.



## ADDRESS—ADELAIDE.

**ADDRESS**, v. *ăd-drēs'* [F. *adresser*, to direct—from *dresser*, to arrange—from L. *directus*, directed, made straight—*lit.*, to arrange or make ready for immediate use]: to speak to; to write a direction on a letter; to pay court to, as a lover. **ADDRESSING**, imp. **ADDRESSED**, pp. *ăd-drĕst'*. **ADDRESS'**, n. a speaking to; direction on a letter; place where to be found; skill or dexterity; manner or mode of behavior; a speech; a written message, as of respect or congratulation. **ADDRESSES**, n. plu. *ăd-drēs'ĕz*, courtship paid to a woman. **ADDRESSER**, n. one who.—**SYN.** of 'address, n.': speech; discourse; oration; harangue; dexterity; tact; management; skill; readiness; adroitness.

**ADDRESS, FORMS OF:** see **FORMS OF ADDRESS.**

**ADDUCE**, v. *ăd-dūs'* [L. *addūcĕrĕ*, to lead or bring to—from *ad*, *dūcō*, I lead or bring]: to bring to or forward; to offer; to cite; to name. **ADDUCING**, imp. **ADDUCED**, pp. *ăd-dūst'*. **ADDUCER**, n. *-sĕr*, one who. **ADDUCIBLE**, a. *-sĭ-bl*, capable of being adduced. **ADDUCTION**, n. *ăd-dŭk'-shŭn* [L. *addŭctus*, led or brought to: mid. L. *adductiōnem*: F. *adduction*]: the act of bringing forward or towards. **ADDUCENT**, a. *ăd-dŭ'sĕnt*, bringing forward or together. **ADDUCTIVE**, a. *ăd-dŭk'tiv*, that adduces; that brings forward. **ADDUCTIVELY**, ad. *-tĭv-lĭ*. **ADDUCTOR**, n. in *anat.*, a muscle that draws one part towards another.—**SYN.** of 'adduce': to allege; assign; advance; offer; present; cite; quote; mention; name.

**ADEEM**, *ă-dĕm' v.* [from L. *ad*, to; *ems*, I buy]: in *law*, to revoke as in the case of a legacy: **ADEEMPTION**, n. denotes a legal satisfaction, viz.: that a legacy to a creditor extinguishes the debt.

**ADELAAR**, *ă'dĕl er*, **CORD SIVERSEN**: 1622-75; b. Brevig, Norway; great naval commander. In his 20th year, in the naval service of Venice against the Turks he broke through a line of 67 Turkish galleys around his ship, sank 15 and burned several others. Frederic III. engaged him as admiral of the Danish fleet. In 1675, in command, under Christian V., of the whole Danish naval force against Sweden, he died suddenly at Copenhagen.

**ADELAIDE**, *ăd'ĕ-lăd*: capital of the state of South Australia; on the Torrens, 7 miles from Port Adelaide, with which it is connected by railway. The first settlement was made in 1836, but already a university has been established at A., and liberally endowed. The Torrens, which is spanned by several bridges, divides the town into North and South Adelaide. The streets of A. are broad and regularly laid out, especially in A. proper, to the south of the river, where they all cross each other at right angles. Among the public buildings are the post-office, the government offices, the governor's house, and the town-hall. It is the seat of an Episcopal and of a Roman Catholic bishop, and has an unusual number of churches. A. also has a large botanical garden, covering more than 120 acres of ground. The town is surrounded by a belt of permanently reserved land, half a mile in width, called the *Park Lands*, and beyond this are the suburbs. A. is abundantly sup-

## ADELARTHROSOMATA—ADEN.

plied with water from two reservoirs 6 or 7 m. distant. The chief manufactures are woolen, leather, iron, and earthenware goods; but the chief importance of A. depends on its being the great emporium for South Australia. Port Adelaide, its haven, has a safe and commodious harbor; and in 1882, an ocean dock of 30 acres in extent was begun, capable of admitting the largest ships. A. is the terminus of the direct telegraph line to London across Australia, and has telegraphic communication with the other colonies. The port of A. is the nearest port of call for vessels arriving from Europe either round the Cape or by the Suez Canal; and when the railway connection with Melbourne now being pushed on is complete, passengers and mails for all parts of Australia may be landed here. Tramways for street cars were introduced in 1878. Among other educational institutions are: St. Peter's (Episcopal) College; St. Barnabas Theological College, opened 1881; and Prince Alfred (Wesleyan) College. Besides the chief religious denominations, here are represented Swedenborgians, Friends, Unitarians and Jews. A. has daily and weekly newspapers. Pop. (1891) 133,252; (1901) 163,430.

**ADELARTHROSOMATA**, n. plu. *ăd'ē-lār-thrō-sō'mă-tă* [Gr. *adēlos*, hidden; *arthros*, a joint; *sōma*, body, *sōmata*, bodies]: an order of the Arachnida, comprising the harvest-spiders, book-scorpions, etc.; same as Pedipalpi (q.v.)

**ADELBERT COLLEGE**: see WESTERN RESERVE UNIVERSITY.

**ADELPHOUS**, a. *ă-dělf'ūs* [Gr. *adelphos*, a brother, a blood relation]: related; in *bot.*, having a union of filaments.

**ADELSBERG**, *ă'děls-běrg'*: district and market-town in Carniola. Near the t., 22 m. n.e. of Trieste, is a large stalactite cavern, the *A. Grotto*, through which flows a rapid stream. This cavern, the largest in Europe, is divided into the Old and the New Grotto; the former is 858 ft. in length; the latter, 8,550 ft. in length, contains some most remarkable stalactites.

**ADELUNG**, *ă'deh-loong*, JOH. CHRISTOPH, 1732-1806; b. Pomerania; d. Dresden, distinguished linguist and lexicographer. At Dresden he had held the office of chief-librarian. His chief works are his *Wörterbuch der Hochdeutschen Mundart* (Dictionary of High German), in which he took Dr. Johnson as his model; and his *Mithridates oder allgemeine Sprachenkunde*, a work on general philology.

**ADEN**, *ă'den* or *ă'den*: peninsula and town on the s.w. coast of Arabia, about 100 miles e. of the strait of Bab-el-Mandeb. This peninsula is doubtless of volcanic origin, and consists chiefly of a range of hills not exceeding 1,776 feet in height. It is joined to the mainland by a narrow, level, and sandy isthmus. In a valley which forms the crater of a submarine volcano stands the town of A. The area of the peninsula is about 5 sq. m.; but to provide for the growing population, an area of 34 square miles on the mainland has since 1880 been added. The town of A. is in an indescribably barren district; the heat is intense. A. suffers from want of water; and though it is sometimes called 'healthy

## ADENITIS.

on the whole, other accounts make it a very hot-bed of disease. Pliny knew of the place, whose name he writes 'Athana.' It was known also by the name of 'Emporium Romanum.' Up to the time of the circumnavigation of Africa, A., so favorably situated at the entrance of the Red Sea, was the chief mart of all Asiatic produce and manufactures, and even the Chinese traded here. Marco Polo and other voyagers of the middle ages told wonders of the riches and splendor of the place. In the course of time, however, it was reduced to a small village, which, 1838, contained only about 600 inhabitants, including some 250 Jews and about 50 Indian merchants. The increasing importance of the Red Sea route to India gave great value to A. as a station for England to hold; and in 1838 the Arab sultan was persuaded to cede the peninsula to England. He afterwards repented of the bargain, but was held to his contract by force of arms; and 1839, Jan. 11, after a few hours' contest, A. fell into the hands of the British. Here they have now a strong garrison and fortifications. In its mediæval prosperity, A. had had a magnificent system of cisterns for collecting the rain-water from the circle of hills that surround it. Who built them is unknown; but it is conjectured that they had been begun about the 6th or 7th c. They had been allowed to fall into disuse, and were filled with rubbish, and in ruins; but recently a considerable number have been excavated and restored by the British government. If all restored, they seem capable of containing 30,000,000 gallons. A. is of great importance in a mercantile and nautical point of view, having a position between Asia and Africa like that of Gibraltar between Europe and Africa. The population and resources of the place have rapidly increased since 1838, and the opening of the Suez Canal in 1869 gave it a great impetus. The annual values of its imports and of its exports range from below to a little above \$5,000,000. A. is a telegraphic station on the cable between Suez and Bombay, laid down in 1870. Pop. (1891) 41,910, of whom about 30,000 are Mohammedans.

ADENITIS, *ăd'ĕ-nĭ'tĭs* (see ADENOLOGY) AND ANGEIO-LEUCI'TIS: terms employed in medicine to indicate inflammation of the lymphatic glands and inflammation of the lymphatic vessels respectively. In most instances of inflammation in the absorbent or lymphatic system, the vessels and glands are simultaneously involved. Although there is plenty of evidence, from the examination of the dead body, that inflammation of the lymphatics may occur internally, it is observed in the living subject in connection only with the skin or an ulcerated surface. The disease originates usually in an open wound of almost any form, as a puncture, a cut, or a blister. This wound is directly infected by some morbid matter, as, for example, some local inflammatory product, such as the putrid secretion of a sore; but more commonly by some irritating or poisonous matter from without, or some gaseous matter. The inflammation that is thus set up in the lymphatics always extends upwards from the wound, and may be traced by lines of redness following the course of these vessels, and not of the veins, and terminating

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where the inflamed vessels enter a gland. In the arm, for example, they never pass the armpit, in which the axillary glands lie. The tenderness along these inflamed tracts is excessive, and extends to the next gland, which appears to arrest the further progress of the poisoned lymph, by becoming itself inflamed. The degree of inflammation of the gland may vary from slight enlargement with tenderness on pressure, to profuse suppuration. The suppuration may not take place till a week or more after the inflammation of the vessels has subsided, and may excite no rigors or other constitutional symptoms; and a patient may be quite unconscious of any serious ailment, when half a pint or more of matter may be collecting in and around a gland in the armpit. The constitutional symptoms attending an attack of acute inflammation of the lymphatic vessels (*angieolencitis*) are often severe including rigors, nausea, heat of skin, thirst, dryness and coating of tongue, with constipation, sleeplessness, and languor.—For prevention of A., arising from a cut or sore, timely application of collodion or of court-plaster may often suffice. When symptoms of this form of inflammation have supervened, the wound should be thoroughly cleansed by being laid more open if all its parts are not freely exposed, and then put under a stream of water, or soaked in a hot bath. If recent or punctured, it should be sucked, and then freely touched with a pencil of nitrate of silver. A warm poultice of linseed meal or the like will be beneficial by its soothing effect. Attention must be given to the condition of the bowels. Entire rest should be enjoined.

ADENOCLE, n. *a-dē'no-sēl*: same as ADENOMA (q.v.).

ADENOGRAPHY, n. *ă-dēn-ōg' ră-fŷ* [Gr. *adēn* or *adēna*, a gland; *grapho*, I write]: treatise on the glands. ADENOLOGY, n. that part of anatomy which treats of the glands, their nature and uses. ADENOID, a. occurring in, or connected with glands. ADENOMA, or ADENOCELE, ADENOUS, tumor (q.v.) originating in a gland and deriving its characteristics therefrom, a. gland-like. ADENIFORM, a. formed or shaped like a gland. ADENITIS (see above).

ADEPHAGIA, n. *ăd'-ēf-ă'jŷ-a* [Gr. *adēphagos*, gluttonous]: voracious appetite. ADEPHAGOUS, a. gluttonous.

ADEPS, n. *ăd'-ēps* [L.]: animal fat; lard; contents of the adipose tissue (q.v.). In *phar.*, tallow.

ADEPT, a. *ăd'-ēpt'* [L. *adēptus*, obtained]: skilful, well-trained. N. one who is skilled or proficient. ADEPTNESS, n. the quality of skilfulness, proficiency.

## ADEQUATE—ADERSBACH ROCKS.

**ADEQUATE**, a. *ăd'ĕ-kwăt* [L. *adæquātus*, made equal to or level with—from *ad*, *æquātus*, made equal or like—from *æquus*, even, equal—*lit.*, made equal to]: fully sufficient for; equal to. **AD'EQUATELY**, ad. *-lĭ*, in an adequate manner. **ADEQUACY**, n. *ăd'ĕ-kwă-sĭ*, the being equal to; sufficiency for an end. **AD'EQUATENESS**, n. the state of being adequate.—**SYN.** of 'adequate': sufficient; competent; proportionate; commensurate; equal to; enough.

**ADERNO**, *ă-dăr'nō* (ancient *Adranum*): town of Sicily, 17 m. n.w. from Catania; at the base of Mount Etna, close to the Simeto, on which are some remarkable cascades near the town. It is surrounded by walls, is a very clean town, and is full of convents and nunneries, mostly founded by the Normans, so that bare walls of lava and grated windows appear everywhere, and the sound of bells is almost incessantly heard. Pop. 19,600.

**ADERSBACH ROCKS**, *ă'dĕrs-bák-*: a remarkable labyrinthine group of sandstone rocks near the village of Adersbach, Bohemia. The aspect of some parts of the group has been compared to that of a city ruined by a conflagration. One of the pinnacles rises to a height of 218 feet. The structure of the rocks has been produced, not by any commotion of the earth, but by the influences of rain, frost, and other atmospheric changes, wearing down the soft sandstone into many fantastic forms. During the Thirty Years' War, the miserable people of Bohemia often found refuge here.

## ADESMY—ADHESION.

**ADESMY**, n. *ăd'ēs-mĭ* [Gr. *a*, not; *desmos*, skin]; in *bot.*, the division or splitting of an organ usually entire. **ADESMACIOUS**, *ăd'ēs-mă'shūs*, in *zool.*, having the shell not covering all the body, while the mantle is completely closed and tubulous.

**ADFFECTED**, a. *ăd-fĕkt'ĕd* [L. *ad, factus*, done]: in *alg.*, consisting of different powers of the unknown quantity.

**ADHERE**, v. *ăd-hĕr'* [F. *adhérer*, to adhere—from L. *adhærere*, to stick or hang on—from *ad*, *hærĕo*, I stick]: to stick to; to cleave to; to hold to, as an opinion. **ADHE'RING**, imp. **ADHERED**, pp. *ăd-hĕrd'*. **ADHERENCE**, n. *ăd-hĕ'rĕns* [F. *adhérence*]: attachment to. **ADHE'RENCY**, n. *-rĕn-sĭ*, the act of sticking or adhering to. **ADHE'RENT**, n. *ăd-hĕ'rĕnt* [F. *adhérent*]: one who adheres to; a follower. **ADJ.** sticking; adhering; united with; in *bot.*, denoting the union of parts that are normally separate and in different verticils. **ADHE'RENTLY**, ad. *-lĭ*. **ADHE'RER**, n. *-rĕr*, one who adheres. **ADHESION**, n. *ăd-hĕ'zhĭn* [L. *adhasus*, clung to, adhered to: F. *adhésion*, adhesion]: applied to *matter*—the act of sticking to; a union of parts of any body by means of cement, glue, growth, etc.; in *surg.*, the reunion of parts that have been severed; steady attachment. **ADHESIVE**, a. *ăd-hĕ'sĭv*, that will stick; gluey; sticky. **ADHE'SIVELY**, ad. *-lĭ*. **ADHE'SIVENESS**, n. the quality of sticking or adhering; tenacity.—**SYN.** of 'adhere': to cleave to; stick to; attach to; cling to; fix on; hold to;—of 'adherent, n.': follower; adherer; partisan; disciple; supporter; upholder; dependent.

**ADHESION** (see **ADHERE**): the species of attraction manifested between two separate bodies when their surfaces are brought to a considerable extent into close contact. It is nearly allied to cohesion (q.v.). Adhesion is seen in the case of two solid bodies when their polished surfaces are laid on one another; but it acts more powerfully between solids and fluids, owing to their intimate contact. We have instances of this in the film of water adhering to any body dipped in that fluid, and in water running down the side of an inclined vessel from which it is being poured. All solids and liquids do not exhibit this mutual attraction. Thus, though bright metals are wetted by mercury, glass and wood are not; nor does water adhere to fat. Capillary attraction (q.v.) is a special manifestation of adhesion.—The adhesion of gases to the surface of solids is described by Liebig as acting an important part in many processes. A more or less condensed atmosphere of gases surrounds every body, and every particle of a powdered or porous body; and gases, such as oxygen, have in this condition an intensified chemical action. Platinum in the state of powder condenses 800 times its volume of oxygen; and when hydrogen comes in contact with the oxygen in this state, the two gases combine, though, when free, they require the application of flame before they will combine.

**ADHESION**, in Pathology, is when two surfaces of a living body become united. If they have been separated by the cut of a sharp instrument, and are immediately and accurately placed in apposition to each other, they may adhere at

## ADHIBIT—ADIGÉ.

once without any apparent bond of union. But, usually, the blood-vessels of the part pour out, between the surfaces, a fluid, consisting of the watery part of the blood holding fibrine in solution. The liquid part of this is reabsorbed or escapes from the wound, leaving the fibrine, in which first cells are developed, and then blood-vessels: it is now a living tissue, and forms a uniting medium between the sides of the wound.

Serous membranes, as the pleura, pour out this fluid when inflamed; and hence the adhesions so often the result of pleurisies.—If two granulating surfaces be kept in contact, the opposite granulations may fuse together, and the wound unite by secondary adhesion. See GRANULATION.

**ADHIBIT**, v. *ăd-hĭb'it* [L. *adhĭbitus*, added to—from *ad*, *habĕō*, I have or hold—*lit.*, to hold or apply to, as to some other object]: to put to; to use or apply. **ADHIB'ITING**, imp. **ADHIB'ITED**, pp. **ADHIBITION**, n. *ăd'hĭ-bĭsh'ĭn*, application; use.

**ADIAN TITES**, n. plu. *ăd'ĭ-ăn'tĭts* or *-tĭ'tĕz* [Gr. *ădĭăntos*, unmoistened]: a genus of fossil ferns found in the coal-measures, so called from their resemblance to the existing *adiantum*, or maidenhair.

**ADIAN TUM**, n. *ăd'ĭ-ăn'tŭm* [Gr. *ădĭănton*, the herb maiden-hair—from *ădĭăntos*, not moistened; so called from the belief that they will remain dry, though plunged among water]: maidenhair (q.v.), beautiful genus of ferns.

**ADIAPHORA**, *ăd-ĭ-ăf'ō-ră*, n. things indifferent; actions which one may either do or omit without sin.

**ADIAPHOROUS**, a. *ăd'ĭ-ăf'ō-rŭs* [Gr. *ădĭăphōrōs*, indifferent, common—from *a*, not; *diaphĕrō*, I carry through]: in *CE.*, indifferent; neutral. **ADIAPH'ORIST**, n. one who is indifferent; a neutral.

**ADIEU**, n. ad. interj. *ă-dŭ'* [F. *à*, to; *Dieu*, God—a contracted form of the OF. *à Dieu soyez*, may you be with God]: I commend you to God; a farewell; an expression of regard or kind wishes on parting.

**ADIGÉ**, *ăd'ĭ-jĕ*: the most important river in Italy after the Po; rises in the Rhætian Alps. Various streamlets descend from these mountains, and, uniting at Glarus, form the Etsch, which is, properly speaking, the beginning of the A., and the name by which the entire river is known in Germany. From Glarus it flows e. into the Tyrol; then, after a slight *détour* to the s. e., it flows due s. past Trent and Roveredo, into Lombardy, and, passing Verona, takes a s. e. sweep, discharging its waters into the Adriatic, between the mouths of the Po and the Brenta. In ancient times (when it was called the *Athesis*), it had a more northerly *embouchure*. It is very rapid, and subject to sudden swellings and overflowings, which cause great damage to the surrounding country. The two most remarkable inundations on record are those in 1721 and 1724. During the Italian wars, its banks were repeatedly the scenes of bloody engagements. Its length is about 250 m.; its breadth in the plain of Lombardy, 650 ft.; its depth, from 10 to 16 feet. It is navigable

## ADIPIIC—ADIRONDACKS.

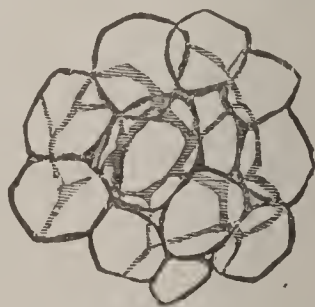
as far as Trent, but the navigation is extremely arduous, on account of the swiftness of the current. The A. is a transit-river for the trade of Germany and Italy.

**ADIPIIC**, a. *ăd-îp'îk* [L. *adeps*, gen. *adipis*, fat]: of or belonging to fat. **ADIPIIC ACID**,  $C_4H_8(COOH)_2$ , an organic diatomic dibasic acid produced by the oxidation of oleic acid, suet, spermaceti, and other fatty bodies by nitric acid. It is obtained in the form of soft, white, opaque hemispherical nodules, which have the appearance of aggregations of small crystals. Its salts are termed adipates.

**ADIPOCERE**, n. *ăd'î-pō-sēr'* [L. *adeps*, fat; *cēră*, wax]: a soft, unctuous, or waxy substance, of a whitish-gray or a light-brown color, into which the muscular fibres of dead animal bodies are converted when buried in soil of a certain kind, and there subjected to the action of running water, or otherwise brought in contact with moisture. In such circumstances, the soft parts of the animal structures, instead of decaying, may become transformed into A. Lean beef kept under running water for three weeks was found reduced to a fatty substance. A piece of liver that has suffered fatty degeneration, if immersed for some time in water is said to become exactly like A. A notable discovery of adipocerated bodies was made in a Paris burying-ground in 1787. **ADIPOCEROUS**, a. *ăd'î-pōs-ēr-ŭs*, pertaining to. **ADIPOCERITE**, n. *ăd'î-pōs'ēr-ît*, or **ADIPOCERE MINERAL**, a fatty matter found in some peat-mosses, and in the argillaceous iron-ore of Merthyr in Wales. When cold it is inodorous, but when heated it emits a slightly bituminous odor.

**ADIPOSE**, a. *ăd'î-pōs* [L. *adîpōsus*, fatty—from *adeps*, fat]: denoting the fatty tissue which exists more or less throughout the body. **ADIPOSIS**, n. *ăd'î-pōs'is*, great fatness or obesity of the human body.

**ADIPOSE TISSUE**: a peculiar kind of animal membrane or tissue, consisting of an aggregation of minutes ppherical pouches or vesicles filled with fat or oil. The tissue itself is organic and vital, the vesicles secreting the fatty matter from the capillary blood-vessels with which they are surrounded; the secreted product, or fat (q.v.), is inorganic, and devoid of vitality. The adipose tissue differs from cellular or filamentous tissue in having the vesicles closed, so that the fat does not escape even when fluid. A dropsical effusion, which infiltrates the filamentous tissues, does not affect the adipose tissue. There is a considerable layer of adipose tissue immediately under the skin; also around the large vessels and nerves, in the omentum and mesentery, around the kidneys, joints, etc.



Adipose Tissue,  
magnified.

**ADIRONDACKS**, *ăd-î-rŏn'dăks*: a mountainous region situated in the northern part of the state of New York.



## ADIT—ADJACENT.

having Lakes George and Champlain on the e., Canada on the n., and the St. Lawrence river on the n.w., while on the s. it reaches nearly to the Mohawk river. In its midst an elevated plateau, 2,000 ft. above the level of the sea, extends over an area 150 m. by 100, and five ranges of mountains, running nearly parallel with each other, traverse this plateau from s.w. to n.e., terminating at Lake Champlain. The most westerly of these ranges is the Adirondack, or Clinton Range, which begins at Little Falls and terminates at Lake Champlain. The highest peaks of the region are found in this range, including Mt. Marcy, 5,337 ft. high; and Mts. Seward, McIntyre, and McMartin, Snowy Mountain, Mt. Pharaoh, Whiteface, Dix Peak, Santanoni, and Colden are each nearly 5,000 ft. in height—the general elevation of the range being greater than that of any other east of the Rocky Mountains. There are supposed to be in all as many as 500 separate mountains in the Adirondacks, very few of which have distinctive names. They all are densely wooded, except the summits of the loftiest, which are rocky with only a scattered growth of moss and shrub pines. The valleys of the region are dotted with lakes, large and small, to the number of perhaps 1,000, the highest elevation reached by any of these being that of Lake Perkins, nearly 4,500 ft. above the level of the sea. Some of these lakes are 20 m. or more in length, while many others have an extent of only a few acres each. The largest are Long Lake, the Upper and Lower Saranac, Tupper, the Fulton Lakes, Pleasant, Raquette, Forked, Newcomb, Colden, Blue Mountain, Eckford, Sanford, and Henderson. This series of lakes is connected by a system of rivers and small streams, of which the Saranac and Ausable are among the most important, emptying into Lake Champlain, after a general n.e. course. The largest is the Raquette, which rises in Raquette Lake in the w. part of Hamilton county, is 12 m. long, and discharges its waters into the St. Lawrence.

**ADIRONDACK PARK**, a large district, principally forest land, set apart by the State of New York in 1892. It was established in order to preserve the great northern forests of the State and thus protect the watersheds which supply the rivers and canals, for public recreation, and for the practical study of forestry. It includes Hamilton co., the town of Wilmurt in Herkimer co., the western half of Essex, the western part of Franklin, and the southern part of St. Lawrence co. The park abounds in beautiful scenery and contains many mountains, lakes, rivers and forests. After setting apart this reservation the New York Legislature chartered the State School of Forestry, whose practical work is carried on here.

**ADIT**, n. *ăd'it* [L. *aditus*, an approach or entrance—from *ad*, to; *itus*, gone—*lit.* a going to, an approach or entrance]: an under-ground gallery or tunnel into a mine for carrying off water or for extracting the ore.

**ADJACENT**, a. *ăd-jă'sent* [L. *adjacens* or *adjacēn'tem*, adjacent or contiguous—from *ad*, *jacēo*, I lie]: lying near; bordering upon; contiguous. **ADJA'CENTLY**, ad. *-lĭ*. **ADJA-**

## ADJECT—ADJUDGE.

**CENCY**, n. *ǎd-jǎ'sěn-sǎ*, the state of being adjacent or contiguous.

**ADJECT**, v. *ǎd-jěkt'* [L. *adjectus*, added, cast to—from *ad*, *jactus*, cast]: to add or put to. **ADJECT'ING**, imp. **ADJECTED**, pp. *ǎd-jěkt'ěd*. **ADJECTION**, n. *ǎd-jěk'shŭn*, the act of adding. **ADJECTITIOUS**, a. *ǎd-jěk-tĭsh'ŭs*, added to or on. **ADJECTIVE**, n. *ǎdjěk-tĭv*, a word put to a noun to modify its meaning: **ADJ.** qualifying; depending on another. **ADJECTIVAL**, *ǎdjěk-tĭ'vǎl*, a. pertaining to; having the import or construction of an adjective. **ADJECTIVE'LY**, ad. *tĭv'ľ*.

**ADJECTIVE**: name of one of the classes into which grammarians have divided words; so called, not so much from its *being added* to a substantive, as because it *adds* to the meaning, or more exactly describes the object, than the simple substantive or general name does. The effect of an A. is also to limit the application of the name to which it is joined. Thus, when *tall* is joined to *man*, there is more meaning conveyed; there are more properties suggested to the mind by the compound name *tall man*, than by the simple name *man*; but *tall man* is not applicable to so many individuals as *man*, for all men that are not tall are excluded.—Nouns, or names of things, are often used in English as adjectives; thus, we say a *silver chain*, a *stone wall*. In such expressions as 'Income Tax Assessment Bill,' *Income* plays the part of an A. to *Tax*, which is, in the first place, a noun; the two together then form a sort of compound A. to *Assessment*; and the three, taken together, a still more compound A. to *Bill*, which, syntactically, is the only noun in the expression.—Languages differ much in their way of using adjectives. In English, the usual place of the A. is before the noun. This is the case in German also; but in French and Italian, the A. comes after. In these languages again, the A. is varied for gender, number, and, in the German, for case. In English it is invariable; and in this simplicity there is a decided superiority; for in modern languages these changes in the A. serve no purpose. The only modification the Eng. A. is capable of is for degrees of comparison.

**ADJOIN**, v. *ǎd-joyn'* [F. *adjoindre*, to assign as a colleague—from L. *adjun'gĕrĕ*, to bind or join to a thing—from *ad*, *jungō*, I join—*lit.*, to bind or join to]: to lie next to; to lie close to. **ADJOIN'ING**, imp. **ADJOINED**, pp. *ǎd-joynd'*.

**ADJOURN**, v. *ǎd-jĕrn'* [OF. *adjourner*, to cite one to appear on a certain day—from mid. L. *adjornārĕ*, to fix the day—from L. *ad*, to; F. *jour*, a day: mid. L. *jornus*, a day, or the labors of a day: L. *dĭēs*, a day—*lit.*, to fix a day which is named]: to put off from one day to another; to delay. **ADJOURN'ING**, imp. **ADJOURNED**, pp. *ǎd-jĕrnd'*. **ADJOURN'MENT**, n. the putting off to another day; the time or interval during which the business is suspended.—**SYN.** of 'adjourn': to prorogue; postpone; delay; defer; put off.

**ADJUDGE**, v. *ǎd-jŭj'* [F. *adjuger*—from L. *adjudicārĕ*, to adjudge, to grant—from *ad*, *judicō*, I judge]: to determine, to decide; to award sentence. **ADJUDGE'ING**, imp. **AD-**

## ADJUDICATE—ADJUTANT.

**JUDGED**, pp. *äd-jÿjd̄*. **ADJUDG'MENT**, n. the act of adjudging; a sentence.—**SYN.** of 'adjudge': to adjudicate; award; determine; decree.

**ADJUDICATE**, v. *äd-jó' di-kät* [L. *adjudicatus*, awarded, adjudged—from *judico*, I judge—*lit.*, to give sentence in behalf of]: to pronounce judgment upon, to try or determine, as a court does. **ADJU'DICAT'ING**, imp. **ADJU'DICAT'ED**, pp. **ADJUDICATION**, n. *äd-jó' di-kä'shün*, the pronouncing judgment upon; the decision or award of a court. **ADJU'DICA'TOR**, n. *-kä'tér*, one who.

**ADJUDICATION**: see **BANKRUPTCY**.

**ADJUNCT**, n. *äd'jÿnkt* [L. *adjunctus*, joined or fastened on to—from *ad*, to, *jungo*, I join]: something added or joined on; something added to another, generally to modify or qualify: **ADJ.** assisting. **ADJUNCT'LY**, ad. *-li*. **ADJUNCTION**, n. *äd'jÿnk'shün*, the act of joining; the thing joined. **ADJUNC'TIVE**, a. *-tív*, joining; tending to join. **N.** that which is joined. **ADJUNC'TIVELY**, ad. *-li*.

**ADJURE**, v. *äd-jór'* [F. *adjurer*, to adjure—from L. *adjurāre*, to swear solemnly—from *ad*, *juro*, I swear—*lit.*, to swear to, that is, on oath]: to charge solemnly; to bind on oath. **ADJU'RING**, imp. **ADJURED**, pp. *äd'jórd̄*. **ADJURATION**, n. *äd'joo-rā'shün*, the act of solemnly charging on oath; a solemn charge on oath; the form of an oath. **ADJU'RER**, n. one who.

**ADJUST**, v. *äd'jÿst'* [OF. *adjuster*, to make, to meet—from mid. L. *adjūstārē*, to make right—from L. *ad*, *justus*, just or proper]: to make right or fit; to fit to; to make to correspond; to put in order; to settle. **ADJUST'ING**, imp. **ADJUST'ED**, pp. **ADJUST'ABLE**, a. *-ä-bl*, that may be adjusted. **ADJUSTMENT**, n. *äd'jÿst'měnt*, the act of settling; a settlement; brought to an agreement; in *mech.*, an apparatus for regulating the movement of machinery. **ADJUST'IVE**, a. *-ív*. *Note.*—**ADJUST** may also come from OF. *ajouster*, to arrange—from mid. L. *adjuxtārē*, to put side by side—from *ad*, to, and *juxta*, near—*lit.*, to put side by side: see Brachet and Skeat.—**SYN.** of 'adjust': to arrange; accommodate; ask; set right; rectify; settle; adapt; suit; regulate.

**ADJUSTMENT**, in the Law of Insurance: the ascertaining the exact amount of indemnity which the party insured is entitled to receive under the policy, and fixing the proportion of the loss to be borne by each underwriter. The nature and amount of damage being ascertained, an endorsement is made on the back of the policy, declaring the proportion of loss falling on each underwriter; and on this endorsement being signed by the latter (unless under a serious mistake as to facts) the loss is said to have been adjusted. After an A. it is usual for the underwriter at once to pay the loss. In the United States, an A. is binding only when intended by the parties to be absolute and final. No specific form is requisite. Fraud vitiates an A.; also a mistake of fact into which one party is led through the fault of the other. See **AVERAGE**, in law.

**ADJUTANT**, n. *äd'joo-tänt* [L. *adjütans* or *adjütan'tēm*,

## ADJUTANT.

helping, assisting—from *ad*, *juvārē*, to assist; *jūtus*, assisted]: staff officer of a battalion of infantry, a regiment of cavalry, or a brigade of artillery; in a regiment, one who assists the field-officers, and superintends the drill and office work; a very large species of stork. **ADJUTANCY**, n. *ād'jo-tān'sī*, the office of the adjutant. **ADJUTOR**, n. *ād-jō'tēr*, any one who assists. **ADJUTRIX**, n. *ād-jō'trīks*, a woman-helper. **AD'JUVANT**, a. helping. **N.** an assistant; an ingredient in a recipe which assists the operation of the principal drug. **ADJUTANT-GENERAL**, one of the chief staff officers of an army whose duties comprise all matters relating to discipline, and the general efficiency of the army.

**ADJUTANT**: an officer who assists the commanding-officer of a garrison or regiment in all the details of duty. He receives orders, and promulgates them to the several companies; he inspects escorts and guards before proceeding on their duty; attends to the drill of recruits, is accountable for the keeping of the regimental books, and ought to note every infraction of established rules. An *adjutant-general* performs analogous duties for the general of an army. He keeps an account of the strength of each regiment, distributes the orders of the day to the brigade-majors, and sees the troops drawn up for action. In the United States the *Adjutant-general* is the principal military officer of the war dept.; he has charge of the army correspondence, the army records, the business of recruiting, of issuing commissions, of granting furloughs, or leave of absence, and the like. Each of the states also maintains a general staff for the militia, with an *adjutant-general* at its head.

**ADJUTANT** (*Ciconia Argala*), a bird closely allied to the Stork, made by some naturalists the type of a separate genus, *Argala*. **A.** is a popular name given to it by the English in India—*Argala* the native name. It is a native



Indian Adjutant.

**Marabou** feathers are obtained from the under side of the

of the warmer parts of India. It is of large size, and has very long legs; in its erect attitude, it is about five feet high; its extended wings measure fourteen or fifteen feet from tip to tip; its head and neck are nearly bare; a sausage-like pouch hangs from the under part of the neck; the bill is of enormous size. It is very voracious, swallows a cat or a leg of mutton quite readily, and is of great use in devouring snakes, lizards, and all sorts of offal. It sometimes catches birds upon the wing. The beautiful

## ADJYGURH—ADMINISTER.

wings of this bird, and of another very similar species which inhabits Senegal.

**ADJYGURH**, *ăd-jî-gêr'*: town of British India, in the n.w. Provinces, province of Allahabad, 69 m. w.n.w. from Rewah. It has a fortress on a steep hill, 1,340 ft. above the sea, accessible only by well-defended paths. Within it are great ruins of temples, resembling those of s. India, and covered with elaborate sculptures. Pop. 5,000.

**ADLER**, *ăd'lêr*, **FELIX**: an American author, lecturer, and educator; b. Alzey, Germany, 1851, Aug. 13; son of a Hebrew rabbi. He came to the United States, and entered Columbia College, where he graduated 1870, afterward studying in the universities of Heidelberg and Berlin. Returning to the United States, he was made prof. of Oriental literature and the Hebrew language at Cornell Univ. He filled this chair 1874-76, when complaints of his teachings, as opposed to Christianity, resulted in his resignation, and he removed to New York. Here he organized the Society for Ethical Culture. In 1902 he was appointed Prof. of Social and Political Ethics in Columbia University, a chair created for him.

**AD LIBITUM**, *ăd lîb'î-tûm* (in Ital., *a piacere*, or *a piacimento*): a musical term which implies that the part so marked may be performed according to the taste of the performer, and not necessarily in strict time. When there is an accompaniment to the music thus marked, it must strictly follow the ad libitum time of the principal performer. Sometimes the words *colla parte*, meaning with the leading part, are written over the accompanying parts. Ad Libitum also frequently means, that a part for a particular instrument or instruments, in instrumental scores or pianoforte arrangements, may either be played or entirely left out.

**ADMEASUREMENT**, n. *ăd-mêzh'oor-mênt* [L. *ad*; and Eng. *measure*]: adjustment of proportions; art or practice of measuring according to rule.

**ADMINICULAR**, a. *ăd'mîn'îk'û-lêr* [L. *admînîc'ûlum*, a prop, a support—from *ad*, *mînêo*, I jut, I project]: helping, as a support; giving help; subordinate to.

**ADMINISTER**, v. *ăd-mîn'îs-têr* [F. *administrer*—from L. *admînistrârê*, to administer—from *ad*, *mîn'istro*, I serve or assist—*lit.*, to serve or attend upon]: to give or tender, as an oath; to direct the application of laws, as a king or judge; to manage; to dispense, as justice; to add to; to bring aid or supplies to. **ADMINISTERING**, imp. *ăd-mîn'îs-trîng*. **ADMINISTERED**, pp. *ăd-mîn'îs-têrd*. **ADMINISTRATION**, n. *ăd'mîn-îs-tră'shûn*, the act of carrying into effect; direction; the government of a country; the act of organizing, supplying, and equipping the military forces of a country. **ADMINISTRABLE**, a. *ăd-mîn'îs-tră-bl*, capable of being administered. **ADMINISTE'RIAL**, a. *-tê'rî-ăl*, ministerial. **AD'MINISTE'RIALLY**, ad. *-lî*. **ADMINISTRATIVE**, a. *ăd'mîn-îs-tră'tîv*, able to carry into effect. **AD'MINISTRA'TOR**, n. *têr*, the man who carries into effect; one who directs. **ADMINISTRATRIX**, n. *ăd'mîn-îs-tră'trîks*, the woman who carries into effect or directs. **AD'MINISTRA'TORSHIP**, n. the office of an administrator.—**SYN.** of 'administer': to **min-**

## ADMINISTRATION—ADMIRAL.

**ister**; supply; manage; contribute; conduct; apply; dispense;—of 'administration': charge; care; management; control; government; conduct; regulation; direction; distribution; dispensation; execution.

**ADMINISTRATION**, in Politics: in its widest sense, the executive govt. of a nation or state as distinguished from its permanent constitution; the executive functions as distinguished from the legislative and judicial; also the whole body of executive officials. In a restricted sense, in England, the privy-council (q.v.), especially that select committee of it known as the cabinet, or ministry (q.v.).—In the United States, in restricted sense, it denotes the president (q.v.) and his cabinet with their chief assistants, specially during one presidential term: see **EXECUTIVE DEPARTMENT**: **SECRETARIES** of Executive Departments: **MINISTRY**, in Executive Government.

**ADMINISTRATION**, **ADMINISTRATIVE**, **ADMINISTRATOR**, ETC.: see **ADMINISTER**: also **ADMINISTRATOR**.

**ADMINISTRATOR**, in Law: one commissioned from the proper court to manage and distribute the estate of a person deceased without leaving a will, or whose will designates no executor competent. The nearest friend the next of kin, or a creditor of the decedent, or any other person competent to make contracts, may be commissioned. Usually an A. is obliged to give a bond for faithful performance of his trust. It is the duty of an A. to file an inventory of the property, to collect debts due the estate, and to pay all legal claims upon it—including funeral expenses; and to distribute the residue under direction of the proper court. As the distinction between the terms A. and executor, though still maintained in law, is not always strictly observed, the term Administration often denotes the action also of an executor. See **EXECUTOR OF A WILL**.

**ADMIRAL**, n. *ăd' mĭ-răl* [mid. L. *admĭrăllus*, commander, prefect: F. *amiral*, from Ar. *al*, the; *emir* or *amir*, lord, noble, or chief in command: early Eng. *amiral*, *amyraĭl*, etc.: Sp. *admirante*]: commander of a navy, or of a fleet; a flag officer: also one recognized as chief commander in a mercantile, fishing, or pleasure fleet: also, the admiral's ship; a great ship. **ADMIRALTY**, n. *ăd' mĭ-răl-tĭ*, department of law pertaining to maritime affairs (see **ADMIRALTY JURISDICTION**: **ADMIRALTY COURT**).—In Great Britain, the administrative function of the body of govt. officials which controls the navy: the officials themselves as constituting a govt. dept. known as the Board of Admiralty (see **ADMIRALTY**, **BOARD OF**): also the building in London in which the board sits.—*Admiral* is the title of the highest rank of naval officers, commanding the navy or a fleet. The term, introduced into Europe during the Crusades, seems to have been used in a definite sense first by the Sicilians, then by the Genoese. About the end of the 13th c. it came into use in France and England. The first Eng. A. of the Seas (*Amiral de la Mer du Roy d'Angleterre*) on record was William de Leybourne, 1286; his office, how-

## ADMIRALTY—ADMIRALTY DROITS.

ever, was not that of commander, but comprised those general and extensive powers afterward exercised by the lord high A. of England; i.e., both the administrative functions now vested in the lords commissioners of the admiralty (see ADMIRALTY, BOARD OF), and the judicial authority now vested in the admiralty division of the high court of justice. The office of lord high admiral was filled last by the Duke of Clarence, afterward William IV.—British admirals are in three grades, A., vice-A., and rear-A.; but the former division of each of the three grades into three sections—of the Red, of the White, and of the Blue—has been abolished. A. of the fleet is a higher rank conferred at the will of the sovereign; it corresponds with field marshal in the army.

In the United States navy the rank of A. was established by congress, in the three grades of A. (established 1866), vice-A. (1864), rear-A. (1862). An A. carried his distinctive flag at the mainmast, a vice-A. at the foremast, a rear-A. at the mizzenmast. The two first were created for civil war rewards, and were abolished by the creating act on the death of Admiral Porter in 1891. The rank of A. was revived in 1898 and conferred on Com. Dewey. In 1899 congress abolished the rank of commodore, increased the number of rear-admirals to 18, comprising two classes of nine each, the first nine ranking with major-generals in the army; the second nine to brigadier-generals. The pay of the A. is \$13,000 a year. In peace, vacancies in the grade of rear-A. are filled by regular promotion from the list of captains, subject to examination according to law. During war, rear-admirals must be selected from officers on the active list not below commander, who shall have eminently distinguished themselves by courage, skill, and genius in their profession, and shall have received the thanks of congress for distinguished service. Rear-admirals on the retired list may be recalled to active service in war.

**ADMIRALTY, BOARD OF:** department of the Brit. govt. which has charge of the entire administration of the navy. It comprises 6 lords-commissioners, who act in some cases collectively, in others individually. Of these lords, 2 are civil or political, and 4 naval or sea lords; and the head of the dept. is the first lord of the admiralty, who is always a cabinet minister, exercising a general control of all admiralty administration.

**ADMIRALTY COURT:** in England, formerly a court created to try and to decide maritime causes: its civil functions are (since 1875) exercised by the probate, divorce, and admiralty division of the high court of justice; and its criminal jurisdiction is obsolete.—For A. C. in the United States, see ADMIRALTY JURISDICTION.

**ADMIRALTY DROITS, *droyts*:** in Great Britain, various perquisites (the right to goods taken from pirates, or to an enemy's ships seized at the outbreak of hostilities, etc.) formerly attached to the office of admiral or to the admiralty revenues. They are not, as such, recognized in United States law; and in Britain the proceeds of droits

## ADMIRALTY ISLAND.

of A. are now paid into the exchequer for the public use.

**ADMIRALTY ISLAND:** on the n.w. coast of N. America, between  $57^{\circ} 2'$  and  $58^{\circ} 24'$  lat. n., and  $134^{\circ} 52'$  and  $135^{\circ} 30'$  long. w. It is about 80 m. long, well wooded and watered. It is inhabited, and belongs to the United States.

**ADMIRALTY ISLANDS:** a group of about 40 islands, to the n.e. of New Guinea, between  $2^{\circ}$  and  $3^{\circ}$  lat. s., and  $146^{\circ} 18'$  and  $147^{\circ} 46'$  long. e. They were discovered by the Dutch in 1616. The largest is about 50 m. long from e. to w. They abound in cocoanut trees, and are inhabited by a race of tawny, frizzle-headed savages.

**ADMIRALTY JURISDICTION:** a judicial cognizance of a certain class of cases arising under the constitution of the United States, by act of congress. The constitution has delegated to the courts of the national government cognizance 'of all cases of admiralty and maritime jurisdiction,' and congress has given to the U. S. district courts 'cognizance of all civil causes of admiralty and maritime jurisdiction, including all seizures under laws of imposts, navigation, or trade, of the United States, where the seizures are made on waters navigable from the sea, by vessels of ten or more tons burden, within their respective districts, as well as upon the high seas.' The district court has jurisdiction, as a court of admiralty, over all torts and injuries committed on the high seas, and in ports or harbors within the ebb and flow of the tide. It has jurisdiction to redress personal wrongs committed on a passenger, on the high seas, by the master of a vessel, whether these wrongs be by the exercise of direct force, or be consequential injuries. This court may decree damages for an unlawful capture of an American vessel, e.g. by a French privateer, and may proceed by attachment. It has jurisdiction in cases of maritime torts, personal or otherwise. It has jurisdiction of suits to reinstate owners of vessels who have been displaced from their possession. And, in the case of a father, whose minor son has been abducted and seduced on a voyage on the high seas, he may sue in this court, as well for the tort as for wages earned by such son in maritime service. This court has, also, as a court of admiralty, jurisdiction concurrent with the courts of common law over all maritime contracts, wheresoever the same may be made or executed, or whatsoever be the form of the contract. It may enforce the performance of charter-parties for foreign voyages, and a lien for freight under them. It has jurisdiction over contracts for the hire of seamen, when the service is substantially performed on the sea, or on waters within the flow and reflow of the tide, but unless the services be essentially maritime the jurisdiction does not attach. The master of a vessel may sue in the admiralty for his wages, and the mate, who on his death succeeds him, has the same right. Seamen employed on board of steamboats and lighters engaged in trade or commerce on tide-water are within the admiralty jurisdiction, but those on ferry boats are not so. Wages



## ADMIRE—ADMONISH.

may be recovered in the admiralty by the pilot, deck-hands, engineer, and firemen on board of a steamboat. But unless the service of those employed contribute in navigating the vessel, or to its preservation, they cannot sue for their wages in the admiralty; musicians on board of a vessel, who are hired and employed as such, cannot, therefore, enforce a payment of their wages by a suit in the admiralty. The admiralty jurisdiction, expressly vested in the district court, embraces also captures made within the jurisdictional limits of the United States. The civil jurisdiction extends to cases of seizure on land, under the laws of the United States, and in suits for penalties and forfeiture incurred under the laws of the United States. The civil jurisdiction extends also to cases in which an alien sues for a tort, in violation of the law of nations, or a treaty of the United States. This court has also jurisdiction of actions by and against consuls and vice-consuls.

**ADMIRE**, v. *ăd-mîr'* [F. *admirer*—from L. *admîrârî*, to admire—from L. *ad*, *mîror*, I wonder: Sp. *admirar*—*lit.*, to regard with wonder or surprise]: to look upon with pleasure; to love or esteem greatly. **ADMIRING**, imp. **ADMIRED**, pp. *ăd-mîrd'*. **ADMIRABLE**, a. *ăd mî-ră-bl* [F.]: worthy of esteem or praise; of a quality to excite wonder or esteem. **ADMIRABLY**, ad. *ăd mî-ră-blî*, in an admirable manner. **ADMIRINGLY**, ad. *ăd-mî-rîng-lî*, in a manner to excite wonder; with esteem; with admiration. **ADMIRABLENESS**, n. *ăd mî-ră-bl-nês*, and **ADMIRABILITY**, n. *ăd mî-ră-bîl'î-tî*, the quality of being admirable. **ADMIRATION**, n. *ăd mî-ră-shûn* [F.—L.]: wonder mingled with pleasure or slight surprise. **ADMIRER**, n. *ăd mî-rer*, one who admires.—**SYN.** of 'admiration': surprise; wonder; astonishment; amazement.

**ADMIT**, v. *ăd-mît'* [L. *admittĕrĕ*, to allow or suffer to go to; *admissus*, allowed or suffered to go to—from *ad*, to; *mitto*, I send; *missus*, sent: F. *admettre*: It. *ammettere*—*lit.*, to suffer to go to]: to permit to enter; to receive as true; to allow. **ADMITTING**, imp. **ADMITTED**, pp: **ADJ.** conceded, as in an argument; recognized. **ADMITTABLE**, a. *-bl*, capable of being admitted. **ADMITTER**, n. one who. **ADMITTANCE**, n. *ăd-mît'tins*, permission to enter; power of entering. **ADMISSION**, n. *ăd-mîsh'ûn*, entrance; power or permission to enter. **ADMISSIBLE**, a. *ăd-mîs'si-bl*, that may be allowed or admitted. **ADMIS'SIBLY**, ad. *-blî*. **ADMIS-SIBIL'ITY**, n. *-bîl'î-tî*, the quality of being admissible.—**SYN.** of 'admit': to receive; allow; grant; permit; suffer; tolerate;—of 'admission and admittance': access; entrance; concession; initiation.

**ADMIX**, v. *ăd-mîks'* [L. *admîxtus*, mingled in addition.—from *ad*, *mîxtus*, mingled]: to mingle with something else. **ADMIXING**, imp. **ADMIXED**, pp. *-mîkst'*. **ADMIXTURE**, n. *ăd-mîks'tûr*, a substance formed by mingling one substance with another; also **ADMIXTION**, n. *ăd mîks'tyûn*.

**ADMONISH**, v. *ăd-môn'îsh* [F. *admonester*—from L. *ad-mônĕrĕ*, to admonish—from *ad*, *mônĕō*, I warn; *monĭtus*, warned: F. *admonissant*, admonishing—*lit.*, to bring to one's

## ADNASCENT—ADONIS.

mind]: to warn; to reprove gently; to advise. **ADMONISHING**, imp. **ADMONISHED**, pp. *äd-mön'isht*. **ADMONISHER**, n., or **ADMONITOR**, n. *tér*, one who admonishes. **ADMONITION**, n. *äd'mō-nish'ün*, gentle reproof; caution. **ADMONITIVE**, a. *äd-mön'itív*, also **ADMONITORY**, a. *äd-mön'it-ér-í*, that conveys caution or warning. **ADMONITIVELY**, ad. *-tív-lí*.—**SYN.** of 'admonish': to advise; caution; warn; reprove; reprimand;—of 'admonition': reproof; warning; caution; reprehension.

**ADNASCENT**, a. *äd-näs'ënt* [L. *ad, nascens* or *adnäscent'em*, growing]: growing to or upon; also **ADNATE**, a. *äd-nät'* [L. *ad, nātus*, born]: grown to; in *bot.*, fused together, or adherent, side by side. **ADNATION**, n. *äd-nā-shün*, in *bot.*, the adhesion or consolidation of the different floral verticils with one another.

**ADNEXED**, a. *äd-někst'* [L. *ad, nexus*, bound or tied]: in *bot.*, reaching to the stem only, as in the gills of Agarics.

**ADO**, n. *äd-dó'* [corruption of OE. phrase *at do*, to do; AS. *a*, at or on, and *do*: *at* is the sign of infinitive in Icel.]: fuss; trouble; bustle; difficulty.

**ADOBE**, n. *äd-dō'bā* [Sp. *adobe*—from *adobar*, to dress, to prepare]: a mixture of chopped straw, earth, and dung, made into bricks and dried in the sun only.

**ADOLESCENCE**, n. *äd-ō-lěs'ěns*, **ADOLESCENCY**, n. *äd-ō-lěs'ěn-sí* [L. *adōles'cens* or *adōlěscen'tem*, increasing or growing]: state of growing up from childhood to manhood or womanhood; in boys from the age of 14 to 25 years, in girls from 12 to 21: applied sometimes to the lower animals. **ADOLESCENT**, a. pertaining to youth; growing.

**ADONAI**, n. *äd-ō-nā'ī* or *äd-dōn'ī*: in Hebrew, one of the names for Deity, formed in the plural, and signifying 'my Lord.' This word served a peculiar purpose among the Hebrews. Wherever in the scriptures they found the holy and awful name Jehovah—the ineffable name—(written without its vowels, JHVH), they pronounced Adonai instead: hence the Eng. word Jehovah, whose Heb. vowels (and therefore its pronunciation) are unknown, arose by a combination of the consonants of *Jehovah* with the vowel-points of *Adonai*: see **JEHOVAH**.

**ADONIA**, n. plu. *äd-ō'nī-ā* [Gr.]: festival, strictly, the rites of a festival, celebrated by the Phœnician and Greek women, commemorating the mythical death and return to life of Adonis (q. v.), symbolic of the returning spring. **ADO'NIAN**, or **ADON'IC**, a. pertaining to Adonis; e. g., Adonian Games (see **GAME—ANCIENT GAMES**).

**ADONIS**, *äd-dō'nīs*: mythical personage, whose beauty as a child caused Venus and Proserpine to quarrel for possession of him, till Jupiter decided that A. should spend part of the year with Venus, and part with Proserpine, so that he lived 8 months in the upper world and 4 in the under. A. while hunting, was killed by a boar; and Venus, coming too late to his rescue, changed his blood into flowers.—A yearly festival in his honor had two parts—a mourning for his departure to the under world, and a

## ADONIS—ADOPTIAN CONTROVERSY.

rejoicing for his return to Venus. This festival, widely spread among the countries bordering on the Mediterranean, was celebrated with peculiar pomp at Alexandria. Connected therewith were the Gardens of A., as they were called. Before the festival, wheat, fennel, and lettuce were sown in earthen, and even in silver pots, and forced by heat; intended to indicate, doubtless, by their brief bloom, the transitoriness of earthly joy. The myths connected with A. belong originally to the east. They display a worship of the powers of nature conjoined with that of the heavenly bodies, and A. himself appears to be the god of the solar year. The similarity of the name to the Phœnician *Adon*, which signified 'lord,' is unmistakable; and this word Adon was specially applied to the king of heaven, the sun.—In reference to the brilliant beauty ascribed to A., a beautiful man is called 'an Adonis.'

**ADONIS:** a genus of plants of the natural order *Ranunculaceæ* (q.v.), in which the flower has 5 sepals and 5-10 petals without scales at the base, and the fruit consists of awnless pericarps. The species are all herbaceous—some of them annual and some perennial. Several are natives of Europe, but only one, *A. autumnalis*, sometimes called Pheasant's Eye, is a doubtful native of Britain. Its bright scarlet petals have obtained for it the name of *Flos Adonis*, their color having been fancifully ascribed to their being stained with the blood of Adonis. It is a well-known ornament of gardens; in which also *A. æstivalis* frequently appears, and *A. vernalis*, a perennial species common upon the lower hills of the middle and south of Germany, with early and beautiful flowers.



*Adonis autumnalis.*

**ADOPT**, v. *ă-dŏpt'* [F. *adopter*—from L. *adoptŭrĕ*, to adopt—from *ad*, *opto*, I wish, I choose: Sp. *adoptar*]: to choose for one's self; to take or receive as one's own what is not naturally so—as a person, a thing, an opinion; to choose. **ADOPT'ING**, imp. **ADOPT'ED**, pp.: **ADJ.** taken up as one's own. **ADOPTION**, n. *ă-dŏp'shŭn* [F.—L.]: state of being adopted; the taking as one's own that which is not so naturally. **ADOPT'IVE**, a. *-ĭv*, that adopts. **ADOPT'ER**, n. one who. **ADOPT'EDLY**, ad. *-lĭ*.

**ADOPTIAN CONTROVERSY**, *ă-dŏp'shĭ-ăn-*, **THE**: an echo of the Arian controversy; originated about the end of the 8th c. in Spain, the country in which the doctrine of Arius had longest held out against the theology of the general church. Elipandus, Archbishop of Toledo, and Felix, the learned Bishop of Urgel, advanced the opinion that Christ, in respect of his divine nature, was doubtless by nature and generation the Son of God; but that as to his human nature, he must be considered as only declared and

## ADOPTION—ADORE.

adopted, through the divine grace, to be the first born Son of God (Rom. viii. 29), as all holy men, although in a less lofty sense, are to be adopted as sons of God. The flame of controversy thus kindled, spread into the Frankish empire, the special domain of 'Catholic' Christianity, and gave occasion to two synods, one held at Ratisbon, 792, and another at Frankfort, 794, in which Charlemagne took part in person, and which condemned Adoptianism as heresy. The Catholic doctrine of the unity of the two natures of Christ in one divine person, and the consequent impossibility of there being a twofold Son—an original and an adopted—was upheld by Alcuin and the other learned men of Charlemagne's court. At a subsequent synod at Aix-la-Chapelle, Felix, yielding to compulsion, recanted his opinions, without, as it seems, being convinced. Elipandus adhered fanatically to his views, which were, in after times, defended by Folmar, 1160, Duns Scotus (d. 1308), Durandus (d. 1322), the Jesuit Vasquez, 1606, and the Protestant divine Calixtus, 1643.

**ADOPTION:** a legal institution of much importance in both of the classical nations of antiquity. A., in the stricter sense, in the Roman law, applied only to the case in which a person in the power of his father or grandfather was transferred to that of the person adopting him. Where the person adopted was already emancipated from the paternal power (*patria potestas*), and was regarded by the law as his own master (*sui juris*), the proceeding was called adrogation (*adrogatio*). A., however, was also used as a generic term comprehending the two species; and in Greece, where there was nothing corresponding to the paternal power of the Romans, this distinction did not obtain. Adoption was effected under the authority of a magistrate, the prætor at Rome, or the governor (*præses*) in the provinces. Adrogation originally required a vote of the people in the *Comitia Curiata*; but under the emperors, it became the practice to effect it by an imperial rescript. A. was unknown to the law of the Teutonic nations; and though most of the states of the continent have borrowed it from the Roman law, it has never been an institution in Great Britain, though its patrimonial benefits may be given by deed.—In the United States, A. is regulated by state laws, and is effected through prescribed forms of obligations mutually assumed—binding the adopting party to be as a parent toward the other, and the adopted party to be as a child toward the adopting parent.

**ADORE**, v. *ă-dor'* [F. *adôrer*, to adore: L. *adôrârĕ*, to worship—from L. *ad, oro*, I pray to, I entreat—from *os* or *ōrem*, the mouth: Sp. *adorar*: It. *adorare*]: to speak to or address in worship; to pay divine honor to; to worship solemnly; to regard with esteem; to love highly. **ADOR'ING**, imp. **ADORED'**, pp. *ă-dord'*. **ADOR'ER**, n. one who. **ADOR'ABLE**, a. *ă-dor'ă-bl*, worthy of worship; that ought to be loved or respected. **ADOR'ABLY**, ad. *-blĭ*. **ADOR'ABLENESS**, n. *-bl-nĕs*, the quality of being adorable. **ADORINGLY**, ad. *ă-dôr'ing-lĭ*. **ADORATION**, n. *ăd'ô-ră'shŭn*, the worship of

## ADORN—ADRA.

God; the act of praying.—**SYN.** of 'adore': to worship; reverence; revere; venerate.

**ADORN**, v. *ă-dawrn'* [F. *adorner*; Sp. *adornar*, to beautify, to adorn—from L. *adornārē*, to adorn—from L. *ad, orno*, I deck or beautify: It. *adornare*]: to deck with ornaments; to deck; to make beautiful. **ADORNMENT**, n. *ă-dawrn'měnt*, an adorning; ornament. **ADORN'ING**, imp. **ADORNED**, pp. *ă-dawrnd'*. **ADOR'NER**, n. *-nēr*, one who. **ADORN'INGLY**, ad. *-lī*.—**SYN.** of 'adorn': to decorate; embellish; ornament; deck; grace; beautify; garnish; exalt; honor; dignify.

**ADOSCULATION**, n. *ăd-ôs'kū-lā'shŭn* [L. *ad, osculātus*, kissed—from *os'culum*, a little mouth, a kiss—from *os*, a mouth]: in *bot.*, the impregnation of plants; a propagation of plants by inserting one part of a plant into another.

**ADOUR**, *ăd-ôr'*, a river in France: rises near Tourmalet, in the department of the Upper Pyrenees, waters in its course of 200 m. the department Gers, and the fertile part of the department Landes, and enters the Atlantic below Bayonne. It receives several tributaries, and is navigable to the extent of 80 m. Bagnères-de-Bigorre, celebrated for its hot baths, is situated on the A.

**ADOWA**, *ă dō-wá'*: a town of Abyssinia, the capital of Tigré, 145 m. n.e. from Gondar. It is situated partly on the slope, and partly at the base of a hill, on the left bank of the Hasam, a feeder of the Atbara, which is a large branch of the Nile. The houses are of the conical form common in Abyssinia, regularly disposed in streets, and mingled with gardens and trees. A. is the chief entrepôt of trade between the interior of Tigré and the coast. It has an extensive transit trade, in which, gold, ivory, and slaves are articles of importance. It has also manufactures of cotton fabrics, and iron and brass wares. Pop. estimated at about 8,000.

**ADOWN**, prep. and ad. *ă-down* [AS. *adúne*—from *a*, for; *of*, off or from; *dún*, a hill]: downward; from a higher to a lower situation.

**ADRESSED**, a. *ăd-prěst'* [L. *ad, to; pressus*, pressed, squeezed]: in *bot.*, closely pressed to a surface, as some hairs, or as leaves to a stem; pressed close to anything; also spelt **APPRESSED**.

**ADRA**, *ă'drá*, (ancient *Abdera*), a seaport town of Spain, in the province of Almeria, and 49 m. s.e. from Granada. It is situated on the shore of the Mediterranean, at the mouth of the Adra. The ancient Abdera, founded by the Phœnicians, was on a hill, at the base of which the modern town stands, in a situation unhealthy on account of swamps. The port is not good, being much exposed to the west. The houses are generally of one story. There is one tolerably wide street, the rest are narrow and ill paved. From the watch tower of A., in former times, a tocsin sounded the alarm on the approach of African pirates. Lead mines in the neighborhood give employment to many of the inhabitants, and trade to the port. Among the other exports are

## ADRENAL—ADRIAN COLLEGE.

grapes, wheat, and sugar. Fishing and the distillation of brandy are carried on. Pop. 12,000.

**ADRENAL**, a. *ăd-rĕ'năl* [L. *ad*, *rĕnĕs*, the kidneys]: connected with the kidneys. N, The Suprarenal Capsules (q.v.).

**ADRIA**, *ă'drĕ-ă*: city in the province of Rovigo, n. Italy, between the river Po and the Adigé: remarkable chiefly as one of the oldest cities in Europe. According to tradition, it was founded by the Pelasgi, B.C. 1376. In the time of the Romans, A. was one of the most frequented harbors in the Adriatic Sea; but by the continual deposition of alluvium on the e. coast of Italy, it has been gradually separated from the sea, from which it is now almost ten m. distant. It still retains several interesting remains of Etruscan and Roman antiquity; but its wine, formerly so celebrated, is now bad. Pop. about 7,500.

**ADRIAN**, *ă'drĭ-an*: city, cap of Lenawee co., Mich.; at the junction of Beaver creek and Raisin river (which also bisects it and furnishes excellent water-power); on the Lake Shore and Michigan Southern railroad; 30 m. w. of Toledo, 74 m. w.s.w. of Detroit. A. is the active business centre of a productive region, and is a town of pleasant residences. It is the seat of Adrian College (q.v.); and contains 12 churches, several public schools, Central public-school building (cost \$100,000), Masonic temple (\$100,000), opera-house, car shops, and several state and private banks. Pop. (1890) 8,756; (1900) 9,654.

**ADRIAN**, *ă'drĭ-an*: name of six popes, none of them very remarkable. A. IV. was by birth an Englishman, the only one of that nation that ever sat in the papal chair. His name was Nicolas Breakspeare. He was a native of Langley, near St. Albans, became first a lay-brother or servant in the monastery of St. Rufus, near Avignon, was elected abbot 1137, appointed cardinal-bp. of Albano 1146, and chosen pope 1154. He was at first on friendly terms, with Emperor Frederick I., but his conception of papal supremacy led him to enter on the long contest against the house of Hohenstaufen; and he was about to excommunicate Frederick, when he died 1159.

**ADRIAN**: Roman emperor: see **HADRIAN**.

**ADRIAN COLLEGE**: institution at Adrian, Mich., under the control of the Meth. Prot. Church; founded, with the election of 12 trustees, by a meeting of subscribers for that purpose 1859, Mar. 22. The institution was under control of the Wesleyan Meth. Church—six of the trustees being members of that denomination, the other six being citizens of Adrian. The board of trustees was a self-perpetuating board.

By reason of increasing financial difficulties, the institution passed, 1867, Feb. 28, into the possession of the Meth. Prot. Church. The number of trustees was changed from 20 to 30: of these, 24 are elected by the gen. conference of the Meth. Prot. Church—12 at each

## ADRIANOPLE.

quadrennial session; and the remaining 6 are chosen by the Alumni Assoc.—2 at each annual meeting.

The college has several distinct schools, each with its own faculty and course of study, leading to appropriate degrees; among them the College of Literature and Arts; School of Theology; School of Music; Normal School; School of Commerce; Preparatory School. All the schools and classes are open to both sexes.—The library contains about 7,000 vols.; also there are in the libraries of the three literary socs. several hundred vols. There is ample supply of apparatus for illustration and practice in physics and chemistry.

The group of buildings of brick are on a plot of 20 acres. In the rear are grounds and grove for recreations; in front is the campus, regularly laid out and containing class memorials. Funds are now being secured for a gymnasium, which, it is expected, will soon be built and ready for use. The grounds and buildings, including the steam-heating apparatus, are valued at \$125,000. The cabinet of natural history, which is quite full, musical instruments, and similar property, have estimated value of \$30,000. The amount of the endowment fund now productive is \$85,000; annual income from it exceeds \$5,000. Though the college has no fund for aid of needy students, the regular term bills are so low that its privileges are within the reach of any one not in absolute indigence. The board of ministerial education of the Meth. Prot. Church, however, furnishes (in the form of a loan without interest) aid sufficient to cover all expenses to a limited number of young men preparing for the ministry.

The number of professors and instructors is 11; average yearly attendance in the history of the college about 150; number of graduates over 450.—The first pres. was Asa Mahan, D.D. Subsequent presidents have been: John McEldowney, D.D.; George B. McElroy, D.D., PH.D.; David S. Stephens, D.D.; Joseph F. McCulloch, A.M., PH.B.; and Rev. T. H. Lewis, D.D.

ADRIANOPLE, *ăd-rî-ăn-ô'pl* second city in the Turkish empire: founded by the emperor Hadrian on the left bank of the navigable river Hebrus (now Maritza). Here the sultans ruled, 1366 to 1453, when Constantinople was made the capital. Two palaces, 40 mosques, 24 public schools, 22 baths, and the numerous gardens laid out on the banks of the Maritza, are the principal features of A. Its trade consists in opium, oil of roses, with silk and other manufactures.—The Russian-Turkish war was here concluded 1829, Sept. 19, by the Peace of A., which gave both countries important territory; and Russian troops occupied the city after capturing the Turkish army defending the Shipka Pass 1878, Jan. Pop. 81,000.

## ADRIATIC SEA—ADULÉ.

**ADRIATIC SEA**, *ăd'rē-ăt'ík*: a large arm of the Mediterranean, extending in a n.w. direction, between the e. coast of Italy and the w. coast of the opposite continent; connected with the Ionian Sea by the strait of Otranto. In the n., it forms the Gulf of Venice, and in the n.e. the Gulf of Trieste; while, on the Italian side, it forms the bays of Ravenna and Tremiti, and the narrower and deeper Gulf of Manfredonia. On the other side, the coasts of Illyria, Croatia, Dalmatia and Albania are steep, rocky, and barren, and begirt with a chain of almost innumerable small rocky islands. The chief bay in this side is that of Quarnero, s. of the peninsula of Istria. The most considerable rivers flowing into the A. S. are the Adigé and the Po, which are continually depositing soil on the coast, so that places once on the shore are now inland. The extreme saltness of the A. is probably owing to the comparatively small quantity of fresh water poured into it by rivers. Navigation in the A. is safe and pleasant in summer, but in winter the n.w. gales are formidable, on account of the rocky and dangerous coasts on the east. Trieste, Ancona, and Sinigaglia are the chief places of commerce.

**ADRIFT**, ad. *ă-drift'* [AS. *a*, on, and *drift*; *adrifan*, to drive away, to expel]: floating about at random; driven.

**ADROIT**, a. *ă-droyt'* [F. *adroit*, to the right, dexterous—from *à*, to; *droit*, right—from mid L. *directum*, right, justice]: clever in the use of the hands; ready-witted; dexterous. **ADROIT'LY**, ad. *-lī*, in a ready, skilful manner. **ADROIT'NESS**, n. readiness; dexterity.—**SYN.** of 'adroit': clever; skilful; expert; dexterous; ingenious; ready.

**ADRY**, a. *ă-drī'* [AS. *a*, *drig*, dry]: in *OE.*, thirsty; athirst; in want of drink.

**ADSCITITIOUS**, a. *ăd'sī-tīsh'ūs'* [L. *ad'scītus*, received as true—from *ad*, *sciō*, I know]: added; assumed; taken as supplemental. **ADSCITITIOUSLY**, ad. *-lī*.

**ADSCRIPT**, n. *ăd'skrīpt* [L. *adscriptus*, assigned to in a writing—from *ad*, *scriptus*, written]: in *OE.*, one bound in service to a thing or place, without power of removal, as a slave or serf to the soil.

**ADSTRICTION**, n. *ăd-strīk'shŭn* [L. *adstrictus*, bound or fastened to something—from *ad*, *strictus*, drawn together]: a binding fast; constipation.

**ADULARIA**, n. *ăd'ū-lā'rī-ă* [Gr. *adulāros*, sweetly fair—from (*h*)*edus*, sweet; *laros*, pleasant: or *Adula*, one of the highest peaks of St. Gotthard, in Switzerland, where found]: a transparent variety of potash felspar: see **FELSPAR**.

**ADULATION**, n. *ăd'ū-lā'shŭn* [F. *adulation*, flattery—from L. *adulātīōnem*, fawning like a dog—from *adulārē*, to fawn upon, to flatter]: servile flattery; praise in excess. **ADULATOR**, n. *ăd'ū-la-tēr*, one who. **ADULATORY**, a. *ăd'ū-lă-tēr'ī*, containing excessive praise.—**SYN.** of 'adulation': flattery; praise; compliment; obsequiousness;—of 'adulator': flatterer; sycophant; parasite; courtier.

**ADULÉ**, *ă-dó'leh*: ancient town on the Red Sea. It was the port of Axum, and is noticed chiefly on account of an



## ADULLAMITES--ADULTERATION.

inscription, of some importance relative to the ancient geography of those regions, the *Monumentum Adulitanum*, first published in the 6th c., in the *Topographia Christiana* of Cosmas Indicopleustes. The modern town is called Zulla.

**ADULLAMITES**, *ă-dŭl'ăm-īts*. An attempt, in the year 1866, by the government of Earl Russell and Mr. Gladstone, to carry a measure which would have brought about a sweeping reduction of the elective franchise, gave occasion to a large number of the more moderate Liberals to secede from the Whig leaders and vote with the Conservatives. The designation of *Adullamites* was fastened on the new party, in consequence of Mr. Bright having, in the course of debate, likened them to the political outlaws who took refuge with David in the cave of Adullam (1 Samuel, xxii. 1, 2); a comparison taken up by Lord Elcho, who humorously replied that the band congregated in the cave was hourly increasing and would succeed in delivering the house from the tyranny of Saul (Mr. Gladstone) and his armor-bearer (Mr. Bright).

**ADULT**, n. *ă dŭlt'* [L. *adultus*, grown: F. *adulte*, full-grown]: an individual of either sex supposed to be full-grown, as from fifteen years of age upwards; that which is grown to maturity: **ADJ.** mature; grown up. **ADULT'NESS**, n. state of being an adult.

**ADULTERATE**, v. *ă-dŭl'tér-ăt* [L. *adultērātŭs*, corrupted; *adulter*, an adulterer, a paramour]: to corrupt; to make impure by a base mixture. **ADUL'TERA'TING**, imp. **ADUL'TERA'TED**, pp: **ADJ.** rendered impure or corrupt by a base admixture. **ADULTERATION**, n. *a-dŭl'tér-ă'shŭn*, the being corrupted or debased; the act of debasing by a foreign admixture; an article not pure and genuine. **ADUL'TERA'TOR**, n. *-tér*, one who; also **ADUL'TERANT**, n. **ADUL'TERATELY**, ad. *-lŭ*. **ADUL'TERATE'NESS**, n. the quality or condition of being debased or corrupted. **ADULTERER**, n. *ă-dŭl'tér-ér*, a man guilty of adultery; in *Scrip.* an idolater. **ADUL'TERESS**, n. a woman guilty of adultery. **ADULTEROUS**, a. *ă-dŭl'tér-ŭs*, pertaining to adultery; unclean. **ADUL'TEROUSLY**, ad. *-lŭ*. **ADULTERY**, n. *ă-dŭl'tér-ŭ*, violation of the marriage-bed; in *Scrip.*, idolatry. **ADULTERINE**, a. *ă-dŭl'tér-ĭn*, resulting from adultery; spurious: N. a child born from adulterous intercourse.—**SYN.** of 'adulterate': to debase; defile; vitiate; sophisticate; corrupt; contaminate;—of 'adulterated': counterfeit; spurious; supposititious; fictitious; sophisticated, etc.

**ADULTERATION OF DRUGS AND MISCELLANEOUS ARTICLES:** indicated in general in the following list of chief articles adulterated, and of their most usual adulterants: see further the titles of various articles:

DRUGS.	ADULTERATING SUBSTANCES.
Aconite .....	Exhausted dried root
Animal charcoal.....	} Wood charcoal and earthy mat- ters
Asafœtida .....	Magnesian Limestone
Bismuth subnitrate.....	Calcium phosphate
Cape aloes .....	Ship's biscuit and tumeric
Cascara bark.....	Other barks
Castor-oil .....	Olive and lard oils

## ADULTERATION OF FOOD—ADULTERY.

Citrate of magnesia .....	Sodium tartrate
Gregory's mixture.....	Magnesium carbonate
Iodine.....	} Plumbago and sulphide of anti- mony
Ipecacuanha .....	
Licorice.....	Sand and starch
Myrrh.....	Various gums and resins
Oil of bay rum .....	Oil of clove and oil of pimento
Oil of cacao .....	Tallow
Oil of lavender .....	Oil of spike
Peru balsam .....	Rosin, benzoin, and castor oil
Powdered rhubarb.....	Starch and tumeric
Quinine and quinine sulphate.....	} Cinchonine sulphate, salicine, and finely-picked cotton
Salicylic acid .....	
Sarsaparilla .....	} Beet-root, serpentaria, podo- phyllum
Scammony.....	
Soap .....	} Sand, sulphate of baryta, starch, etc.
Spruce gum.....	
Storax .....	Sawdust
Volatile oils (such as essential oil of bergamot) .....	} Fixed oils, chloroform, alcohol, etc.

### MISCELLANEOUS ARTICLES.

### ADULTERATING SUBSTANCES.

Beeswax .....	} Mineral matters) gypsum, sul- phate of baryta, and yellow ochre), starch, resinous bodies, and paraffin
Calicoes.....	
Cement .....	Sand
Cochineal.....	White lead or talc
Colors and dyes.....	Cheaper colors and diluents
Guano and other manures.....	Sand, oxide of iron, ochre, etc.
India-rubber .....	Rubber substitute, etc.
Isinglass .....	Gelatine
Linen .....	Cotton
Oil .....	Cheaper varieties
Paper .....	China clay, etc.
Seeds.....	Inferior and cheaper seeds
Snuff.....	Carbonate of soda and moisture
Tobacco.....	Nitre, glycerine, and moisture
White-lead .....	Sulphate of baryta and chalk
Woolen cloth .....	Cotton fibre and shoddy

**ADULTERATION OF FOOD:** see **FOOD AND DRINK:** also the titles of various articles of food and drink.

**ADULTERY:** has been well defined as 'the voluntary sexual intercourse of a married person with a person other than the offender's husband or wife.' (*Bishop on Marriage and Divorce*, § 415.) By the Roman law there was no A. unless the woman was married, and the same was the rule in Athens. It was in this limited form also that A. was recognized by the Mosaic law. By the canon law the husband and wife were placed on the same footing; and this view has been adopted by all the nations of modern Europe. In New Jersey it has been decided that a married man does not commit this crime in having connection with an unmarried woman. (Bishop, *ibid.*) But this has not been the prevalent doctrine in the United States; and it has never been doubted that the offense necessary to found the sentence of divorce is committed by unlawful sexual intercourse equally whether the *particeps criminis* were married or single. A. was recognized as a crime even before Moses (Gen. xxxviii. 24), and it is probable that in affixing to it the punishment of death (Lev. xx. 10), he followed the prevail-

## ADUMBRATE—AD UNUM OMNES.

ing custom. In Rome, the Julian law (B.C. 17) imposed forfeiture of goods and banishment on both adulteress and paramour. The husband in certain cases was permitted to kill the latter, and the father might sometimes kill both. In Athens the laws concerning A. resembled the earlier Roman legislation. In many European countries A. is still treated as a criminal offense, punishable with imprisonment, frequently accompanied with a fine. Lord Coke says that by the law of England in early times, A. was punished by fine and imprisonment (3 *Inst.* 306). During the Commonwealth it was made a capital offense (*Scobell's Acts*, part ii., p. 121); but this law was not confirmed at the Restoration. In Scotland, capital punishment was frequently inflicted. At the present day it is punishable in Great Britain only by ecclesiastical censure; and even this may be regarded as in desuetude. But when committed by the wife it has been regarded as a civil injury.

The essentials to the offense are: (1) That there shall be unlawful carnal connection; (2) that the guilty party shall at the time be married; (3) that he or she shall willingly commit the offense. A. in one of a married pair is held to be good cause for obtaining divorce by the innocent partner. The punishment for A. differs in the different states: in some jurisdictions the law deals with it as a crime, in others as only a civil injury. See SEPARATION: DIVORCE.

ADUMBRATE, *v.* *ăd-ŭm'brăt* [L. *adūbratus*, shadowed forth, delineated—from *ad*, *umbra*, shadow]: to cast a faint shadow; to sketch faintly. ADUMBRATING, *imp.* ADUMBRATED, *pp.* ADUMBRAL, *a.* shady. ADUMBRANT, *a.* casting a faint shadow. ADUMBRATION, *n.* act of shadowing forth; a faint sketch; an outline; an imperfect portrayal or representation; in *her.*, a figure on a coat of arms traced in outline only, or painted in a darker shade, as the field or background. ADUMBRATIVE, *a.* faintly representing; typical.

ADUNCATE, *a.* *ăd-ŭnk'ăt*, also ADUNC, ADUNCOUS [mid. L. *aduncatus*—from L. *aduncus*, hooked—from *ad*, *uncus*, a hook]: crooked; bent in the form of a hook. e.g., the bill of a parrot. ADUNCITY, *n.* crookedness, like a hook; a hooked form.

AD UNGUEM, phrase, *ăd ŭn'guēm* [L. to the nail]: exactly; nicely; thoroughly. The Romans, after social drinking, inverted the cup and suffered a drop of wine to rest upon the thumb-nail, which drop they afterward absorbed with their lips in token of fealty.

AD UNUM OMNES, phrase, *ăd ŭ'nŭm ōm'nēs* [L.]: all, to a man.

## ADURE—ADVANTAGE.

ADURE, v.t. *ă-dūr'* [from L. *adurese*, to burn]: to burn up.

ADUST, a. *ă-dŭst'*: dusty.

ADUST, a. *ă-dŭst'* [L. *adustus*, scorched; burnt up—from *ad*, *ūrō*, I burn]: scorched; very dry, as if by heat, fiery; looking as if scorched; sunburnt. ADUSTED, a. scorched, dried, as by heat. ADUSTIBLE, a. *ă-dŭs'tĭ-bl*, capable of being scorched. ADUSTION, n. act of scorching or drying; state of being scorched or dried.

ADVAITA, n. *ăd-vĭ'tā* [Sanskrit]: term (equivalent to Monism) employed by Hindoo philosophers to convey the idea of oneness—an idea allied to the doctrine that Brahma is the only absolute existence; and that human souls are a part of the being of Brahma, and are absorbed by it at death. The Vedas are in direct conflict with the idea of a separate personal existence. The enunciation of the A. doctrine began with the Veda hymns; was further developed in the Vedanta system, and was especially elaborated by Sankara, a commentator reputed to have lived in the 8th c. after Christ.

AD VALOREM, *ăd vâ-lō'rēm* [L. according to value]: applied to a duty charged on goods according to their value at place of shipment as sworn to by the owner and certified by customs appraisers: applied also to legal fees regulated by value of property concerned.

ADVANCE, v. *ăd-văns'* [F. *avancer*; Sp. *avanzar*, to advance: F. *avant*; mid. L. *abante*, before, forward]: to put forward or before; to move or bring forward; to raise to a higher rank; to propose; to pay beforehand; to be promoted; to make improvement: N. a moving or bringing forward; promotion; a rise in value or price; a giving beforehand; a proposal. ADVAN'GING, imp. ADVANCED, pp. *ăd-vănst'*. ADVAN'GER, n. *-sēr*, one who puts forward. ADVANCE'MENT, n. the act of moving or being moved forward; a step or rise in rank or promotion. ADVANCIVE, a. *ăd văn'siv*, tending to advance. IN ADVANCE, before; in front; beforehand. ADVANCED-GUARD, n. in *mil.*, the detachment of troops which precedes the main body of an army or division. ADVANCED POSTS, small bodies of troops placed in front to watch and guard, as against surprises, or the approaches to the camp. ADVANCED WORKS, those formed beyond the glacis of a fortification, and under the protection of its guns.—SYN. of 'advance, v.': to proceed; forward; promote; allege; adduce; assign; exalt; elevate; raise; enhance; accelerate; aggrandize; heighten;—of 'advancement': promotion; preferment; progression; improvement, etc.

ADVANTAGE, n. *ăd-văn'tāj* [OF. and F. *avantage*, profit—from F. *avant*; It. *avanti*; mid. L. *abante*, before, forward—*lit.*, something that puts one forward]: superiority in any state, condition, or circumstance; gain; interest. ADVANTAGED, pp. *ăd-văn'tăjd*, benefited; forwarded. ADVANTAGEOUS, a. *ăd'văn-tă'jūs*, favorable; full of benefit. AD'VANTA'GEOUSLY, ad. *-lĭ*, conveniently; profitably. AD'

## ADVENT.

VANTA'GEOUSNESS, n. *-jūs-nēs*, the quality or condition of being of advantage; profitableness. *Note.*—The insertion of a *d* in *advance* and *advantage* is modern; in *OE.*, we have *avance* and *avantage*.—*SYN.* of 'advantage': benefit; profit; gain; interest;—of 'advantageous': profitable; beneficial; opportune; convenient; useful.

ADVENT, n. *ād'vent* [L. *adven'tus*, arrived, reached—from, *ad, venīo*, I come: OF. *advent*—*lit.*, a coming to a person or thing]: the coming of Christ to the earth; in the Roman Cath., and in the Epis. and some other Prot. churches, the four weeks before Christmas; arrival, as the *advent* of the empire. AD'VENT, a., also ADVENTUAL, a. *ād'ven'tū-āl*, relating to the season of advent.

ADVENT, or ADVENT SEASON: a term applied, by the Christian Church, to certain weeks before Christmas. In the Greek Church, the time of A. comprises forty days; but in the Roman Church, and those Protestant churches in which A. is observed, only four weeks. The origin of this observance as a church ordinance, is not clear. The first notice of A., as an appointment of the church, is found in the Synod of Lerida, A.D. 524, at which marriages were interdicted from the beginning of A. until Christmas. The four Sundays of A., as observed in the Roman Church and the Church of England, were probably introduced into the calendar by Gregory the Great. It was common from an early period to speak of the coming of Christ as *fourfold*: his 'first-coming in the flesh;' his coming at the hour of death to receive his faithful followers (according to the expressions used by the apostle John); his coming at the fall of Jerusalem (Matt. xxiv. 30); and at the day of judgment. According to this fourfold view of A., the 'gospels' were chosen for the four Sundays, as was settled in the Western Church by the *Homiliarium* of Charlemagne. The observance of A. is intended to accord in spirit with the object celebrated. As mankind were once called upon to prepare themselves for the personal coming of Christ, so, according to the idea that the church year should represent the life of the founder of the church, Christians are exhorted, during this festival, to look for a spiritual advent of Christ. The time of the year when the shortening days are hastening towards the solstice—which almost coincides with the festival of the Nativity—is thought to harmonize with the strain of sentiment proper during A. In opposition, possibly, to heathen festivals, observed by ancient Romans and Germans, which took place at the same season, the church ordained that the four weeks of A. should be kept as a time of penitence; according to the words of Christ: 'Repent, for the kingdom of heaven is at hand.' During these weeks, therefore, public amusements, marriage-festivities, and dancing were prohibited; fasts were appointed, and sombre garments were used in religious ceremonies. The Protestant Church in Germany has also abstained from public recreations and celebrations of marriage during Advent.

## ADVENT CHRISTIANS—ADVERB.

**ADVENT CHRISTIANS:** largest division of **ADVENTISTS** (see **MILLER, WILLIAM**), who expect Christ's speedy coming to reign on earth. They hold to the annihilation of the wicked; and (mostly) believe that the soul is material and dies with the body—only the followers of Christ attaining resurrection. Members (1903) 26,500.

**ADVENTITIOUS**, a. *ăd'vèn-tîsh'ûs* [L. *adventitiûs*, coming from abroad, foreign—from *adven'tus*, a coming to, an arrival—from *ad, veniō*, I come]: come to accidentally; not forming an essential part; in *bot.*, applied to organs produced in abnormal positions, as in roots arising from aerial stems; unnatural, accidental, or acquired. **AD'VENTI'TIOUSLY**, ad. accidentally. **AD'VENTI'TIOUSNESS**, n. the state or condition of being accidental, or not forming an essential part.

**ADVENTURE**, n. *ăd-vèn'tûr* [mid. L. *advëntūră*, that which happens by chance: OF. *adventure*; F. *aventure*, an adventure—from L. *ad, ventus*, come—*lit.*, anything which happens by accident]: a bold undertaking; a chance enterprise; a striking event: V. to risk on chance; to attempt or dare; to hazard. **ADVEN'TURING**, imp. **ADVEN'TURED**, pp. *-tûrd*. **ADVENTURER**, n. *ăd-vèn'tû-rer*, one who risks a thing on chance; a bold unprincipled schemer. **ADVENTUROUS**, a. *ăd-vèn'tû-rûs*, bold; hazardous. **ADVENTURESOME**, a. *ăd-vèn'tûr-sûm*, somewhat bold; daring; inclined to risk. **ADVEN'TUROUSLY**, ad. *-lî*, boldly; daringly. **ADVEN'TUROUSNESS**, n. the state or condition of being adventurous. **SYN.** of 'adventure, n.': chance; hazard; accident; event; occurrence; contingency; incident;—of 'adventurous': enterprising; daring; courageous; foolhardy; rash; hazardous.

**ADVERB**, n. *ăd-verb* [F. *adverbe*—from L. *advërbîum*—from *ad, verbum*, a word—*lit.*, that which pertains to a verb]: in *gram*, a word used to modify the meaning of a verb, an adjective, an adverb, a clause, or a sentence. **ADVERBIAL**, a. *ăd-verb'î-ăl*, pertaining to an adverb. **ADVERB'IALY**, ad. *-lî*, used as an adverb.

**ADVERB:** a part of speech joined to a verb, to an adjective, or another adverb, as an adjective, for analogous purposes, to a noun. From the frequency with which adverbs are joined to verbs they get their name. An A. cannot be the subject, the copula, or the predicate of a proposition; and is, therefore, a secondary part of speech, logically speaking. According to their signification, adverbs may be divided into—1. Adverbs of Place, as *where, towards*; 2. of Time, as *ever, immediately*; 3. of Degree, as *very, almost*; 4. of Manner, as *thus, wisely*; 5. of Belief or Doubt as, *perhaps, no*, etc. It is commonly said that 'some adverbs admit of comparison,' as if in this respect they differed from adjectives. The truth is, that adverbs admit of comparison under the same limitations, neither more nor less, that restrict the comparison of adjectives. Thus, *soon* is compared as naturally as *hard*. If *now* or *thus* cannot be compared, neither can *wooden* nor *circular*; and in both cases for the same reason—the sense forbids it. The laws of euphony prevent alike *miserable* and *miserably* from being compared

## ADVERSE—ADVERTISEMENT.

grammatically, i.e., by the addition of *er* and *est*, but both admit of logical comparison by the use of *more* and *most*.—A large class of adverbs in English are formed from adjectives by annexing the syllable *ly*, whose meaning is that of the word *like*. Most languages have some such means of distinguishing the A. from the adjective, except the German, in which they are alike. Adverbs in general may be looked upon as abbreviations of phrases; thus, *here* = *in this place*, *then* = *at that time*, *wisely* = *like a wise man*. Combinations of words that can thus be represented by a single adverb, and all combinations that are analogous, though they may have no single word equivalent to them, are called adverbial expressions.

**ADVERSE**, a. *ăd'vĕrs* [L. *adversum*, opposite to—from *ad*, to or against; *versus*, turned; F. *averse* and *adverse*, adverse]: opposed to; acting in contrary directions; contrary to; unfortunate; calamitous; in *bot.*, opposite. **ADVERSELY**, ad. *-lĭ*, in an adverse manner; unfortunately. **ADVERSENESS**, n. state or quality of being adverse; opposition. **ADVERSITY**, n. *ăd-vĕr'sĭ-tĭ*, ill fortune; continued calamity. **ADVERSARY**, n. *ăd'vĕr-sĕr'ĭ*, one opposed to; an enemy. **ADVERSATIVE**, a. *ăd-vĕr'să-tĭv*, marking a difference or opposition.—**SYN.** of 'adverse': contrary; opposite; inimical; hostile; repugnant; averse; unwilling; reluctant;—of 'adversary': enemy; antagonist; opponent; foe;—of 'adversity': distress; calamity; misfortune; misery; affliction.

**ADVERT**, v. *ăd-vĕrt'* [L. *advertĕrĕ*, to direct the mind to; *adver'tens* or *adver'ten'tem*, directing the mind to—from *ad*, *ver'to*, I turn]: to turn the attention to; to refer to; to attend to; to consider. **ADVERTENT**, a. attentive; heedful. **ADVERTING**, imp. **ADVERTED**, pp. **ADVERTENTLY**, ad. *-lĭ*. **ADVERTENCE**, n. *ăd-vĕr'tĕns*, also **ADVERTENCY**, n. *-tĕnsĭ*, attention or regard to; regard.—**SYN.** of 'advert': to regard; attend; allude; refer.

**ADVERTISE**, v. *ăd'vĕr-tĭz* [F. *avertir*, for *advertir*, to inform—from L. *ad*, *ver'tĕrĕ*, to turn—*lit.*, to turn the attention to]: to give notice; to inform; to insert a notice in a newspaper. **ADVERTISING**, imp: **ADJ.** giving advice, inserting notices in a newspaper. **ADVERTISED**, pp. *-tĭz'd'*. **ADVERTISEMENT**, n. *ăd-vĕr'tĭz-mĕnt* [mid. L. *advertĭssa-mĕn'tum*; OF. *advertissement*; F. *avertissement*, an advertisement]: intimation; advice; intelligence; a notice in a newspaper. **ADVERTISER**, n. *ăd'vĕr-tĭ'zĕr*; one who advertises; common name of a newspaper.—**SYN.** of 'advertise': to publish; announce; promulgate; proclaim; inform; apprise.

**ADVERTISEMENT**: the public notification of a fact. This is now effected by means of the ordinary newspapers, covers and fly leaves of magazines, or of newspapers and publications specially devoted to the purpose. Advertisements, both printed and written, are still posted on church-doors and other places of public resort, in which case they are commonly called bills or placards. Public notifications are frequently enjoined by statute. In many ways their legal effects are important. Advertisements by public car-

## ADVICE.

riers, railway companies and the like, are equivalent to offers whereby the advertiser will be bound to those who send goods on the faith, and in accordance with the terms of the A. By advertising a *general ship* for a particular voyage, the master places himself on the footing of a public carrier, and is bound to receive goods for the port to which the vessel is advertised to sail. A merchant in such circumstances can insist on his goods being received, unless the ship be full or the entire freight engaged. The contract of affreightment is completed by the A. and the shipping of the goods in conformity and with reference thereto. See CHARTER-PARTY, CARRIER. Advertisements are found in England as early as the middle of the 17th c., but advertising was not general till the beginning of the 18th. Most newspapers are rendered remunerative to their proprietors chiefly by means of the advertisements which they contain. The business of newspaper advertising in the U. S. was estimated, in 1880, to return a sum aggregating \$39,136,306, divided in the proportion of fifty-five per cent to the daily newspapers and forty-five to the weeklies, etc. The states whose newspapers received the largest sums for advertising were in the following order: New York, \$8,674,173; Pennsylvania, \$4,218,770; Illinois, \$3,179,954; Massachusetts, \$2,512,522; Ohio, \$2,460,642; California, \$2,150,917; Missouri, \$1,710,241; Iowa, \$1,150,806; Indiana, \$1,057,688; Michigan, \$1,002,092; all others were under a million dollars each. In 1880, the largest number of columns of advertisements recorded in a single issue was returned by the New York *Herald*, and amounted to 92. The *Herald* has since largely exceeded 100 columns in a single issue, while the New York *World*, at lower rates, has printed 157 columns of advertisements on a single Sunday. The charges for advertising vary from 10 cents a line in the cheaper papers to 75 cents in the dearer, while in some of the trade papers it is not unusual to charge from \$1 to \$2.50 in favored positions next to or facing reading matter. While in the better class of metropolitan dailies the advertising business is conducted directly with the main or branch office, and at schedule rates, in the case of other papers it is largely worked through agents. This is particularly so with the weekly papers, in which the agents sometimes purchase space by the year, and take the responsibility and risk of filling it, and at other times take the advertising on commission. Very heavy advertising is also done by large business houses in the leading newspapers on yearly or half-yearly contracts, at considerable discount from the schedule rates. See Sampson's *History of Advertising* (1874). See NEWSPAPER.

ADVICE, n. *ăd-vîs'* [OF. *avis*, and *avis*, advice, opinion—from mid. L. *advîsum*, advice, opinion—from L. *ad*, *viso*, I go to see: It. *arviso*—*lit.*, opinion given to]: a speaking to, as to conduct; admonition; counsel; intelligence; due notice given. ADVISE, v. *ăd-vîz'* [OF. *adviser*, to advise, to consider]: to speak to, as to conduct; to give counsel to; to inform; to consult: in *OE.*, to consider. ADVI'SING, imp. ADVISED, pp. *ăd-vîzd'*: ADJ. informed; cautious; prudent; counselled. ADVI'SEDLY, ad. *-li.* thoughtfully; with de-



## ADVICE—ADVOCATE.

liberation. ADVI'SEDNESS, n. state of being advised, deliberation. ADVI'SER, n. one who counsels. ADVISORY, a. *ăd-vî-zér-î*, containing advice. ADVISABLE, a. *ăd-vî-ză-bl*, that may be done; prudent; open to advice. ADVI'SABLENESS, n., and ADVI'SABIL'ITY, n. *-bîl'î-tî*, the quality of being advisable. ADVI'SABLY, ad. *-bli*. ADVISE'MENT, n., ADVI'SING, n., and ADVISO, n. in *OE.*, counsel; advice; consideration. ADVICE-BOAT, a vessel specially employed in carrying advices or dispatches.—*SYN.* of 'advice': information; notice; counsel; deliberation; admonition; consultation;—of 'advise': to apprise; acquaint; admonish; counsel; inform.

ADVICE: see BILL OF EXCHANGE.

ADVOCATE, n. *ăd'vō-kăt* [*OF. advocat*; *F. avocat*, an advocate, a pleader—from *L. advōcātus*, one who pleads—from *ad, voco*, I call, one called on or summoned for aid; one who pleads the cause of another in a court of law; one who defends: *V.* to plead the cause of another. AD'VOCA'TING, imp. AD'VOCA'TED, pp. ADVOCACY, n. *ăd-vō-kā'sî*, the act of pleading for or defending another in a court of law. AD'VOCA'TESHIP, n. the office of an advocate. ADVOCATION, n. *ăd'vō-kā'shŭn*, a pleading for. LORD ADVOCATE, in *Scot.*, the principal law officer of the crown and public prosecutor, who is virtually secretary of state for Scotland, and occupies a position similar to the attorney-general in England. QUEEN'S ADVOCATE, a lawyer appointed by the crown to advise and act as counsel for it, in questions of civil, canon, and international law; the principal law officer in crown colonies. FACULTY OF ADVOCATES, the bar of the supreme courts of Scotland incorporated as a society. JUDGE ADVOCATE, in *courts-martial*, one who conducts the prosecution.

ADVOCATE: generally defined as 'the patron of a cause,' though it does not appear that the 'patrons' who, in ancient Rome, assisted their clients with advice and pleaded their causes, were ever called by that name. Even in the time of Cicero the term *advocatus* was not applied to the patron or orator who pleaded in public, but rather, in strict accordance with the etymology of the word, to any one who in any piece of business was *called in* to assist another. There can be no doubt, however, that the forensic orators and jurisconsults of the later period of the republic, who followed law as a profession, and received fees (*honoraria*) for their services, occupied a position closely analogous to that of the A. of modern times, and thus it has been said that the profession is older than the name. The occupations of a jurisconsult and a forensic orator seem to have differed much as those of a consulting and a practising counsel now do. They might be exercised separately, but were generally combined; thus Cicero speaks of his master, Scævola, as 'the most eloquent of the learned, and the most learned of the eloquent' (*jurisperitorum eloquentissimus, eloquentium jurisperitissimus, De Or.*, i. 39) Ulpian defined an A. to be any person who aids another in the conduct of a suit or action (*Dig. 50, tit. 13*), and in other parts of the digest it

ADVOCATES' LIBRARY—ADYTUM.

is used as equivalent to an orator (see also Tacit. *Annal.* x. 6), so that the word seems gradually to have assumed its modern meaning. The office of the A. or barrister who conducted the cause in public was, in Rome, as in Britain, altogether distinct from that of the procurator, or, as we should say, attorney or agent who represented the person of the client in the litigation, and furnished the A. with information regarding the facts of the case. The British distinction between these two occupations does not prevail in many of the states of Germany, in Geneva, in the United States, and in some British colonies; in these countries they are united in the same person. In England and Ireland advocates are called *barristers* (q.v.—see also ATTORNEY; etc.). In Scotland, as in France, the more ancient name has been retained. The bar of the supreme courts of Scotland is incorporated as a society known as the Faculty of Advocates: see ADVOCATES' LIBRARY.

In France the *avocat* and *avoué* correspond very nearly to the barrister and attorney in England. The advocates do not form a corporation, in a technical sense, but are a free society or association (*ordre*), which has the power of protecting and of disciplining its members.

ADVOCATES' LIBRARY: belonging to the Faculty of Advocates in Edinburgh (see ADVOCATE); established 1682. The number of volumes is estimated at about 250,000, the catalogue (7 vols. 4to.) was printed between 1867 and 1878. It is rich in law, in Scottish history, and antiquities, in the works of the fathers and schoolmen, and theology generally, also in Spanish literature. Under the liberal management of the Faculty of Advocates, it has in a great degree the character of a public institution.

ADVOCATUS DIABOLI, *ăd-vō-kā'tūs dī-ă'bō lī*, the Devil's Advocate: name applied in the Roman Church to an accuser of one who is proposed for canonization. When it is proposed that a deceased person shall be canonized, an examination is had of his past life. In this process one party holds the office of accuser, or *advocatus diaboli*; and it is his duty to bring forward all possible objections against the proposed canonization; while on the other side the *Advocatus Dei* (God's advocate) undertakes the defense. Hence the term A.D. has been applied to designate any person who brings forward malicious accusations.

ADVOWSON, n. *ăd-vow'sŭn* [L. *advocātiōnem*, legal assistance, then a protector or defender: mid. L. *advocatio*; OF. *advoeson* and *advouson*, the right of presentation to a benefice: OF. *advoué*; old law Eng. *advowee*, the patron of a living]: right of perpetual presentation to a benefice. ADVOWER or ADVOWEE, n. *ăd-vow'ē*, one who has the right of advowson.

ADYNAMIC, a. *ăd'ī-năm'īk* [Gr. *a*, without; *dúnămis*, power]: without strength.

ADYTUM, n. *ăd'ī-tŭm* or *ă-dī'tŭm* [L. *ad'ytum*—from Gr. *ad'uton*, not to be entered, holy]: the most sacred place in ancient heathen temples.

## ADZE—ÆGINA.

**ADZE** or **ADZ**, n. *ădz* [AS. *adesa* or *adese*, an ax or hatchet: Goth. *akwisi*; mid. L. and It. *azza*, an ax]: an edge-tool for reducing the surface of wood; a kind of ax (see Ax), of which it may only be a double.

**Æ**, *ē*: many words formerly beginning with *æ* are now spelt with *e*. When the word in *æ* is not found, turn to *e*: the L. *æ* represents the Gr. *ai*; the AS. *æ* is now represented by an *e*, *ai*, or *ea*; and the L. *æ* is now generally though not uniformly represented by *ē*—that is, sounded as *ee* in see.

**ÆCIDIUM**, n. *ē-sīd'ī-ŭm* [Gr. *aikion*, a wheel; *eidōs*, resemblance]: a small fungus attacking grasses and other plants,—one species is the red gum of agriculturists.

**ÆDILE**, n. *ē'dil* [*ædilis*, an ædile—from *ædēs*, a house]: an anc. Roman magistrate, who had the care of public buildings and works, etc.

**ÆDILES**: Roman magistrates who had the care of public buildings (*ædes*), especially the temples, and also attended to the cleansing and repairing of the streets, the preparations for funerals, public games and spectacles, the inspection of weights and measures, the regulation of markets, etc.—At first there were only two **Æ.**, who were chosen from the plebeians, and styled *Æ. plebis*; afterwards two others, styled *Æ. curules* were chosen from the patricians (366 B.C.), and Julius Cæsar appointed a new order of *Æ. cereales* to take charge of the public granaries.

**ÆGEAN SEA**, *ē-jē'ăn*: old name of the gulf between Asia Minor and Greece, now usually called Archipelago (q.v.). It was named from **Ægeus**, legendary king of Athens, whose son Theseus (q.v.) had sailed to Crete on his venturesome expedition to free Athens from its dreadful tribute to the Minotaur (q.v.). Theseus returning, forgot in the joy of his victory to hoist the white sails which were to signal his success; and according to one form of the legend, his father, anxiously watching, saw the dark sails, and in his grief cast himself into the sea.

**ÆGINA**, or **EGINA**, *ē-jī'nă*: a Greek island about forty sq. m. in area, in the ancient Saronicus Sinus, now the Gulf of Egina. It is mountainous, with deep valleys and chasms. The modern town of Egina stands on the site of the ancient town, at the n.w. end of the island. There are considerable remains of the ancient city, and the ruins of solidly built walls and harbor moles still attest its size and importance. Pop. of the island about 7,000. The climate is mild, and from the absence of marshes, is specially healthy. The stony but fertile western plains produce almonds, wine, oil, cotton and corn. The most ancient name of the island was **Cenone**, and, according to tradition, the Myrmidons dwelt in its valleys and caverns. In ancient times, the people of **Æ.** had considerable importance in Greece, and their fleet distinguished itself in the battle of Salamis. Their prosperity excited the envy of the Athenians, who expelled the original inhabitants. The language, manners, and style of art among the ancient people of **Æ.** were Dorian.

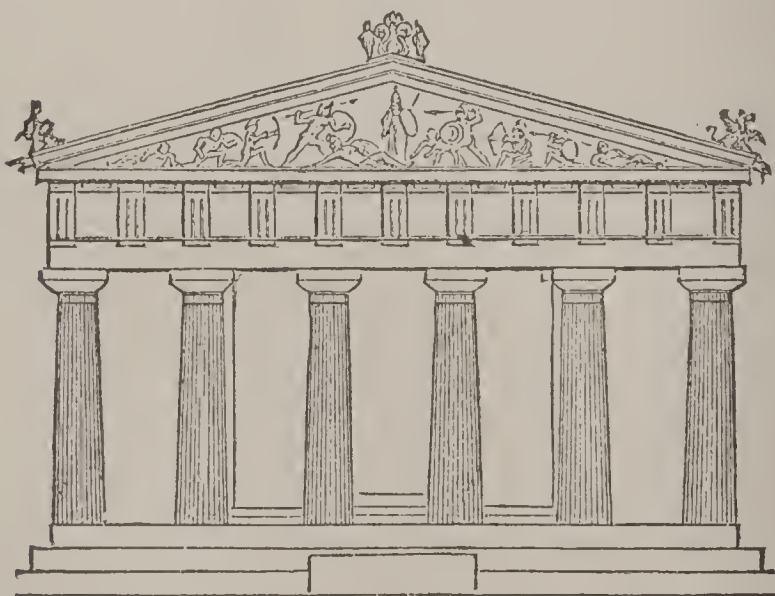
## ÆGINETAN SCULPTURES.

ÆGINE'TAN SCULPTURES: The small island of Ægina is important in the history of Grecian art. A severely natural character belongs to its works of sculpture,



Ruins of Temple of Ægina.

of which several have been discovered in modern times. On an eminence in the e. part of the island stand the ruins of a temple, usually called the temple of Jupiter Panhelle-



Front elevation of Temple of Ægina, restored.

nus, but now believed to have been a temple of Pallas or Minerva. Among these ruins a series of statues were excavated by a company of Germans, Danes, and Englishmen,

## ÆGIS—ÆLFRIC.

which, in 1811, were purchased by Louis, then crown-prince of Bavaria, and are now the most remarkable ornaments of the Glyptothek at Munich. They are of various heights, and were evidently intended to decorate the tympana of the temple beside which they were found. The group that seems to have been designed for the rear tympanum is superior in preservation, and represents a combat of Greeks and Trojans for the body of a fallen hero. The other group is the contest of Telamon with Laomedon. The figures are true to nature, as in the old Greek style, with the structure of bones, muscles, and even veins, distinctly marked; but the faces have that unpleasant, forced smile which is characteristic of all sculpture before the time of Phidias.

ÆGIS, n. *ē'gīs* [Gr. *aigis*, goat-skin, or a shield covered with it: L. *ægis*]: the shield of Jupiter, or of Minerva; a shield. In mythology, it was related that the shield of Jupiter was fashioned by Hephæstus (Vulcan). When Jupiter was angry, he waved and shook the Æ., making a sound like that of a tempest, by which the nations were overawed. The Æ. was the symbol of divine protection, and became, in course of time, the attribute exclusively of Jupiter and Minerva.



Minerva, with Ægis.  
From an ancient statue.

ÆGLE, *ē'glē*: a genus of plants of the natural order *Aurantiaceæ* (q.v.), distinguished by a five-toothed calyx, linear elongate mucronate anthers, and a many-celled fruit. *Æ. Marmelos*, the tree which produces the *bhel* fruit of India, has ternate petiolate, ovato-oblong leaves, and the flowers in panicles. It is found from the s. of India to the base of the Himalaya Mountains. The fruit is delicious, fragrant, and nutritious. In an imperfectly ripened state it is an astringent of great effect in cases of diarrhœa and dysentery, and as such has lately been introduced into English medical practice. The root, bark, and leaves are also used as medicinal. The Dutch in Ceylon prepare a perfume from the rind of the fruit, and the mucus of the seed is employed as a cement for many purposes.

ÆGOSPOTAMI, *ē'gos-pot'a-mā*, or ÆGOSPOTAMOS (Gr. Goat-river), in the Thracian Chersonese, is famous for the defeat of the Athenian fleet by the Lacedæmonians under Lysander, which put an end to the Peloponnesian war and to the predominance of Athens in Greece, 405 B.C.

ÆGYPTUS: see DANAUS.

ÆLFRIC, or ALFRIC, *āl'frik*: a Saxon ecclesiastic of the 10th c., regarding whose age, writings, and personality even, there has been a great difference of opinion among antiquaries. He appears to have been the son of the Ealdorman, or Earl of Kent; but early manifesting a devotional

## ÆLIA CAPITOLINA—ÆNEAS.

spirit, he entered the monastery of Abingdon, the members of which belonged to the Benedictine order. Towards the close of the 10th c., he became a priest in the cathedral of Winchester. He was next appointed abbot of St. Albans, then bishop of Wilton, and finally archbishop of York, although others appear to think him that Æ. who was archbishop of Canterbury. Æ., archbishop of York, died 1050; Æ., archbishop of Canterbury, in 1005. The writer Æ., whether of York or of Canterbury, was a man of superior attainments for his time, of excellent character, and one whose religious convictions were less disfigured by superstition than those of his contemporaries. The principal works ascribed to Æ. are—1. A Latin and Saxon glossary, printed at Oxford in 1659; 2. A Saxon version of most of the historical books of the Old Testament; 3. A charge to his clergy; 4. Two volumes of Saxon homilies; 5. A Saxon grammar in Latin.

ÆLIA CAPITOLINA: see JERUSALEM.

ÆMILIAN PROVINCES: see EMILIAN PROVINCES.

ÆMILIUS PAULUS, *ē-mil'e-us paw'lus*. The most remarkable of this name was the son of the consul Æ. P., who fell in the battle of Cannæ, 216 B.C. Young Æmilius inherited his father's valor, and enjoyed an unwonted degree of public esteem and confidence. In B.C. 168 he was elected consul for the second time, and intrusted with the war against Perseus, king of Macedon, whom he defeated in the battle of Pydna. During the war his two younger sons died, and Æ. is said to have thanked the gods that they had been chosen as victims to avert calamity from the Roman people.

ÆNEAS, *ē-nē'as*: the hero of Virgil's *Æneid*, was, according to Homer, the son of Anchises and Venus, and was ranked next to Hector among the Trojan heroes. The traditions of his adventures before and after the fall of Troy are various and discordant. Virgil gives the following version: Æneas, though warned by Priam in the night when the Greeks entered Troy, to take his household gods and flee from the city, remained in the contest until Priam fell, when, taking with him his family, he escaped from the Greeks, but in the confusion of his hasty flight lost his wife Creusa. Having collected a fleet of twenty vessels he sailed to Thrace, where he began building the city of Ænos, but was terrified by an unfavorable omen, and abandoned his plan. A mistaken interpretation of the oracle of Delphi now led him to Crete; but from this place he was driven by a pestilence. Passing the promontory of Actium, he came to Epirus, and then continued his voyage to Italy and round Sicily to the promontory of Drepanum on the w., where his father, Anchises, died. A storm afterwards drove him to the coast of Africa, and landing near Carthage, he was hospitably received and entertained by Queen Dido. His marriage with Dido was prevented by Jupiter, who sent Mercury with a command that Æ. must return to Italy. Accordingly he sailed away, leaving the disappointed queen, who committed suicide. During his stay in Sicily, where

## ÆNEID—ÆOLIPYLE.

he celebrated the funeral of his father, the wives of his companions and seamen, weary of long voyages without certainty of finding a home, set fire to his fleet. After building the city Acesta, he sailed for Italy, leaving behind him the women and some of the men belonging to his fleet. On landing in Italy, he visited the Sibyl at Cumæ, and received intimations of his future destiny. Then, sailing along the Tiber, and landing on the east side of the river, he found himself in the country of Latinus, king of the Aborigines. Lavinia, the daughter of Latinus, had been destined to marry a stranger, but her mother had promised to give her in marriage to Turnus, king of the Rutuli. A war ensued, which terminated in the marriage of Æ. with Lavinia. Their son, ÆNEAS SYLVIVS, as the ancestor of the kings of Alba Longa, and also of Romulus and Remus, was regarded as the founder of the Roman empire. It is hardly necessary to add that these statements have no historical basis.

ÆNEID, n. *ĕ-nĕ-ĭd*, the great epic poem by the anc. Roman, Virgil, of which Æneas, *ĕ-nĕ-ŭs*, is the hero.

ÆOLIAN, a. *ĕ-ŏ-li-ăn* [L. *Æolus*, the god of the winds]: pertaining to Æolus or the wind.

ÆO'LIAN HARP: a very simple musical instrument producing harmonic sounds when placed in a current of wind. It is formed by stretching eight or ten strings of catgut, all tuned in unison, over a wooden shell or box, made generally in a form sloping like a desk. The sounds produced by the rising and falling wind, in passing over the strings, are soft and lulling, and have been beautifully described by the poet Thomson, as supplying the most suitable kind of music for the *Castle of Indolence*.

ÆOLIAN ISLES: see LIPARI ISLANDS.

ÆOLIANS: one of the principal races of the Greek people, who were originally settled in Thessaly, whence they spread and formed numerous settlements in the n. of Greece and in the w. of Peloponnesus. In the 11th c. B.C., some part of them emigrated to Asia Minor, where they founded on the n.w. coast in Mysia, and the adjacent isles, more than thirty cities; among them, Smyrna and Mitylene in the island of Lesbos, where the Æolian dialect of the Greek language chiefly developed itself in the forms employed in the poetry of Alcæus and Sappho. The Æolian shared the fate of the other Grecian colonies in Asia Minor. First oppressed by the Lydian kings, then deprived of their independence by the Persians, they became a portion of the great empire founded by Alexander, and were ultimately absorbed in the Roman empire.

ÆOLIC, a. *ĕ-ŏ-l'ik*, of Æolia, a district of Asia Minor.

ÆO'LIAN, a. pertaining to: N. an inhabitant of Æolia.

ÆOLIPYLE, or ÆOLIPILE, *ĕ-ŏ-l'i-pĭl*, [named from *Æolus*, wind, and *pĭla*, a ball]: a hollow metallic ball from which, when heated, steam issues by orifices in two inner tubes so as to turn the ball; as water issuing from orifices turns Barker's Mill (q. v.). It was invented by Hero of Alexandria (q. v.) See STEAM ENGINE.

## ÆOLOTROPY—AËRATED WATERS.

**ÆOLOTROPY**, n. *ē-ō-lōt'rō-pī*: quality or state of not possessing the same properties in all directions; opposite of isotropy. It denotes the condition of a body with reference to the action on it of light, heat, etc., or with reference to its elasticity.

**ÆON**, n. *ē'ōn* [Gr. *aion*, an age]: a lengthened period; in the ancient Eastern philosophy, *æons* were supposed emanations from the one self-originated Being, among which were *zōē*, life; *logos*, word; *monōgēnēs*, only begotten; *plerōma*, fulness. See **GNOSTICISM**.

**ÆPYORNIS**, or **ÆPIORNIS**, n. *ē'pī-ōr'nīs* [Gr. *aipus*, immense; *ornīs*, a bird]: an immense struthious or ostrich-like bird, now extinct, which some centuries ago inhabited Madagascar. It was much larger than the ostrich, and its eggs are the largest known. It had three toes like the *Dinornis* (q. v.).

**AERATE**, v. *ā'ēr-āt* [Gr. or L. *āēr*, air]: to combine with air; to charge with carbonic acid. **A'ERA'TING**, imp. **AERATED**, pp. *ā'ēr-ā'tēd*, mixed with carbonic acid. **AERATION**, n. *ā'ēr-ā'shūn*, the operation or process of mixing with carbonic acid. **AERIAL**, a. *ā-ē'rī-āl*, belonging to the air: high; lofty.

**AËRATED BREAD**: bread prepared by a process which dispenses with yeast, and avoids fermentation. The flour is moistened with carbonic acid water (see **AËRATED WATERS**); and the carbonic acid expanding forms a light palatable bread. The advantages are: 1. A saving of the waste in fermentation. 2. The process is shortened from several hours to half an hour. 3. The cost is less than that of yeast in the old process when large quantities of bread are made. 4. The dough requires no handling to knead it and form it into loaves. 5. The bread is pure—merely flour, water, and salt. See **BREAD: UNFERMENTED BREAD**.

**AËRATED WATERS**: class of refreshing, refrigerant beverages rendered sparkling by dissolving in them carbonic acid under pressure. The term does not include champagne or cider, or fermented root-beer, or any other carbonated beverage in which the carbonic acid gas is produced by the natural process of fermentation. Carbonic acid dissolves readily in water, that liquid absorbing at the ordinary atmospheric pressure and temperature about its own volume of the gas. Under pressure, however, as when the gas is forced into a strong vessel containing the water, it absorbs many times its own volume; and when the pressure is released, the extra amount of carbonic acid escapes, rendering it for a time sparkling or effervescent, for the water does not give off all the extra gas at once. All agitation, or the presence of particles of dust, favors the disengagement of the gas, and and so it is that in drawing an aerated beverage from a *siphon* (see below), the tumbler is filled with froth to an extent not noticed in pouring from a bottle. In this case, the rapidity of discharge through a narrow tube causes im-



## AERATED WATERS.

mediate liberation of a large volume of the gas, producing the froth referred to. The varying solubility of carbonic acid at different temperatures and pressures explains why siphons or bottles which have been kept in a cold place appear to be deficient in gas, when in reality the gas is only kept in solution by the low temperature of the water.

It would be beyond the scope of this article to describe the various forms of apparatus used in the production on the large scale of A. W., for in no branch of industry has more ingenuity been expended than in this for the devising of labor-saving apparatus. Essentially, the process consists in the production of Carbonic Acid (q.v.) from whitening or chalk, by the action of sulphuric acid. The refuse, consisting of plaster of Paris, is thrown away, while the gas, after being purified by washing with water, is stored in a copper bell or gasometer. Thence it is pumped along with water into copper or gun-metal vessels lined with pure tin, being made to dissolve in the water either by agitation or by other appliances. When the pressure inside these vessels reaches about 100 lb. per square inch, the water contains about seven times its volume of gas, and is ready to be filled into bottles. The *bottling* is accomplished with great speed, an expert bottler being able to fill from 30 to 50 dozen of corked bottles per hour; while, when patent (i.e. ball-stoppered) bottles are used, from 40 to 70 dozen may be filled. The *siphon* is a glass bottle, fitted with a metal top, and furnished with a lever or handle, which enables a portion of the contents to be drawn off without difficulty. The head should be of the purest tin, to avoid contamination of the aerated water. Formerly there was risk of lead-poisoning by A. W., as they readily dissolve lead; but all manufacturers of any repute now make it a point to use no lead-piping whatever in their machinery, pure tin-pipe being alone admissible.

The better known kinds of A. W. are: (1) *Potash and Soda waters*, which, when of full medicinal strength, contain fifteen grains of the bi-carbonate of potash or soda in each bottle; usually, however, much less is put in, and the amount ranges from one to seven or ten grains; (2) *Aerated water*, which is frequently sold for soda-water, but is a simple solution of carbonic acid, and contains no admixture; (3) *Seltzer water* (better *Selters water*, being named from Selters, in Nassau, where natural mineral water of this composition is obtained), which contains the chlorides of sodium, calcium, and magnesium, along with phosphate and sulphate of sodium; (4) *Medicinal waters*, containing varying proportions of chemicals, as, for instance, lime, carbonate of iron, citrate of lithia, or bromide of potassium.

The temperance drinks, which include such favorites as lemonade, ginger-beer, ginger-ale, and tonic bitters, are all made by putting the requisite quantity of flavoring syrup into a bottle, and filling up with simple aerated water; and the varying qualities in the market correspond to the variety in the receipts from which they are made.

## AËRIAL NAVIGATION.

On the small scale, and for family use, carbonic acid water may be conveniently prepared in the apparatus known as the *gazogène* or *seltzogenè*. It usually consists of two globes, one above the other, and connected by a tube. Powders of bicarbonate of soda and tartaric acid are then placed in the upper globe, and the apparatus is inclined till water from the lower globe enters by the tube, and fills the upper globe about one-third. The tartaric acid and bicarbonate of soda have no action on each other so long as they are dry; but whenever water is admitted, the tartaric acid combines with the soda and water to form tartrate of soda and water, and at the same time carbonic acid is given off, and descending the tube into the lower globe, dissolves in the water contained therein. Occasionally, bisulphate of potash is used instead of tartaric acid, to save the greater expense of the latter. *Aerated fruit-beverages* are produced when the water charged with carbonic acid is received in a glass containing about a table-spoonful of any of the fruit-syrups.

A well-known effervescing draught is made from *soda-powders*, composed of bicarbonate of soda and tartaric acid. *Seidlitz-powders* contain tartrate of soda and bicarbonate of soda in one paper, and tartaric acid in the other. Many waters naturally aerated have important medicinal properties: see MINERAL WATERS.

**AËRIAL NAVIGATION:** locomotion through the air. The most interesting attempts thus far made to solve the problem of A. N. are those of Otto Lilienthal at Berlin, Germany; of Hiram S. Maxim, inventor of the Maxim gun, at Baldwin Park, near Bexley, England; and of Prof. Samuel P. Langley, Sec. of the Smithsonian Institution, Washington, D. C., at Quantico, Md. Lilienthal's apparatus consisted of a system of light and extended aëroplanes attached to his person, with which he could make soaring flights against the wind from the summit of a hill, the greatest horizontal distance passed being about 1000 ft. His experiments were ended by a fatal fall from his machine, 1896, Aug. 11

Maxim's air-ship consists of a system of superposed aëroplanes mounted on a car driven by a steam-engine. His own description is as follows: 'The area of the main aëroplane is 2,894 sq. ft., of the small one 126, and of the bottom of the car 140. With the rudders and the wings added, the total area is about 6,000 sq. ft. The wings are ten in number, and superposed, five on each side, and are each 5 ft. wide and 25 to 35 ft. in length, according to their positions. The forward rudder, projecting in front from the main aëroplane, is 18 ft. wide and 30 ft. long, and the aft rudder 18 by 23 ft. Rudders and wings, like all the other aëroplanes, are made of a specially woven cotton cloth, so fine that you cannot blow through it, and mounted on a framework of hollow steel tubes. All these aëroplanes are inclined at a small angle to the air, the angle which gives the most support combined with the least resistance to its forward motion.' The wings are 'so adjusted that as any

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side is depressed it presents a greater lifting surface to the air below, so that the machine is kept on an even keel. \* \* \* The total weight of the machine, with its full complement of water, naphtha, and three men, is something over 7,100 lbs. \* \* \* The boiler weighs 1,000 lbs. This small weight, considering it gives me a force of 300 horse-power, is perhaps the most valuable portion of the work, since it has always been known that we could fly if we could get a motive-power of adequate strength with sufficient lightness. I use a compound engine, the high-pressure cylinders being five inches in diameter, with a twelve-inch stroke, and the low-pressure eight inches in diameter with a twelve-inch stroke.' The driving apparatus consists of two powerful screw propellers; and steering to the right or left is accomplished by varying the speed of either one relatively to that of the other. The machine is made to run on a railway track, and is held down, in the present experimental stage, by overhead rails or guides. On 1894, July 31, with a steam pressure of 320 lbs., the machine was completely lifted off the lower rails, and after running a few hundred ft., the lifting power became so great as to bend the rear axles, and to break and displace the upper rails, when the steam was shut off, and the machine fell to the ground. During the trip, a surplus lifting power of 2,000 lbs. was registered.

Prof. Langley's 'aërodrome' is the first machine that has made an independent flight for any considerable distance. It is thus described by himself in *McClure's Magazine*, 1896, June: 'In the completed form of the machine there are two pairs of wings, each slightly curved, each attached to a long steel rod which supports them both, and from which depends the body of the machine, in which are the boilers, the engines, the machinery, and the propeller wheels, these latter being nearly amidships. They are made sometimes of wood, sometimes of steel and canvas, and are between three and four ft. in diameter.

'The hull itself is formed of steel tubing; the front portion is closed by a sheathing of metal which hides from view the fire-grate and apparatus for heating, but allows us to see a little of the coils of the boiler and all of the relatively large smoke stack in which it ends. The conical vessel in front is an empty float, whose use is to keep the whole from sinking if it should fall into the water.

'This boiler supplies steam for an engine of between one and one and one-half horse-power, and, with its fire-grate, weighs a little over five pounds. This weight is exclusive of that of the engine, which weighs, with all its moving parts, but 26 ounces. It drives the propeller wheels at rates varying from 800 to 1,200, or even more, turns a minute, the highest number being reached when the whole is speeding freely ahead.

'The rudder, it will be noticed, is of a shape very unlike that of a ship, for it is adapted both for ver-

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tical and horizontal steering [which it performs automatically].

'The width of the wings from tip to tip is between 12 and 13 ft., and the length of the whole about 16 ft. The weight is nearly 30 pounds, of which about one-fourth is contained in the machinery. The engine and boilers are constructed with an almost single eye to economy of weight, not of force, and are very wasteful of steam, of which they spend their own weight in five minutes. This steam might all be recondensed and the water reused by proper condensing apparatus, but this cannot be easily introduced in so small a scale of construction. With it the time of flight might be hours instead of minutes, but without it the flight (of the present aërodrome) is limited to about five minutes, though in that time it can go some miles; but owing to the danger of its leaving the surface of the water for that of the land, and wrecking itself on shore, the time of flight is limited designedly to less than two minutes.'

In 1901 Santos-Dumont, a French aeronaut, after several attempts, navigated a flying machine of his own invention around the Eiffel Tower, Paris, winning a prize of \$20,000, and 1902, Jan., he made successful flights near Monte Carlo. He undertook to build a new dirigible balloon for the Louisiana Purchase Exposition, St. Louis.

**AERIAL POISONS:** see MIASMA.

**AERIE** or **EYRY**, n. *ē'ri* [F. *aire*, an eyry—from Ger. *aren*, to make one's nest—from Ger. *aar*; Icel. *ari*, an eagle: mid. L. *ārēā*, the nest of a bird of prey]: the nest of an eagle or hawk.

**AERIFY**, v. *ā'ēr-ī-fī* [L. *āēr*, air; *fāciō*, I make; *fīō*, I am made]: to turn into air; to combine or charge with air. **A'ERIFY'ING**, imp. **AERIFIED**, pp. *ā'ēr-ī-fīd*. **AERIFICATION**, n. *ā'ēr-ī-fī-kā'shūn*, the changing solid or liquid bodies into air or gas; the act of combining or charging with air. **AERIFEROUS**, a. *ā-ēr-īf'ēr-ūs* [L. *fero*, I carry]: conveying air; as the windpipe or bronchial tubes. **AERIFORM**, a. *ā'ēr-ī-fawrm* [L. *forma*, a shape]: having the nature or form of air; not solid.

**AERODYNAMICS**, *ā'ēr-ō-dī-nām'-īks*: the branch of science which treats of air and other gases in motion. It examines first the phenomena of air issuing from a vessel, which correspond in many respects with those of water. See **HYDRODYNAMICS**. Much depends, as in the case of water, upon the nature of the orifice, whether a mere hole in the side of the vessel, or a tube or adjutage. Another subject of A. is the motion of air in long tubes, where the resistance of friction, etc., has to be ascertained. That resistance is found to be nearly in proportion to the square of the velocity, to the length of the tube, and inversely to its width. A. considers also the velocity of air rushing into a vacuum, of wind, etc. The instrument used for the latter purpose is called an anemometer. See **WINDS**. Air is found to rush into a void space at the rate of from 1,300 to 1,400 feet per second. One of the most important inquiries

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in *A* is the resistance offered to a body moving in air, or—which is the same thing—the pressure exerted by air in motion upon a body at rest. The law may be stated, with sufficient accuracy for practical purposes, as follows: *The resistance or pressure is proportional to the square of the velocity.* We might gather this law from reason, without experiment; for if one body is moving through the air four times faster than another of the same size, not only will it encounter four times as many particles of air, but it will give each of them four times as great an impulse or shock, and thus encounter  $4 \times 4$  or 16 times as much resistance.

This resistance is greatly increased by another circumstance, especially with great velocities. The air in front of the moving body becomes accumulated or condensed, and a partial or even entire vacuum is formed behind it. With a velocity of 1700 feet per second, for instance, the resistance is found to be about three times as great as the simple law of the square of the velocity would give. By the operation of these laws of resistance, a heavy body let fall with a parachute attached to it, comes, after a certain time, to move with a velocity approaching more and more nearly to a uniform motion.

**AEROLITE**, n. *ā'er-ō-līt* [Gr. *āēr*, air; *lithos*, a stone], a body falling from space upon the surface of the earth; also **AEROLITH**, n. *ā'er-ō-līth*, a meteorite. **METEORIC STONES**, **FIREBALLS**, and **SHOOTING-STARS** are now classed with aërolites, as varieties of the same phenomenon. Aërolites that fall during the day are observed to be projected from a small dark cloud, accompanied by a noise like thunder, or the firing of cannon; at night they proceed from a fireball, which splits into fragments with a similar sound. It is believed that the dark cloud that accompanies the fall of aërolites by day would be luminous at night; and smoking, exploding fireballs have sometimes been seen luminous even in the brightness of tropical daylight. The connection between aërolites and fireballs is thus established. Fireballs, again, cannot be separated from shooting-stars, the two phenomena being sometimes blended, and also being found to merge into one another, both with respect to the size of their disks, the emanation of sparks, and the velocities of their motion.

There are numerous records and stories in all ages and countries of the fall of stones from the sky; but until recent times they were treated by philosophers as instances of popular credulity and superstition. It was not till the beginning of the 19th c. that the fact was established beyond a doubt.—According to Livy, a shower of stones fell on the Alban Mount, not far from Rome, about B.C. 654. The fall of a great stone at Ægospotami, on the Hellespont, about B.C. 467, is recorded in the Parian Chronicle (q.v.), and mentioned by Plutarch and Pliny. It was still shown in the days of Pliny (d. A.D. 79), who describes it as of the size of a wagon, and of a burned color. In the year 1492, a ponderous stone, weighing 260 lbs., fell from the sky near the village of Ensisheim, in Alsace; part of it is still to be seen in the village church. An extraordinary shower of stones

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fell near L'Aigle, in Normandy, 1803, Apr. 26. The celebrated French philosopher, M. Biot, was deputed by government to repair to the spot and collect the authentic facts; and since the date of his report the reality of such occurrences has no longer been questioned. Nearly all the inhabitants of a large district had seen the cloud, heard the noises, and observed the stones fall. Within an elliptical area of seven miles by three, the number of stones that had fallen could not be less than two or three thousand; the largest were 17 lbs. in weight. These are only a few out of hundreds of instances on record.

As was natural with objects of such mysterious origin, meteoric stones have been regarded with religious veneration. At Emesa, in Syria, the sun was worshipped under the form of a black stone, reported to have fallen from heaven. The holy Kaaba of Mecca and the great stone of the pyramid of Cholula, in Mexico, have the same history.

The existence of such bodies once admitted led to assigning a meteoric character to strange ferruginous masses found in different countries and which had no history, or were only adverted to in vague tradition. Of this kind is the immense mass seen by Pallas in Siberia, now in the Imperial Museum at St. Petersburg. The largest known is one in Brazil, estimated at 14,000 lbs.

One constant characteristic of meteoric stones is the fused black crust, like varnish, with which the surface is coated. From the circumstance of this coat being very thin, and separated from the inner mass by a sharply defined line, it is thought to indicate some rapid action of heat which has not had time to penetrate into the substance of the stone. This view is favored by the fact that the stones are found in a strongly heated, but not incandescent state, when they fall. Their specific gravity ranges from two to seven or even eight times that of water.—As to their chemical composition, the predominating element is iron, in a native or metallic state, generally combined with a small proportion of nickel. According to Humboldt, the aërolites that fell in the neighborhood of Agram, Croatia, 1751, the Siberian stone, and specimens brought by that philosopher from Mexico, contain 96 per cent. of iron, while in those of Sienna the iron scarcely amounts to 2 per cent, and, in some rare instances, metallic iron is altogether wanting. A writer in the *Quarterly Review*, No. CLXXXIII., thus sums up the result of all the chemical analyses hitherto made: 'We find the actual number of recognized elements discovered in aërolites to be nineteen or twenty—that is, about one-third of the whole number of elementary substances (or what we are yet forced to regard as such) discovered on the earth. Further, all these aërolitic elements actually exist in the earth, though never similarly combined there.' No new substance has hitherto come to us from without; and the most abundant of our terrestrial metals, iron, is that which is largely predominant in aërolites, forming frequently, as in some of the instances just mentioned, upwards of 90 parts in 100 of the mass. Seven other metals—copper, tin, nickel, cobalt, chrome, manganese, and molybdena—enter variously into the com-

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position of these stones. Cobalt and nickel are the most invariably present; but the proportion of all is trifling compared with that of iron. Further, there have been found in different aërolites six alkalies and earths—namely, soda, potash, magnesia, lime, silica, and alumina; and, in addition, carbon, sulphur, phosphorus, and hydrogen. Finally, oxygen is a constituent of many aërolites, entering into the composition of several of the substances just mentioned. As respects the manner of conjunction of these elements, it is exceedingly various in different aërolites. A few there are, especially examined by Berzelius and Rose, containing olivine, augite, hornblende, and other earthy minerals, and closely resembling certain crystalline compounds which we find on the surface of the earth.'

Beside those solid masses of considerable size, numerous instances are on record of showers of dust over large tracts of land, and it is remarkable that such dust has generally been found to contain small, hard angular grains resembling augite. Stories of the fall of gelatinous masses from the sky are ranked by Humboldt among the mythical fables of meteorology. It has been supposed that such fables may have originated in the very rapid growth of gelatinous algæ, as *Nostoc* (q.v.).

*Fireballs and Shooting-Stars.*—From the height and apparent diameter, the actual diameter of the largest fireballs is estimated by Humboldt to vary from 500 to 2,800 feet; others allow a diameter of about a mile. Shooting stars are much smaller, their weight varying from 30 grains to 7 lbs. In most cases of luminous meteors a train of light many miles in length is left behind. One or two instances are on record where the train of the fireball continued shining for an hour after the body disappeared. The *heights* of shooting-stars are found to range from 15 to 150 m. at the points at which they begin and cease to be visible. Their *velocities* vary from 18 to 36 m. in a second. When it is remembered that the velocity of Mercury in its orbit is 26.4 m. in a second, of Venus 19.2, and of the Earth 16.4, we have in this fact a strong confirmation of the planetary nature of meteorites.

One of the most remarkable facts connected with shooting-stars is that certain appearances of them are *periodic*. On most occasions they are *sporadic*—that is, they appear singly and traverse the sky in all directions. At other times they appear in swarms of thousands, moving parallel; and these swarms are periodic, or recur on the same days of the year. Attention was first directed to this fact on occasion of the prodigious swarm which appeared in North America, 1833, Nov. 12 and 13, described by Professor Olmsted of Yale College. The stars fell on this occasion like flakes of snow to the number, as was estimated, of 240,000 in the space of nine hours, varying in size from a moving point or phosphorescent line to globes of the moon's diameter. The most important observation made was that they all appeared to proceed from the same quarter of the heavens—the vicinity, namely, of the star  $\gamma$ , in the constellation Leo, and although that star had changed greatly its height and azimuth during the time that the phenomenon lasted, they continued to issue

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from the same point. It was afterwards computed by Encke that this point was the very direction in which the earth was moving in her orbit at the time. Attention being directed to recorded appearances of the same kind, it was observed with surprise that several of the most remarkable had occurred on the same day of November, especially that seen by Humboldt at Cumana in 1799, and by other observers over a great extent of the earth. The November stream was again observed in the United States in 1834, on the 13th and 14th, though less intense. Though often vague, and in some years altogether absent, this phenomenon has recurred with such regularity, both in America and Europe, as to establish its periodic character.

Another periodic swarm of considerable regularity is that appearing Aug. 9-14, noticed in ancient legends as the 'fiery tears' of St. Lawrence, whose festival is on Aug. 10. There are other periodic appearances; and Humboldt gives the following epochs as especially worthy of remark: Apr. 22-25; Jul. 17; Aug. 10; Nov. 12-14; Nov. 27-29; Dec. 6-12.

Various opinions have been advanced as to the origin of aërolites, and the theory of meteors in general. The hypotheses in answer to the question—Whence come those solid masses that fall upon the earth?—are of two kinds; some ascribing to them a telluric origin, and others making them alien to the earth. Of the first kind, is the conjecture that they may be stones ejected from terrestrial volcanoes, revolving for a time along with the earth, and at last returning to it. Another theory, which at one time found considerable favor, supposed that the matter of which aërolites are composed existed in the atmosphere in the form of vapor, and was by some unknown cause suddenly aggregated and precipitated to the earth. These conjectures are untenable in the face of the facts of the phenomena stated above, and are now completely given up.

In seeking a source beyond the earth, the moon readily presented itself. Olbers was the first to investigate, 1795, the initial velocity necessary to bring to the earth masses projected from the moon. This 'ballistic problem,' as Humboldt calls it, occupied during ten or twelve years the geometricians Laplace, Biot, Brandes, and Poisson. It was calculated that, setting aside the resistance of air, an initial velocity of about 8,000 ft. in a second, which is about five or six times that of a cannon-ball, would suffice to bring the stones to the earth with a velocity of 35,000 ft. But Olbers has shown, that to account for the actual measured velocity of meteoric stones, the original velocity of projection must be fourteen times greater than the above. It is against this lunar theory that we have no proof of active volcanoes now existing in the moon; and with the improvement of the telescope, the probability of the contrary is increasing. It is, accordingly, giving place to the planetary theory, above noticed—a theory which harmonizes better with the tendency of physical research and of speculation generally.

The discussion of hypotheses as to the genesis of the recognized planets out of portions of the gradually con-



## AEROLOGY—AEROPHYTES.

tracting vaporous mass of the sun; the continued discovery of hitherto unobserved planets between the orbits of Mars and Jupiter; the countless multitudes of comets that are observed traversing our system in all directions, and undergoing appreciable alteration both of consistency and orbit;—all prepare us for the idea, that matter may exist in the inter-planetary spaces, in every variety of form and condition. To account for the phenomena of meteors as above described, we must suppose that there are both detached masses, each revolving in an independent orbit, and giving rise to *sporadic* meteors; and also connected systems, forming rings or zones round the sun. The intersection of the earth's orbit by such zones or streams, would account for the periodic swarms of meteors; and if we suppose the asteroids composing it to be irregularly grouped, we see a reason why the same stream should not be always of equal intensity. There may even be periodicity in this respect too. Between 1799 and 1833—two of the most brilliant manifestations of the November stream on record—there elapsed 34 years; and the next brilliant appearances were in 1866-67, as Olbers had predicted. See METEORS.

**AEROLOGY**, n. *ā'er-ōl'ō-jī* [Gr. *āēr*, air; *logos*, discourse]: the science that treats of the air, its nature and uses. **AEROLOGIST**, n. *ā'er-ōl'ō-jīst*, one who studies the nature and effects of the air or atmosphere. **AEROLOGICAL**, a. *ā'er-ō-lōj'ī-kūl*, pertaining to. **AEROMANCY**, n. *ā'er-ō-mān'sī* [Gr. *manteia*, divination]: divination by means of the air and winds.

**AEROMETER**, n. *ā'er-ōm'ē-tēr* [Gr. *āēr*, air; *metron*, a measure]: an instrument for ascertaining the weight of the atmosphere, or of gases.

**AERONAUT**, n. *ā'er-ō-navt'* [Gr. *āēr*, air; *nautēs*, a sailor—*from naus*, a ship]: one who sails or floats in the air in a balloon; an aerial navigator. **AERONAUTIC**, a. *ā'er-ō-nav'tīk*, pertaining to sailing in the air. **AERONAUTICS**, n. plu. *tīks*, the science or art of sailing in the air by mechanical means. See BALLOON: also FLYING.

**AEROPATHY**, n. *ā'er-ōp'ā-thī* [Gr. *āēr*, air; *pathos*, feeling]: a process for the cure of asthma and other diseases by subjecting the whole body to an atmosphere of compressed air which has been filtrated through cotton.

**AEROPHONE**, *ā'er-ō-fōn*: instrument for increasing the power of sounds without impairing their distinctness. It consists of a vibrating diaphragm and mouthpiece, connected with a piston which is moved in a cylinder by a current of compressed air or steam. This movement causes the vibration of a large receiving diaphragm, which reproduces in greater volume the sounds uttered in the mouthpiece. The loudness of the sound is determined by the size of the diaphragm and the power of the current by which it is moved. It was the invention of Thomas A. Edison.

**AEROPHYTES**, n. plu. *ā'er-ō-fīts'* [Gr. *āēr*, air; *pñuton*, a

## ÆROPHYTES—AEROSTATICS.

plant]: plants which live exclusively in the air—*hydrophytes* are those living under water.

ÆROPHYTES: see EPIPHYTES.

AEROSTATIC, a *ā'ēr-ō-stăt'ik* [Gr. *āēr*, air; *statos*, a standing still]: suspending in air. A'EROSTAT'ICS, n. plu. *-iks*, the science of the equilibrium of gases. AEROSTATION, n. *ā'ēr-ō-stā'shūn*, and AERONAU'TICS, n. plu. aerial navigation; the art of sailing in the air by mechanical means, such as in balloons. AEROSTAT, n. *ā'ēr-ō-stăt'*, the part of a balloon which contains the gas or rarefied air; a balloon. (q.v.).

ÆROSTATIC PRESS: a machine for extracting the coloring-matter from dye-woods and like materials. A vessel is divided by a horizontal partition pierced with small holes. Upon this the substance containing the color is laid, and a cover, also perforated, is placed upon it. The extracting liquid is then poured on the top, and the air being drawn from the under part of the vessel by a pump, the liquid is forced through the substance by the pressure of the atmosphere.

ÆROSTAT'ICS: a branch of science treating of the equilibrium and pressure of air and other gases, and of the methods of measuring it by the barometer and other instruments. The expansive force or pressure of atmospheric air varies with time and place. In a medium condition of the atmosphere, and near the sea-level, barometrical observations give the pressure or weight equal to that of a column of mercury, 30 inches high, or of a column of water about 34 ft. high. This makes the mean pressure of the atmosphere nearly 15 lb. on every sq. inch. This mean pressure of the atmosphere is generally taken as the unit or measure of expansive or elastic forces generally; any particular pressure is said to be equal to so many atmospheres. Aërostatics also investigates the phenomena of the compression of gases; in other words, the relation between the elasticity and the density or volume of a gas. According to the law of Mariotte, the expansive force of one and the same body of gas is proportional to its density; or, which is the same thing, the expansive force of a body of gas under different degrees of compression, varies inversely as the space which it occupies. If its elastic force, at one stage, be measured by 50 lbs., when compressed into half the space, that force will be 100 lbs. Connected with this is the investigation of the variation of density and pressure in the several vertical strata of the atmosphere. It is obvious that the weight of the atmosphere must diminish as we ascend, as part of it is left below; and it results from Mariotte's law, that at different distances from the earth's surface, increasing in arithmetical progression, the atmospheric pressure diminishes in geometrical progression. This principle furnishes the means of measuring heights by the barometer (q.v.).

The elastic force of air and other gases is very much increased by heat; and consequently, when allowed, they expand. It is found that a rise of temperature of 1° of Fahrenheit causes any gas to expand  $\frac{1}{491}$  of its own bulk; and this expansion is uniform. If adding 10° to the

## ÆRUGINOUS—ÆSCHYLUS.

temperature of a body of gas increases its bulk 3 cubic inches, an addition of 20° will give an increase of 6 inches; of 50°, 15 inches, and so on. This law was discovered by Gay-Lussac, and has been verified by subsequent investigators. Both it, however, and that of Mariotte, can be looked upon as only nearly true, and that within certain limits.

ÆRUGINOUS, a. *ē-rōj'ī nūs* L. *ærūgo* or *ærūg'inem*, rust of copper—from *ærīs*, copper]: pertaining to the rust of copper—viz., verdigris.

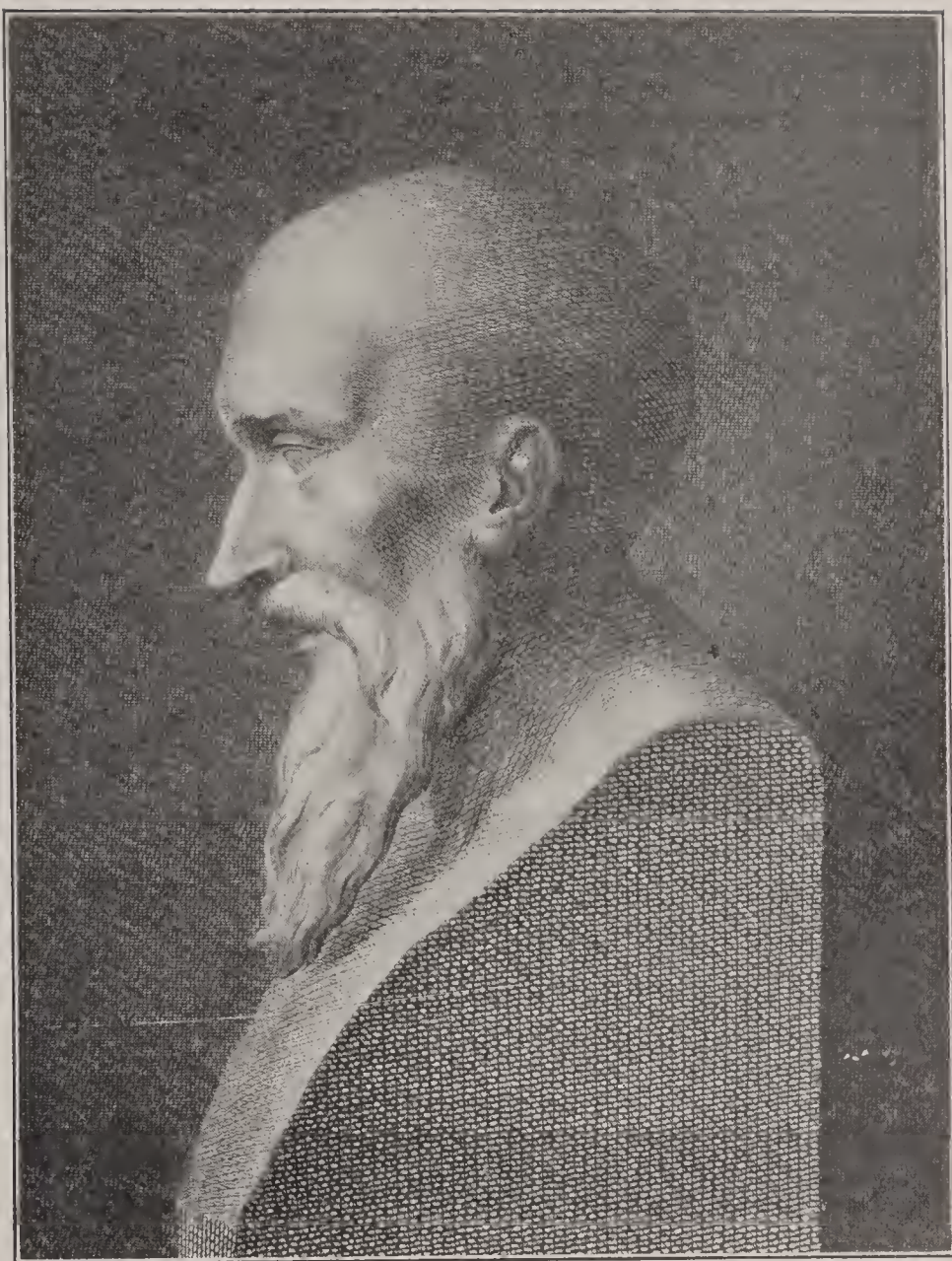
ÆSCHINES, *ēs'kī-nēz*, B.C. 389-314: an Athenian orator, second only to Demosthenes, whose contemporary and rival he was. Philip of Macedon was then pursuing his designs for the subjugation of the several Greek states; and while Demosthenes advocated the policy of opposing him before it was too late, Æ. was the head of the peace-party. Æ. was a member of more than one embassy sent by the Athenians to deal with Philip; and Demosthenes accused him of receiving bribes from the Macedonian monarch, and of betraying the cause of Athens and of her allies. There is no proof of such betrayal; and perhaps Æ. was deceived by the wily Philip into believing that he meant no harm to the liberties of Athens, and that peace was the best policy for his countrymen. The result justified the sagacious fears of Demosthenes, and condemned the selfish, isolating policy of Æ. When it was proposed to reward Demosthenes with a golden crown for his patriotic exertions in defense of his country Æ. brought an accusation of illegality against the proposer, Ctesiphon. Demosthenes replied, and Æschines being vanquished, and having thus incurred the penalty attached to an unfounded accusation, was obliged to retire from Athens. He finally established a school of eloquence in Rhodes, which had a high reputation. On one occasion he read to his audience in Rhodes his oration against Ctesiphon; and some of them expressing their astonishment that he should have been defeated in spite of such a powerful display, he replied: 'You would cease to be astonished if you had heard Demosthenes.' The oration against Ctesiphon and two others are the only authentic productions of Æ. that have come down to us. He d. at Samos.

ÆSCHYLUS, *ēs'kī-lūs*, the father of Greek tragedy: B.C. 525-456: b. Eleusis, in Attica. We have but scanty notices of his life. He fought in the battles of Marathon, Salamis, and Plataea, witnessed the fall of Darius and Xerxes, and shared in the exulting sentiments which afterwards pervaded liberated Greece. Of the 70 or 90 tragedies ascribed to Æ., only seven have been preserved—*Prometheus Bound*, the *Seven against Thebes*, the *Persians*, *Agamemnon*, the *Choëphori*, *Eumenides*, and the *Suppliants*. These are sufficient to prove that Æ. was the creator of the Greek drama in its higher form. He introduced action in place of the perpetual chorus, and dramatic dialogue to supersede the long narrations of his predecessors, Thespis and Choerilus. Scenic effects, masks, and dresses were other improvements introduced in the plays of Æ. The plots of his pieces are very simple, and display no ingenuity

## ÆSCULAPIUS.

of construction or solution. His general tone is elevated and earnest, and shows a preference of strong to gentle emotions. Destiny is represented in its sternest aspect; gigantic heroes, Titans, and gods, rather than men, appear on the scene, and the lofty grandiloquence of the language is in accordance with the characters. In the choruses, the language is often turgid and obscure. For some reason, not well known, Æ. left his native city and went to Sicily, where he was honorably received by King Hiero. Here he died at Gela, and the inhabitants of the city raised a monument to his memory. In the poetical translation by Blackie, the non-classical reader may get some notion of the grandeur and fire of this greatest of all ancient dramatists.

ÆSCULAPIUS, *ēs-ku-lā'pī-us'*: appearing in Homer as an excellent physician of human origin, in the later legends becomes the god of the healing art. The accounts given of his genealogy are various. According to one story, he was the son of Coronis and the Arcadian Ischys. Apollo, enraged by the infidelity of Coronis, caused her to be put to death by Diana, but spared the boy, who was afterwards educated by Chiron. In the healing art, Æ. soon surpassed his teacher, and succeeded so far as to restore the dead to life. This offended Pluto, who began to fear that his realm would not be sufficiently peopled; he therefore complained to Jove of the innovation, and Jove slew Æ. by a flash of lightning. After this he was raised to the rank of the gods by the gratitude of mankind, and was especially worshipped at Epidaurus, on the coast of Laconica, where a temple and grove were consecrated to him. Here oriental elements, especially serpent-worship, seem to have been mingled with the rites and ceremonies. From Epidaurus the worship of the healing god extended itself over the whole of Greece, and even to Rome. According to Homer, Æ. left two sons, Machaon and Podalirios, who, as physicians, attended the Greek army. From them the race of the Asclepiades descended. Hygieia, Panacea, and Ægle are represented as his daughters. His temples usually stood without the cities, in healthy situations, on hillsides, and near fountains. Patients that were cured of their ailments offered a cock or a goat to the god, and hung up a tablet in his temple, recording the name, the disease, and the manner of cure. Many of those votive tablets are still extant. The statue of the god at Epidaurus, formed of gold and ivory by Thrasy-medes, represented Æ. as seated on a throne, and holding in one hand a staff with a snake coiled round it, the other hand resting on the head of a snake; a dog, as emblem of watchfulness, at the foot of the deity. Praxiteles and other sculptors represented the god as an ideal of manly beauty, and closely resembling Jupiter; with hair thrown up from the brow, and falling in curls on each side. The upper part of the body was naked, and the lower was covered by a mantle falling in folds from the shoulders. He had sometimes a laurel wreath on his head, and a cock or owl at his feet; or was attended by a dwarf figure named Telesphorus. —ASCLEPIADÆ or ASCLEPIADES, the followers of Æ., who inherited and kept the secrets of the healing art; or, assum-



AESCHYLUS.

525-456 B. C.

FOUNDER OF THE DRAMA—FIRST GREAT TRAGIC POET.

Enlarged from a gem, published in Visconti.



## ÆSCULIN—ÆSOP.

ing that Æ. was merely a divine symbol, the Asclepiades must be regarded as a medical, priestly caste who preserved as mysteries the doctrines of medicine. The members of the caste, or medical order, were bound by an oath—the *Hippocratis jusjurandum*—not to divulge the secrets of their profession. In Rome, B.C. 292, when a fatal pestilence prevailed, the Sibylline books commanded that Æsculapius must be brought from Epidaurus. Accordingly an embassy was sent to this place, and, when they had made their request, a snake crept out of the temple into their ship. Regarding this as the god Æ., they sailed to Italy, and, as they entered the Tiber, the snake sprang out upon an island where, afterwards, a temple was erected to Æ., and a company of priests appointed to take charge of the service and practice the art of medicine. Hippocrates is said to have descended from the Asclepiades of Cos, who traced their descent on the mother's side from Hercules.

ÆSCULIN, n. *ēs'kū-līn* [L. *æscūlus*, the horse-chestnut]: a glucoside principle discovered in the horse-chestnut; also spelt *esculin*;  $C_{21}H_{24}O_{13}$ .

ÆSIR: see SCANDINAVIAN MYTHOLOGY.

ÆSOP, *ēs'ōp*: ancient Greek writer, whose name is attached to the most popular of the existing collections of Fables. His history is very uncertain, and some critics have even denied his existence. First among these is Luther, in his preface to the *German Æsop*, 1530. We are told, however, on the authority of Herodotus (ii. 134), Diog. Laertius (i. 72), and Plutarch (*Sept. Sap. Conviv.*, and *De Sera Num. Vind.*), that Æ. lived in the latter part of the 6th c. B.C.; that he was a slave at Samos; that, on receiving his freedom, he visited Cræsus and Pisisstratus, by the former of whom he was commissioned to distribute some money among the citizens of Delphi, and that, on his refusal to pay it, in consequence of a dispute, he was thrown over a precipice by the infuriated mob. We are further informed that the Athenians erected a statue to him from the chisel of Lysippus. Whether this person was the author of the existing Æsopean collection or not we know, from Aristophanes and other authorities, that fables bearing his name were popular in the most brilliant period of Athenian literature. The conjecture of Bentley, however, seems well founded, that these fables were transmitted entirely through oral tradition. Socrates (*Phædo*, p. 61) turned such of them as he could remember into verse, of which Diog. Laertius has preserved a specimen; and the same was done by Demetrius Phalereus, B.C. 320. The only Greek version, however, of which any entire fables remain, and which, as shown by Bentley, has furnished materials to subsequent collections, is that of Babrius (q.v.), a writer of some mark, who is supposed to have lived in the age before Augustus. Of the fables now bearing the name of Æsop, there are three sets, the first from a MS. of the 13th c., published, Florence, 1809; the second, a collection by Maximus Planudes, a monk of the 14th c., containing a life (supposed to have been the work of Planudes, till it was found in the earlier MS.) of

## ÆSTHESODIC—ÆSTHETICS.

Æsop, full of fabulous particulars; and the third a collection published, 1610, from MSS. found at Heidelberg. All these are contained in the edition of Schneider, Breslau, 1810. The resemblance between some of the fables and the personal peculiarities attributed in common to Æsop and to the Arabian fabulist Lokman have led some to conclude that the two men were identical. The tales seem to be all derived from the *Jatakas* or *Birth-stories of Buddha*. See PHÆDRUS.—A Roman actor of this name, CLAUDIUS ÆSOPUS, a contemporary and friend of Cicero, was as eminent in tragedy as Roscius was in comedy.

ÆSTHESODIC, a. *ēs'thēs-ōd'ik* [Gr. *aisthēsis*, perception; *ōdos*, away]: transmitting sensory impulses; sensitive.

ÆSTHETICS, n. plu. *ēs-thēt'iks* [Gr. *aisthētikos*, perceptive—from *aisthēsis*, the act of perceiving]: the science which treats of the beautiful in nature, in the fine arts, and in literature; the philosophy of taste. ÆSTHETIC, a *ēs-thēt'ik*, or ÆSTHET'ICAL, a. *-ī-kāl*, pertaining to the perception of the beautiful.

ÆSTHETICS: a term invented about the middle of the 18th c., by Baumgarten, prof. of philosophy in the univ. of Frankfort on-the-Oder, to denote the science of the Beautiful, particularly of Art, as the most perfect manifestation of the Beautiful. It has the merit of being at once comprehensive and clear, and has therefore been widely adopted of late years by critics both in France and England.

The Beautiful (Gr. *to kalon*) was a favorite subject of contemplation among the ancients. The name of Plato is inseparably associated with it, but in his philosophizings he nowhere separated the Beautiful from the Good. Aristotle, again, from the immense acquaintance which he possessed with objects of art, deduced the most admirable laws and rules (Canons of Criticism), so that his *Poetics*, according to Schiller, constitute a true Rhadamanthine tribunal for poets. But the results that he arrived at are regarded by the *a priori* school of æstheticians as empiricism rather than science. Baumgarten they hold to be the first who considered the subject from the true scientific point of view, and therefore entitled to be called the founder of the philosophy of art. All sensuous apprehension, not in one form or manifestation only, but in every possible form or manifestation, was included in his view of the subject, and this conception he expressed by the word Æsthetics, from the Greek *aisthanomai*, I feel, indicating not absolute or objective knowledge of things, but such as is conditioned subjectively by the play of our sensibilities. The term is thus not confined to the limits of the Beautiful, though in fact we employ it in this partial signification. Beauty was, with Baumgarten, the result of the highest and purest æsthetic perception, to the realization of which the finer portion of our nature aspires; and to trace which through the whole sphere of art was the work of æsthetic philosophy (*Sinnenerkenntniss*). Kant subsequently, from his point of view, carried out the theory of the æsthetic faculty in his



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critical treatise on the power of the Judgment. Everything, he conceived, may be regarded æsthetically as well as absolutely, in reference to ourselves as well as in reference to nature. An object may be in harmony with our sensibilities as well as in harmony with the totality of material phenomena; or it may not be in harmony with the former and yet truly accord with the latter. So, too, with the judgment. It may choose to apprehend things in their adaptation to man, or in what is called the teleological point of view—that is, for their final end or objective adaptation to each other. Hence the æsthetical judgment considers objects as beautiful, agreeable or useful; while the teleological judgment strives to reach their absolute design, and remains indifferent to personal predilections. Why certain objects excite in us a purely selfish interest, and others a purely unselfish pleasure, Kant does not venture to determine, for he never investigates the objective quality of the Beautiful, but confines himself strictly to its influence upon the feelings and desires. Schelling was the first to undertake this inquiry after Schiller had paved the way for him in his treatise on *Æ*. Schiller, perhaps the most lucid and intelligible of German æstheticians, in a note to his twentieth letter on *Æsthetic Culture*, explains his conception of the new science as follows: All things that can ever be objects of perception may be considered under four different relationships. A fact that can relate directly to our sensuous condition—that is its physical quality; or to the understanding—that is its logical quality; or to the will—that is its moral quality; or to the entirety of our different powers rather than to any particular manifestation of these—that is its æsthetic quality. There is a culture for the health, for the understanding, for morality, and for taste or beauty, the last of which has for its design to bring out the totality of our sensuous and spiritual powers in their greatest possible harmony. Schiller's idea of the Beautiful is necessarily as comprehensive as his conception of the sphere of *Æ*. He will not admit that it is the result of a mere limited experience, taught us through the operation of phenomena, animate and inanimate, on our senses, but of pure abstract reflection. It is, therefore, a transcendental idea. It originates in the perfect union of matter and spirit. From this it follows that 'Beauty can be exclusively neither mere *life*, as some ingenious observers have maintained, nor mere *form*, as has been decided by some speculative philosophers and philosophizing artists' (for instance, Burke and Raphael Mengs).

Passing over Schelling's transcendental speculations, which are couched in a style not very intelligible to the English mind, we come to the theory of Hegel. Like that of Schelling, it also proceeds from the so-called metaphysics of the Beautiful. It is the absolute ideal realizing itself. Nothing is truly beautiful, except this. Nothing, therefore, which exists can be termed such. Out of the sphere of the pure reason we have only an eternal aspiration. In the finite mind, the absolute ideal is always striving to realize itself, but never completely succeeds. There is only a ceaseless

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approximation. Hegel then traces the growth and development of the Beautiful, the first form of whose existence is *natural* beauty, and, as Vischer justly adds, the beauty unfolded in history. But this beauty, whether of nature or history, is rare, accidental, fugitive, and tarnished by intermixture with the not-beautiful. This deficiency or limitation arises from its being unconscious of itself. The Beautiful is, so to speak, as yet in its infancy. It does not know either that it is or what it is. It first passes into self-recognition in the dawn of human intelligence, and its conscious realization of itself increases in proportion to the culture of the race or the individual. The highest finite realization of it is Art; for though the form of art be material, it is matter shaped according to an idea. The artist looks on the form simply as the objective embodiment of the idea—every remnant of rude nature being stripped off. Form, though springing out of matter, is thus a deliverance from matter, and the particular arts may consequently be regarded as the gradual working of the mind out of materialism. The formative arts—Architecture, Sculpture, Painting—are silent, heavy, still partly material. Music is an advance on these. It breathes in a higher region. The materialism of Sound becomes all but ideal. Poetry is a further advance. It is the pathway of the intellect to pure thought. Æsthetics, in this point of view, is a science, based on a knowledge of the historic development of the Beautiful. It wanders through its whole kingdom, of which Art is only a province, though, as has been seen, the richest and most valuable.

Such was the aspect in which Hegel regarded the new science. He fused it into his historico-transcendental metaphysics, and so stirred up regarding it the old quarrel which had agitated the latter. Realists made their appearance, who vigorously assailed the principles of Fichte, Schelling, and Hegel in their various applications to Philosophy, Theology, and Æsthetics. The reaction was and is most conspicuous in the second of these, but has as certainly manifested itself in the others also. It is denied that the Ideal conceived by man is superior to the Real, as it is in itself. It is man who lowers it by his inadequate apprehension of its harmony and perfection. The greatest artist does not strive to outshine or even to reach the beauty of nature, but to surpass himself in it. The whole historic theory of Hegel is likewise rejected, after severe and searching criticism, from a rationalistic point of view. Hegel conceives the first effort of art to have arisen from a longing on the part of the human spirit to emancipate itself from the thralldom of matter. This is the idealistic view of its beginning. Kugler, on the other hand, affirms that it arises from 'the necessity which man is under to bind thoughts to one firm spot, and to give to this memorial a form which may be expressive of the thought. The origin of Art is thus made retrospective, not prospective. This may be considered the realistic view of its beginning. So the question stands at present in Germany.

In France the founder of the Eclectic School of Philoso

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phy, Victor Cousin, has eloquently expounded the Platonic view of Æ. In the second part of his treatise *Du Vrai, du Beau, et du Bien* (On the True, the Beautiful and the Good), he has a chapter on 'the Beautiful in Objects,' in which, after discussing the principal theories of the materialists and geometricians, and pointing out what he conceives to be the errors and limitations of such theories, he proceeds to a consideration of physical, intellectual, and moral beauty, endeavors to discover the qualities in which they agree, from this rises to the apprehension of an ideal beauty whose realization he finds in God. 'God,' says Cousin, 'in whom is combined absolute unity with infinite variety, is necessarily the realized ideal of all beauty.'

Speculations on this subject in English-speaking countries have been limited mostly to the Beautiful in form and color. We have not in general sought, like the Germans, to discover the *idea* of the Beautiful, but the Beautiful itself. Our criticism may, and indeed does seem meagre and unphilosophical to them, but it is at least clear, and its purpose obvious. We have put to ourselves this question: Are there, or are there not, constant qualities in certain objects which make them what we call beautiful? Does beauty arise from anything inherent in them, or does it depend upon accidents in us, such, for instance, as the complex and numberless phenomena of association? Is it objective or subjective?

The first publication on this subject of any consequence, except Lord Shaftesbury's *Characteristics*, in which there is set forth a 'rapturous Platonic doctrine' impossible to criticise, because unintelligible—was Dr. Hutcheson's *Inquiry* (1725). In this work, the existence of an 'internal sense,' through which we either obtain a perception of the Beautiful, or are made in some way conscious of its presence, was maintained. The notion of a sixth sense has been very severely criticised by Jeffrey in his celebrated article on Beauty.

Certain explanations and modifications of this theory were made by the followers of Hutcheson, but nothing really new was brought out till Edmund Burke published his *Treatise on the Sublime and the Beautiful* (1756). There is no work upon the subject so popular or so worthless. Every one has heard of it, large numbers have read it, and yet the fundamental principle is weak and absurd. He relies mainly on physiological considerations. 'All objects appear beautiful which have the power of producing a peculiar relaxation of our nerves and fibres, and thus inducing a certain degree of bodily languor and sinking'!

Sir Joshua Reynolds, a contemporary of Burke, maintained a very remarkable theory of the Beautiful, which he borrowed from the celebrated Père Buffier, and illustrated at great length. Beauty was conceived to be the mean between two extremes. This doctrine is open to the fatal objection that the most ordinary is therefore the most beautiful, and that, consequently, the greatest poem or the finest landscape must be that which is the most commonplace. Nevertheless, Sir Joshua does not hesitate to push

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his theory to extremities, declaring that if what we term the deformed or monstrous were only more common than what we call the beautiful, they would exchange names and sensations—a statement which may safely be left to refute itself.

The next work on this subject that excited any measure of popular attention was Alison's *Essays on the Nature and Principles of Taste* (1790). The theory propounded by this writer is generally known as the theory of Association. The most powerful exposition of the Association theory is that given by Jeffrey, in his famous article in the *Encyclopædia Britannica*, and in his critique on Alison in the *Edinburgh Review* (1811). According to Jeffrey: 'These emotions (that is, those excited by the contemplation of certain objects) are not original emotions, nor produced directly by any qualities in the objects which excite them; but are reflections or images of the more radical and familiar emotions to which we have already alluded, and are occasioned not by any inherent virtue in the objects before us, but by the accidents, if we may so express ourselves, by which these may have been enabled to suggest or recall to us our own past sensations or sympathies.' In his defense of this theory, Jeffrey is obliged to consider the theories of Stewart and Payne Knight, the former of which is partly, and the latter entirely opposed to his own. So long as he confines his argument to association in connection with *landscapes*, it seems conclusive; but when he comes to combat Payne Knight's doctrine as to the intrinsic beauty of colors, it ceases to be satisfactory. This writer maintains that colors possess a primitive and original beauty, which may be enriched by association, but which does not depend upon it. Jeffrey denies this, and attempts to prove that our perception of the beauty of color, instead of being 'a mere organic sensation,' arises from association alone. In the same way, he refuses to believe that there is any independent or intrinsic beauty in form; and conceives that architecture owes its beauty not to the essential harmony of its proportions, but to a variety of curious considerations on our part. He considers Alison's analysis of this beauty, with special reference to Greek architecture, 'perfectly satisfactory.' It arises 1st, from the association of utility; 2d, of security; 3d, of the skill of the architect; 4th, of magnificence; 5th, of antiquity; 6th, of Grecian greatness. To this it may be replied that such associations *increase* but do not *create* our perception of the beauty of Greek architecture.

Sir William Hamilton distinguishes beauty into absolute and relative. 'In the former case,' he says, 'it is not necessary to have a notion of what the object ought to be before we pronounce it beautiful or not; in the latter case, such a previous notion is required. Flowers, shells, arabesques, etc., are freely or absolutely beautiful. We judge, for example, a flower to be beautiful, though unaware of its destination, and that it contains a complex apparatus of organs all admirably adapted to the propagation of the plant. When we are made cognizant of this, we obtain, indeed, an additional gratification, but one wholly different from that

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when we experience in the contemplation of the flower itself apart from all consideration of its adaptations.' In the case of free or absolute beauty, both the imagination and the understanding find occupation; and the pleasure we experience from such an object is in proportion as it affords to these faculties the opportunity of exerting fully and freely their respective energies. Now, it is the principal function of the understanding, *out of the multifarious presented to it, to form a whole.* Sir William defines the Beautiful to be that 'whose form occupies the imagination and the understanding in a free, full, and consequently an agreeable activity.'

Ruskin has done much to awaken and extend the appreciation and enjoyment of art in this country, and in several of his works discusses æsthetic theories; especially in *Modern Painters*, he has attempted a systematic exposition of our ideas of beauty. Beauty is typical or vital, the former falling under the heads of infinity, unity, repose, symmetry, purity, moderation—all typical of divine attributes; while vital beauty is relative or generic. Ruskin's position is that of an extreme spiritualist, and takes no account of the value of association at all.

Bain, a prominent representative of the empiric school, has largely treated of æsthetics in his work of the *Emotions and the Will*, and has made an elaborate analysis of the elements in our perception and enjoyment of beauty (see ART). Herbert Spencer has endeavored to establish an original theory of the origin of our pleasure in beauty and art, based on the doctrine of evolution as developed by him: see SPENCER, HERBERT.

Others who have contributed to the discussion of the problem, beside those named above, are Winekelmann, Lessing, Goethe, Herbart, and Schopenhauer, in Germany; in France, Diderot, Jouffroy, and Taine; and in Britain, Reid, Addison, Lord Kames, and Hogarth. See ART: ASSOCIATION OF IDEAS: EMOTION: SUBLIME: also, various of the writers named. Schasler, Zimmermann, Lotze and Carrière have written in Germany works on the history of æsthetics; in France, the most notable work is Leveque's *La Science du Beau*; and in his *Mental and Moral Science*, Professor Bain discusses the principal theories.

ÆSTIVATION, n. *ĕs'tĭ-vā'shŭn* [L. *æstiva*, summer quarters—from *æstas*, summer]: in *bot.*, the disposition of the parts of the perianth in the flower-bud; the arrangement of the unexpanded leaves of the flower-bud, which burst in summer, as opposed to *vernation*, the arrangement of the leaves of the bud on a branch, which burst in spring; in *zool.*, the sleep or dormancy of animals during the hot or dry season in warm climates; the analogue of *hibernation* in cold regions. Æs'TIVAL, a. *-vāl*, pertaining to summer; produced in summer.

ÆSTIVATION, or ESTIVATION, in Botany: a term denoting the manner in which the parts of the flower are disposed in the flower-bud prior to its opening. Sometimes the Æ. is *valvate* or *valvular*, when the parts of the same verti-

## ÆTHELING—ÆTOLIA.

cil exactly meet together by their edges, like valves. But if the edges are turned in, the Æ. is *induplicate*; if they are turned out, it is *reduplicate*. In many flowers, the Æ. is *contorted* or *twisted*; sometimes it is spirally *imbricated*. In pentamerous flowers, it is very generally *quincunxial*, two of the parts being external, two internal, and one intermediate. In papilionaceous flowers (q.v.), the other parts of the corolla are generally included in the standard or vexillum, and this is sometimes called *vexillary* Æ. In poppies, the petals are generally crumpled together before flowering. The Æ. of the calyx is frequently of a different kind from that of the corolla. Thus, in *Geraniaceæ*, the Æ. of the calyx is imbricated, that of the corolla twisted. The manner in which the stamens and pistils are disposed in the bud is sometimes also noticed.

ÆTHELING: see ANGLO-SAXONS.

ÆTHIOPS, n. *ē'thī-ōps* [Gr. *aitho*, I burn; *ops*, the eye or countenance]: applied to certain chemical compounds from their black appearance.

ÆTHRIOSCOPE, *ēth'rī-ō-skōp*: instrument for measuring the minute variations of temperature due to the condition of the sky; consists of a differential thermometer (q.v.) whose bulbs are both within a cup-shaped mirror, one being in the focus of the mirror.

ÆTIOLOGY, n. *ē-tī-ōl'ō-jī*, or ETIOLOGY: science of the physical causes of phenomena; specifically in *med.* In general, it is a department of Biology (q.v.): see also DARWINIAN THEORY.

ÆTITES, n. *ē-tī'tēz* [Gr. *āctos*, an eagle]: a variety of nodular ironstone; eagle-stone.

ÆTIUS, *ā-ē'shī-us*: a great Roman general, born in Mœsia towards the end of the 4th c. See VALENTINIANUS III.

ÆTNA: see ETNA.

ÆTOLIA, *ē-tō'li-ā*: district of ancient Greece, on the n. coast of the Gulf of Corinth. Ancient Æ. was divided from Acarnania by the river Achelous, and extended as far as the river Euenos. On the e. it was bounded by Locris and Doris; on the n. by Thessaly and Epirus; on the w., by Acarnania; and on the s., by the Bay of Corinth. In later times these boundaries were considerably extended to the n. and e. The country had few cities, was generally wild and barren, and according to Herodotus and Aristotle, was infested by lions on the banks of the Achelous and in other places. Here, according to the legend, Meleager slew the Calydonian boar (q.v.). The Ætolians make a great figure in the heroic age of Greece; but at the time of the Peloponnesian war, they were rude and barbarous. The Ætolian confederacy, first called into existence by the Samian war, B.C. 323, became more important in the time of the Achæan League (q.v.). The several states assembled annually in autumn at Thermum. This assemblage was styled the *Panætolicon*. At first, they called in the aid of the Romans against the Achæan League; but as they saw that the Romans had designs against the independence of Æ., they next allied themselves with Antiochus of Syria, afterwards with Perseus

## AFAR—AFFECT.

of Macedonia. In B.C. 189 they were compelled to share the fate of Macedon, and were subjugated by the Romans. Æ. now forms a governmental department, or nome, of the modern kingdom of Greece. The mountains in the n.e.—now styled Viena—form a wild offset of the Pindus chain, and slope steeply on the s.w. down to the central plains, partly covered with morasses and partly cultivated. S. of the lakes Apokuro (anciently Trichonis) and Zygos (Hyria) rises a range of mountains—the *Aracynthus* mountain of the ancients—which fall on the s.w. to a broad coast-level, occupied by morasses and lagoons; but on the s.e. side extend to the gulf, where the promontory of Antirrhion reaches to within 2,400 yards of the opposite cape Rhion, thus forming the Strait of Lepanto (Naupactos). The chief rivers of Æ. are the Aspropotamo (Achelous), in the w., and the Fidaris (Euenos), in the e. The people in the plains are employed in agriculture and fishing; while in the mountain-districts some traces of the rude and martial character of ancient Æ. may still be found. The chief towns are Missolonghi and Lepanto (q.v.)

**AFAR**, ad. *ă-fâr'* [AS. *on feorran*: *a*, on, and *far*]: at, to, or from a great distance.

**AFEARD**, a. *ă-fērd'* [AS. pp. of *afæran*, to frighten, to terrify—from *a*, on, and *feran*, to frighten]: in *OE.*, filled with fear; terrified; frightened.

**AFFABLE**, a. *ăf-fă-bl* [F. *affable*—from L. *affābilis*, accessible, courteous—from *ad*, *fārī*, to speak]: that can be easily approached and spoken to; frank in speech and bearing; accessible; of easy manners in conversation. **AFFABLY**, ad. *-bli*, in an affable manner; courteously. **AFFABILITY**, n. *ăf-fă-bil'it-i*, the being easy of access to others; kind manner in conversation; also **AFFABLENESS**, n. *-bl-nēs*, quality of being affable.—**SYN.** of 'affable': courteous; condescending; accessible; complaisant; benign; mild; civil.

**AFFAIR**, n. *ăf-fār'* [F. *affaire*; OF. *affaire*, business—from L. *ad*, *facēre*, to make]: a matter of any kind; business; concern; in *mil.*, a slight engagement, less than a battle. **AFFAIRS'**, n. plu. transactions in general; business. **AN AFFAIR OF HONOR**, a duel.

**AFFEAR**, v. *ăf-fēr'* [*af* for *ad*, and *fear* (see **AFEARD**)]: in *OE.*, to frighten.

**AFFECT**, v. *ăf-fēkt'* [F. *affecter*—from L. *affectāre*, to affect: L. *affectus*, influenced—from *ad*, *facēre*, to do]: to act upon or influence in any way; to make a show of; to move or touch—as the passions; to be fond of. **AFFECT'ING**, imp.: **ADJ.** moving or exciting, as the passions; having power to excite. **AFFECTED**, pp. *ăf-fēkt'əd*: **ADJ.** assumed; not natural. **AFFECT'EDLY**, ad. *-li*, in an affected manner; with studied care for appearance' sake. **AFFEC'TER** or **AFFEC'TOR**, n. *-tēr*, one who. **AFFECTATION**, n. *ăf-fēk-tā'shūn*, the assuming or pretending to what is not real or natural. **AFFECT'EDNESS**, n. the quality of being affected. **AFFECT'INGLY**, ad. *-li*, in a manner to excite the emotions. **AFFECTION**, n. *ăf-fēk'shūn*, love for: attachment to; kindly

## AFFEER—AFFILIATE.

feeling towards. **AFFECTIONED**, a. *ǎf-fĕk'shŭnd*, affected; inclined; disposed. **AFFECTIONATE**, a. *ǎf-fĕk'shun-ăt*, warmly attached to; fond; having great love. **AFFEC'TIONATE'NESS**, n. the quality of being affectionate. **AFFEC'TIONATELY**, ad. *-lĭ*. **AFFECTIVE**, a. *ǎf-fĕk'tiv*, having a tendency to affect. **AFFECTIVELY**, ad. *ǎf-fĕk'tiv-lĭ*.—**SYN.** of 'affect': to concern; assume; pretend; influence; operate; melt; move; subdue; soften; overcome;—of 'affecting': pathetic; moving; tragic; exciting;—of 'affection': love; attachment; tenderness; kindness; passion; fondness;—of 'affectionate': kind; fond; loving; tender; attached; warm; devoted; earnest.

**AFFEER**, v. *ǎf-fĕr'* [OF. *affeurer* or *afforer*, to value at a price—from OF. *fĕur*; Scot. *fiars*, a market price—from mid L. *affōrārĕ*, to fix the price of a thing—from mid L. *forum*, a price—from L. *forum*, a market|: in *OE.*, to fix the rate or price of; to establish; to confirm. **AFFEER'ING**, imp. **AFFEERED**, pp. *ǎf-fĕrd'*. **AFFEER'ER**, n. one of the persons formerly appointed by a court to fix and regulate the amount of the fines. The Scotch *fiars* (q.v.) is connected with *OE.* *affer*, with the same proximate origin.

**AFFERENT**, a. *ǎf-fĕr-ĕnt* [L. *affĕrĕn'tem*, bringing or conveying a thing to a place—from *ad*, to; *fĕro*, I carry]: in *anat.*, conveying from the surface to the centre: N. a river or stream flowing into the sea, or a lake. **AFFERENT NERVES**: see **NERVOUS SYSTEM**.

**AFFETTUOSO**, ad. *ǎf-fĕt'too-ō'zō* [It.]: in *mus.*; tenderly.

**AFFIANCE**, v. *af-fĭ'āns* [OF. *affiancer*, to affiancer, to betroth: Sp. *afianzar*, to become bail: mid. L. *affĭdāre*, to pledge one's faith—from L. *ad*, *fidō*, I trust; *fidĕs*, faith]: to betroth or pledge faith; to promise in marriage: N. a marriage contract; trust; confidence. **AFFI'ANCING**, imp. **AFFIANCED**, pp. *ǎf-fĭ'ānst*. **AFFI'ANCER**, n. *-sĕr*.

**AFFIDAVIT**, n. *ǎf-fĭ-dā'vĭt* [old law L. *affĭdāvĭt*, he made oath—from *affĭdārĕ*, to pledge one's faith—from *ad*, *fidem*, faith]: a declaration upon oath; generally, a declaration as to the truth of a written statement made on oath, or on solemn affirmation, before a magistrate, or other person legally authorized, which is afterwards signed by him; a deposition; an affirmation. See **AFFIRMATION**. It differs in law practice from a deposition, in this, that in the latter, the opposite party has had an opportunity to cross-examine the witness, whereas an affidavit is always taken *ex parte*.—*Affidavit to hold to bail* is in many cases required before the defendant can be arrested; such affidavit must be made by a person who is acquainted with the fact, and must state: 1st, an indebtedness from the defendant to the plaintiff: 2d, show a distinct cause of action; 3d, the whole must be clearly and certainly expressed.—*An affidavit of defense* is made by a defendant, or a person knowing the facts, in which must be stated a positive ground of defense on the merits.

**AFFILIATE**, v. *ǎf-fĭl'i-ăt* [F. *affilier*, to affiliate—from mid. L. *adfĭliātus*, affiliated, adopted—from L. *ad*, *filĭus*, a son; *filĭā*, a daughter]: to receive into a family as a son; to



## AFFINAGE—AFFINITY.

adopt; to unite as one; to receive as an associate or member; to receive into relationship with the parent stock; to assign a child to a father. AFFIL'IA'TING, imp. AFFIL'IA'TED, pp. AFFIL'IA'TION, n. -shun [OF. *affiliation*, an adopting—from mid. L. *affiliātīōnem*, an assigning a son to]: the act of uniting or adopting; the assignment of the paternity of a child born out of wedlock; established connection.

AFFINAGE, n. ăf'fĭn-ăj [F. from *affiner*, to refine; *fin*, fine—from L. *finītus*, finished]: in *chem.*, the refining of a metal.

AFFINED, a. ăf'fĭnd' [mid L. *affĭnārē*; OF. *affiner*, to bind one's self with a certain relationship—from L. *ad*, *fĭnis*, a boundary, a limit]: joined or united by affinity; related to.

AFFINITY, n. ăf'fĭn'ĭ-tĭ [F. *affinité*—from L. *affĭnĭtātem*, relationship by marriage: L. *affĭnis*, bordering on or related to—from *ad*, *fĭnis*, an end]: relationship by marriage; relation; agreement; in *chem.*, the combining power of bodies; in *bot.*, relation in all essential organs. SYN. of 'affinity': relationship; consanguinity; kindred; conformity; resemblance; connection.

AFFINITY, in Law: the relationship created by marriage between the husband and the blood-relations of the wife, and between the wife and the blood-relations of the husband. The relations of the wife stand to the husband in the same degree of A. in which they stand to the wife by blood or consanguinity, and *vice versâ*. But between the relations of the two parties by A., there is no A. Thus, there is no A. between the husband's brother and the wife's sister; and by our law there is no impediment to their marriage. The question as to whether those who are related by A. stand in all respects in the same position as regards marriage with those connected by blood, is one on which much difference of opinion at present prevails. Marriage between a man and the sister of his deceased wife is forbidden in England by statute (5 and 6 Will. IV. c. 64); but an attempt is annually made in parliament to obtain its repeal. See MARRIAGE.

AFFINITY, CHEMICAL, or CHEMICAL ATTRACTION: the force which produces all chemical phenomena. It differs from the attraction of gravitation in acting, not between masses, but between atoms, and only when the atoms are at insensible distances. It differs also from cohesion, which unites the particles of the same substance, while A. unites atoms of different substances. The compounds thus formed are new bodies, often bearing no resemblance in appearance or other properties to the elements which combine to produce them. Thus, water results from the combination of two gases.

The strength of chemical affinity is different between different substances. Sulphuric acid combines with lime, and forms gypsum; but if potash be added, the sulphuric acid leaves the lime, and combines with the potash. As a sort of choice is here manifested, it is called a case of *elective A.* These elective affinities, however, are often altered by a change of temperature, or other circumstance.

## AFFIRM—AFFLUENCE.

**AFFIRM**, v. *ăf-fĕrm'* [F. *affirmer*—from L. *affirmārē*, to affirm—from L. *ad, firmo*, I make firm—from *firmus*, firm—*lit.*, to make strong]: to assert with confidence; to maintain confidently as true; to declare solemnly. **AFFIRM'ING**, imp. **AFFIRMED**, pp. *ăf-fĕrmd'*. **AFFIRM'ABLE**, a. *-ă-bl*, that may be stated or affirmed as true. **AFFIRM'ABLY**, ad. *-bli*. **AFFIRM'ANT**, n. also **AFFIRM'ER**, n. one who. **AFFIRMATION**, n. *ăf-fĕr-mă'shun*, the act of asserting as true; a solemn declaration. **AFFIRM'ATIVE**, a. *-ă-tiv*, that declares or asserts: N. a word that says *yes*: *negative*, the opposite of *affirmative*, or a word that says *no*.—**SYN.** of 'affirm': to assure; avouch; asseverate; aver; protest; declare; assert; pronounce; establish; ratify; confirm.

**AFFIRMATION**: a solemn declaration, which, in the case of members of certain religious persuasions, is admitted in place of an oath. In most of the states a witness has right to choose whether to take oath or to affirm, the legal effect being the same. In A. the witness raises his right hand while uttering the formula. In Great Britain, the statute of 1869 extended the right of making A. in a court of justice to all on whose conscience an oath would not be binding. See **OATH**.

**AFFIX**, n. *ăf-fĭks* [L. *affixus*, fixed, attached—from L. *ad, fixus*, fastened: mid. L. *affigārē*; OF. *aficher*, to fix to, to fasten]: something fastened to the end; a syllable or letter put to the end of a word. **AFFIX**, v. *ăf-fĭks'*, to join to; to unite; to fix or fasten at the end; to subjoin; to fasten. **AFFIX'ING**, imp. **AFFIXED'**, pp. *ăf-fĭkst'*. **AFFIXTURE**, n. *ăf-fĭks'tūr*, that which is affixed.—**SYN.** of 'affix, v.': to attach; connect; unite; annex; subjoin; fix; fasten; add.

**AFFLATUS**, n. *ăf-flă'tus* [L. *afflātus*, a blowing or breathing upon—from L. *ad, flātus*, a breathing]: a blowing or breathing upon; a breath; a breathing into by divine power; inspiration. **AFFLA'TION**, n. *-shun*, a breathing upon.

**AFFLICT**, v. *ăf-flĭkt'* [L. *afflictus*, dashed or struck down, afflicted—from *ad, flictus*, a striking: F. *affliger*, to afflict—*lit.*, to strike or dash against, as one thing against another]: to distress in some way; to give pain to, either in body or mind. **AFFLICT'ING**, imp. **AFFLICTED**, pp. *ăf-flĭkt'ĕd*. **AFFLICT'ER**, n. one who. **AFFLICTION**, n. *ăf-flĭk'shun*, distress either of body or mind; grief; pain. **AFFLICT'EDLY**, ad. *-li*. **AFFLICT'INGLY**, ad. *-li*. **AFFLICTIVE**, a. *ăf-flĭk'tiv*, giving pain; painful. **AFFLICT'IVELY**, ad. *-tiv-li*.—**SYN.** of 'afflict': to pain; grieve; distress; hurt; wound; trouble; torment; harass;—of 'affliction': distress; trouble; grief; sorrow; pain; calamity; misfortune; wretchedness; misery; adversity.

**AFFLUENCE**, n. *ăf-floo-ĕns* [F. *affluence*—from L. *afflu-ĕn'tiă*, abundance, plenty—from *ad, flu'ō*, I flow—*lit.*, a flowing or coming as to a point]: concourse; a stream of wealth; abundance of worldly riches; also **AFFLUENCY**, n. *ăf-floo-ĕn'si*. **AFFLUENT**, a. *ăf-floo-ĕnt* [F.], wealthy; rich in worldly goods: N. applied to any stream that flows di-

## AFFLUX—AFFRIGHT.

rectly into another.—**SYN.** of 'affluence': wealth, opulence; riches; plenty; exuberance; abundance.

**AFFLUX**, n. *ăf-flŭks* [F. *afflux*, the act of flowing—from L. *affluxus*, flowed towards—from L. *ad*, *fluxus*, flowed—*lit.*, something that flows to or towards like a fluid]: a flowing to; that which flows to; also **AFFLUXION**, n. *ăf-flŭk'shŭn*.

**AFFORD**, v. *ăf-förd'* [OF. *affeurer* or *afforer*, to set a price on a thing; said to be formed from AS. *ge*, and *forth*, signifying, to put forth, to offer—*lit.*, to be able to put forth at a price]: to yield or produce; to be able to bear expenses; to grant. **AFFORD'ING**, imp. **AFFORD'ED**, pp. *Note.*—**AFFORD** is formed from *forth*, as *utter* from *out*, and primarily signifies to put forth; to bring forward; to offer—as, 'I can *forde* it no better cheape,' that is, I cannot *afford* it at a cheaper rate.—Wedgwood, and Halliwell.—**SYN.** of 'afford': to yield; produce; bear; give; impart; allow; supply; in *OE.*, confer; grant.

**AFFOREST**, v. *ăf-för'ěst* [L. *ad*, and *forest*]: to turn into forest. **AFFOR'ESTA'TION**, n. *-shŭn*, the turning of ground into forest ground, or treating it as such.

**AFFRAY**, n. *ăf-frā'* [F. *effrayer*, to scare, to dismay—from mid. L. *exfrigidārē*, to freeze thoroughly (see **AFFRAID** and **FRAY**)]: a brawl or petty fight; a disturbance; a fray: **V.** in *OE.*, to freeze with fright; to affright; to terrify.—**SYN.** of 'affray, n.': brawl; scuffle; tumult; disturbance; quarrel; fight; encounter; feud; contest.

**AFFRE**, *ăf'r*, **DENIS AUGUSTUS**, Archbishop of Paris: 1793–1848. At the time of the Restoration, he was prof. of theology at the seminary of St. Sulpice; and on account of his prudent and temperate character was made Abp. of Paris by the government of Louis Philippe, 1840. Though not yielding a blind submission to all the measures of the government, he abstained from all offensive opposition. When Louis Philippe became an exile, and a republic was proclaimed, the abp. kept aloof from political strife, but had earnest care for the public welfare. During the insurrection in Paris, 1848, he climbed upon a barricade in the Place de Bastille, carrying a green bough in his hand, as a messenger of peace. He had scarcely uttered a few words, when the insurgents and the troops commenced firing again, and he fell mortally wounded. He died next day, June 27. He was the author of several theological writings, and of a work on Egyptian hieroglyphics.

**AFFREIGHTMENT**, n. *ăf-frāt'měnt* [*af* for *ad*, to: Eng. *freight*, the charge for the carriage of goods, etc.: F. *affréter*, to charter or freight a vessel]: the engagement for taking a freight; the chartering or freighting of a vessel. **AFFREIGHT'**, v. for freight, which see.

**AFFRIEND**, v. *ăf-frěnd'* [*af* for *ad*, to, and *friend*]: in *OE.*, to become friends; to be reconciled. **AFFRIEND'ING**, imp. **AFFRIEND'ED**, pp. made or become friends.

**AFFRIGHT**, v. *ăf-frīt'* [AS. *affrightan*, and *aforhtian*, to tremble with fear: *a*, intensive, *frihtan*, to terrify (see **FRIGHT**)]: to terrify by sudden fear: **N.** sudden dread· great

## AFFRIQUE—AFGHAN.

fear; the cause of fear. **AFFRIGHT'ING**, imp. **AFFRIGHT'ED**, pp. **AFFRIGHT'ER**, n. one who frightens. **AFFRIGHT'FUL**, a. *-fool*, full of fright; dreadful. **AFFRIGHT'MENT**, n. *ăf-frî't'měnt*, the state of being afraid; terror.—**SYN.** of 'affright, v.': to alarm; to intimidate; confound; terrify; daunt; dismay; dispirit; appall; shock; dishearten.

**AFFRIQUE, SAINT**, *sănt ăf-frĕk'*: town of the dept. of Aveyron, France, on the Sorgue, a tributary of the Tarn, 31 m. s.s.e. from Rhodéz. It is in a beautiful valley, between two mountains, and is surrounded by meadows, orchards, and vineyards. The streets are broad, but the houses are mostly old and mean. It has woolen and cotton manufactories and tanneries. There is a considerable trade in wool; and a principal article of trade is the celebrated *Roquefort Cheese*, made from ewe-milk, chiefly in the mountain pastures around the neighboring village of Roquefort. About 10,000 cheeses are made annually. They are kept in cellars by the cheesemongers to ripen. This kind of cheese was sent to ancient Rome, and is highly praised by Pliny. Pop. 6,000.

**AFFRONT**, v. *ăf-frünt'* [F. *affronter*; Sp. *afrontar*, to face, to confront: F. *affront*, an affront—from It. *affronto*—from L. *ad, frontem*, to the front, to the forehead—*lit.*, to meet or oppose face to face]: to give cause of offense to; to insult slightly: N. anything done to offend; an outrage: open insult; in *OE.*, an encounter. **AFFRONT'ING**, imp. **AFFRONT'ED**, pp. **AFFRONT'INGLY**, ad. *-lĭ*. **AFFRONTIVE**, a. *ăf-frŭn'tĭv*, tending to affront; abusive. **AFFRON'TIVELY**, ad. *-tĭv-lĭ*.—**SYN.** of 'affront, v.': to insult; outrage; dare; offend; displease; pique; nettle; brave; provoke; defy;—of 'affront, n.': insult; outrage; indignity; contumely; disgrace.

**AFFUSE**, v. *ăf-füz'* [L. *affusus*, poured upon—from *ad, fūsus*, poured]: to pour upon; to sprinkle as with a liquid. **AFFU'SING**, imp. **AFFUSED**, pp. *ăf-fūzd'*. **AFFUSION**, n. *ăf-fū'zhŭn*, the act of pouring upon.

**AFFY**, v. *ăf-fĭ'* [OF. *affier*—from mid. L. *affĭdārĕ*, to confide in the fidelity of—from L. *ad, fidem*, faith, trust]: in *OE.*, to trust in the faith of any one; to betroth; to join; to confide; to put faith in. **AFFY'ING**, imp. **AFFIED**, pp. *ăf-fĭd'*.

**AFGHAN**, n. *ăf-gawn'*, a native or inhabitant of Afghanistan: **ADJ.** pertaining to.

## AFGHANISTAN.

AFGHANISTAN, *âf-găn'is-tân'*: land of the Afghans, occupies most of the e. part of the Iranian plateau, and includes (area 279,000 sq. m.) the ancient provinces of Aria, Drangiana, and part of Arachosia. A. proper is bounded on the north by the Hindu Kush and its western continuation (Koh-i-Baba and Safed-Koh, ancient *Paropamisus*), east by the Suliman Mountains, south and west by Beloochistan and Persia, the frontiers being ill-defined. But beyond these limits the authority of the Ameer of Cabul has been extended northward, so as to include the khanates in the valley of the upper Oxus, the region known as Afghan Turkestan. This includes Badakshan (q.v.) and Wakhan, Balkh (q.v.), and the other Usbeg states of Maimana, Akcha, Andkhui, Shabir-kan, Kunduz, and Khulm. The frontier here is, since 1873, the upper Oxus to Khoja Salih, and thence a line to about Sarakhs on the Persian boundaries; the delimitation of the northern frontier towards Russian territory being defined by a Russian and British commission in 1884-85. The actual dependence of these states on Cabul is very slight; districts of Afghan Turkestan (which is mostly desert) are in the possession of independent Hazaras. The main divisions of A. proper are the basins of the rivers of Cabul (q.v.) and Herat (q.v.), and of the Helmund (q.v.), the highlands of Ghizni (q.v.), and those on the eastern frontier (see also CANDAHAR: JELALABAD: SEISTAN: etc.). Afghan is a Persian name; the inhabitants style themselves *Pushtaneh* (plural of *Pushtu*). In the n.e., the alpine region of the Hindu Kush, a wild mountain isthmus cleft by numerous ravines, and towering up into the clime of perpetual ice, unites the high masses of land in e. with those in w. Asia, and presents formidable obstructions to communication between the territory of the Oxus and that of the Indus. There are three main passes leading through the highlands of A. to the Indus—the Khyber (q.v.), the Kurram, and the Bolan (q.v.). The great differences of elevation, and the unequal distribution of water, render the climate very various. The date-palm ornaments the oases in the sandy desert to the southwest, while in the deep sheltered valleys of the east, the cultivation of cotton and sugar thrives; but the high terraces of Cabul and Ghiznee (8,000-9,000 feet above the level of the sea) are exposed to a severe winter, with heavy falls of snow. The country is for the most part bare, rugged, and thinly peopled, only some valleys being cultivated. The east of A. is rich in minerals, iron and copper especially are abundant. Cap. Cabul (q.v.).

The population of A. is far from homogeneous. The Ameer's subjects number (1896) about 4,901,500, and are derived from the old Persian or Iranian stock. Of this total, 1,250,000 do not acknowledge fealty to the Ameer and often fight among themselves. *Pukhtu* or *Pushtu*, the language of the Afghans, is an Indo-Persian tongue; of this name the word *Pathan* is a corruption. Next come the Tajiks, also Iranians, of whom there are about 1,000,000. The remainder is constituted of Hindkis (of Hindu stock), Hazaras (Mongolo-Tartars), Kataghans and Kizlbashes (Turki), Baloches (Iranian), Badakshis, Kohistanis, and Siâh-Posh

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(all Aryan). The Afghans are Sunnite Mohammedans. The Tajiks and the Hazaras speak Persian and are Shiahs. The Kizlbashes speak Turki. The Hindkis speak Hindustani and are of Brahminical faith.

The Afghans claim descent from King Saul, and profess to be *Bani-Israel*; and their physiognomy used to lead travellers to believe in a Jewish connection. The Afghans seem to have been in their present seats in the 13th c., and for a century and a half were under Mongol rule. They first appeared as an independent power during the internal discords of Persia after the death of Nadir Shah. Ahmed Khan, of the race of Abdalli (1747-73), took advantage of these feuds, and liberated A. from Persian rule. His success founded the Douranee dynasty. When his son Timur died, 1793, a contest for the throne arose between the brothers Zemaun, Mahmud, and Shah Sujah, which ended in the success of Mahmud, who, however, was compelled to abdicate the throne in 1823, and died in 1829. The empire now fell into the hands of three brothers, of whom the oldest, Dost Mohammed, ruled at Cabul, the most important of the three divisions of the country, where he had a revenue of \$1,400,000, and an army of 18,000 men. Still the country was in an unsettled state, for Dost Mohammed was at war with Lahore in the east, and in the west the Persians had invaded Herat. The governor-general of India (Lord Auckland) declared war against A., 1838, Oct. 1, on the grounds that Dost Mohammed had unlawfully attacked the British ally, Runjeet Singh; that the military operations of the Afghans had betrayed a hostile purpose towards India; and that Shah Sujah, as the rightful heir to the Afghan throne, had placed himself under British protection. The British forces advanced through the Bolan pass to Candahar, where Shah Sujah formally claimed possession of the country. On July 21, the army encamped before Ghiznee, and after some hard fighting, that fortress was taken. Aug. 7, Shah Sujah, with the British forces, entered Cabul, and the conquest was regarded as complete. It was a gross mistake of the nature of the country and the character of the people. The land had been invaded, but was not conquered. Dost Mohammed had surrendered to the English; but his son, Akbar Khan, was actively engaged in a conspiracy, of which Sir Alexander Burnes and the envoy Macnaghten were not aware until it was too late. At the beginning of winter, when help from India was impossible, the outbreak took place at Cabul, when Burnes, Macnaghten, and several British officers were slain. It was then agreed that the invaders should leave the country; while, on the other hand, Akbar Khan and his confederates stipulated to provide an escort and make other necessary arrangements for the retreat. Depending on these promises, the British army left Cabul, 1842, Jan. 6, in order to return by the Khyber Pass into India; but neither escort nor provisions were supplied by the Afghan leaders, and the severity of the season increased the misery of the retreat. The fanatical tribes of the districts harassed the flank and rear of the army, and slew women and children as well as men.

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Out of a host of 16,000—or, if we include women and children, about 26,000—only one man (Dr. Brydon) escaped to carry the dismal tidings to General Sale, who still held his position at Jelalabad. Almost against his own will, the new governor-general, Lord Ellenborough, sent other forces into Afghanistan. Gen. Nott marched from Candahar to Ghiznee, which was again taken after a slight resistance, and then proceeded to meet the army which, under Gen. Pollock, had marched through the Khyber Pass to Cabul. Here the force of Akbar Khan was defeated and routed, and the place was as far as possible desolated. The English officers and their ladies who had surrendered themselves as prisoners to Akbar Khan were restored to liberty; and soon afterwards the troops marched back to India. It was believed now that the Afghans were deprived of all power to combine against the government of India; but this conclusion was too hasty, for in 1846 they formed an alliance with the Sikhs against the British; and the disturbances in the Punjab were not quelled without several sanguinary engagements. After the decisive battle of Gujerat, 1849, Feb. 21, the Sikhs were forsaken by the Afghans, and Dost Mohammed, with about 16,000 men, fled over the Indus. After this period, Dost Mohammed devoted his attention almost exclusively to the consolidation of his dominions. He died, 1863, appointing Shere Ali, one of his younger sons, as his heir. At first the choice was acquiesced in by the sixteen sons of Dost Mohammed, a large number of whom were governors of provinces; but disputes followed, which for many years kept A. in a state of anarchy. See CABUL. The British government of India had recognized Shere Ali at his accession, and when in 1868, after his long struggle with his brothers, he obtained possession of Cabul, and became *de facto* ruler of the greater part of Afghanistan, direct assistance was given him to secure the position for which he had fought. Sir John Lawrence, then Indian viceroy, sent him first two, afterwards four lacs of rupees with 3,500 stand of arms. The next viceroy of India, Lord Mayo, met the Ameer in state at Umballa, in March, 1869. It was then explained to him that Her Majesty's government had no desire to interfere with the affairs of A., except to check civil war, and by so doing, to secure the peace and prosperity of the country. This intimation was accompanied by another large present. In the same year, the Ameer conceived the idea of invading Bokhara (q.v.) and attacking the Russians, but was restrained by English advice. After 1869, Shere Ali endeavored to secure tranquillity in Afghanistan. He was alive to the strife that had been occasioned by intrusting power to relatives, and he endeavored to replace the members of his family as much as possible by strangers. He also indicated very distinctly that he did not intend to select as his heir his son Yakoob—who, at an early age, had shown great ability as governor of Herat, and had, on many occasions, given his father most valuable assistance—but a younger son, Abdullah. The claims of Yakoob to share in the government of A. were ignored, and the result was that, in 1870 he headed a rebellion against his father;

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but in the following year a reconciliation was effected through the intervention of England. In 1869 it was settled between England and Russia, that all the provinces between the Oxus and the Hindu Kush should be treated as part of A. In 1878, in consequence of new Russian diplomatic relations to A., Shere Ali was invited to receive a British mission. The refusal of the Afghans to admit the mission, which had advanced to the mouth of the Khyber Pass, led, after some fruitless negotiations, to war. Hostilities began by the forcing of the entrance to the Khyber towards the end of November. There was some severe fighting in the passes, but the invaders were everywhere successful. Before the end of December, Jelalabad was occupied without resistance, and Candahar a little later. Shere Ali, who had fled, died early in 1879; and Yakoob Khan, proclaimed Ameer, made peace in May. It was provided that there should be a British resident at Cabul; and that Britain should defend A. against foreign aggression, the Ameer receiving a subsidy. The Kuram, Pishin, and Sibi valleys became British territory, and the Khyber and Michni passes came under British control. But in September of the same year the revolted troops of the Ameer surrounded and attacked the British Residency. The Resident, Sir Louis Cavagnari, and his staff, with almost the whole of their Indian guard, were slain after a desperate but bootless struggle. Measures were immediately adopted by the Indian government for punishing the outrage. The Ameer put himself under British protection, and abdicated his sovereignty; and after some fighting Cabul was occupied by English troops in the beginning of October. The war was maintained in a desultory way; and it was not till the middle of 1880 that peace negotiations were again fairly undertaken. Progress seemed to have been made when Abdurrahman, son of Dost Mohammed's eldest son, and long under Russian protection, was proclaimed Ameer of Cabul. A few days afterwards England was startled by the intelligence that an English force had met with a very severe defeat near Candahar at the hands of Ayooob Khan, Yakoob's brother. The disaster was avenged Sep. 1, when General Roberts, marching from Cabul, routed and dispersed Ayooob's army; and shortly thereafter the English troops began to be withdrawn from A., leaving till 1881 a force in Candahar and its neighborhood.

In 1884 Great Britain acceded to the proposal of Russia (1882) for the appointment of a joint commission to demarcate the boundary between A. and the territory of the Turkomans, and the commissioners began work on the line from Kwája Sala on the Oxus to Sarakhs. Soon afterward Russia claimed that the Paropamisus was the true boundary of Herat, and that the district of Badghis lay outside A. territory. This claim was considered sufficiently grave to be submitted to the two govts. for settlement. While negotiations were pending the Russians seized the debatable land, 1885, and war with Great Britain seemed imminent; but the work of demarcation was resumed 1887, and the points at issue were settled by mutual concessions, Russia,



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obtaining the valleys s. of Panjdeh for 9 or 10 m. in the direction of Herat, and the ameer of Bokhara valuing his claims to the pasture-lands on the left bank of the Amu Daria, s. of Khoja Saleh. Both Russia and Great Britain continued explorations and surveys in A. and vicinity 1890, and July 20 the Russian official explorer announced that the British boundary in the Pamir was only three days' march from the Russian frontier at Karakul, the interval being occupied by Kirghiz nomads. This proximity of frontiers was due to the seizure from the Chinese of the Pamir by the khan of Kandshut Dangan, who subsequently, in return for an annual subsidy, accepted Indo-British vassalage. By restoring the fortifications of Shah-i-Doulla Chodja and garrisoning them with Cashmere troops, the British secured control of the immense and fertile basin of the Rashkem Daria. The British, fearing a Russian invasion of India through A., hastened the completion of its great railroad in the latter country 1891, and in Dec. captured the fort of Nilt and another stronghold a short distance from it, and made a determined forward movement against the Hunza and Nagar tribesmen. The mountain states of Hunza and Nagar are on a direct line between Gilgit and the Pamirs. The Great Pamir and Little Pamir are desolate table-lands bounded n. by Russia, e. by the Chinese province of Kashgaria, w. by A., and s. by three Himalayan states under British protection. China claimed sovereign rights over part of the Pamirs; Russia established an advance outpost in Little Pamir, which the British asserted was a part of A., pushed the construction of its 900-m. railroad toward the British Indian frontier, and claimed the greater part of the Pamirs on the terms of the Gortschakoff-Clarendon treaty (1872); and the ameer of A. was believed to have renounced his claims to the Pamir steppes, in consequence of an understanding with Russia. In 1892, Apr., the ameer by defeating the khan of Jandol at Asmar, gained control of the Dora pass, one of the two passes leading through the Pamir country to India, the other being held by the British. In June, in an attempt to force the various independent tribes living on the border-land between India and A., to acknowledge him as their suzerain, the ameer brought upon himself a serious revolt, and his picked army was badly defeated by the Hazaras. The condition became so serious that in Aug. the Indian govt. sent Gen. Sir Frederick Roberts, with a large milit. force, on a special mission to the ameer, who had disregarded its injunction not to attempt to extend his influence westward.

At first the ameer made a show of independence, and notified Gen. Sir Frederick that he could not receive him till after he had subjugated his enemies; but before the month closed his enemies gave him several defeats and placed him in such extremity that he wrote to the Indian govt. for assistance in maintaining himself against the rebellious native tribes and the Russians. In Sep. the Russians evacuated the Pamirs, but began establishing a large permanent force at Murghab.

AFIELD--AFRESII.

AFIELD, ad. *ǎ-fēld'* [AS. *a*, on, and *field*]: to or in the field.

AFIUM-KARA-HISSAR, *â-fē-ôm-kâ'r-â-his-sar'* (*Opium Black Castle*): city of Asia Minor, in the pashalic of Anatolia, 170 miles east-by-north from Smyrna; near the Akar, partly on level ground, and partly on a rising ground among rocks. Above the city towers an isolated rock of 300-400 feet in height, almost precipitous on most sides, and very steep on that by which alone it is accessible. The summit has in former times been fortified. The streets of the city are very narrow. Most of the houses are of stone, and well built. A great trade is carried on, the city being an entrepôt between Smyrna and Europe on the one hand, and Armenia, the countries on the Euphrates, and Persia on the other. The products both of Europe and the east are to be found in its markets. A principal article of trade is opium, produced in the neighborhood, and from it the city derives its name. There are here and in the neighborhood manufactures of felts, carpets, arms, and saddlery. The saddlery of A. was formerly in demand throughout the whole Turkish empire, but the demand for it has greatly fallen off. Pop. supposed about 20,000.

AFLOAT, ad. *ǎ-flôt'* [AS. *a*, on, and *float*]: on the water; borne upon the water and moving; not sinking.

AFOOT, ad. *ǎ-foot'* [AS. *a*, on, and *foot*]: on foot; in action or motion.

AFORE, prep. *ǎ-fôr'* [AS. *onforan*, in front; *a*, on, and *fore*]: in *OE.*, prior or superior to; sooner; before; in presence of: AD. in time past; first; in front. AFOREGOING, a. *ǎ-fôr'gō-īng*, going before; that precedes. AFOREHAND, ad. in time gone by; in *OE.*, well provided. AFOREMENTIONED, a. mentioned before. AFORENAMED, a. named before. AFORESAID, a. mentioned in a preceding part. AFORETHOUGHT, a. *-thawt*, premeditated—as, malice aforethought. AFORETIME, ad. in time past.

A FORTIORI, a. or ad. *â-fôr'shî-ôr'î* [L. *a*, with; *förtis*, strong, *fortiôr*, stronger]: for stronger reasons; for more weighty considerations.

AFRAGOLA, *â-frâ-gô'lâ*: a commune and town of Italy, 6 m. n.e. of Naples. The manufacture of straw bonnets is carried on extensively. Pop. of commune about 18,000.

AFRAID, a. *ǎ-frâd'* [AS. pp. of AFFRAY, v., which see]: filled with fear; terrified. I'M AFRAID OF IT, I fear or dread it much; I have little doubt it is true, or has happened.—SYN. of 'afraid': fearful; timid; timorous; terrified; frightened.

AFRANIUS, *a-frâ'nî-us*, LUCIUS: a Latin comic poet and orator who lived about a century before Christ. Cicero and Quintilian speak highly of his plays, but only fragments of his works remain.

AFRESH, ad. *ǎ-frësh'* [AS. *a*, on; *fersc*, pure, sweet]: again; anew; recently.

## AFRICA.

AFRICA, *ăf' rĭ-kă*: the second in point of size of the great divisions of the globe, has long been truly the 'dark continent,' the land of mystery; but of late much has been done to open it to us by the enterprise of explorers, the zeal of missionaries, the perseverance of commercial speculation, and the military aggressions of Europeans. The chief hinderances are the fewness of the accessible points on the coast, the pestilential climate of the marshy lowland bordering on the sea, the barrenness of vast tracts like the desert of Sahara, and the barbarism and sanguinary character of the natives.

The valley of the Nile was known in the earliest period of history as the nursery of commerce, arts and sciences; but while Egypt was flourishing, the rest of A. was almost totally unknown, and was vaguely spoken of as Libya. The Greeks and the Romans penetrated into A., probably as far as the Niger: but they had scarcely any definite knowledge of the countries lying beyond Numidia, while s. A. was entirely unknown. The tradition that Jewish and Tyrian merchants, on their voyages to Ophir, explored the east coast of A., is dubious; but another account, that, in the time of Pharaoh-Necho, the Phœnicians circumnavigated A., seems to be well authenticated; and it is probable that the Carthaginians had a better knowledge of parts of the interior than we have in the present day. For a history of the older discoveries in A., see works on discoveries and travels in Africa by Murray (1817) and Leyden (1799); and E. H. Bunbury's *History of Ancient Geography* (1880).

The 15th c. was marked by an extension of geographical knowledge in A. as elsewhere. Henry the Navigator sailed round the formidable Cape Nun (*non plus ultra*); Diaz and Vasco de Gama discovered the Cape of Good Hope; and both the western and the eastern coasts were partly explored by several European voyagers. The older travels and discoveries may be arranged in the following order: in the 14th c., the travels of the Arabian Ebn Batuta in the north of A.: in the 15th c., the Portuguese discoveries of Madeira, Cape Blanco, Senegal, Guinea, Benin, the Cape of Good Hope, etc., and the navigation of the east coast by the Portuguese Covilham, who first travelled in Abyssinia: in the 16th c., the travels of Leo Africanus through Barbary and Sahara to Abyssinia; the travels of the German Ranwolf in n. A.; and Windham's voyage to Guinea, which was followed by several other expeditions in 1554 and 1562. In 1570 and 1600 the Portuguese visited Monomotapa, then a powerful state near the Mozambique coast. In the 17th c., the Englishmen Jobson and Thomson, in their journey to Timbuktu, opened British commerce with A., and the slave-trade immediately followed. In 1662, a French colony was on the Senegal, and many exploring journeys to the interior were made by Renouard and others. In 1624, the Jesuit Lobo endeavored to find a way from the equator through the interior as far as Abyssinia. Thevenot's journey to Egypt, 1652; the English occupation of Cape Coast, 1664; Brue's voyage to Senegambia, and several other visits to the western coast, mark the progress made in the latter half of the 17th c.

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In the 18th c., various additions were made to the world's knowledge of A. In 1788, the African Society was founded in London, and, under its direction, Ledyard and Lucas were sent to explore the Niger, and were followed by Major Houghton. The English colony of Sierra Leone was founded 1790. The French expedition to Egypt, towards the close of this century, gave a new impulse to researches in A.

In the 19th c., the most various motives have co-operated to extend the knowledge of this vast continent. The captains of English cruisers, employed to suppress the slave-trade, have supplied valuable information; the governors of the colonies and private merchants have contributed their share; and enterprising travellers from all sides of the coast have sought paths to the interior. The works published on A. since the year 1800 are consequently very numerous. A few of the more important may be mentioned. In 1802-05, Lichtenstein travelled in the district north of the Cape of Good Hope, and first furnished information regarding the Bechuana tribe. The travels of Mungo Park from Timbuktu to Bussa are well known. In 1809, Burckhardt was sent out by the African Society, and his explorations, rich in manifold results, occupied the years 1812-16. To the French we are indebted for much valuable information concerning Marocco, Algeria, and the neighboring parts of Sahara. The labors of Oudney, Clapperion, Denham, and Lander, in the Sahara and Soudan, are memorable by the discovery of Lake Tchad and the course of the Niger. Since about 1840, our knowledge of s. A. has received many important additions from the missionaries stationed there, especially Moffat; while David Livingstone, who, 1843-73, was engaged in trying to open the countries north of the Cape of Good Hope, penetrated in 1849 as far as Lake N'gami, in 20° s. lat.; and in 1853, ascending the Leeambye (Zambesi) northward for several hundred miles, succeeded in crossing the continent to Loando on the west coast. Having retraced his steps to the point of the Zambesi from which he had started, the adventurous traveller next followed the stream till he reached the east coast, at Quilimane, in 1856. From 1859 to 1863 he made various explorations of Lake Nyassa and the neighboring regions. Again setting out in 1866, he found, in the region south of Lake Tanganyika, the river Chambezi. This river, which is specially known by this name ere it falls into Lake Bemba or Bangweolo, is known between that lake and Lake Moero as the Luapula, and further on in its course as the Lualaba; and was by Livingstone traced through these lakes as far as 4° s. lat. Livingstone's belief was that this basin, now known to be the upper Congo, contained the headwaters of the Nile. In 1871, with Stanley, he found the river Rusizi flowing into the north of Lake Tanganyika. His last enterprise consisted in further exploration of these regions and new efforts to find the Nile sources. He died at Ilala, beyond Lake Bemba, May, 1873. Burton and Speke, crossing the Border Mountains from Zanzibar, 1857, discovered Lake Tanganyika; and the former then journeying to the n.e., discovered the southern part of the Great

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Victoria Nyanza, which he supposed to be the head reservoir of the Nile. A second expedition, undertaken by Speke and Grant in the end of 1860, penetrated as far n. as Gondokoro on the White Nile, and added vastly to our knowledge of the eastern equatorial regions of Africa. At Gondokoro, Speke and Grant were met by Mr. (now Sir Samuel) Baker. Baker, accompanied by his heroic wife, pushed on to the s. and discovered in 1864, w. of the Victoria, another great lake, which he called the Albert Nyanza. He returned in September, 1873, from a second expedition, of a military character, undertaken, 1869, at the expense of the pasha of Egypt, to suppress slavery in the upper regions of the Nile. The geography, language and manners of the inhabitants of Abyssinia, Sennaar, and Kordofan have also during late years been greatly illustrated by the efforts of various European travellers. The researches of Dr. Barth and his companions, 1850-55—investigating the same central division of the continent as Clapperton and Denham—and Dr. Schweinfurth's travels, 1868-71, in unexplored regions, have enriched our store of knowledge regarding this land of mystery. In 1874-5, Lieutenant Cameron surveyed the lower half of Lake Tanganyika, and walked across tropical Africa from e. to w., almost determining the source of the Congo. Mr. Stanley explored the Victoria Nyanza and its affluent, the Shimiya, in 1875-6. Then striking the Lualaba at Nyangwe in the end of 1876, he forced his way down the stream, and arriving at the mouth of the Congo in autumn, 1877, demonstrated that the Lualaba and the Congo are identical. In 1877-79, Major Serpa Pinto crossed the region lying between Benguela and Durban in Natal. In 1880, Mr. Joseph Thomson explored the route between Nyassa and Tanganyika; and in 1884, he made his memorable journey from Mombasa by Kilimanjaro and Kenia to the Victoria Nyanza (see below).

A. lies between lat.  $37^{\circ} 2' \text{ n.}$  and  $34^{\circ} 50' \text{ s.}$ , and long.  $17^{\circ} 30' \text{ w.}$  and  $51^{\circ} 30' \text{ e.}$  It is of an irregular triangular form, with the vertex towards the s., having the Mediterranean on the n., the Isthmus of Suez, Red Sea, and Indian Ocean on the e., and the Atlantic on the w. The formation of the Suez Canal has nominally converted Africa into an island. The coast-line is marked by few indentations or projections; the most important gulf being that of Guinea, on the w.; and Capes Bon, Verd, Good Hope and Guardafui, the extreme points respectively on the n., w., s., and e. The greatest length of the continent, taken from n. to s., is about 4,985 miles; its greatest breadth, from e to w, 4,615; and its area, including the adjacent islands, not less than 11,854,000 sq. miles.

What is known of the physical features of A. may be shortly sketched under the following heads: 1. The triangular region south of Cape Guardafui and the Gulf of Guinea is mostly a high table-land, having fringes of mountains crowning its edges. Between the coast and the beginning of the elevation runs a belt of low lands, varying from 50 to 300 miles in breadth. The Lupata range, seen ruri

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ning parallel with the coast, forms the eastern crest of the table-land. Between  $3^{\circ}$  and  $4^{\circ}$  s. lat., it reaches, in the snow-clad Kilimandjaro and Kenia, the height of 20,000 feet. The mountainous country of Abyssinia is the eastern prolongation of the plateau and its elevated crest; in the summit of Abba Yared, at the northern extremity, it rises to 15,000 feet. At the s., the hills of Cape Colony rise in stages from Table Mount to the summits of the Nieuwveld and Sneeuwberg, in the heart of the colony, which are estimated at 7,000-10,000 feet; the spaces between the ranges being shrubby *kloofs* or valleys, and broad elevated terraces or *karroos*. From the elevated crest that runs parallel to the w. coast from Cape Colony to Valfish Bay, Mr. Galton describes the country as sloping slightly inwards, thus giving a cup or basin shaped appearance to the interior of the continent. Towards the n.w. the border of the table-land rises in the Cameroons to the height of 13,000 feet. Its northern boundary is not determined; but it is likely that the valley of the western branch of the Nile penetrates into it, dividing it into two portions, an eastern and a western. A mountain seen lying s. from Lake Tchad is supposed to be one of its northern outposts.

2. N. and n.w. of the great triangular table-land lies Sudan or Central Nigritia, under which name may be comprehended the countries watered by the Senegal, Gambia, and Niger, with the coast of Lower Guinea, and the basin of Lake Tchad. In the w. part of this section is a mountainous table-land of no great elevation, in which the rivers above named take their rise; the Kong Mountains, which run parallel to the Guinea coast, are a branch of this elevation. Eastward of the Niger the country is hilly, alternating with rich, often swampy plains. In the basin of Lake Tchad is a vast alluvial plain, one of the largest on the globe, and of great fertility.

3. Between Sudan and the cultivated tract which borders the Mediterranean, stretches the Sahara or Great Desert. It extends s. nearly to the Senegal, the northern bend of the Niger and Lake Tchad, northward to the Atlas range in Marocco and Algeria, and towards Egypt it reaches to the Mediterranean. Its average breadth from n. to s. is about 1,000 miles. Its length from the Atlantic to the valley of the Nile is 2,000. Over a great part of this region rain never falls, and everywhere it is rare; it is thus condemned to sterility. It consists partly of tracts of fine shifting sand, which frequent storms of wind raise into the air, so as often to overwhelm travellers. But the greater part of the surface consists of naked but firm soil, composed of indurated sand, sandstone, granite, and quartz-rocks, often rising into ridges or hills. The desolation is interrupted at intervals by patches, sometimes of considerable extent, covered with bushes and coarse grass, and often of great beauty and fertility. These *oases* or *wadies*, as they are called, which are occasioned by subterranean springs, are most numerous and fertile in the eastern portion of the desert. The easiest route across the desert to Sudan runs from Tripoli through the kingdom of Fezzan to Lake

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Chad. Fezzan receives periodic rain from the moist winds of the Mediterranean, which extend further into the continent here than elsewhere. The portion of the desert lying east of the route above described is called the Libyan Desert. It is chiefly in this region that the oases are susceptible of cultivation; the tracts of vegetation in the western portion are fit for little else than pasture, mainly for goats and sheep. The principal production of the more fertile oases is dates, though other fruits and grain are cultivated. Gum arabic is another production. Some of the larger oases support thousands of inhabitants living in villages. Commerce is carried on across the desert by various routes by means of caravans, consisting of from 500 to 2,000 camels, with their attendants. The distance between the wells sometimes exceeds ten days' journey; and when a well is found dry, men and animals are in danger of perishing. The inhabitants consist of independent tribes of Moors, Berbers and Arabs.

4. The Atlas region, comprehending the mountainous countries of Marocco, Algeria, and Tunis. The northern slope towards the Mediterranean, called the Tell, is, in aspect, climate, and productions, similar to the opposite coast of Europe; the southern side merges gradually into the Sahara. Some parts of the chain are considerably above the snow-line, and the highest summits may reach 13,000 feet.

5. The region bordering on the Red Sea, consisting of Abyssinia, Nubia, and Egypt. Abyssinia is the mountainous termination of the great southern plateau. Between this and the Mediterranean extends the low valley of the Nile, separated from the Red Sea on the east by a rugged mountainous region, and from the Libyan Desert on the west by a low ridge of limestone and sandstone.

Regarding the hydrography of A., much is still to be ascertained. Livingstone's discoveries have shown that the portion which, until recently, was termed the 'unexplored territory,' is anything but the barren and riverless desert that we imagined. But as hardly one of its streams has been traced throughout its entire course, while nearly the entire tributaries of these are very imperfectly known, we must wait for the result of further explorations, before positive statements can safely be made. Those of the s., which mostly rise in the neighboring highlands, are, in many instances, little better than mountain torrents, having short and rapid courses; and the embouchure, generally in the delta form, is commonly obstructed by a bar of sand. The Orange River, for instance, is filled with sand at its mouth.

*Rivers.*—The great rivers of A. are the Nile, the Niger, the Zambesi, the Orange, the Congo, the Senegal, and the Gambia. See NILE, NIGER, etc. The first of these is formed by the junction of two rivers—the White Nile (Bahr-el-Abiad) and the Blue Nile (Bahr-el-Asrak). The former has its sources in the great equatorial lakes, including those called the Victoria Nyanza and the Albert Nyanza, skirts the eastern edge of Kordofan, and passes into Nubia, where it is joined by the Blue Nile at Khartum, after the latter has broken through the highlands of Abyssinia. The single

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stream then sweeps circuitously through Nubia in a succession of cataracts, and descending into Egypt, reaches the Mediterranean through the far-famed Delta. The second of the great rivers, the Niger, Joliba, or Quorra—for it goes by these and other names in different parts of its course—rises in the Kong Mountains of Guinea, about  $9^{\circ} 25'$  n. lat.,  $9^{\circ} 45'$  w. long., and flows first n. e. till it reaches Timbuktu, where it bends e. for a short distance, then descends in a s. e. direction into the Gulf of Guinea. Its length is estimated at 2,500 miles; and its navigability has been ascertained for a distance of upwards of 400 miles; but its banks are very pestilential. Its principal tributary is the Tchadda or Benué. At the extreme west of the mountains of Kong, and not far from the source of the Niger, rises the Senegal, which flows with a crescent sweep to the n. w. through Senegambia, and enters the Atlantic n. of Cape Verd. The Gambia, a smaller river, runs in a similar direction, and falls into the sea s. of Cape Verd. The Congo, proved by Stanley to be identical with the river called at various parts of its course the Chambezi, Luapula, Lualaba, etc., runs northward to a point about  $2^{\circ}$  north of the equator, and thence s. w. towards its embouchure in the Atlantic at Cape Padrone. Its whole course is about 2,900 miles. The Orange River flows w. with many windings to the sea, as do also the Kwanza (Coanza) and the Ogowé or Ogobai (q. v.); while the Zambesi, rich in affluents, and the less-known Limpopo or Oori (q. v.) run in an easterly direction.

*Lakes.*—The lakes of A. are now in good degree known to us. *Tchad*, *Chad*, or more correctly, according to Dr. Barth, *Tsad*, the chief lake of Sudan or Central A., has a circumference of about 200 miles, with a depth varying from 8–15 feet, and an elevation of 850 feet above the sea-level. Though it has no outlet, its waters are cool and clear, and abound with fish. Beside a multitude of temporary streams, it is the recipient of several large rivers. The chief is the Shary or Asu, from the s. e. *Dembea* or *Tzana*, in Abyssinia, through which the Blue Nile flows, is about 65 m. long, and 30 broad, and lies 6,000 ft. above the sea level. Lake N'gami, in s. A., the centre of the internal drainage of the country between the Orange and the Zambesi, is about 2,500 feet above the sea-level, 70 miles long, and 20 broad. N. of the Zambesi between the parallels of  $10^{\circ}$  and  $14^{\circ}$  s., and about 350 miles inland from the coast of Mozambique, lies Lake Nyassa, at an elevation of 1,200 feet above the sea-level. The discoveries of Tanganyika and the Victoria Nyanza by Speke, and of the Albert Nyanza (q. v.) by Baker, have been already noticed, and described in their proper place. The source of the Nile lies in the basin of these last two lakes. W. of Victoria Nyanza, and apparently connected with it, lies the great Lake Muta Nzige; e. and n. e. of it are Naivasha, Baringo, and Samburu; Shirwa or Kilwa is s. e. of Nyassa; and Hikwa of Tanganyika. Bangweolo or Bemba, and Moero or Mwero, are in the course of the Luapula Congo; Kassali and other lakes are in its basin.



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*Geology.*—The geology of A. is known as yet only from cursory observations at isolated points. The character of the Sahara has been already indicated. The section traversed by Dr. Livingstone presents a variety of schists, shales, sandstones, and tufa, through which protrude granite and trap rocks. In one place towards the east side of the continent the sandstone is found overlying coal. Between Tripoli and Murzuk there is a plateau, the dark sandstone of which disintegrated fills up the inequalities of the surface, from which the black rock stands out in fantastic cones. The lofty barrier of limestone which forms the western boundary of Egypt, reappears in the rugged ranges of hills which break the monotonous waste of Sahara; they sometimes contain marine shells. Secondary limestone also constitutes the lower skirts of the Atlas Mountains, but what constitutes their basis has not yet been discovered.

*Climate.*—There are three great varieties of climate, corresponding to the physical structure of the continent: first, that of the plateaus; second, that of the terraces which lead to them; and third, that of the coasts. In the vast desert of Sahara, extending over an area equal to that of the Mediterranean Sea, almost destitute of water and vegetation, and partly covered with tracts of sand and bare, low rocks, the heat of the day is uniformly contrasted with the coldness of the night; while the terrace-land of Limbu, for instance, situated behind the Sierra Leone region, has a temperate and wholesome climate; and in that rising behind the Slave Coast are beautiful landscapes, abundant springs, new forms of vegetation, and a mild Italian air. The natives of Congo call their terrace-lands, which are well cultivated and thickly peopled, 'the paradise of the world.' But the flat coasts, which are often overflowed in the rainy season, have a very oppressive atmosphere, and from the morasses at the mouths of the rivers a malaria arises which is pestilential to Europeans. This malaria has been supposed to arise from the decay of the vegetable matter brought down by the rivers from the dense mangrove-woods, which, mixing with the salt water on the coast, produces sulphuretted hydrogen gas. The region of pestilential air has been calculated to extend about 100 miles inland; but only 40 miles out at sea, and to rise to a height of 400 feet above the sea-level.

*Productions.*—The *vegetation* of A. is decidedly less varied than that of Europe or Asia. Along the Mediterranean seaboard, it greatly resembles that of Southern Europe. The tropical regions are not as rich in species of plants as those of S. Amer., but still they exhibit many peculiar genera. As we leave the sultry coasts, and ascend the terraces towards the interior we pass gradually from tropical productions to those of the temperate zones, which all flourish well in several parts of A. Though the forests cannot rival those of Brazil, they are rich in valuable woods, especially the harder kinds; some of them excellent for shipbuilding. Here are the gigantic *Adansonia* (q.v.) *digitata* or baobab. Ebony, certain kinds of rosewood, and the timber called African teak, are among the productions of the tropical forests. The butter-tree (*Bassia*, q.v.) is one of

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the most remarkable productions of the central regions. Extensive level tracts are covered with acacias. Certain palms are very characteristic of different parts of A., and are of the greatest importance to the inhabitants, particularly the date-palm (q.v.) in the north, and in an inferior degree, the doom-palm (q.v.), both of them growing in regions comparatively arid, and often surrounded by the very sands of the desert; while the oil-palm (q.v.) flourishes amid the tropical luxuriance of the west, and supplies an article of commerce which now attracts the ships of Europe, in constantly-increasing numbers to shores formerly frequented only for the prosecution of the slave-trade. The cocoa-nut palm (q.v.) flourishes on many parts of the tropical coasts. A large quantity of oil is produced also by a plant of a very different description, the ground-nut (*Arachis*, q.v.), a leguminous herbaceous plant, which has the remarkable peculiarity of thrusting its pods into the ground to ripen there, and which is now so extensively cultivated, that 9,000,000 bushels of ground-nuts are annually exported from the Gambia. The southern extremity of A. is remarkable for the vast number of its species of mesembryanthemums and heaths. Pelargoniums, iridaceæ and proteaceæ, are also among the most characteristic features of its vegetation. Euphorbiaceæ abound in most parts of the continent. Many of the productions of other countries have been introduced, both in the tropical and temperate parts of A. Maize is now extensively cultivated, as well as rice, wheat, and millet. A peculiar kind of grain, called fundi, or fundungi (*Paspalum exile*), is cultivated in the w., and grains called teff and tocusso (*Poa Abyssinica* and *Eleusine Tocusso*) in Abyssinia. Coffee grows luxuriantly, and of good quality. Indigo and tobacco are easily cultivated, and cotton has succeeded well where it has been introduced, as in Egypt, where, however, it requires artificial and laborious irrigation; while in the rich and well-watered soil of Senaar, it flourishes even with a most careless style of cultivation, and might, without doubt, be produced in enormous quantity. Other regions, as Natal, seem likely soon to produce it abundantly. The vine is cultivated with success at the Cape of Good Hope, and the sugar-cane in different parts of the continent.

In the *animal kingdom*, are the lion, the leopard—often called the tiger, but the tiger is not yet known except as a native of Asia and the Asiatic isles—hyenas, jackals, and others of the canine family, a species of elephant, differing in some particulars from that of Asia, several species of rhinoceros, the hippopotamus, wart-hogs (*Phascochærus*), and many kinds of monkeys, particularly within the tropics. The giraffe, the zebra, and the quagga, are peculiar and characteristic, as are also numerous species of antelope, which occupy, in African zoology, the place of deer in other parts of the world. The gnu is one of the most remarkable of the antelope genus. Some of the smaller species occasionally appear in prodigious numbers, devastating the fields of the colonists. The ostrich is found in almost all parts of A. Parrots, flamingoes, and guinea-

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rows are among the birds. Crocodiles are found in the rivers, and many kinds of lizards and serpents occur, not a few of the latter being poisonous. There are also tortoises and turtles of different species. The domestic animals thrive. Camels, said to have been introduced by the Arabs, are plentiful in the north.

In the department of *mineral* wealth, the diamonds found in Griqualand West (q.v.) have in recent years surpassed every other produce in value. Diamonds to the value of over £3,000,000 passed through the Kimberley post-office in 1880. Gold is found abundantly in the sands of the great rivers that flow out from the central region, on the coast of Guinea, and also in the s.e. of A. The Sierra Leone coast has valuable iron ore, which is also found in the Upper Senegal, the region of Timbuktu, the Congo chain of mountains, Egypt, and Darfur. Copper is plentiful at Majomba, and in some other places; salt may be obtained from almost every district in A. except Sudan, and sal-ammoniac, saltpetre, sulphur, and emery in various portions of the continent.

*Population.*—The population is vaguely estimated at about 160,000,000. Keane arranges the races of Africa in seven great groups, according to language: 1st, the Semitic family, along the n. coast and in Abyssinia; 2d, the Hamitic family, mainly in the Sahara, Egypt, Galla Land, and Somali Land; 3d, the Fulah and Nuba groups, in Western, Central, and Eastern Sudan; 4th, the Negro group, in Western and Central Sudan, Upper Guinea, and the Upper Nile regions; 5th, the Bantu family, everywhere south of about 6° n. lat., except in the Hottentot domain; 6th, the Hottentot group, in the extreme s.w. corner from the Tropic of Capricorn to the Cape; 7th, the Malayo-Polynesian family, in Madagascar. Latham's divisions were six: 1st, *The Negro Atlantidæ*.—These have, in an exaggerated form, the black unctuous skin, woolly hair, projecting jaws, flat nose, and thick lips, characteristic of the whole variety. They occupy Western A., from the Senegal to the Gaboon, Sudan in the centre, and the low parts of the Upper Nile. The dusky or brown hue is more prevalent in A. than the jet-black of the negro. 2d, *Kafir Atlantidæ*.—In physical conformation, they are modified negro; their language has some singular peculiarities. They occupy from north of the equator to south of the Tropic of Capricorn. 3d, *Hottentot Atlantidæ*.—Their color is brown rather than black; the hair grows in tufts. The stature is low. Their language has a characteristic *click*. 4th, *Nilotic Atlantidæ*, occupying the water-system of the Upper and Middle Nile. The leading tribes are the Gallas, Agows, Nubians, and Bishari, forming the population of Abyssinia, Adel, and Nubia. It connects by imperceptible gradations the Coptic and Semitic groups with the rest of the African languages. 5th, *Amazigh Atlantidæ*, usually called Berbers. In conformation, they vary from the negro to the Arab type. The language is *sub-Semitic*. They inhabit the ranges of the Atlas, the Sahara, the Canary Isles, and are found as far s. even as the centre of Sudan. 6th, *Egyptian Atlantidæ*,

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or old Egyptians, represented by the modern Copts. Both language and physical conformation connect them, on the one hand, with Berbers and Nubians; on the other, with the Assyrians, Jews, etc.

In *religion*, the natives are as various as in language; though it has been questioned whether some of the tribes, especially in s. A., can be described as having any religion. In not a few of these, the religious consciousness seems extinguished, and the very terms which express it, to have dropped out of their language, though perhaps their degradation prevents communication with them. It was estimated 1896 that 31 Prot. and 20 Rom. Cath. missionary organizations were laboring in A. The Bible had been transl., in whole or in part, into 67 African languages. In the n. and in much of the interior, the creed of Mohammed is received, but held very loosely by many. The Mohammedan tribes on the w. coast divide themselves into two classes—the *Marabouts* and the *Sonnachees*; but it is not easy to understand the exact nature of this distinction, beyond the simple fact that the Marabouts profess to adhere rather strictly to the laws of the Prophet, while the Sonnachees are more secular, make little profession of sanctity, but eat pork and will drink spirituous liquors. The lowest form of superstition, styled *fetichism*, prevails among the uncultured negro tribes, as well as among the Gallas, a nation widely spread s.e. of Abyssinia; and the practice of offering human sacrifices is found in many tribes. The Abyssinians hold by tradition a crude form of Christianity.

By way of interior *commerce* or barter, caravans of camels pass over the wide deserts of the north by such routes as lead them to the greatest number of springs, brooks and *oases*, or comparatively fertile places. Timbuktu is the chief commercial depôt for the caravans from Tafilet, Tripoli, and other places in n. A., and is connected by other caravan routes with Bornu, the Soudan, and Dahomey, as also, it may be, with the east coast. The principal places of commerce in the east are Berbera, Ankobar, Gondar, Sennaar and Kobbe. In Benguela and Angola, negro caravans from the interior arrive at the chief places on the coast, bringing slaves, ivory and gold-dust, and the plateau of the Upper Nile is visited by Arab traders from Zanzibar engaged in the same traffic. Though A. is so rich in natural productions, it is still a painful fact that along its coasts, and in the caravan roads of the interior, the principal trade is in slaves. The African is fit for something better. Even in the purely native states there is, of course, great variety of social condition and aptitude for civilization; but even many of the rudest tribes are in a condition which cannot be fairly described as savagism. They have fixed dwellings, though these are merely mud-huts, defended by stockades. Among several tribes the native merchant is highly respected, and his goods are safe even in times of feud or warfare. The land is cultivated; the natives wear dyed cotton dresses. Gold and iron are manu-

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factured with ingenuity. All that is wanted is a free commercial intercourse with the civilized world.

Something has of late been attempted in the Egyptian dominions and in Zanzibar towards putting an end to the odious traffic in human souls and bodies; but special interest attaches to the work done by the International African Association in the basin of Congo, and to the proceedings of the conference of the powers at Berlin in the end of 1884. The association was founded after the return of Mr. Stanley from his remarkable expedition along the Congo (q.v.) in 1874-77, and was the result of his reports as to the admirable field for commerce and civilizing influences presented by the vast basin of that river. The king of the Belgians became president; and under Mr. Stanley's management, the association had by 1884 founded some 30 trading stations on the Congo, both above and below Stanley Pool. In the end of 1884, Prince Bismarck summoned a conference to Berlin to discuss the standing of the association and the regulation of trade on the Congo and Niger; and thirteen of the European powers, with the United States, sent representatives to take part in the conference. After protracted deliberations, they agreed to sanction and maintain perfect freedom to the trade of all nations on the Niger and on the Congo. In the case of the Niger, a French protectorate was recognized in its upper course, and a British protectorate on the lower Niger. The Congo basin was to constitute a kind of independent state, have a flag of its own, and be under the power only of the association. 1885, Feb. 26, it was organized as a monarchy under the individual sovereignty of King Leopold (see CONGO, INDEPENDENT STATE OF). Not merely the enormous basin of the Congo and its tributaries was thus thrown open to free trade, but a portion of the Atlantic seaboard 380 miles long, lying n. and s. of the mouth of the Congo, and called the 'Commercial delta' of the river; and the vast region lying between the Congo basin and the coast strip of the Indian Ocean occupied by Portugal and Zanzibar from the fifth degree of N. latitude to the mouth of the Zambesi. To this latter territory, which includes the great lakes Victoria Nyanza, Albert Nyanza, Tanganyika, Nyassa, and others, free access from the sea is secured by the lower courses of seven rivers, including the Zambesi and its tributary the Shire. The true basin of the Congo is itself of very great extent, apart from this further extension of the area of free trade. The Congo, from its source in the Chibalè Range s.s.e. of Tanganyika to its mouth, has a course of 2,900 miles; and receives the waters of several great lakes (including Tanganyika when in flood) and of numerous large tributaries (Kwango, Ikelemba, Sankuru, Ukere, Aruwimi). It seems to carry to the sea by its single mouth (seven miles wide) a greater volume of water than any other river but the Amazon. The lower 110 miles are freely navigable; from Yellala Falls to the spacious Stanley Pool, 235 miles of its course are interrupted by rapids; but between Stanley Pool and Stanley Falls (at the Equator) is a vast extent of navigable waterway on the main stream and

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the affluents. The basin, which Stanley holds to have once been mainly the bottom of an inland sea, is estimated to have an area of 1,300,000 square miles, with a pop. of 40,000,000. The equatorial lake system is distributed among the three great fluvial basins of the Zambesi, Nile, and Congo; but there are several other lacustrine basins scattered over the continent, which vary greatly in size, have no seaward outflow, and form independent or isolated centres of inland drainage. From the latest discoveries and surveys, the great oceanic and inland hydrographic systems of the continent may now be tabulated thus:—

Seaward Basins.	Area in sq. m.
Nile .....	1,500,000
Congo .....	1,350,000
Niger.....	1,150,000
Zambesi.....	850,000
Orange .....	400,000
Limpopo.....	200,000
Senegal .....	160,000
Ogoway ....	150,000
Smaller basins and dried-up areas of seaward drainage .....	3,000,000
Total seaward.....	8,760,000
<b>Inland Basins.</b>	
Tsad .....	750,000
N'gami.....	320,000
Igharghar, Messawara, and other dried-up areas of inland drainage	1,850,000
Total inland ...	2,920,000
Total seaward and inland ...	11,680,000

The region of the great lakes either comprehended within the scope of authority of the old International Assoc. of Congo or adjacent to that district, has been the scene of much exploratory, missionary, and commercial effort since the journeys of Joseph Thomson 1880 and 84 and of H. H. Johnston 1884 above mentioned. In 1885-6 Dr. G. A. Fischer, in his attempt to relieve Emin Pasha, reached n. to Lake Baringo. In 1885 Grenfell discovered the U-banghi, the great n. tributary of the Congo, which he navigated to within 200 m. of the farthest point reached by Dr. Junker (22° 40' e. long.), penetrating westward down the Welle-Makua (1886). In 1887 Emin Pasha reported frequent explorations of the Albert Nyanza, and 1889 Stanley, who had seen the Albert Edward Nyanza (q.v.) 1876, discovered that the Semliki river carries its overflow to Lake Albert. The intricate water system s. of the Middle Congo also has been unravelled, especially by Pogge, Baron Wissmann and Ludwig Wolf (1881-86), who have made it evident that the Kwango, Kassai, Sankuru, and Lake Leopold all belong to one hydrographic system flowing through the Kwa to the Congo at Kwamouth, and including Livingstone's Kassabi. Thus

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far all explorers have followed routes from e. to w. or from w. to e., no one having succeeded in crossing the continent along the line of the meridian from n. to s. In 1886 Dr. Holub attempted the route from the cape northward, and in 1887 had penetrated farthest in this direction, having advanced some distance beyond the Zambesi. And Stanley, in the last months of his expedition for the relief of Emin Pasha (1889), made the unexpected discovery of a s.w. extension of the Victoria Nyanza, reaching  $2^{\circ} 48'$  s. lat., having an area of 26,900 sq. m., and bringing the Victoria Nyanza within 155 m. of Lake Tanganyka.

The Niger Valley has recently been explored by the British Niger Co., and slave trade has been suppressed. M. Delcommune, a Belgian, made his way to the Congo head-waters (1893), completing the exploration of that region. The French explored the U-banghi region and Somaliland; and Dr. Donaldson Smith (1894), an American, also explored this country, traversing, at the same time, the Galia region. A German expedition, under Lieut. von Götzen, crossed the Ruanda section (1895), saw Mt. Kirunga, the only active volcano in Africa, and explored the watersheds of the Congo and Nile.

Recently strong English, French, and German companies have opened vast tracts of territory in e. and central A. to commerce and civilization. The Congo Free State owes its development to the floating of steamers on its waters, and to the construction of railroads, of which 300 m., begun in 1894, are now in operation. Other lines along the Congo River banks are projected. The total railroad mileage of all A. (1896) was 8,131 m. Stanley after rescuing Emin Pasha endeavored to secure his services in the interest of the English; but Baron Wissmann, the explorer and virtual director of German colonial interests in A., offered larger and successful terms. An agreement was entered into 1890, May 5, between the British and French govts., recognizing the British protectorate over the islands of Zanzibar and Pemba, and the French over Madagascar. All forms of religious worship were declared free. The French 'sphere of influence' was recognized as extending from the s. limit of the Mediterranean possessions of France to a line from Sag, on the Niger, to Baruwa on Lake Tchad. Commissioners appointed by both govts. were to determine their respective spheres of influence in the region w. and s. of the Middle and Upper Niger. In June announcement was made that Great Britain had ceded to Germany the island of Heligoland (q. v) in the North Sea, in return for the surrender of Uganda in A. by Germany, the establishment of a British protectorate over Zanzibar (with the permission of France), and other concessions by Germany in A. The announcement created great surprise in both Great Britain and Germany, but the agreement was carried out during the summer. It was considered that the concessions added 500,000 sq. m. of territory to the British possessions in A. Stanley approved the arrangement; but Baron Wissmann deprecated it, believing it detrimental to Germany, as the

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surrender of Zanzibar made Great Britain the master of e. A., and the surrender of Uganda gave her the key to central A. Egypt is temporarily under British control.

The principal native states in Africa are Abyssinia, Morocco, Zanzibar, Ashanti, Dahomey, Bornu, and the Soudan states (some of them lately Egyptian). Egypt is semi independent; Tripoli is Turkish; Liberia (q.v.) is a civilized negro state. The Orange Free State is a republic of Boers; the South African Republic (q.v.) is an independent state, formerly the Transvaal under British suzerainty. See also CONGO, INDEPENDENT STATE OF.

The following table shows the area and population of the different possessions in Africa :

Countries.	Area in sq. m.	Population.	Inhabitants to a sq. m.
British Africa.....	2,570,926	40,764,100	16
French Africa....	2,902,624	23,788,000	8
Portuguese Africa.....	841,025	5,416,000	6
Spanish Africa... ..	203,767	437,000	2
German Africa.....	822,000	5,950,000	7
Italian Africa.....	602,000	6,300,000	10
Congo State (Belgium).....	965,400	15,600,000	18
Late Boer republics.....	162,640	888,000	5
Swaziland.....	6,370	61,000	10
Liberia ....	37,000	1,000,000	27
Turkish (Egypt and Tripoli)..	836,000	7,980,000	10
Unappropriated.....	1,584,398	*22,000,900	14
Great lakes.....	80,350		
Total .....	11,514,500	130,185,000	11

\*Unappropriated Africa includes Morocco, Bornu, Wadai, Bagirmi, etc.

See the respective titles of states, mountains, rivers, and peoples of Africa; also of the more distinguished African travellers. For south African railroads, see CAPE OF GOOD HOPE (colony).

AFRICAN, a. *ăf'ri-kăn*, also AFRIC, a. *ăf'rik*, pertaining to Africa: N. a native of Africa. AFRICANDERS, n. plu. *ăf'ri-kăn'derz*, persons born in Africa, but not aborigines.

AFRICAN INTERNATIONAL ASSOCIATION: see CONGO, INDEPENDENT STATE OF: AFRICA.

AFRICAN METHODIST EPISCOPAL CHURCH: a Christian denomination composed of colored people in the United States and Canada. The early Methodists worked zealously among the Africans in the United States, both slave and free, and multitudes of them became Methodists, whites and blacks worshiping in the same churches, though separated. Thousands still are in the Methodist Episcopal Church, which, however, at its general conference, 1864, organized two new conferences consisting entirely of colored members. As early as 1816, a number of colored Methodists called a conference in Philadelphia, and in April of that year organized the African Methodist Episcopal Church, Rev. Richard Allen being the first bishop; he was ordained by five presbyters. In 1858, this church had eight conferences—in Baltimore, Philadelphia, New



## AFRICAN CHURCH—AFRONT.

York, Ohio, Indiana, New England, and Mississippi. In 1856, the Canada Conference was organized as a separate body. The civil war in 1861, and the destruction of slavery, greatly enlarged the territory of this church, and added to its membership. In May, 1864, the conferences of this church and the M. E. and African M. E. Zion Church were held simultaneously in Philadelphia, and the conferences sent deputations to each other. A joint committee also was appointed by the African M. E. Church and the African M. E. Zion Church, to frame a plan of union of the two bodies. Twenty-five delegates from each church met at Philadelphia, 1864, June 14, to consult upon terms of union. Arrangements were made harmoniously to this end, but were never carried into effect. The doctrines of the African M. E. Church are the same as those of the M. E. Church. The bishops preside over the conferences, and station the ministers; they are styled Rt. Rev. The general conference is composed of travelling ministers of two years' standing, and local preachers specially delegated by the annual conference. The sessions are quadrennial. In 1903 there were 5,715 churches, with 728,354 communicants and 6,429 ministers. The church property was valued at \$10,000,000. One university, 4 academies, and 33 other educational institutions, as well as two weekly official journals and one Quarterly Review, contribute to the advancement of the colored Methodists of America.

**AFRICAN METHODIST EPISCOPAL ZION CHURCH.** This church originated in 1820, through the secession of the Zion congregation of African Methodists in the city of New York, from the M. E. Church, because of disagreement as to church government. Zion was soon joined by other congregations, and in 1821 its first conference was held in New York, there being present 23 ministers, representing 1,426 members. In 1847, the number of members had increased to 5,000. In 1864, the General Conference, at the meeting in Philadelphia, declared in favor of a union with the African M. E. Church, but this union was not consummated. In 1876, there were 7 bishops, 17 annual conferences, 1,200 travelling ministers, 1,063 local preachers, 1,154 exhorters, 225,000 members, 25,321 probationers, 9,083 churches, 15,094 Sabbath-schools, 25,000 officers and teachers, 102,474 scholars. In 1903 there were 2,985 churches, with 542,422 members and 3,310 ministers. The church property was valued at \$3,000,000.

**AFRIDI**, n. *â-frē'dē*: important tribe in Brit. India, w. and s.w. of Peshawar. The A. country extends from the Kabal river 50 m. due s. Elphinstone says the A. as a race are the greatest robbers among the Afghans, and have no sense of honor. Their 9 clans can place over 5,000 fighting men in the field. In 1897 they attacked the British military posts in the Khyber and Kohat Passes and elsewhere.

**AFRIT**, n. *âf-rīt'*, or **AFRITE'**, n. *-rīt'* [Ar. *ī'frit*]: in the Mohammedan *myth.*, an evil spirit or genius; anything frightful or horrible.

**AFRONT**, ad. *â-frünt'* (see **AFFRONT**): in *OE.*, in front; face to face.

## AFT--AGAIN.

**AFT**, a. or ad. *áft* [Icel. *aptr*, *aftr*, or *aftan*, backwards, *aftr*, back: an abbreviation of **AFTER**, which see and *Note*]: a term used by seamen to mean the stern of the ship, or to point to what lies in the direction of the stern; behind; astern; abaft. **FORE AND AFT**, the whole length of the ship; from end to end of a ship.

**AFTER**, a. *ǎfter* [AS. *æft* or *æfter*, afterwards, again: Dan. *efter*, behind: Goth. *aftra*, again, backwards: Icel. *aftan*, behind]: later in time—as, it is an *after* thought: **PREP.** behind; later—as, he went home *after* dinner: **CONJ.** when—as, you will come to me *after* he has seen you—but *after* here is a prep. if ‘time’ be understood. **AFTER-ACT**, an act following. **AFTER-AGES**, succeeding times; posterity. **AFTER ALL**, when all has been said, weighed, or done; in conclusion; upon the whole. **AFTER-BIRTH**, n. that which comes away after delivery; the placenta. **AFTER-COST**, n. additional expenses incurred after the original estimate has been exhausted. **AFTER-CROP**, a second crop in the same year. **AFTER-DAMP**, the choke-damp or carbonic acid occurring in coal-mines after an explosion of fire-damp. **AFTEREYE**, in *OE.*, to follow and keep in view. **AFTER-GUARD**, in a *ship*, the seamen stationed on the poop to attend to the after-sails. **AFTER-HOURS**, hours following business. **AFTER-LIFE**, the later or future life. **AFTERMATH**, n. *ǎfter-mǎth* [*after*, and *math*, derived from *mow*]: a second crop of grass in the same season; eddish. **AFTERMOST**, a. [AS. *æftemest*; Goth. *aftumists*, the last]: hindmost; nearest the stern of a ship. **AFTERNOON**, n. *ǎfter-nón*, the part of the day after 12 o’clock. **AFTERPAINS**, n. plu. *-pǎnz*, those following child-birth. **AFTER-PIECE**, a piece performed after the chief play. **AFTER-SAILS**, the sails on the mizzen-mast and stays. **AFTER-STATE**, the future life. **AFTER-THOUGHT**, reflections after an act; later thoughts. *Note.*—**AFTER** is shortened into *aft*, and is not a comparative of *aft*, but an older word; *after* is a comparative form, and stands for *of-ter*, meaning ‘more off,’ ‘further away.’

**AFTERWARD** or **AFTERWARDS**, ad. *ǎfter-wǎrdz* [AS. *æfter*, behind; *weard*, direction]: later in time. **AFTERWISE**, those who are wise after an event has happened.

**AGA**, n. *ǎgǎ* [Turkish, *agha*]: in Turkey, a military commander or chief officer.

**AGADES**, *ǎgǎ-dǎz*: formerly a very important city of Central Africa, but at present in a declining condition. It is the capital of Aïr or Asben (q. v.), and is built upon the eastern edge of a great table-land, at an elevation of not less than 2,500 feet, in lat. 16° 33' N., long. 7° 30' E. At one time A. was an entrepôt for the vast traffic carried on with Gogo, the ancient capital of the Songhay (q. v.) empire; and in the 16th c., it probably contained 60,000 inhabitants. At the time of Dr. Barth’s visit it had not more than 6,000 or 7,000. There is a large admixture of Berber blood in the people of A.

**AGAIN**, ad. *ǎ-gǎn* [AS. *ongeán* or *agen*, opposite: Sw. *gen* or *igen*; Bret. *gin*, opposite, again]: once more; a second time; back; besides; at another time; at a proper

## AGALACTIA—AGAMEMNON.

and suitable time. **AGAINST**, prep. *ă-gĕnst'*, in opposition to; facing; contrary to; in expectation of. **AGAIN AND AGAIN**, often; frequently repeated.

**AGALACTIA**, *ă-gă-lăk'ti-ă*: [Gr. *a*, not, and *galacté*, milk]: a lack of the due secretion of milk. It may depend either on organic imperfection of the mammary gland, or upon constitutional causes. In the latter case, the secretion may often be excited by warmth and moisture, by the stimulus of the act of sucking, and if this fail, by the application of the leaves of the castor-oil plant to the breast.

**AGALLOCHUM**: see **ALOES WOOD**.

**AGALMATOLITE**, n. *ăg'ăl-măt'ô-lit* [Gr. *agalma*, an image; *lithos*, stone]: variously colored soft stone carved by Chinese into images; in part pinite, in part pyrophyllite or steatite; all silicates: called also Pagodite,

**AGAMA**, *ăg'a-mă*: a genus of Saurian reptiles, the type of a family called *Agamidæ*; sometimes ranked in the acrodont sub-family of the *Iguanidæ*. The Agamas are allied to the Iguanas, and have a lax skin, which they have the power of inflating with air. The Iguanas are arboreal and American; the Agamas are of the Eastern hemisphere and terrestrial. None of them are of large size. The Common A. is found on the Guinea and Senegal coasts. The Egyptian A. (*A. Egyptiaca* or *Trapelus Egyptiacus*) is re-



Frilled Agama.

markable for changing color, like the chameleon. Some of the most common lizards of Australia are of this family. The Frilled A. (*chlamydosaurus*) is a remarkable Australian lizard, having a sort of frill around the neck, which usually lies back in plaits, but is raised when the animal is alarmed.

**AGAMEMNON**, *ăg'ă-mĕm'non*: son of king Atreus, and brother of Menelaus. After his father's death, he reigned in Mycenæ, and married Clytemnestra, by whom he had three children—Iphigenia, Electra, and Orestes, afterwards celebrated in the Greek drama. When Paris, son of the Trojan king, Priam, seduced and carried away Helena, the wife of Menelaus, A., with his injured brother, made a tour throughout Greece, exhorting all the leaders of the people to unite their forces in an expedition against Troy. Having gained their alliance, A. was appointed general in chief of the united forces assembled at Aulis in Bœotia, where they were delayed some time. In the following campaign against Troy, which forms the subject of Homer's

## AGAMI—AGAPÆ.

*Iliad*, A. is described as a very stately and dignified character. After the fall of Troy, he returned home, taking with him Cassandra, the daughter of Priam. Shortly afterwards, he was murdered by Clytemnestra, aided by Ægisthus, in whose care he had left his wife and children. A tragical fate had always lowered over the house of A.; and the destinies of his children—Iphigenia, Electra, and Orestes—were the favorite subjects of the Greek drama.

AGAMI, *äg'ä-mē* (*Psophia*): a genus of south American birds, allied to cranes.



Agami.

Only two species are known. They are sometimes called *Trumpeters*, from a peculiar sound which they make. The best-known species is the Goldbreasted Trumpeter (*P. crepians*), of the size of a large pheasant, but with much longer legs and neck, and a very short tail. It runs very quickly; so much so, that a tame one in England has been known

to keep up with hounds. It is capable of the most perfect domestication. It inhabits dry uplands.

AGANA, the chief town of Guam, the largest of the Ladrone Islands. It is 1,300 miles S. of Yokohama, and 1,500 miles E. of Luzon. The U. S. took possession of Guam as a result of the war with Spain, and in 1899 a naval station was established at Agana, with Capt. Richard P. Leary, U.S.N., as first governor.

AGAPÆ, *äg'ä pē*: love-feasts, or feasts of charity, celebrated by the early Christians, usually in connection with the Lord's Supper. The name is derived from the Greek word *agape*, which signifies love or charity. At these feasts, the rich Christians presented their poorer brethren in the faith with gifts, and all ate together, in token of their equality before God and their brotherly harmony. The meetings were opened and closed with prayer; and during the feast, spiritual songs were sung. At first, a bishop or presbyter presided, who read a portion of Scripture, proposed questions upon it, and received the various answers of the brethren. Afterwards, whatever information had been obtained regarding the churches, was read—such as the official letters of overseers, or private communications from eminent members; and thus a spirit of practical sympathy was fostered. Before the conclusion, money was collected for widows, orphans, the poor, prisoners, and those who had suffered shipwreck. Then the members embraced, and the feast was ended with a 'philanthropic prayer.' As early as the 2d c., the custom of celebrating the

## AGAPE—AGAPEMONE.

A. and the Lord's Supper together had ceased, on account of the persecutions. Justin, when writing on the latter subject, does not speak of the former; but Ignatius, on the other hand, seems to regard them as identical. Generally, the feast of the A. preceded the celebration of the Lord's Supper. But during the period of the persecutions, when the Christians had often to hold divine service before dawn, the A. were, for the most part, delayed till the evening. Later, a formal separation was made between the two rites. In the 3d and 4th centuries, the A. had degenerated into a common banquet, where the deaths of relatives, and the anniversaries of the martyrs, were commemorated, and where the clergy and the poor were guests; but with the increase of wealth, and the decay of religious earnestness and purity in the church, these A. became occasions of great riotousness and debauchery. Councils declared against them, forbade the clergy to take any share in their celebration, and finally banished them from the church. At the same time, it must be admitted that the heathens ignorantly calumniated the practices of the Christians in these A., and that the defenses made by Tertullian, Minucius, Felix, Origen, etc., are successful. The Moravians have attempted to revive these A., and hold solemn festivals, with prayer and praise, where tea is drunk, and wheaten bread, called Love-bread, is used.

AGAPE, ad. *ă-gāp'* [AS. *a*, on, and *gape*]: gaping as with wonder.

AGAPEMONE, n. *ăg'ă-pēm'ō-nē* [Gr. *agăpē*, brotherly love, affection]: a so-called religious association of men and women retired from the world, living in common, ostensibly as brothers and sisters; especially a conventual establishment consisting of men and women, founded at Charlynch, near Bridgewater, Somerset, England, by Henry James Prince, formerly a clergyman of the Church of England. Prince was b. Bath 1811; was a student at Lampeter; on leaving college became curate of Charlynch, where he preached strange doctrines, and converted his rector, the Rev. Samuel Starkey to his theories. Both came under ecclesiastical censure, and soon left the Church of England, and became vigorous propagators of a new sect with various fanatical theories, prominent among which was Prince's claim to sinless perfection, and to a commission from God to conclude the day of grace and introduce the day of judgment. Increase of population was discountenanced. Community of goods was insisted on, according, it was said, to Acts ii. 44, 45. This heresy spread through the secluded villages on the s.w. coast, especially among the farmers; so that the funds in the common purse accumulated rapidly. Many even of the educated classes joined them. Three of the 'Brothers'—Prince, Thomas, and Cobbe (bro. of Miss Frances P. Cobbe) married three sisters, women of wealth, whose money was used by Prince to purchase a fine property at Charlynch, near Bridgewater, where the Brethern and Sisters had (from 1859) a luxurious home. Letters intended for Prince passed through the post-office directed to 'The

## AGARIC.

Lord,' and his followers have been heard to say that he is their 'creator.' Much that was offensive in conduct at the A. was brought to light. It is understood that the community still exists, though with diminishing numbers. See Hepworth Dixon's *Spiritual Wives* (1868).

A society similar in aims and character, though not conventual, seems to have existed in England in the 16th and 17th c. It was called the 'Family of Love,' 'or Lust, rather,' as old Fuller has it; and its founder is generally supposed to have been Henry Nicholas, native of Münster in Westphalia, who appeared about 1540, and who held himself to be greater than Moses or Christ. Some investigators, however, believe that the real founder was one David George, a fanatical Anabaptist of Delft, in Holland (d. 1556). By 1572 they had apparently increased in numbers considerably in England; and 1580, Queen Elizabeth issued a proclamation for the hunting out and punishing of 'the damnable sect.' They sought the favor of King James by casting aspersions on the Puritans. Their doctrines seem to have been a species of pseudo-spiritual sentimentalism, resulting in gross impurity. See MUCKERS: PERFECTIONISTS.

AGARIC, *ăg-ăr'ik* [Gr. *agarikon*, a certain fungus]: a genus of fungi: ADJ. pertaining to fungi. AGAR'ICS, n. plu. general name for edible mushrooms. AGARIC MINERAL, a very soft white carbonate of lime found in clefts and caverns, sometimes resembling fungi; called also Rock-milk. AGARIC or AGARICUS designates not only a genus of Mushrooms (q.v.), but also is, in its first form, a popular name for touchwood and medicinal preparations derived from certain fungi of the genus *Boletus* (q.v.) and *Polyporus* (q.v.), which grow as semicircular projections from trees, tough like wood or leathery. The French touchwood, spunk, or punk, prepared like soft wash-leather, is called Amadou (q.v.). The inner part of the fungus is sliced and beaten into pliability. Some of these fungi are poisonous, but not to the touch. *Polyporus officinalis* (otherwise *Boletus laricis*) contains nearly three parts of resin and one part of fungin. The common hard *Polyporus* or *Boletus ignavarius* of the oak has a variety of mineral salts.

## AGASSIZ.

AGASSIZ, *äg'a-sē*, ALEXANDER, LL.D.: zoologist: b. Neuchatel, Switzerland, 1835, Dec. 17: son of Prof. Louis A. He came to the United States with his father in 1846, and is an American both by training and by sympathy. He graduated at Harvard 1855, and was soon afterward placed in the Lawrence Scientific School to study civil engineering, and in 1857 took the degree of B.Sc. He afterward taught chemistry in a ladies' school established by his father in Cambridge, but early in 1859 obtained a position in the U. S. Coast Survey of Cal. where he collected and studied marine animals for the Harvard Museum of Comparative Zoology. Returning to Cambridge, he became connected with this museum, and thenceforth gave most of his time to its development. In 1865 he made some investigations in Penn. coal mines, and later in the copper mines of Lake Superior, which last researches, through the practical use of his geological knowledge, brought him remarkable pecuniary profits. He succeeded in developing the richest copper lode in the world, and became very wealthy. He made a trip to Europe, where he visited the leading museums, but on his return, 1871, resumed his duties as asst. curator of the Harvard collections. After the death of his father, A. succeeded him as curator of the museum, which he afterward munificently endowed, his gifts having been estimated to amount in a single year to over \$200,000 in money, besides other donations. In 1875 he visited Peru and Chili, where he collected a large number of fine antiquities, which he presented to the Harvard Museum. For a number of seasons he gave his attention to deep-sea dredging, and the result of these labors also found a place in the museum. He retired from active connection with the Harvard Museum on account of ill health, 1885. He has contributed many valuable papers to the reports of the National Acad. of Science, and American Acad. of Arts and Sciences.

AGASSIZ, *äg'ä-sē* or *äg'as'iz*: LOUIS JOHN RODOLPH, one of the most distinguished of modern naturalists: 1807-73; b. Orbe, in the Canton de Vaud. After passing through the usual course of elementary learning at Biel and Lausanne, he studied at Zurich, Heidelberg, and Munich. The study of natural history had attracted him from early youth, and at Heidelberg and Munich comparative anatomy was his favorite occupation. In Munich he became acquainted with Martius and Spix, the well-known travellers in Brazil; and when Spix died, 1826, his collection of 116 species of fish collected in Brazil was left in the care of A., who published it under the title *Pisces, etc., quos collegit et pingendos curavit Spix, descripsit A.* (Munich 1829-1831, with 91 illustrations in lithography). Led by this work to study ichthyology more closely, A. undertook a systematic arrangement of the fresh-water fishes found in Central Europe. Of this work, the first fasciculus, containing the family of the Salmonidæ, appeared at Neufchâtel, 1839, with 34 illustrations, and descriptions in French, English, and German. A second fasciculus, prepared by his friend Vogt, *Embryologie des Salmones*, was published, 1840; and a third, *Anatomie*

## AGATA DEI GOTI—AGATE.

*des Salmones*, appeared, 1845, as a part of the third vol. of the *Memoirs of the Neufchâtel Society of Natural History*. Beyond this, the work was not continued. A. at the same time gave attention to the fossil remains of fishes, and during his stay in Paris, 1831-2, examined several private and public fossil collections.\* The results of his studies were given in his work *Recherches sur les Poissons Fossiles*, Neufchâtel, with 311 lithographed illustrations, 1833-42. Meanwhile, he had been invited to the professorship of natural history at Neufchâtel; and here he found two active young friends, Desor and Vogt, by whose aid his work on fossil fishes was brought to a conclusion, 1842. During several visits to England, A. made himself well acquainted with the collections of fossils in that country; and, 1844, published a monograph on fossil fishes found in the old red sandstone of the Devonian system. His study of these remains led him to examine other fossils; and the results appeared in his works *Description des Echinodermes Fossiles de la Suisse*, and *Monographies d'Echinodermes Vivants et Fossiles*. In the latter work, Professor Valentin of Berne supplied the section on the 'Anatomy of the Sea-urchin.' A. turned his attention next to the mollusca, and produced his *Critical Studies on Fossil Mollusca*, soon followed by his *Memoirs on the Muscles in Living and Fossil Mollusca*. His work on *Glaciers* excited great interest, as it opened new views in geology. The results of further study were given in a second work on *The System of Glaciers; or, Researches on Glaciers* (Paris, 1847). In preparing this work, he was assisted by his friends Guyot and Desor. In 1846, A. came to the United States, and was appointed to a professorship in Harvard College, from which he was transferred, 1852, to the chair of comparative anatomy in Charleston; but this he resigned, 1854, and returned to Harvard. In *Outlines of Comparative Physiology*, A. upholds the doctrine of the successive creation of higher organized beings on the earth. *An Essay on Classification*, by A., was published (Lond., 1859); and a *Journey in Brazil* (1868). In 1868 he was appointed a non-resident professor and lecturer in Cornell University; and with Count Portalés was, in 1871, intrusted by the American government with dredging operations in the Gulf Stream. His last work was the establishment of a school of natural history on the island of Penikese. See *L. A., his Life and Correspondence*, by his daughter, Eliz. Cary A. (1885).

AGASSIZ ASSOCIATION, a society founded in the United States in 1879 by Harlan H. Ballard to promote scientific study, and named in honor of Prof. J. Louis Agassiz. In the following year a general association was organized, and is now represented in all parts of the world.

AGATE, *n.* *ăg'ăt* [*F. agate*—from the river *Achâtēs* in Sicily; or the Phœnician word *nakadt*, spotted]: a variegated variety of chalcedony quartz, the colors being arranged in clouds, spots, or bands; a tool used by gold-wire drawers and gilders. AGATINE, *a.* *ăg'ă-tîn*, of agate. AGATIZED, *a.* *ăg'ă-tîzd*, marked like an agate; converted



## AGATE.

into agate. AGATE WARE, pottery mottled and veined through its whole substance after the manner of agate.

*Agate* is a variety of quartz, mostly chalcedony, and usually banded in section. The bands are parallel, and sometimes so delicate that 50 or more are in the space of an inch. They may exhibit circles, as in 'eye-agate,' or may follow irregular courses; rarely straight. The colors are often in sharp contrast, and in most specimens are white, pale, or deep brown; or, in carnelian varieties such as are found in prairie drift from Lake Superior, there are fine flesh-red tints. The polished specimens exhibited for sale, or made into ornaments, are often deepened in color by various processes. Thus the black layers are produced by boiling in oil or steeping in heated honey, these liquids penetrating the more porous bands; then by plunging into sulphuric acid the oil or honey is reduced to black carbon. Iron oxide in some of the bands is made yellow by hydrochloric acid, or a red color may be heightened by slow heat, then sulphuric acid, and then a high temperature. The natural colors are due to various oxides, e.g., iron, manganese, etc., with some traces of organic substance. The layers being different in porosity, hydrofluoric acid will so etch a polished surface that an engraving of the pattern of the agate can be printed from the stone itself.—Some varieties are clouded, rather than banded, and some spotted, e.g., with bits of red jasper, like heliotrope or blood-stone. In 'ruin-agate,' as in some 'ruin-marble,' the bands may sometimes have been fractured and cemented, and thus shifted so as to have resemblance to piles of ruined buildings. In 'fortification-agate,' the lines are angular and suggest the name. 'Moss-agates' (mocha-stone) are quartz in which metallic oxides have crystallized like the branching forms of frost-work. Onyx (not the 'Mexican onyx,' which is calcite, and cut in large slabs) and sardonyx, are agate suitable to cutting figures from one layer, with another layer of different color for background. Agate-jasper is jasper veined with chalcedony.—The origin of agates is denoted by the trap-pean rocks, especially the amygdaloidal, in which they are found in place, e.g., near Lake Superior. These rocks, when deposited, were either molten or pasty, heated, and when filled with steam, full of cavities due to that agency. When the mass stiffened, the cavities remained, and the heated water holding silica and various oxides in solution, filled the cavities by infiltration or by osmosis, depositing layer after layer on the wall until no vacant space remained, or, as in some cases, but a small central hollow. Access by a former opening has been found in some specimens. The character of the deposit would change with successive impurities in solution. In a specimen owned by the writer, half the agate is made up of absolutely straight lines, the other half like a dark clouded sky over a level sea; and in a green amygdaloid in his possession from metamorphic rocks near Boston, one of the large fillings has a level, red, jasper-like sea, with a white sky. Agate-like structure is,

## AGATE—AGAVE.

however, not confined to the circumstances above mentioned. The outer portion of geodes (siliceous hollow balls occurring in sedimentary rocks) is often distinctly of this structure; and the structure occurs by the same process of varying deposition in banded veins, as it does also in stalactites and malachite. The polished 'Rocky Mt. agates' sold, are from Germany. The first American mill for such work, especially for agatized wood, has recently been established at Sioux Falls. See PETRIFIED FORESTS.

AGATHA, *ag'ăthă*, SAINT: a noble Sicilian lady of great beauty, who rejected the love of the Prefect Octavianus, and suffered a cruel martyrdom in the persecution of Christians under Decius (250). She holds a high rank among the saints of the Roman Catholic Church; her day falls Feb. 5.

AGATHOCLES, *a-găth'o-klēz*: one of the boldest but most unworthy adventurers of antiquity: B.C. 361-289; b. Thermae, Sicily. He rose from humble life through the patronage of Damas, a noble citizen of Syracuse, and received a command in the expedition against Agrigentum. Afterwards he married the widow of Damas, and became one of the most wealthy men in Syracuse. Under the rule of Sosistratus, he was forced to flee into Lower Italy, where he collected a band of partisans. Returning to Syracuse, after the death of Sosistratus, he gained the supremacy, confirmed it by a massacre of several thousands of respectable citizens, and took possession of the greater part of Sicily. To establish his power, and keep his army employed, he now attempted to expel the Carthaginians from Sicily; but in this undertaking he was defeated. His next plan was to pass over to Africa with a part of his army, and there attack the Carthaginians. This war he carried on with success for four years, until 307 B.C., when disturbances in Sicily compelled him to leave the army for a time. On his return to Africa, he found his troops in a state of mutiny against his son Archagathus, whom he had left in command, but pacified them by promises of large booty. Soon afterwards, he suffered a serious defeat, and with deliberate treachery, left his own son exposed to the vengeance of the disappointed soldiers. The son was put to death, and the troops surrendered themselves to the enemy, while A. escaped safely into Sicily, where, by fraud and cruelty, he soon recovered his former power, and was afterwards engaged in predatory inroads upon Italy. It was his intention to leave the throne to his youngest son A.; but his grandson, Archagathus, made an insurrection, slew the royal heirs, and persuaded Mænon, one of the favorites of the aged tyrant, to destroy him by means of a poisoned toothpick. A. had reigned 28 years.

AGAVE, n. *ag'āv* or *ăg'ăv-ē* [Gr. *ag'auos*, admirable: L. and Gr. *Agăvê*, daughter of Cadmus, one of the Nereides]: a genus of plants belonging to the natural order *Amaryllidæ* (q.v.), and having a tubular perianth with 6-partite limb, and a triangular, many-seeded inferior capsule. They are herbaceous plants, of remarkable and beautiful appearance.

## AGAVE.

There are a number of species, all natives of the warmer parts of America. By unscientific persons they are often confounded with Aloes (q.v.); and *A. Americana* is generally known by the name of AMERICAN ALOE. The agaves have either no proper stem, or a very short one, bearing at its summit a crowded head of large, fleshy leaves, which are spiny at the margin. From the midst of these shoots up the straight, upright scape, 24–36 feet high, and at the base often one foot in diameter, along which are small, appressed lanceolate bracteæ, with a terminal panicle, often bearing as many as 4,000 flowers. In South America, these plants often flower in the eighth year, but in our hot-houses not until they have reached a very advanced age; whence arises the gardeners' fable of their flowering only once in one hundred years. After flowering, the plant always dies down to the ground, but the root, continuing to live, sends up new shoots. The best known species is *A. Americana*, which was first sent from South America to Europe, 1561, and being easily propagated by suckers, is employed for fences in Italian Switzerland, and has become naturalized in Naples, Sicily, and the n. of Africa. By maceration of the leaves, which are 5 to 7 feet long, are obtained coarse fibres, which are used in America, under the name of *maguey*, for the manufacture of thread, twine, ropes, hammocks, etc. This fibre is also known as Pita Flax. It is now produced to some extent in the s. of Europe. It is not very strong nor durable, and if exposed to moisture, it soon decays. The ancient Mexicans employed it for the preparation of a coarse kind of paper, and the Indians used it for oakum. The leaves, cut into slices, are used for feeding cattle. — Another species, *A. Mexicana*, is particularly described by Humboldt upon account of its utility. When the innermost leaves have been torn out, a juice continues to flow for a year or a year and a half, which, by inspissation, yields sugar; and which, when diluted with water, and subjected to four or five days' fermentation, becomes an agreeable but intoxicating drink, called *pulque*, to which the



American Aloe.

## AGAZE—AGE.

Mexican Indians not unfrequently sacrifice both fortune and life. It is made likewise from *A. Americana*, and from several other species.—The roots of *A. saponaria* are used in Mexico for washing, being a powerful detergent, and forming a lather with salt water as well as with fresh. The juice of the leaves, made into cakes, is used for the same purpose.

AGAZE, *v.* *ă-găz'*, also AGAST, *v.* *ă-găst'* (see GAZE and AGHAST): in *OE.*, to strike with sudden fear; to fill with amazement. AGAZED, *pp.* *ă-găzd'*, struck with sudden fear.

AGDE, *ăgd'*: ancient French town in the dept. of Herault, founded by the Greeks; about a league from the Mediterranean Sea, on the left bank of a navigable stream. To the n., under the walls of the town, flows the Languedoc Canal. The mouth of the stream forms a harbor, which is entered by 400 vessels yearly. The coast trade of A. is very brisk, while it is also the entrepôt for the traffic of the s. and w. of France. It has, besides, considerable intercourse with Italy, Spain, and Africa. It carries on a large and prosperous trade in wines, oil, salt, corn, timber, wool, silk, and cloth; but the general aspect of the place is sombre and forbidding, on account of the black basalt of which the houses are built, whence it has popularly received the name of the Black Town. It has a naval academy, and is noted in history as the place at which Alaric, king of the Goths, convened a council. Pop. (1893) 8,829.

AGE, *n.* *ăj* [*F.* *âge*; *OF.* *aage*, and *edage*—from mid. L. *ætātem*, an age]: a period of time; the whole life of man, or any particular part of it; a period of time. See AGES. AGED, *a.* *ă'jəd*, old, advanced in years: *N.* old persons—as the *aged*. A'GEDLY, *ad.* *-lī*. AGEING or AGING, *a.* *ăj'ing*, growing older than youth; growing old; passing the prime of life. AGEDNESS, *n.* *ăj'əd-nēs*, the state or condition of being old.—*SYN.* of 'age': date; era; epoch; period; time; generation; ripeness; maturity.

AGE, in Law: the time when the law allows persons to do acts which on account of youth they were prohibited from doing before. This period being sometimes arbitrary and sometimes founded on nature, differs considerably under the law of different nations. In the United States a man may vote at the age of 21 years, be elected a representative in congress at 25, and a U. S. senator at 30, but cannot be elected pres. before 35. Full age is the day preceding the 21st anniversary of a person's birth, except in the case of women, who in some of the states become of full age at 18. All persons under 7 years of age are deemed incapable of crime, and between 7 and 14 the assumption of such incapacity exists, but may be rebutted by positive evidence of a mischievous discretion, or knowledge of the wrong. The presumption of innocence ceases at the age of 14, at which time boys may choose their own guardians; they are liable to serve in the militia from 18 to 45. Girls are supposed to arrive at discretion at 12 years of age, when they may consent to

## AGEE—AGEN.

marriage; and at 14 they may choose their own guardian.—In England, the whole period previous to 21 years of age is usually spoken of as infancy. The law with regard to marriage is the same as in the United States. Infancy is of legal effect for the protection of civil rights, and by a statute of 1874 it is declared that all contracts made by an infant, except for necessaries, are absolutely void. No infant can make a valid will, but in the English probate court an infant over 7 is called a minor and can choose a guardian for himself. Under criminal law, a child under 7 is incapable of felony, and the same rule holds as in the United States with regard to the period between 7 and 14, but infants between 14 and 21 are held to be fully responsible for criminal acts.—In Scotland, under the law, life is divided into three periods named respectively, *pupilarity*, *minority*, and *majority*. The first lasts from the time of birth to the age of 14 in boys and 12 in girls, when they respectively reach the period of legal puberty and may marry. Sometimes in Scotland the term minority applies to the whole period prior to majority, being equivalent to infancy in England. When the term infancy is used in Scotland it is with the significance of the Roman *infantia*, indicating the period from birth to 7 years of age. In Scotland the civil privileges and responsibilities of minors differ altogether in principle from those of infants in England; while there is the same idea of freedom from criminal responsibility in the period under 7, between 7 and 14 the Scottish law tends to much greater severity. Though the British laws on this subject are considered unreasonable and without sound physiological basis, they are prevented from effecting serious injustice by the discretion used in their administration. This is particularly the case with regard to giving evidence in court, as to which judges decide on common sense views and generally with good judgment. The marriagable age in France is 18 in males and 15 in females; and at 21 men are considered eligible for public office. In England men at the age of 21 may elect and be elected members of parliament. See INFANT: GUARDIAN: CONSENT: CONTRACT: CRIME: MARRIAGE: ETC.

AGEE, ad. *ă-jě'* [*jee*, an exclamation to cause horses to move on one side: OE. *jee*, to move to one side]: turned to one side; awry; askew.

AGEN, *ă-zhăn'*: chief town of the dept. of Lot-et-Garonne in France, in a fertile region on the right bank of the Garonne. The town is old and gloomy in appearance, but has an active trade in woolen and linen fabrics, leather, colored paper, colors, cordage, and sail-cloth. It forms the connecting-link of the intercourse between Toulouse and Bordeaux, and exports plums, brandy, hemp, flax, and poultry. Close by it is the old-fashioned house in which Joseph Scaliger, the prince of scholiasts, was born. In ancient times A. was the scene of many a martyrdom of the Christians, when it was under the rule of Roman prætors. Afterward it suffered almost incredible miseries of war during

## AGENCY—AGENNESIS.

the barbaric irruption from Germany, having been taken and plundered by Goths, Vandals, and Huns, in turn. Next it came under the thralldom of the English, in their early French wars, and later was twice taken by the Huguenots, in the religious contests of the 16th c. Pop. (1891) 19,720.

AGENCY, n. *ā'jĕn-sĭ* [F. *agence*—from mid. L. *agentĭa*, the power of doing—from L. *āgens* or *agen'tem*, acting, doing (see ACT)]: the exerting of power; action; the business or office of an agent. AGENT, n. *ā'jĕnt*, the person or thing that exerts power; one intrusted with the business of another.—SYN. of 'agency': operation; performance; act; action; instrumentality; management;—of 'agent': factor; broker; substitute; deputy.

AGENDA, n. *ā-jĕn'dā* [plu. of *agendum*, L. a thing to be done—from *agō*, I move, lead, do]: thing to be done; duty; business items to be presented for action before a committee, board, or other meeting; matters of religious practice, as distinguished from *credenda*, matters of belief.

AGENESIS, n. *ā-jĕn'ē-sĭs* [Gr. *a*, priv.; *genesis*, generation]: in *physiol.*, absence of parts or imperfect development of parts.

AGENIA, n. *ā-jĕ-nĭ'a* [Gr. *a*, priv.; *geneion*, beard]: in *entomol.*, genus of hymenopterous spider-wasps, belonging to the family *Pompiliidæ*, with smooth legs. In their mud nests, which they build beneath logs or under the bark of trees, the females lay up for their young store of spiders.

AGENNESIS, n. *ā-j-ĕ-nĕ'sĭs* [Gr. *a*, priv., *genesis*, generating]: impotence; sterility; failure of power of reproduction. AGENNETIC, a. *ā-j-ĕ-nĕt'ĭk*, characterized by sterility or impotence.

## AGENT—AGES.

**AGENT:** one who is authorized or delegated to transact business for another (who in this relation is called his principal or constituent) in whose place he comes, and who is bound by his acts in the business to which the agency extends. The appointment of an A. may either be *general*, having reference to all the principal's affairs, or *special*, concerning some particular object. It may further be *limited* by instructions as to the conduct he is to pursue, or *unlimited*, in which case his conduct is left to his own discretion. Even in the last case, however, the A. is not freed from all responsibility for his conduct; he is bound to do his best for his employer, and he ought not to accept or retain the agency unless competent to its performance. See **PRINCIPAL AND AGENT:** also **FACTOR:** **BROKER:** **COMMISSIONER:** **COMMISSION MERCHANT:** **ATTORNEYS.**

**AGERATUM**, n. *ă-jěr'ă-tŭm* [Gr. *a*, without; *gēras*, old age]: a genus of composite plants, one of the species *A. mexicanum*, being a well known occupant of the flower-border, with densely clustered lavender-blue capitules—genus so named because its flowers continue for a long time.

**AGES:** designating the epochs of civilization in the history of the human race. The old poets and philosophers described these in harmony with what they conceived to have been the moral and political condition of their ancestors. The idea of a succession of A. presented itself at a very early period to the Greek mind. The life of the race was likened to that of the individual—hence the infancy of the former might easily be imagined to be, like that of the latter, the most beautiful and serene of all. Hesiod mentions five A.—the golden, simple and patriarchal; the silver, voluptuous and godless; the brazen, warlike, wild, and violent; the heroic, an aspiration towards the better; the iron, in which justice, piety, and faithfulness had vanished from the earth, the time in which Hesiod fancied that he himself lived. Ovid closely imitates the old Greek except in one particular—he omits the heroic age. This idea, at first perhaps a mere poetic comparison, gradually worked its way into prose, and finally became a portion of scientific philosophy. These A. were regarded as the divisions of the great world-year, which would be completed when the stars and planets had performed a revolution round the heavens, after which destiny would repeat itself in the same series of events. Thus mythology was brought into connection with astronomy. The golden age was said to be governed by Saturn; the silver, by Jupiter; the brazen, by Neptune, and the iron by Pluto. Many curious calculations were entered into by ancient writers to ascertain the length of the heavenly year and its various divisions. The greatest discrepancy prevailed, as might naturally be expected; some maintaining that it was 3,000, and others, as many as 18,000 solar years. The Sibylline books compared it to the seasons of the solar year, calling the golden age the spring, etc., and on the completion of the cycle, the old order was renewed. The idea of a succession of A. is so natural, that it has inwrought itself into the religious convic-

## AGESILAUS—AGGRANDIZE.

tions of almost all nations. It is sanctioned by Scripture, for it is symbolically adopted in the Apocalypse to a certain extent; it also manifests itself in the sacred books of the Indians. Modern philosophy, at least in Germany and France, has also attempted to divide human history into definite A. or periods. Fichte numbers five, of which he conceives that we are in the third; Hegel and Auguste Comte reckon three, placing us in the last. The course of history, however, proceeds in quiet indifference to all metaphysical dogmatism.—See BRONZE, AGE OF.

**AGESILAUS**, *a-jēs-ī-lā'us*, king of Sparta, B.C. 443–360: (399–360): elevated to the throne, 399, chiefly by the exertions of Lysander. Being called upon by the Ionians to assist them against Artaxerxes, he began a splendid campaign in Asia; but was compelled by the Corinthian war, in which several of the Grecian states were allied against Sparta, to leave his conquest over the Persians incomplete, and return to Greece. At Chæronea, B.C. 394, he gained a victory over the allied forces, and in 378 the war was concluded by a treaty of peace in favor of Sparta. Afterwards, in the Theban war, though hard pressed by Pelopidas and Epaminondas, he bravely and ably defended his country. A. is described as of small stature but commanding aspect, blameless in his private character, and, in public life, just, as far as his partiality for his own country allowed. His biographers are Xenophon, Plutarch, and Cornelius Nepos.

**AGG**, v. *äg* [from *nag*, in the sense of gnaw: Icel. *nagga*, to gnaw: Swed. *nagga*, to gnaw, to irritate]: in *OE.*, to provoke; to dispute. **AGG'ING**, imp. **AGGED**, pp. *ägd*. See **EGG** 2.

**AGGLOMERATE**, v. *äg-glöm'er-ät* [L. *agglomerātus*, collected in a body—from *ad*, *glömērō*, I wind round; *glömūs*, a ball of thread]: to wind to or on; to gather into a mass; to grow into a mass: **ADJ.** heaped together: **N.** in *geol.*, a term employed to designate accumulations of angular fragments of rocks thrown up by volcanic eruptions. **AGGLOM'ERA'TING**, imp. **AGGLOM'ERA'TED**, pp. **AGGLOMERATION**, n. *äg-glöm'er-ä'shün*, the state of being gathered into a mass or ball.

**AGGLUTINATE**, v. *äg-glót'in-ät* [F. *agglutiner*, to glue together—from L. *agglutinātus*, fastened to, attached to—from L. *ad*, *glut'inō*, I glue]: to glue on to; to unite or cause to adhere. **AGGLUT'INA'TING**, imp. **AGGLUT'INA'TED**, pp. **AGGLUT'INANT**, a. uniting parts, as with glue: **N.** that which causes adhesion. **AGGLUTINATION**, n. *äg-glót'ī-nā'shün*, the act of uniting by a tenacious substance. **AGGLUTINATIVE**, a. *äg-glót'ī-nā'tiv*, tending to or causing union; applied to languages whose compounds and inflections are formed by the apposition of words without fusion or alteration: see **PHILOLOGY**.

**AGGRANDIZE**, v. *äg'grän-dīz'* [F. *aggrandissant*, increasing, augmenting—from L. *ad*, *grandis*, great—*lit.*, to make greater]: to exalt; to raise to wealth, honor, or power. **AG'GRANDI'ZING**, imp. **AGGRANDIZED**, pp. *äg'grän-dīz'*.



## AGGRATE—AGHMAT.

**AGGRANDIZER**, n. *äg-grän-dī-zēr*, one who exalts. **AGGRANDIZEMENT**, n. *äg-grän-dāz'měnt*, the making greater in power, wealth, or honor.—**SYN.** of 'aggrandize': to exalt; enlarge; improve; increase; augment; promote; advance.

**AGGRATE**, v. *äg-grāt'* [L. *ad, grātus*, pleasing, agreeable]: in *OE.*, to please. **AGGRA'TING**, imp. **AGGRA'TED**, pp. *äg-grā'těd*.

**AGGRAVATE**, v. *äg-grā-vāt* [F. *aggraver*, to make worse: L. *aggravātus*, made heavy—from *ad, grāvis*, heavy]: to add to or increase the weight; to make anything worse or less endurable. **AG'GRAVA'TING**, imp. **AG'GRAVA'TED**, pp. **AGGRAVATION**, n. *äg-grā-vā'shūn*, a making worse; what excites anger or emotion.—**SYN.** of 'aggravate': to exaggerate; magnify; heighten; raise; increase; exasperate; irritate; provoke;—of 'aggravation': provocation; irritation; exasperation.

**AGGREGATE**, v. *äg-grě-gāt* [L. *aggregātus*, gathered together as a flock—from *grex*, a flock: F. *agréger*, to incorporate]: to bring together as a flock; to collect into one sum, mass, or body; to accumulate: **ADJ.** formed by a collection of many particulars: **N.** the sum total; the result of many particulars. **AG'GREGA'TING**, imp. **AG'GREGA'TED**, pp. **AG'GREGATELY**, ad. *-lī*, collectively. **AGGREGATION**, n. *äg-grě-gā'shūn*, the act of heaping together; a collection. **AG'GREGA'TOR**, n. one who. **AG'GREGA'TIVE**, a. *-tīv*, collective. **AG'GREGA'TIVELY**, ad. *-lī*. **BY AGGREGATION**, consecutively; with no pause between.—**SYN.** of 'aggregate, v.': to accumulate; pile; collect.

**AGGRESS**, v. *äg-grěs'* [OF. *aggressor*, to assail, to assault—from L. *aggressus*, gone to, approached, assailed—from *ad, gressus*, walked or gone—*lit.*, to go to with hostile intent]: to begin a quarrel or controversy; to commence an attack. **AGGRESSING**, imp. **AGGRESSED**, pp. *äg-grěst'*. **AGGRESSION**, n. *äg-grěsh'ūn*, the first act leading to a quarrel or dispute. **AGGRES'SOR**, n. one who first attacks or begins a quarrel. **AGGRESSIVE**, a. *äg-grěs'iv*, tending to or relating to the first attack. **AGGRES'SIVENESS**, n. *-iv-nēs*, the state or quality of being aggressive.—**SYN.** of 'aggression': assault; injury; attack; encroachment; invasion.

**AGGRIEVE**, v. *äg-grěv'* [OF. *agrever*; F. *grever*, to aggrrieve: F. *grief* or *grève*, grievous: L. *aggravāre*—from *ad, grāvis*, heavy—*lit.*, to bear heavily on]: to afflict; to pain or injure any one; to injure in one's right. **AGGRIEV'ING**, imp. **AGGRIEVED**, pp. *äg-grěvd'*. **AGGRIEVANCE**, n. *äg-grěv'āns*, injury; wrong; oppression.

**AGHAST**, a. or ad. *äg-gāst'* [AS. *a*; Dan. *gyse*, to shudder at: Meso-Goth. *us-gaisjan*, to make aghast—from *geisan*, to terrify: Scot. *gousty*, dreary, that causes shuddering]: struck with horror; stupefied with sudden fright. *Note.*—Formerly in *OE.* spelt **AGAZED**, as if *agazing* at an object of astonishment or horror; latterly confounded with *ghostly*, and so in error an *h* has been introduced into **AGHAST**: in *OE.* used as pt. of **GAZE**.

**AGHMAT**, *äg-māt'*, or **AGHMET**: fortified town of

## AGILA WOOD—AGIS.

Morocco, cap. of a province, on the left bank of the Enfis, a tributary of the Tensift, on the n.w. slope of Meunt Atlas, 24 miles s. from Morocco. A. is said to have been at one time the residence of the Moorish emperor. Pop. 6,000, of whom about 1,000 are Jews.

AGILA WOOD: see ALOES WOOD.

AGILE, a. *áj'íl* [F. *agile*—from L. *agilis*, quick—from *ágō*, I drive]: nimble; not slow; active. AGILELY, ad. *áj'íl-li*. AGILITY, n. *áj'íl'i tí* [F. *agilité*]: nimbleness; the power of moving quickly: also AGILENESS, n. *áj'íl-nēs*.—SYN. of 'agile': nimble; alert; active; lively; brisk; quick; ready; prompt; sprightly.

AGINCOURT: see AZINCOURT.

AGIO, n. *áj'i-ō* [F. *agio*; It. *aggio*, the rate of exchange, a premium]: the difference in accepted value of bank-notes and that of current money or coin; the premium charged by money-changers. AGIOTAGE, n. *áj'i-ō-tāj'*, the methods employed by speculators in the public funds to lower or raise their price by spreading false rumors, etc.; the regulation of rates ruling agio.

AGIO, *áj'i-ō*: from an Italian word, signifying 'accommodation'; first used in Italy to denote the premium taken by money-changers in giving gold for silver, on account of the greater convenience of gold for transport. A. is now used to denote the difference between the real and the nominal value of money; also the variations from fixed pars or rates of exchange. It corresponds very nearly to the English word 'premium.'

AGIS, *áj'is*: name of several kings of Sparta. Mention is made of a king A. as early as about B.C. 1000, who subdued the old inhabitants of Sparta, and made the Helots vassals or slaves. Of the others, A. I. reigned during the greater part of the Peloponnesian war (B.C. 420–397). A. II. ascended the throne B.C. 338. His hatred of the Macedonian supremacy led him to form alliances with several Persian satraps against Alexander the Great. A., after extending his conquests to almost all the cities of Peloponnesus, fell in battle B.C. 330.—A. III. came to the throne B.C. 244, when the state of Sparta had fallen into a ruinous condition through long-continued war. Though only 20 years old when he began to reign, he boldly resolved to restore the old institutions and severe manners of Sparta; but intrigues and self-interest in the higher classes frustrated his designs. The riches of the state were now in the hands of a few persons, while a great majority of the people were in extreme indigence. A., therefore, in accordance with the old laws of the state, proposed a redistribution of landed estates by lottery. The new ephorus, Agesilaus, who was rich in landed property, but burdened with many debts, astutely proposed that first all debts should be cancelled, and next the lands should be divided. The first part of this plan was soon effected; but great hindrances were opposed to the carrying out of the remainder. Meanwhile, the disappointed people were easily persuaded that A. had

## AGIST—AGNANO.

endeavored to introduce measures inimical to the welfare of the state. Pursued by his enemies, he fled for refuge to a temple, but was betrayed by false friends into the hands of the magistrates, who immediately ordered him to be put to death by strangulation, B.C. 240. His mother and his grandmother, who had favored his measures, were barbarously executed in the same manner. Alfieri, the Italian poet, wrote a powerful tragedy on the fate of A. III.

**AGIST**, v. *ă-jĭst'* [OF. *giste*, a place to lie down in; *agister*, to give lodgings to: L. *ad*, *jăcĕō*, I lie down]: in *OE.*, to take in the cattle of others to graze. **AGIS'TOR** or **AGISTATOR**, n. *ăj'ĭs-tă'tĕr*, one who. **AGIS'TMENT**, n. the profit of cattle pasturing on land; the pasturing of cattle.

**AGITATE**, v. *ăj'ĭ-tăt* [L. *agitātus*, put in constant motion—from *ăgō*, I drive, I move: F. *agiter*]: to put into active motion; to stir violently; to disturb; to examine and discuss with active heat and zeal. **AG'ITA'TING**, imp. **AG'ITA'TED**, pp. **AGITABLE**, a. *ăj'ĭ-tă-bl.* **AGITATION**, n. *ăj'ĭ-tă'shun*, the putting into violent motion; excitement of the mind; the heated or turbulent discussion of a question. **AGITATOR**, n. *ăj'ĭ-tă'tĕr*, one who rouses or stirs up; a stirrer or mixer. **AGITATIVE**, a. *ăj'ĭ-tă'tĭv*, having power or tendency to agitate.—**SYN.** of 'agitate': to rouse; stir; excite; actuate; shake; move; debate; ventilate; discuss; canvass; disturb; distract; revolve; consider; deliberate; contrive;—of 'agitation': trepidation; tremor; emotion; excitement; commotion.

**AGLET**, n. *ăg'lĕt*, also **AIGLET**, n. *ăg'lĕt* [F. *aiguillette*, an aiglet—from *aiguille*, a needle]: the tag of a point; any small object hanging loosely—as a spangle, the anthers of a tulip or of grass, or the catkins of a hazel.

**AGLOW**, a. *ă-glō* [AS. *a*, intensive, and *glow*]: very warm; red and bright with heat, as the cheeks; glowing.

**AGMINATED**, a. *ăg'mĭn-ă-tĕd* [L. *agmen*, a troop; *ag'minis*, of a troop]: in close order; aggregated—used only of certain glands.

**AGNAIL**, n. *ăg'nāl*, also **ANGNAIL**, n. *ăng'nāl* [F. *angonaille*, a blotch, a pimple: mid. L. *anguen* and *anguenāliă*, a carbuncle, redness]: in *OE.*, the redness of inflammation; a swelling; a corn on the foot. *Note.*—This word has been confused with next entry by a misspelling—see *Skeat*.

**AGNAIL**, n. *ăg'nāl* [AS. *a*, on; *nægel*, a nail]: a sore under the nail; a whitlow. *Note.*—Primarily *hangnail*, and meaning small pieces of partially separated skin about the roots of the finger nails. See *AGNAIL* 1.

**AGNANO**, *ăn-yă'no*: formerly a small lake near Naples, about 60 ft. deep, with no visible outlet. As it was a cause of malaria, it was drained 1870. Formerly the lake was named *Anguiano*, from the number of snakes in the neighborhood. On the right of Lake A. lies the *Grotto del Cane*—so called from the stratum of carbonic acid gas, some 18 inches deep, which alway covers the floor and which suffocates a dog (*cane*) or other small animal taken into it—and on the left are found the natural vapor-baths of

## AGNATE—AGNESI.

*San Germano*, used for the cure of gout, rheumatism, etc but inferior in virtue to the baths (*Stufe di Nerone*) at Baiæ. The volcanoes surrounding the lake have been extinct since 1198. Further on the left from A. lies the lake of *Astroni*, which occupies the crater of an extinct volcano, and is surrounded by beautiful woodlands.

AGNATE, a. *ăg'nāt* [L. *agnātus*, born in addition—from *ad*, *nātus*, born: F. *agnat*, agnate]: paternally related; related in the male line: N. any descendant by the father's side. AGNATION, n. *ăg-nā'shun*, direct descent from the same father in the male line. AGNATIC, a. *ăg-năt'ik*, descent in the male line.

AGNATE, in Law: a person related through the father, as a cognate is a person related through the mother. In the Roman law, both of these terms had a somewhat different signification. Agnates, by that system, were persons related through males only, while cognates were all those in whose connection, though on the father's side, one or more female links intervened. Thus, a brother's son was his uncle's A., because the propinquity was wholly by males; a sister's son was his cognate, because a female was interposed in that relationship. In the United States and in Great Britain the intervention of females is immaterial, provided the connection be on the male, or paternal, side of the house. The cause of this change in the meaning of terms manifestly borrowed from Roman law, seems to be that in Rome the distinction between agnates and cognates was founded on an institution not adopted in the Roman sense by any modern nation—that of the *patria potestas* (q.v.). Roman agnati are defined by Hugo to be all those who either were actually under the same *paterfamilias*, or would have been so had they been alive; and thus it was that, as no one could belong to two different families at the same time, the agnation to the original family was destroyed, and a new agnation created, not only by marriage, but by adoption (q.v.). The foundation of cognation, again, was a legal marriage. All who could trace up their origin to the same marriage were *cognati*; and thus the term *cognatus*, generally speaking, comprehended *agnatus*. But though an *agnatus* was thus almost always a *cognatus*, a *cognatus* was an *agnatus* only when his relationship by blood was traceable through males. Justinian abolished entirely the distinction between agnates and cognates. See SUCCESSION; GUARDIAN.

AGNESI, *ân-yā'sē*, MARIA GAETANA: 1718-99; b. Milan: a woman remarkable for varied attainments. In her ninth year she could converse in Latin, and gave a lecture in this language, in which she argued that a knowledge of the ancient languages was a proper accomplishment in women. In her eleventh year she could also speak Greek fluently, and subsequently acquired with great facility several of the Oriental languages, also French, Spanish, and German. This precocious development of intellect was encouraged by her father, who invited parties of learned men to his house, with whom Maria disputed on philosophical points. Of her discourses in these parties,

## AGNITION—AGNOSTIC.

her father published some specimens, entitled *Propositiones Philosophicæ* (Milan, 1738). After her twentieth year, she devoted her mind to the study of mathematics, wrote an unpublished treatise on *Conic Sections*, and published her *Instituzioni Analitiche* (2 vols., Milan, 1748). When her father was disabled by infirmity, she took his place as prof. of mathematics in the Univ. of Bologna, by the appointment of Pope Benedict XIV. She at last became a nun, and gave the whole of her time to attendance on the poor and the afflicted. Maria A. was a remarkable exception to the general rule of precocious intellect and short life.

**AGNITION**, n. *äg-nışh'un* [L. *agnītiōnēm*, a knowing—from *ad*, *gnosco*, I know; *notus*, known]: acknowledgment.

**AGNOMEN**, n. *äg-nō'měn* [L. *ad*, *nomen*, a name]: a name added to one's usual name. **AGNOM'INA'TION**, n. the practice of giving an additional name.

**AGNONÉ**, *án-yo'nā*: town in s. Italy, province of Campobasso, 22 m. n.w. from the town of Campobasso. It stands on a hill, and is said to occupy the site of the ancient *Aquilonia*. It is celebrated for its copper works. Pop. 7,500.

**AGNOSTIC**, a. *äg-nōs'tik* [G. *agnostos*, not to be known or recognized, ignorant of—from *a*, without, not; *gnotos*, known; *gnostos*, made known]: member of a Christian sect of the 3d and 4th c. which held the opinion that God did *not know* all things; a denial of the Divine omniscience. In its modern application **A.** denotes one who holds that God and the absolute, or infinite, or spiritual, cannot be known, and that nothing can be known except in the realm of experience. **AGNOSTICISM**, n. ancient heretical tenet that God is not omniscient. This term in its present application on the suggestion of Prof. Huxley 1869—who, according to R. H. Hutton, found its hint in the Apostle Paul's mention of the altar in Athens 'to the unknown God'—denotes a system of thought whose main characteristic is that it strictly limits human knowledge to the sphere of 'experience,' to phenomena, and to the relative; and that it denies the possibility of affirming or knowing anything as to the infinite, the unconditioned, the absolute; as to the existence of God, an immortal life for man, the origin of matter, and the essential nature of the ultimate cause of things. It differs from Atheism (q.v.) in claiming an attitude of suspended judgment as to the existence of God—neither affirming nor denying. Yet, as agnosticism affirms that, on the evidence now existing nothing can be known about God, and as it often goes further and affirms that God's existence must forever remain unknowable, it manifestly tends constantly to shade through varying degrees into some development of Atheism. Positivism (q.v.) has affinities with agnosticism; and Secularism (q.v.) is distinctly agnostic. Likewise Evolutionism is in some of its forms agnostic; though not essentially so, since many evolutionists are strong theists. See **THEISM: EVOLUTION THEORY: CONDITIONED, THE PHILOSOPHY OF THE: ETC.**

## AGNUS-DEI—AGOUTI.

**AGNUS-DEI**, *äg'nūs-dē'ī* [L. the Lamb of God]: the name given to a certain prayer used in the Roman Catholic service of Mass. The litanies generally conclude with the same prayer: 'O Lamb of God, that takest away the sins of the world, have mercy upon us.'—The figure of the Saviour under the form of a lamb bearing a staff-head with a cross, and having the head surrounded with a nimbus, stamped upon an oval of wax, silver, or gold, is also styled an A. D.,—the reference being to Jno. i. 29. Such medals have been consecrated by the popes since the th 14 c., and are generally distributed among the faithful on the first Sunday after Easter. In the ancient church, candidates for baptism received similar medals of wax, and wore them as amulets. See **AMULET**. In the Greek Church, the cloth which covers the cup in the communion service bears the image of a lamb, and is styled the A. D.

**AGO**, ad. *ǎ-gō'* [OE. *ygo* or *ygon*, gone away, passed—by *y* being the OE. augment of the pp., and in Ger. *ge*]: time gone by; past. **AGOING**, ad. *ǎ-gō'ing*, in or into action. **AGONE**, ad. *ǎ-gōn'*, past and gone. *Note.*—It is also said that *ago* is from OE. *agon*, to go away, to pass by: AS. *ágán*, to pass away.

**AGOG**, ad. *ǎ-gōg'* [Icel. *à*, *gægium*, on the watch or look-out; *gægjask*, agog; It. *agognāre*, to long for, to aspire to]: excited with expectation; ready to start or jog in pursuit of an object of desire. **ALL AGOG**, all eager.

**AGONIC**, a. *ǎg-ōn'ik* [Gr. *agōnos*, without angle]: that does not form an angle. **AGONIC LINE**, line connecting all points on the globe where the magnetic needle coincides with (therefore does not make an angle with) the geographical meridian.

**AGONIZE**, v. *ǎg'ō-nīz'* [F. *agonie*, struggle against death, agony: mid. L. *agonis'ta*, a soldier—from Gr. and L. *agoniā*, a contest, anguish of mind—*lit.*, to enter into a struggle for life]: to suffer extreme pain or anguish; to distress exceedingly. **AG'ONIZING**, imp.: **ADJ.** causing extreme pain. **AG'ONIZED'**, pp. *-nīzd'*: **ADJ.** suffering extreme pain. **AG'ONIZINGLY**, ad. *-lī*. **AGONY**, n. *ǎg'ō-nī*, extreme pain or anguish, either of body or mind. **AGONIST**, n. *ǎg'ō-nīst*, also **AGONISTES**, n. *ǎg'ō-nīs'tēz*, one who contends for the prize in public games. **AGONISTIC**, a. *ǎg'ō-nīs'tik*, or **AG'ONIS'TICAL**, a. *-tī-kāl*, pertaining to contests of strength. **AG'ONIS'TICALLY**, ad. *-lī*.—**SYN.** of 'agony': pain; anguish: suffering; pang; torment; distress; throe.

**AGORA**, n. *ǎg'ō-rá* [Gr.]: assembly; same as the Roman *Forum* (q.v.). In most Grecian cities, it was the common resort for social and political purposes, and for public traffic. A. was also the name for the popular assemblies convened by proclamation through a herald.

**AGOSTA**, *â-gōs'tâ*, or **AUGUSTA**, *ow-gōs'tâ*: fortified city of Sicily, 12 m. n. of Syracuse; on a peninsula in the Mediterranean. It has been thrice sacked or destroyed in war, and one-third of the inhabitants perished in an earthquake 1663. Pop. 12,500.

**AGOUTI**, *a-gō'tī* (*Dasyprocta Agouti*): a small quadruped

## AGRA.

nearly allied to the Cavy or Guinea pig, very abundant in some parts of the West Indies and of S. Amer. It is often very injurious to the fields of sugar-cane. It is gregarious. Its flesh resembles that of the hare or rabbit. Other species are found in the same regions, and even in the colder parts of S. Amer. The *Pampas Hare* is *Dasyprocta Patachonica*.



Agouti.

AGRA, *â'grâ*: a British dist. in the lieut.-governorship of the n.w. Provinces of India; bounded n. and e. by the districts of Muttra, Minpooree, and Etawah, s. and w. by the territories of Dhorthpore, Gwalior, and Bhurtpore; 1,845 sq. m. The surface is mostly very level, the principal elevation of the Futtehpoore Sikri hills, a sandstone range on the w. frontier, being about 700 ft. The principal rivers are the Jumna—flowing along the n.e. frontier, and its tributary the Chumbul (along the s. boundary), both of which are too deep in the channel to be of much avail for irrigation. The district generally is, in consequence, deficient in water; and the failure of the rains in some seasons (as in 1837-8) has been followed by severe famine. The temperature has a wide range, being during the hot winds of April, May, and June, so high that the city of A. is scarcely habitable by Europeans, whereas in January, severe frosts occur at night, though the thermometer at mid-day is high. The most important commercial product is cotton, which generally occupies about a tenth of the arable land. There are two crops yearly—the spring crop, consisting of various grains (wheat, barley, oats, etc.), leguminous plants, flax, tobacco, etc.; the autumnal crop of maize, *mung*, *moth*, melons, etc. The cultivation of rice is very limited, owing to the want of water. Pop. nearly 1,000,000, of whom 100,000 are Mohammedans, Europeans, etc., the rest Hindus. Of the Hindu population, about two-thirds are agricultural; of the rest about one-fourth.—The 'division' of A., which constitutes one of seven in the n.w. Provinces, embraces the districts of A., Muttra, Furruckabad, Minpooree, Etawah, and Etah; 10,151 sq. m.; Pop. about 5,000,000. See NORTH-WESTERN PROVINCES. Till 1862, the city of A. was the seat of the lieut.-gov., from which circumstance that functionary was sometimes called the lieut.-gov. of A.

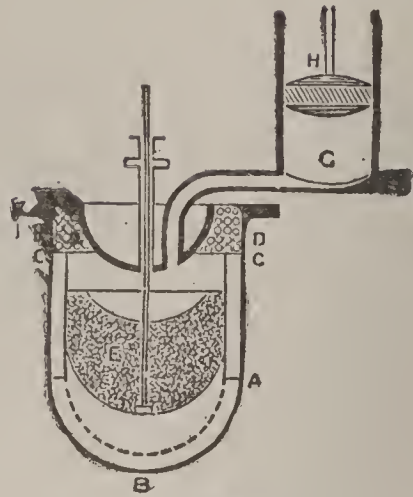
AGRA; city in the British n.w. Provinces in India, in the dist. of the same name, on the right bank of the Jumna, 139 m. s.e. from Delhi, and 783 n.w. from Calcutta. The ancient walls of the city embrace an area of about 11 sq. m., of which about one-half is at present occupied. The houses are mostly built of the red sandstone of the neighboring hills.

PLATE 5.

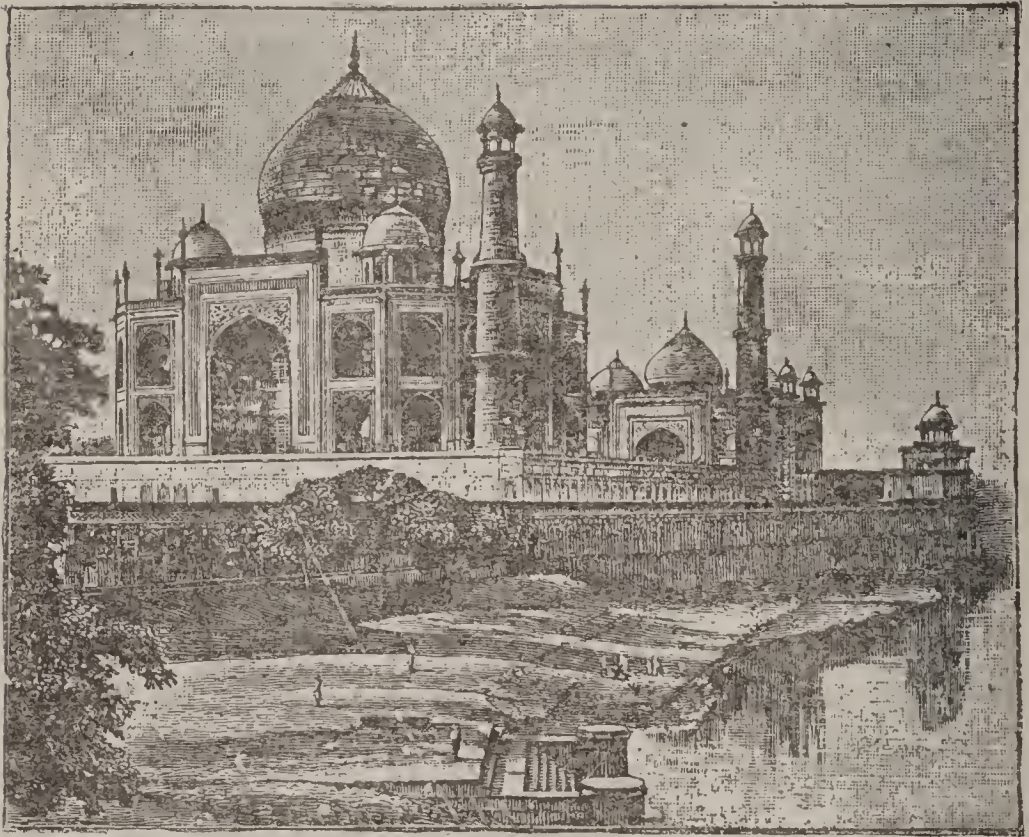
Agnus Dei  
Air-gun



Agnus Dei that belonged to Charle-  
magne. (From Aix-la-Chapelle Cathed-  
ral.)



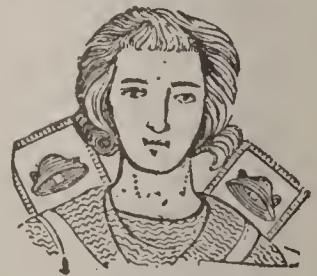
Air-Engine.



The Taj Mahal, in Agra India. (From a photograph by Frith.)



Air-cells in Gulf-  
weed (*Sargassum*  
*vulgare*).



Ailettes.



## AGRA.

The principal street, running n.w. from the fort, is very spacious, but the rest are generally narrow and irregular, though clean. Some of the public buildings, monuments of the house of Timour, are on a scale of striking magnificence. Among these are the fortress built by Akbar, within the walls of which are the palace and audience-hall of Shah Jehan, and the Moti Masjid or Pearl Mosque, so called for its surpassing architectural beauty. Still more celebrated is the Taj Mahal, situated without the city, about a mile to the e. of the fort. This extraordinary and beautiful mausoleum was built by the Emperor Shah Jehan for himself and his favorite wife, Arjimand Banoo (surnamed Mumtaz Mahal); 20,000 men, says Tavernier, who saw the work in progress, were employed incessantly on it for 22 years. The principal parts of the building are constructed or overlaid outside and in with white marble; and the mosaic work of the sepulchral apartment and dome is described by various travellers in terms of glowing admiration. It is composed of twelve kinds of stones, of which lapis-lazuli is the most frequent, as well as the most valuable. Of British edifices in and near the city, the principal are the Government House, the College (for the education of natives), the Metcalfe Testimonial, the English Church, and the barraeks. The climate at A., during the hot and rainy seasons (April to Sept.), is very injurious to Europeans; but on the whole, the average health of the city is equal to that of any other station in the n.w. Provinces. A. is fortified and has a garrison; there is a military station in the neighborhood of the city. As administrative centre of its district, and of the large 'divison' to which it gives name, A. is a place of great importance. Pop. (1901) 188,022. The principal articles of trade are cotton and salt, conveyed in large quantities down the Jumna to the lower provinces. This city is held in great veneration by the Hindus, as the scene of the incarnation of Vishnu under the name of Parasu Rama. It first rose to importance in the beginning of the 16th c., and, 1526-1658, it was the capital of the Mogul sovereigns. In that year, Aurungzebe removed to Delhi; thereafter A. declined. It was taken in 1784 by Scindia, and surrendered, 1803, to Lord Lake, after a bombardment of a few hours. Among the spoils on that occasion was a cannon of 23 inches calibre, 11½ inches metal at the muzzle; length, 14 ft. 2 inches; weight, 96,000 pounds. The balls, of cast iron, weighed 1,500 pounds. This stupendous piece of ordnance is said to have been wantonly reduced to fragments by blasting by some artillery-officers in 1833. (Thornton's *Gazetteer of India*.) During the mutiny, 1857, A. was one of the places in which the Europeans were shut up. At the outbreak, the garrison consisted of the 44th and 67th regiments of B. N. Infantry, the 3d European Fusileers, and a few artillery. The native regiments were disarmed 1857, June; and the defense of this important city devolved upon the Europeans. The ladies resorted at night to places of refuge appointed by the governor, while the gentlemen patrolled the streets; but matters growing worse both in the city and country, it was resolved, after a battle with the mutineers, to abandon the

## AGRAM—AGRARIAN.

city and retire to the fort or residency. It was time; for some thousands of prisoners getting loose, began to fire all the European buildings in the city. Hardly a house escaped destruction; numbers of traders were ruined, and had to endure the misery of beholding their ruin from the fort. As the fort was both large and strongly defended, fugitives flocked in from all parts of the country, and the numbers soon swelled to 5,846. Heroic sallies were occasionally made. Major Montgomery's march to Allygurh, and his defeat of the rebels, though twenty times as numerous, was a feat worthy of Havelock. When Delhi fell, its rabble of defenders hurried off in the direction of A., which place was seriously threatened by them, but was relieved by the rapid and brilliant march of Colónel Greathed, who discomfited the enemy, and despoiled them of nearly all their baggage.

AGRAM, *á'grám* or *ög'róm*: cap. of the Austrian 'kingdom' of Croatia and Slavonia; at the foot of a richly wooded range of mountains, about 2 m. from the Save. It is divided into three parts—the upper town, built upon two eminences; the lower town; and the episcopal town. The cathedral, built in the 15th c., is one of the finest Gothic buildings in Austria. The inhabitants are principally Croats, who trade in wood and corn, and manufacture tobacco and leather. Repeated and violent shocks of earthquake, 1880, Nov., felt throughout great part of Croatia, Dalmatia, Servia, and other parts of Austria and Hungary, destroyed most of the public buildings of A., overthrew 200 houses, and caused great loss and distress. Further shocks were felt at various dates in Dec., and in 1881, Jan. The lower town is the newest and finest in appearance. A. is the place of meeting of the provincial diet. It has a university (since 1874) and a public library. Pop. (1880) 28,360; (1890) 37,369; (1900) 61,002.

AGRAMMATISM, n. *ǎ-grǎm'ǎ-tǐzm* [Gr. *a*, without; *gramma*, a writing]: form of brain-disease in which the patient, though not ignorant of grammatical rules, is unable to speak or write grammatically.

AGRAPHIA, *ǎg'rǎ-fǎ* [Gr. *agraphos*, unwritten; plu. neut. *agrapha*, things or words unwritten]: name given specially to sayings of Jesus Christ not found in the canonical books of the New Test., but preserved by oral tradition, and recorded in the writings of Fathers and other early Christian writers, or even passing into the general body of Talmudic tradition without suspicion of their origin. See Alfred Resch (*Agrapha: Ausser-canonische Evangelienfragmente*, 1890), who claims to present 139 such extra-canonical sayings. See LOGIA.

AGRARIAN, a. *ǎ-grǎ'rǐ-ǎn* [L. *agrarius*, pertaining to a field—from *ǎgĕr*, a field]: relating to land in general. AGRA'RIANISM, n. theory of the equal division of land or property: theory of radical changes in land tenure, advocating transfer from individual to public ownership; agitation, even to violence, in furthering such views. AGRA'RIANIST, n. one who advocates an equal distribution of land. AGRARIAN LAW, in *Roman hist.* (see below).

## AGRARIAN LAW.

**AGRARIAN LAW:** a term with which was formerly associated the idea of the abolition of property in land, or at least of a new distribution of it. This notion of the A. laws of the Romans was not only the popular one, but was also received by the scholars. The French Convention, 1793, passed a law punishing with death any one who should propose an A. L., understanding by the term an equal division of the soil among all citizens. Now, it would have been strange if the Romans, with whom private property was so sacred, could ever have been brought to sanction any measure of the kind. The German scholars Heyne, Savigny, and especially Niebuhr, first explained the true nature and character of the Roman A. laws. There are still some disputed points on this matter, but one thing seems made out—that those laws had no reference to private lands held in absolute property, but to public or state lands.

As the dominion of Rome extended, a portion more or less of each conquered territory was confiscated to the state, and became public domain. All laws respecting the disposition of these lands were called A. laws; which are therefore of various kinds. What caused these laws to be so long mistaken for an interference with private rights, and excited such opposition to them at the time, was the use which was made of the public domains while unappropriated. 'It was the practice at Rome,' says Dr. Arnold, 'and doubtless in other states of Italy, to allow individuals to occupy such lands, and to enjoy all the benefits of them, on condition of paying to the state the tithe of the produce, as an acknowledgment that the state was the proprietor of the land, and the individual merely the occupier. Now, although the land was undoubtedly the property of the state, and although the occupiers of it were in relation to the state mere tenants-at-will, yet it is in human nature that a long undisturbed possession should give a feeling of ownership; the more so as, while the state's claim lay dormant, the possessor was, in fact, proprietor, and the land would thus be repeatedly passing by regular sale from one occupier to another.'

The state, however, was often obliged to interfere with these occupiers of the public lands, and resume its rights. The very idea of a citizen, in ancient times, involved that of a landholder, and when new citizens were to be admitted, they had each to receive their portion out of the unallotted public domain; which was attended, of course, with the ejection of the tenants-at-will. It appears, also, that the right to enjoy the public lands in this temporary way was confined to the old burghers or patricians. This, taken in conjunction with the tendency, strong at all times, of larger possessions to swallow up smaller, kept up an ever-increasing number of landless commons, whose destitution and degradation came from time to time to such a pitch, that alleviation was necessary, to prevent the very dissolution of the state. It is easy, however, to see what motive the patricians, as a body, had to oppose all such measures, since it was their interest, though not their right, to keep the lands unallotted.

## AGRARIAN LAW.

The enactment of Agrarian laws occasioned some of the most memorable struggles in the internal history of Rome. Most of the kings of Rome are said to have carried an A. L., that is, to have divided a portion of the public land among those whom they admitted to the rights of citizenship. 'The good king,' Servius Tullius, may be looked upon as the first victim of the hostility of the nobles to Agrarian laws. About twenty-four years after the expulsion of the Tarquins, the distress of the commons called aloud for remedy, and the consul, Spurius Cassius, proposed an A. L. for a division of a certain proportion of the public land, and for enforcing the regular payment of the rent or tithe from the occupiers of the remainder. The aristocracy, however, contrived to defeat the proposal, and when the year of his consulship was out, Cassius was accused of trying to make himself king, was condemned, scourged, and beheaded, and his house razed to the ground.

The first important A. L. of a permanent nature actually passed was that proposed by the tribune Licinius Stolo, and carried, after a struggle of five years, in the year of Rome 383. The provisions of Licinius's bill, or *rogation*, were as follows: 'Every Roman citizen shall be entitled to occupy any portion of the unallotted state land not exceeding 500 *jugera* (see ACRE), and to feed on the public pastureland any number of cattle not exceeding 100 head of large, or 500 head of small, paying in both cases the usual rates to the public treasury. Whatever portions of the public land beyond 500 *jugera* are at present occupied by individuals, shall be taken from them, and distributed among the poorer citizens as absolute property, at the rate of seven *jugera* apiece. Occupiers of public land shall also be bound to employ a certain number of freemen as laborers.'

This law produced for a time very salutary effects. But before 621, when Tiberius Gracchus was elected tribune, the Licinian law had fallen into abeyance; and although vast tracts had been acquired by the Italian, the Punic, and the Greek wars, no regular distribution of land among the destitute citizens had taken place for upwards of a century. Numerous military colonies had indeed been founded in the conquered districts, and in this way many of the poorer Romans or their allies had been provided for; but still there remained large territories, the property of the state, which, instead of being divided among the poorer members of the state, were entered upon, and brought into cultivation, by the rich capitalists, many of whom thus came to hold thousands of *jugera*, instead of the five hundred allowed by the Licinian law. To a Roman statesman, therefore, looking on the one hand to the wretched pauper population of the meaner streets of Rome, and on the other, to the enormous tracts of the public land throughout Italy which the wealthy citizens held in addition to their own private property, the question which would naturally present itself was—Why should not the state, as landlord, resume from these wealthy capitalists, who are her tenants, as much of the public land as may be necessary to provide little farms for these pauper citizens, and so convert them into respectable and independent agri-

## AGREE.

culturists? This question must have presented itself to many; but there were immense difficulties in the way. Not only had long possession of the state lands, and the expenditure of large sums in bringing them into cultivation, given the wealthy tenants a sort of proprietary claim upon them, but in the course of generations, during which estates had been bought, sold, and inherited, the state lands had become so confused with private property, that in many cases it was impossible to distinguish between the two. Notwithstanding these difficulties, Tiberius Gracchus had the boldness to propose an A. L., to the effect, that every father of a family might occupy 500 jugera of the state land for himself, and 250 jugera additional for each of his sons; but that in every case where this amount was exceeded, the state should resume the surplus, paying the tenant a price for the buildings, etc., which he had been at the expense of erecting on the lands thus lost to him. The recovered lands were then to be distributed among the poor citizens; a clause being inserted in the bill to prevent these citizens from selling the lands thus allotted to them, as many of them would have been apt to do.

According to the laws and constitution of Rome, there was nothing essentially unjust in this proposal, which was, in private, at least, approved of by some of the most distinguished men of the time. The energy of Gracchus carried the measure, in spite of the opposition of the aristocratic party, whose vengeance, however, could only be satisfied with the assassination of Gracchus and his brother. See GRACCHUS. The attempts to carry out the 'Sempronian law,' as it was called, were attended with great difficulties, and although not formally repealed, it continued to be evaded and rendered inoperative. Various Agrarian laws were subsequently passed; some by the victorious aristocratic party, in a spirit directly opposed to the Licinian and Sempronian laws.

Besides Agrarian laws having for their object the division among the commons of public lands usurped by the nobles, there were others of a more partial and local nature, for the establishment of colonies in particular conquered districts; these naturally met with less opposition. Still more different were those violent appropriations of territory made by the victorious military leaders in the latter times of the republic, in order to reward their soldiers, and establish exclusively military colonies. In these the private rights of previous occupants were often disregarded.

AGREE, *v.* *ă-grĕ'* [F. *agrĕer*, to receive with favor—from *à gre*, favorably—from L. *grātus*, pleasing: Sp. *agradar*; It. *aggradire*, to please, to gratify]: to be mutually pleasing to; to be of one mind; to live in peace; to be like; to settle; to be beneficial to in its effects. AGREE'ING, *imp.* AGREED', *pp.* AGREEABLE, *a.* *ă-grĕ'ă-bl*, pleasing; suitable to; in conformity with. AGREE'ABLY, *ad.* *-bli*, in a manner to give pleasure. AGREE'ABLENESS, *n.* *-bl-nĕs*, the quality that makes a thing grateful to the taste or pleasing to the mind; resemblance. AGREE'MENT, *n.* a bargain; a renewal of friendship.—*SYN.* of 'agree': to accord; suit; coincide,

## AGRICOLA.

concur, assent, acquiesce; comfort; benefit; tally with; harmonize with; answer to; correspond with; comply with; consent; accede;—of 'agreeable': pleasant; pleasing;—of 'agreement': a contract; covenant; compact; bargain; concord; resemblance; stipulation.

AGRICOLA, *a-grīk'o-lă*; GNAEUS or CNEIUS JULIUS: 37-92; b. Forum Julii (now Fréjus in Provence): a Roman of the imperial times, distinguished not less by his great abilities as a statesman and a soldier than by the beauty of his private character. Having served with distinction in Britain, Asia, and Aquitania, and gone through the round of civil offices, he was in 77 elected consul, and in the following year went as governor to Britain—the scene of his military and civil administration during the next seven years. He was the first Roman general who effectually subdued the island, and the only one who displayed as much genius and success in training the inhabitants to the amenities of civilization as in breaking their rude force in war. In his seventh and last campaign, 84, his decisive victory over the Caledonians under Galgacus, at a place called *Mons Graupius*, established the Roman dominion in Britain to some distance n. of the Forth. After this campaign, his fleet circumnavigated the coast, for the first time, discovering Britain to be an island. Among the works executed by A. during his administration, were a chain of forts between the Solway and the Tyne, and another between the Clyde and Forth. Numerous traces of his operations are still to be found in Anglesey and n. Wales, and in Galloway, Fife, Perthshire, and Angus. The news of A.'s successes inflamed the jealousy of Domitian, and he was speedily recalled. Thenceforth he lived in retirement; and when the vacant proconsulships of Asia and Africa lay within his choice, he prudently declined promotion. The jealousy of the emperor, however, is supposed to have hastened his death at the early age of 55. His life, by his son-in-law Tacitus, has always been regarded as one of the choicest specimens of biography in literature.

AGRICOLA, JOHN (true name, Schnitter or Schneider, also called Magister Islebius and John Eisleben, after the name of his native town): 1492-1566: was one of the most zealous founders of Protestantism. Having studied at Wittenberg and Leipsic, he was sent, 1525, by Luther, who highly appreciated his talents and learning, to Frankfort-on-the-Main, to institute there, at the desire of the magistrates, the Protestant worship. On his return, he resided as a teacher and preacher in his native town of Eisleben, till 1536. In 1537, he became a professor at Wittenberg, where the Antinomian controversy, already begun between him and Luther and Melancthon, broke out openly. See ANTINOMIANISM. The troubles in which he was thus involved obliged him to withdraw, 1538, to Berlin, where he was reduced to extreme want, and was thus induced to make a recantation, never altogether sincere. He then found a protector in the Elector John of Brandenburg who appointed him preacher to the court and general superintendent. He made great exertions

## AGRICOLA.

for the spread of the Protestant doctrine in the Brandenburg states; but ere his death, at Berlin, he had become as much hated for his share in the drawing up of the Augsburg *Interim* (q.v.), as he had formerly been for his Antinomian opinions. Besides his numerous theological writings, his country possesses a truly national work of his entitled *Die Gemeinen Deutschen Sprüchwörter mit ihrer auslegung* (Common German Proverbs, with their Explanation). The patriotic feeling, pure morals, and pithy language of this book, have given it a place among the first German works of that age.

AGRICOLA, RUDOLPHUS: 1443-85; b. Baflo, near Gröningen: one of the most learned and remarkable men of the 15th c., and a chief instrument in transplanting the taste for literature, just revived in Italy, into his native country of Germany. His name was properly Rolef Huysmann (i.e., houseman or husbandman), which was latinized by him into A., after the usage of the time. He was also called Frisius, and Rudolph of Gröningen, from his native place, and sometimes Rudolph of Ziloha, from the monastery of Silo, where he spent some time. Having been first a disciple of Thomas à Kempis at Zwolle, he went to Louvain, then to Paris, thence to Italy, where, during 1476-77, he attended the lectures of the most celebrated men of his age. Here he entered into a close friendship with Dalberg, afterward Bishop of Worms. He was the first German who distinguished himself in Italy in public speaking and lecturing, and this he did, not only by his erudition, but by the elegance of his language and the correctness of his pronunciation. He likewise acquired reputation as an accomplished musician, and his pieces were popular throughout Italy. On his return to Germany, he endeavored, in connection with several of his former co-disciples and friends, among whom were Alexander Hegius and Rudolphus Lange, to promote a taste for literature and eloquence in Germany. Several cities of Holland vainly strove with each other to obtain his presence by offering him public functions; but not even the brilliant overtures made to him by the court of the emperor Maximilian I., to which he had repaired in connection with affairs of the town of Gröningen, could induce him to renounce his independence. At length yielding, 1483, to the solicitations of Dalberg, chancellor to the Elector Palatine and Bishop of Worms, he established himself in the Palatinate, where he sojourned alternately at Heidelberg and Worms, dividing his time between private studies and public lectures, and enjoying high popularity. He distinguished himself also as a painter, and at the age of 40 set with ardor to learn Hebrew, in order to study theology. He went again, 1484, with Dalberg into Italy, and died shortly after his return to Germany. His fame rests chiefly on his personal influence. His compositions, which are written in Latin, are neither so numerous nor so important as those of many his learned contemporaries. The first nearly complete edition of them was that published by Alard (2 vols., Cologne, 1539). Consult Tresling, *Vita et Merita R. A.* (Gröningen, 1830).

## AGRICULTURAL EDUCATION.

**AGRICULTURAL CHEMISTRY:** that branch of chemical science which treats of the composition of soils and manures, and of the vegetable and animal substances which it is the object of agriculture to produce. See **DRAINAGE: IRRIGATION: MANURES: SOILS,** etc.

**AGRICULTURAL EDUCATION:** comprehensive term, now including instruction in chemistry, geology, botany, zoology, mechanics, embracing, in short, the *science* as well as the *practice* of agriculture. The first agricultural school was founded by Fellenberg at Hofwyl, Switzerland, 1806. His pupils were from the poorest class of peasantry; and not less than 3,000 were trained in this school, which flourished for 30 years. In France, of several such institutions supported by the state, the principal one is at Grignon, to which an old royal palace with its domain of 1,185 acres has been given. In 1873 a govt. commission was appointed to re-organize the system of agricultural education.—In Prussia scarcely a province is without its agricultural school and model farm; indeed throughout Germany are state educational institutions in which agriculture is taught. Also experimental stations have been established.—In Britain, A. E. has had little support from the govt.; small grants are given to teachers who include A. E. in their course; also to two or three agricultural schools. At three main centres a full curriculum in agriculture is provided: Edinburgh Univ.; the Royal Agricultural Coll.; Cirencester; and the Coll. of Agriculture, Downton. There are also some important experimental stations.—In Canada, at Guelph Ont., is a highly successful govt. college and farm, established 1874.

The first strictly scientific college in the United States was the Rensselaer Polytechnic Institute, Troy, N. Y., 1824, and in 1847, the Sheffield Scientific School of Yale Univ. was established. The former of these is not in any sense agricultural in its teachings, and the latter did not become so until 1863; but these two institutions present the beginning of special technological instruction in the United States—exception, the U. S. Military and Naval Academies (West Point, N. Y., and Annapolis, Md.), in which this study was subordinate. Agricultural education received its first specific advancement in America in 1862, when the law of congress went into effect, appropriating ten million acres of land to the several states, in accordance with the number of representatives from each in congress, for aid in the establishment and support of agricultural colleges and schools. This bill was contemporary with that establishing the Agricultural Department. The appropriation for the purposes set forth was at the rate of 30,000 acres to each senator and representative in congress, to be applied in the states which they severally represented. This land was granted with the proviso that its income, or all moneys derived from it, should be invested in United States or state stocks, or other safe security, at not less than five per cent interest, the capital to remain intact, and the interest devoted to the purposes set forth in the act: except that each state was em-



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powered to apply a sum not exceeding ten per cent. on the amount received to the purchase of land or farms, under legislative enactment. The clause in the act descriptive of its general purpose, set forth that the interest of the fund should be applied by each state 'to the endowment, support, and maintenance of at least one college, where the leading object shall be (without excluding other scientific and classical studies, and including military tactics) to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.' A further encouragement to agricultural education was given by the Hatch Act of congress, approved 1887 and put in operation 1888, by which the govt. was bound to appropriate \$15,000 annually to each of the states and territories which have established agricultural colleges or agricultural depts. of colleges. In several states two or more distinct experiment stations are in operation; in others the stations have several branches under one management. In 1889-90 there were 49 main and 16 subordinate stations (65) with about 400 instructors, and an aggregate revenue of nearly \$800,000. During 1889 farmers' institutes, under the direction of state boards of agriculture, state agricultural experiment stations, or the agricultural depts. of state universities, were held in Ala., Col., Conn., Del., Ill., Ind., Io., Ky., Mass., Mich., Minn., Mo., N. H., N. J., N. Y., N. C., O., Or., Penn., R. I., S. C., S. D., Tex., Vt., W. Va., and Wis.—See AGRICULTURE, ETC.

The following tables show (1) the agricultural schools and colleges; (2) the agricultural experiment stations in the United States 1889-90.

[There are also in the United States, 43 state, local, and individually endowed, schools and collegiate depts. of science, mining, engineering, etc., in some of which there is agricultural teaching, none of which have been endowed with the national land grants; the larger number of these being scientific depts. of universities or collegiate institutions, or state or city schools.]

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AGRICULTURAL SCHOOLS AND COLLEGES IN THE UNITED STATES 1889-90.

STATE.	NAME.	LOCATION.	ORG'D.	PRESIDENT.
Alabama,	Agr. and Mechan. College, Ala. Polytechnic Institute,	Auburn,	1872	W. L. Brown.
"	Southeast Ala. Agr. School,	Abbeville,		J. S. Espy.
Arizona,	College of Agr. of the Univ. of Ariz.,	Athens,	1889	C. L. Newman.
Arkansas,	Arkansas Industrial Univ.,	Fayetteville,	1871	M. P. Freeman.
California,	College of Agr. of the Univ. of Cal.,	Berkeley,	1869	E. H. Murfee.
Colorado,	State Agr. College of Colo.,	Fort Collins,	1879	H. Davis.
Connecticut,	Storrs Agricultural School,	Storrs,		C. L. Ingersoll.
	Sheffield Scientific School,	New Haven,	1847	B. F. Coous.
Delaware,	Delaware College,	Newark,	1870	Timothy Dwight.
Florida,	Florida State Agr. and Mechan. College,	Lake City,		A. N. Raub.
Georgia,	Georgia State College of Agr. and Mechan. Arts, Univ. of Ga.,	Athens,	1872	F. L. Kern.
"	Southeast Ga. Agr. College,	Cuthbert,	1879	W. E. Boggs.
"	North Ga. Agr. College,	Dahlonega,	1873	B. T. Hunter.
"	Middle Ga. Milit. and Agr. College,	Milledgeville,	1880	W. S. Basinger.
Illinois,	South Ga. Agr. College,	Thomasville,	1879	J. O. Lynes.
Indiana,	College of Agr. of the Univ. of Ill.,	Urbana,	1868	G. M. Lovejoy.
Iowa,	School of Agr., Horticulture, and Veterinary Science, of Purdue Univ.,	Lafayette,	1874	S. H. Peabody.
Kansas,	Iowa State College of Agr. and Mechan. Arts,	Ames,	1869	James H. Smart.
Kentucky,	Kansas State Agr. College,	Manhattan,	1863	W. I. Chamberlain.
Louisiana,	Agr. and Mechan. College of Ky.,	Lexington,	1866	G. T. Fairchild.
Maine,	Louisiana State Univ. and Agr. and Mechan. College,	Baton Rouge,	1874	J. K. Patterson.
Maryland,	Maine State College of Agr. and Mechan. Arts,	Orono,	1868	J. W. Nicholson.
Massachusetts,	Maryland Agr. College,	Agr. College,	1859	M. C. Fernald.
	Massachusetts Agr. College,	Amherst,	1867	H. E. Alvord.
Michigan,	Bussey Institution of Harvard Univ.,	Jamaica Plain,	1865	H. H. Goodell.
Minnesota,	Michigan Agr. College,	St. Anthony Park,	1857	Chas. W. Eliot.
"	College of Agr. of the Univ. of Minn.,	"	1867	Oscar Clute.
	State School of Agr. of the Univ. of Minn.,	"	1867	Cyrus Northrop.
		"		W. W. Pendergast.

## AGRICULTURAL EDUCATION.

AGRICULTURAL SCHOOLS AND COLLEGES IN THE UNITED STATES 1889-90.—Continued.

STATE.	NAME.	LOCATION.	ORG'D.	PRESIDENT.
Mississippi,	Agr. and Mechan. College of Miss.,	Agr. College,	1880	S. D. Lee.
"	Alcorn Agr. and Mechan. College.	Rodney,	1872	J. H. Burrus.
Missouri,	Agr. and Mechan. School of the Univ. of Mo.,	Columbia,	1870	M. M. Fisler.
Nebraska,	Industrial College of the Univ. of Neb.,	Lincoln,	1871	C. E. Bessey.
Nevada.	School of Agr. of the Nev. State Univ.,	Reno,	1874	S. A. Jones.
New Hampshire,	New Hampshire College of Agr. and Mechan. Arts (connected with Dartmouth College),	Hanover,	1866	S. C. Bartlett.
New Jersey,	Rutgers Scientific School of Rutgers College,	New Brunswick,	1865	T. S. Doolittle.
New Mexico,	Agr. College of N. M.,	Las Cruces,	1889	Hiram Hadley.
New York,	College of Agriculture of Cornell Univ.,	Ithaca,	1868	Charles K. Adams.
North Carolina,	North Carolina College of Agr. and Mechan. Arts,	Raleigh,	1888	A. Q. Holladay.
North Dakota,	North Dakota Agr. College,	Fargo,	1890	H. E. Stockbridge.
Ohio,	Ohio State Univ.,	Columbus,	1873	William H. Scott.
Oregon,	Oregon State Agr. College,	Corvallis,	1872	B. L. Arnold.
Pennsylvania,	Pennsylvania State College.	State College,	1859	Geo. W. Atherton.
Rhode Island,	Rhode Island State Agr. School,	Kingston,		J. H. Washburn.
"	Agr. and Scientific Dept. of Brown Univ., Univ. of S. C.,	Providence,	1869	E. B. Andrews.
South Carolina,	College of Agr. and Mechan. Arts of the Univ. of S. C.,	Columbia,	1805	J. M. McBryde.
"	Clafin Univ., College of Agr. and Mechanics' Institute,	Orangeburg,	1874	L. M. Duntou.
South Dakota,	South Dakota Agr. College.	Brookings,		Lewis McLouth.
Tennessee,	State Agr. and Mechan. College, Univ. of Tenn.,	Knoxville,	1869	C. W. Dabney, Jr.
Texas,	Agr. and Mechanical College of Tex.,	College Station,	1876	L. L. McInnis.
Utah,	Utah Agr. College.	Logan City,	1888	A. L. Thomas.
Vermont,	Univ. of Vt. and State Agr. College,	Burlington,	1865	M. H. Buckham.
Virginia,	Virginia Agr. and Mechanical College,	Blacksburgh,	1872	L. L. Lomax.
"	Hampton Normal and Agr. Institute,	Hampton,	1868	S. C. Armstrong.
West Virginia,	West Virginia Univ.,	Morgantown,	1867	E. M. Turner.
Wisconsin,	College of Agr. of the Univ. of Wis.,	Madison,	1849	T. C. Chamberlain.

# AGRICULTURAL EDUCATION.

AGRICULTURAL EXPERIMENT STATIONS IN THE UNITED STATES 1889-90.

STATE.	NAME OF STATION.	LOCATION.	DIRECTOR.
Alabama,	Agr. Exp. Station of the Agr. and Mechan. College of Ala. (sub-stations at Abbeville and Athens),	Auburn,	J. S. Newman.
"	Canebrake Agr. Exp. Station,	Uniontown,	W. H. Newman.
Arizona,	Agr. Exp. Station of the Univ. of Ariz.,	Tucson,	S. M. Franklin.
Arkansas,	Agr. Exp. Station (sub-stations at Newport, Pine Bluff, and Texarkana),	Fayetteville,	A. E. Menke.
California,	Agr. Exp. Station of the Univ. of Cal. (sub-stations at Cupertino, Fresno, Jackson, Mission, San José, Paso Robles, and Tulare),	Berkeley,	E. W. Hilgard.
Colorado,	Agr. Exp. Station (sub-stations at Del Norte and Rocky Ford),	Fort Collins,	C. L. Ingersoll.
Connecticut,	Storr's School Agr. Exp. Station,	Storr's,	W. O. Atwater.
"	Connecticut Agr. Exp. Station,	New Haven,	S. W. Johnson.
Delaware,	Delaware College Agr. Exp. Station,	Newark,	A. T. Neale.
Florida,	Agr. Exp. Station of Fla. (sub-stations at De Funiak, Fort Myers, and Ocala),	Lake City,	J. P. De Pass.
Georgia,	Georgia Experiment Station,	Griffin,	R. J. Redding.
Illinois,	Agr. Exp. Station of the Univ. of Ill.,	Champaign,	S. H. Peabody.
Indiana,	Agr. Exp. Station of Ind.,	Lafayette,	
Iowa,	Iowa Agr. Exp. Station,	Ames,	R. P. Speer.
Kansas,	Kansas Agr. Exp. Station,	Manhattan,	G. T. Fairchild.
Kentucky,	Kentucky Agr. Exp. Station,	Lexington,	M. A. Scovell.
Louisiana,	Sugar Experiment Station, No. 1,	New Orleans,	W. C. Stubbs.
"	Sugar Experiment Station, No. 2,	Baton Rouge,	"
"	North Louisiana Exp. Station, No. 3,	Calhoun,	"
Maine,	Maine State College Agr. Exp. Station,	Orono,	W. H. Jordan.
Maryland,	Maryland Agr. Exp. Station,	Agr. College,	H. E. Alvord.
Massachusetts,	Hatch Exp. Station of the Mass. Agr. College,	Amherst,	H. H. Goodell.
"	Massachusetts State Agr. Exp. Station,	"	C. A. Goessmann.
Michigan,	Experiment Station of Mich. Agr. College,	Agr. College,	O. Clute.

## AGRICULTURAL EDUCATION.

AGRICULTURAL EXPERIMENT STATIONS IN THE UNITED STATES 1889-90.—Continued.

STATE.	NAME OF STATION.	LOCATION.	DIRECTOR.
Minnesota,	Agr. Exp. Station of the Univ. of Minn.,	St. Anthony Park,	N. W. McLain.
Mississippi,	Mississippi Agr. Exp. Station,	Agr. College,	S. M. Tracy.
Missouri,	Missouri Agr. College Exp. Station,	Columbia,	E. D. Porter.
Nebraska,	Agr. Exp. Station of Neb.,	Lincoln,	L. E. Hicks.
Nevada,	Nevada Agr. Exp. Station,	Reno,	S. A. Jones.
New Hampshire,	New Hampshire Agr. Exp. Station.	Hanover,	G. H. Whitcher.
New Jersey,	New Jersey Agr. College Exp. Station,	New Brunswick,	T. S. Doolittle.
" "	New Jersey State Agr. Exp. Station,	" "	" "
New Mexico,	Agr. Exp. Station of N. M.,	Las Cruces,	H. Hadley.
New York,	Cornell Univ. Agr. Exp. Station,	Ithaca,	I. P. Roberts.
" "	New York Agr. Exp. Station,	Geneva,	P. Collier.
North Carolina,	North Carolina Agr. Exp. Station,	Raleigh,	H. B. Battle.
Ohio,	Ohio Agr. Exp. Station,	Columbus,	C. E. Thorne.
Oregon,	Oregon Experiment Station,	Corvallis,	E. Grimm.
Pennsylvania,	The Penn. State College Agr. Exp. Station,	State College,	H. P. Armsby.
Rhode Island,	Rhode Island State Agr. Exp. Station,	Kingston,	C. O. Flagg.
South Carolina,	South Carolina Agr. Exp. Station,	Columbia,	J. M. McBryde.
South Dakota,	South Dakota Agr. Exp. Station,	Brookings,	L. McLouth.
Tennessee,	Tennessee Agr. Exp. Station,	Knoxville,	C. W. Dabney, Jr.
Texas,	Texas Agr. Exp. Station,	College Station,	F. A. Gulley.
Utah,	Agr. Exp. Station of Utah,	Logan City,	J. W. Sanborn.
Vermont,	Vermont State Agr. Exp. Station,	Burlington,	W. W. Cooke.
Virginia,	Virginia Agr. Exp. Station,	Blacksburg,	W. B. Preston.
West Virginia,	West Virginia Agr. Exp. Station.	Morgantown,	J. A. Myers.
Wisconsin,	Agr. Exp. Station of the Univ. of Wis.,	Madison,	W. A. Henry.

## AGRICULTURAL SOCIETIES.

**AGRICULTURAL SOCIETIES:** Associations for promoting the science and practice of agriculture. Early in the 18th c. several societies were formed in France, and 1723 the Soc. of Improvers of Agriculture in Scotland was established. The famous Highland and Agricultural Soc. of Scotland was organized 1783, held its first annual meeting the following year, and is (1892) a wealthy and efficient organization. Largely through the influence of Sir John Sinclair (q.v.) a Board of Agriculture, receiving government assistance, was established 1793. This was dissolved about 23 years later; but by encouraging the investigations of Sir Humphrey Davy (q.v.), and in other ways, it rendered efficient aid to progressive agriculture. The Royal Agricultural Soc. of England, established 1838, had 1888 a membership of over 9,000 and a very large income. Many other societies were formed in Great Britain and on the Continent previous to 1850, and the number since has largely increased.

The first agricultural society in this country was organized in S. C., 1784. The next year, one was formed in Philadelphia. N. Y. followed 1791, and Mass. 1792. An organization of practical farmers, under the name Columbian Agricultural Soc., was formed 1809 in the Dist. of Columbia, and 1810, May 10, opened at Georgetown the first agricultural fair in the United States. The first county agricultural fair and cattle show was at Pittsfield, Mass., 1811, Sep. The various states now have their central societies, and county and local organizations are very numerous. In Canada there are many societies, as in every country in which agriculture has made much progress.—A prominent feature of A. S. in this country is the annual exhibition, or fair. Premiums are offered for the exhibition of the most perfect animals of the various classes and breeds, the best specimens of the different kinds of grain and vegetables grown in the region, the nicest dairy products, the finest fruits and flowers, for numerous articles of domestic manufacture and for agricultural implements and machines which in many cases are given practical trial on the grounds. A popular speaker is usually secured to deliver an address on some subject connected with agricultural life or labor. The A. S. also hold meetings at which important topics are discussed; and the state organizations issue elaborate reports which, with much other matter of interest, (e.g. reports of chemists, botanists, and entomologists; results of analyses of fertilizers and of experiments in feeding animals and growing crops) contain valuable essays on practical and scientific agriculture. Many A. S. provide for the holding of farmers' institutes (see AGRICULTURE), and co-operate in various ways with the experiment stations in the states in which they are located (see AGRICULTURAL EDUCATION). Societies have been formed also to meet the wants of people engaged in special lines of agricultural work, such as dairying, fruit-growing, bee-keeping, and breeding various classes of live stock.

A. S. have exerted a powerful and beneficent influence on farmers and their families. They have not only pro-

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moted the interests of agriculture in the line of material prosperity, but they have also led to marked improvements in the appearance of the homes, stimulated the intellectual natures of the farmer and his family, enlarged the field of their knowledge and interest, and greatly lessened the evils of the isolation which over large regions has been the bane of farm life. See AGRICULTURAL EDUCATION: AGRICULTURE, etc.

AGRICULTURE, n. *äg'ri-kul'tür* [F. *agriculture*—from L. *agricultū'ra*, agriculture—from L. *ägēr*, a field; *cultūra*, tillage]: tilling or working the ground to make it fruitful; husbandry. AG'RICUL'TURAL, a. *-tū-räl*, pertaining to the tillage of the ground. AG'RICUL'TURIST, n. one engaged in farming; a farmer. AG'RICUL'TURALLY, ad. *-lī*

*Agriculture* is the art of tilling the soil. Its object is the production of plants to supply the wants of civilized man. In a general sense it includes also the rearing of domestic animals. It grows out of the desire of man to secure various articles, which in an untilled state the earth does not produce or else yields in insufficient quantities. The agricultural state is as marked an advance on the nomadic life (see NOMAD), as that is an improvement on the condition of people who depend for their food on the product of the chase, which is always precarious and which proves totally inadequate to the needs of a large population.

The prosperity of A. is dependent largely on climatic conditions. In extremely cold countries but few crops can be grown, and these give small returns, while in torrid regions the heat is so enervating as to make continuous labor impossible and the necessity for toil is lessened by the fact that nature is there so liberal that an abundance of food can be obtained with very little exertion. The political condition of the country in which A. is pursued also exerts a strongly modifying influence. Unless there is a strong government, farmers will not take the risk of loss to which large operations would subject them. The system of landholding also is a prominent factor in determining the condition of A. Where large estates are kept intact for long periods, as in England (see PRIMOGENITURE), or extreme subdivision of the land is common, as in France, the impediments to agricultural progress are greater than in a country, like the United States, in which the size of farms is determined by the means and desires of the purchasers. Individual ownership of the land, or a lease for a definite term of years, is absolutely essential to a high degree of agricultural prosperity. Still another modifying influence is found in the condition of labor. With the single exception of a period immediately following emancipation, and during which a process of readjustment is going on, A. is far more prosperous under free, than under slave labor. The condition of religion, society and education also has a strong and direct bearing on the development of agricultural interests. Other things being equal, the greater the freedom of the intellect and the more general the diffusion of knowledge, the greater will be the degree of prosperity which A. will attain.

In its ruder forms A. has been practiced from very early

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times. Under the ancient civilizations of Egypt and Babylonia it reached considerable development. Of the methods employed and the results obtained by the predecessors of these nations we have no definite knowledge. The fertility of the soil and the annual overflow of the waters made the growing of food crops remarkably easy along the banks of the Nile and the Euphrates. Large crops were secured with little more labor, than that which was required to sow the seed and gather the harvest. In portions of Egypt the overflow of the Nile was prevented by embankments, and by means of artificial waterings three crops were secured in a single year. The Israelites, or Jews, after their bondage in Egypt and removal to Palestine, changed from the pastoral to the agricultural state. In the period of its greatest agricultural development, the country supported a large population. Horses and asses were kept, flocks of sheep were numerous, and there were many cattle. The vine and olive were extensively grown on the hillsides, and wheat, barley, and other grains yielded large crops in the fertile valleys.

A. was an honored occupation in China in ancient times. At the opening of each year, the sovereign guided the plow while a few furrows were turned in a 'sacred field.' The people who inhabited the lake dwellings (see CRANNOGS) of central Europe, probably 4,000 years ago, cultivated flax, together with wheat, barley, and other grains; had various fruits, and kept sheep and cattle.—In Peru, as in China, in early times the sovereign appeared in a field and in the presence of a great assembly held a plow and thus began the agricultural operations of the year. At the time of the Spanish invasion the people had magnificent irrigation works, had terraced and made productive the sides of steep mountains, had learned the use of fertilizers, had become proficient in the cultivation of wheat, maize, and other important crops, and had brought various animals under domestication.—Previous to falling under the yoke of Spain, Mexico had made considerable progress in practical agriculture. Cotton, maize, and other crops were grown and there was a degree of civilization which would have been utterly impossible if A. had not been flourishing.

From Egypt the knowledge of A. was carried to Greece. Except in the earlier history of the country, the dominant race had little regard for this occupation, and the work in the fields was largely performed by slaves and by what were considered the inferior classes. Horses, cattle, sheep, swine, and other domestic animals were kept, various grains were cultivated, flax was grown, grass was cured for hay, and some attention was given to the cultivation of the grape, fig, and olive. Before the seed was sown the ground was repeatedly plowed; but, like all the implements of tillage, the plow was rude and inefficient. The soil was not well adapted to A., and though some attention was given to draining, use of manure, and improvement of live stock, A. did not reach very high development. Several Greek authors referred to A., but the literature of the subject which has come down to the present day is principally



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comprised in a poem by Hesiod, and a portion of one of the works of Xenophon —The Romans obtained considerable knowledge of A. from the Greeks but, unlike the latter people, they dignified the occupation. The leading men in the state tilled the fields, and the noble families took their names from the products of the soil. Farms were small and the operations of husbandry were conducted with that scrupulous care and painstaking, which the ancient Romans carried into all their employments. But as wealth increased and conquests were extended, the estates were greatly enlarged. The powerful classes gave themselves up to luxury, the work of the farm was turned over to slaves, and A. fell into disrepute.—a change which was one of the leading causes of the downfall of the greatest empire of the world. Among the grains cultivated by the Romans were wheat, rye, and oats; millet, peas, and beans were grown; and various fruits, including the grape and the olive, were cultivated. Oxen were used for labor; and sheep, goats, swine, and poultry were largely kept. Their implements were rude, though much like those in common use in Europe till the middle of the 18th c. and still employed in limited southern sections of that continent. They had an extensive agricultural literature which entered largely into details of the various operations required in management of farm affairs, and which, with many trivial matters, contained not a few wise maxims and prudent counsels. The principal Roman authors whose works on A. are known at the present day are Cato, Varro, Virgil, Columella, Pliny, and Palladius. Though they made some progress in perfecting methods already known, and in a rude way anticipated some of the improvements and processes commonly supposed to be of recent origin, the Romans rendered their chief service to A. by spreading a knowledge of its details through the provinces which they conquered.

During the middle ages (q.v.) A., in common with all other arts. was in a very low state. Some of the most fertile regions which had been brought under cultivation were almost wholly neglected; and except in s. Spain where the Saracens introduced new crops and an elaborate system of irrigation, there was throughout Europe a strong retrograde movement. But before the close of this period, the monks secured vast estates and in a rude way gave considerable attention to their cultivation. Thus the monasteries (see MONACHISM), though attended by many evils, were during this dark time, not only the centres of the intellectual activity of the age, but also kept alive some knowledge of the art of agriculture.

During the Roman occupation of Britain, large areas of forest land were cleared, roads were built, and considerable quantities of grain were produced. In the disturbed condition of the country following the invasion by the Saxons, and later by the Danes and Normans, A. was greatly neglected. Grain fields were largely left untilled; and though considerable live stock was kept, the animals were so poorly fed and so little protected from the severities of

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the climate that many perished. The food of the peasants was poor in quality and often deficient in quantity, and famines were frequent. That even the most favored classes had few table luxuries is evident from the fact that in the time of Henry VIII. there were no edible vegetables cultivated in England and no hoed crops were grown. With the overthrow of the feudal system (q.v.), the invention of printing, the revival of learning, and the general intellectual awakening which succeeded the Middle Ages, there was a slow yet considerable improvement in agricultural operations. In 1523 the *Book of Husbandry*, the first English work on A., appeared. It was written by Sir Anthony Fitzherbert, a lawyer of high standing who had also been a farmer for 40 years, and it was claimed to be "very profitable and necessary for all persons." Thomas Tusser, an educated farmer and an alleged poet, published 1573, *Five Hundred Points of Good Husbandry*, which, though the veriest doggerel in style, attained great popularity. From the time of Fitzherbert to the publication 1731 of *New Horse-Hoeing Husbandry*, by Jethro Tull many works relating to A. appeared, but they were principally given to describing the methods actually pursued, and paid little attention to principles. Tull left the beaten track, made careful investigations, discovered the great benefits of tillage, improved the methods of sowing seed, devised a system of horse-hoeing, and invented implements for sowing and cultivation. Though he made some mistakes he really accomplished more for the advancement of practical A. than all previous writers on the subject combined.

At an early period a large part of the arable land in England, though owned by the lords of the various manors, was open to use by the community at large. As the demand for the products of the soil increased, the profits of cultivation were enhanced and the lords began to enclose the fields which had been used in common by their poorer neighbors. This movement continued from the 16th c., to the opening of the 19th c., and, though it often worked great hardships to the poorer classes, it tended to more thorough cultivation of the soil and advancement of agricultural interests.

Turnips and red clover had been known for a long period, but did not come into prominence as field crops till after the middle of the 17th c. The potato, introduced about 1586, was grown in gardens but was seldom found in the fields till about 1730 in Scotland, and later than 1800 in England. It was far toward the close of the 18th c. when the Swedish turnip was cultivated in Britain. The old system of growing grain till the land was exhausted, and then allowing the soil to rest while another field was treated in the same manner, gradually gave place to a method of growing peas between two crops of grain and allowing part of the land to lie fallow each year. This was followed by the use of turnips and green crops and a regular system of rotation, which by the opening of the 19th c. had become quite general. Until 1750 comparatively little had been done in improving the live stock of England. About

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this time Robert Bakewell began experiments which resulted in the establishment of the famous and valuable Leicester breed of sheep. He also greatly improved the quality of the longhorned cattle of his district. These, however, were superseded by the Shorthorn, or Durham, breed (see Ox), originated by the Colling Brothers toward the close of the 18th c. About 1760 the Elkinton method of draining, by cutting off and diverting the course of springs, was discovered, and in many places proved efficient in reclaiming wet land. During the period which witnessed these innovations, there was improvement in the form, and increase in the efficiency of various farm implements and something was done in the invention of farm machines.

Flanders made considerable progress in A. at an early period; and, though operations were on a small scale, it long maintained its leadership. In Holland much attention was given to live stock, and this interest has been constantly maintained. France and Germany early gave much attention to A., and had many books on the subject. The A. of Scotland was in a backward state till the opening of the 18th c., but soon entered on a rapid advance. In other countries, as well as in those above named, A. shared in the benefits secured by the general diffusion of knowledge and advancement of civilization and, in its turn, contributed to the general improvement.

Since the opening of the 19th c., there has been, in most civilized lands, wonderful progress in A. The rate has varied with the condition of the different countries, but in general may be said to have kept pace with the rate along other lines of improvement. In the more advanced countries, as England and the United States, the change has amounted almost to a revolution. Chemistry has made known to the farmer the constitution and requirements of plants, shown the best methods of supplying their needs by means of fertilizers (q.v.), and taught him how to feed his domestic animals profitably. Discoveries in other branches of knowledge have rendered him great assistance in the profitable management of his business, and A. itself has been raised to the rank of a science. Wonderful improvement in the form and efficiency, as well as in the convenience of using, the plow and harrow; introduction of machines for planting, cultivating, harvesting, and preparing for market, nearly all the farm crops; extensive substitution of horse, wind, or steam power for hand labor; improvements in the methods of tillage; introduction of new and superior varieties of grain, fruits and vegetables; and general distribution of improved breeds of the various kinds of live stock, are a few of the many agencies which have contributed to the general advancement. Agricultural societies (q.v.), the establishment, with a national endowment, of colleges for instruction in A. (see AGRICULTURAL EDUCATION); the multiplication of books and periodicals in the interest of a progressive A., the organization of farmers for social and business purposes (see HUSBANDRY, *Patrons of*), and the building of

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railroads giving easy communication between distant places, have stimulated and developed the intellectual natures of the people who till the soil, and done much to dignify the farmer's calling and increase the rewards of his toil.

Owing to the condition of the country, the small number of the inhabitants and their want of efficient teams and implements, and the hostile attitude of the natives, A. made very slow progress in the territory now known as the United States, until after the revolution. Clearing the forests, building houses and barns, fencing their land, and cultivating and harvesting their crops with the few rude implements which the early settlers had, was a work of enormous difficulty. For more than 10 years after its settlement there was not a plow in the limits of Plymouth colony; and till after the country became independent the plows were principally of wood, having a little iron for the share, and were clumsy and inefficient. The harrow was equally rude, requiring enormous power to use it, and accomplishing little in pulverizing the soil. The hoes, rakes, and other farm implements also were heavy, inconvenient, and correspondingly unserviceable. It was the last decade of the 18th c. when the threshing-machine, cotton-gin, and cast iron plow were invented, and it was a long time before they were brought to a high degree of perfection or came into anything approaching common use. The first really useful reaping machine was patented 1833. Plans for mowing machines had been previously made, but it was many years before any practical success was secured (see REAPING). Since 1850 machines and implements for a great number of agricultural purposes have been invented, and many others have been wonderfully improved. Now (1893) plows are made of iron, steel, or chilled iron, and of a great number of different patterns (see PLOW); harrows can be had, which will reduce the soil almost to the fineness of dust, either on the surface or to the depth of several inches (see HARROW); and there are machines for sowing garden seeds; for sowing grain, in drills or broadcast, with or without fertilizers; machines for planting corn, and others for planting potatoes; harvesting machines for cutting and binding grain, for cutting, turning, and raking hay, loading it on wagons, and stacking it or pitching it upon the mow; machines for threshing and cleaning grain, dairy implements (see DAIRY); feed cutters; root cutters; hay and cotton presses; cotton-gins; sugar mills; and machines for many other farm purposes, which have been brought to a wonderful degree of efficiency. Other machines, like the cotton picker, and corn harvester, are either being perfected or introduced. In the matter of live stock there has been perhaps equal improvement. The colonists had but few domestic animals, and these were either of inferior quality or else rapidly deteriorated. The manner of feeding was imperfect, the materials were, in many regions, both scanty and poor, and there was insufficient protection from the severity of the climate. Various small importations of cattle were made

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at different times, but vigorous efforts for improvement date from about 1825 (see Ox). Sheep (q.v.) were imported in small numbers at various times; and there were some importations of swine, of which, at a recent period, various American breeds have been formed (see Hog). Something was done in improving horses in the last quarter of the 18th c., but there was no wide interest in this work till much later. For a long period grass, either in the pastures or cured as hay, was the main reliance of the farmer for supporting his stock. Various other plants have come largely into use, either for feeding green to supplement the pastures when they begin to fail late in the summer, or for curing to use in winter (see FODDER), and the use of ensilage (q.v.) enables the farmer to supply his stock with green food during the winter. Immense quantities of grain of various kinds are used, and the whole system of feeding has been radically changed and surprisingly improved.

For more than a century there was absolutely no American agricultural literature. *Essays on Husbandry*, 1747, by the Rev. Jared Eliot, of Conn., was probably the pioneer work in this line and was the only important work of the kind till after the revolution. Occasional publications appeared till 1850, since which time a great number of books, many of them very elaborate treatises and others confined to the cultivation of special crops or the breeding and care of certain classes of live stock, have appeared and have been largely sold. Practical works relating to every department of farm labor abound, and there are many scientific works of great value. The oldest agricultural paper in the U. S. was established 1819 and is still (1893) in existence. Counting those treating of horticulture, live-stock, dairying, poultry, and bee-keeping, which are considered branches of the business, the interests of A. are represented by more than 300 papers and magazines. Of these nearly one-half are published monthly, a few are issued quarterly, about 25 semi-monthly, and about 100 weekly. Their combined circulation is about 3,000,000 copies. There are also a large number of widely circulated secular and religious weekly papers which regularly give a certain amount of space to agricultural affairs; and reports of agricultural societies (q.v.), reports and bulletins of experiment stations (see AGRICULTURAL EDUCATION), and publications of the general government's dept. of A., are widely distributed.

Government aid to A. began 1839 when \$1,000 was appropriated. This was used the following year in collecting statistics, making various investigations, and distributing seeds and cuttings. From that time, yearly appropriations have been made, the amount increasing as the A. of the country has developed. The act approved 1892, July 5, assigned the sum of \$3,232,995.50 for the use of the dept., including the Weather Bureau, for the current year. Reports of the work relating to A. were issued by the Patent office till 1862, in which year the dept. of A. was established as a bureau of the national govt. In 1889 this bureau was

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created an executive department, and its head became a cabinet officer known as the Sec. of Agriculture. The work of the department has rapidly increased, its field of operations has been vastly enlarged, and its efforts have gained general recognition as of great importance not only to farmers but also to the country at large. Many experts in numerous lines are employed, and they co-operate with the leading scientific men and societies of the world. Among the lines of its work are the publication of reports showing the condition of growing crops in various parts of the country, the gathering and dissemination of statistics regarding the area given to each of the leading crops, the yield per acre in each state, and the total production; the maintenance of a weather bureau which telegraphs notices of the coming of storms and, in some of the s. states, of early frosts; a bureau of animal industry for the inspection of animals for export and investigating the causes, treatment, and methods of prevention of diseases of domestic animals; chemical and microscopical investigations are made; an entomological division studies the habits of destructive insects and the best methods of preventing their ravages; another division investigates the economic uses and value of mammals and birds; botanists in the employ of the dept. study new plants supposed to be useful or injurious; there is a division of vegetable pathology which seeks methods of preventing diseases of plants and the spread of such diseases when they appear; and many plants both imported and native which seem likely to be valuable in this country are tested and, if found useful, disseminated. Seeds of fine varieties of vegetables also are distributed, and in other ways the dept. endeavors to render practical assistance to the farmer. It works in harmony with, and in some ways supplements, the state experiment stations (see AGRICULTURAL EDUCATION), publishes reports of European investigations, and endeavors to open markets for our farm products in foreign lands. Our agricultural colleges and experiment stations have grown out of the appropriations by Congress for their establishment.

The state governments also have done much in encouraging A. Largely through the efforts of societies (see AGRICULTURAL SOCIETIES) receiving aid from the states, farmers' institutes have become numerous and popular. At these institutes lectures are delivered, and subjects previously announced are discussed. Some of the states make direct appropriations for maintenance of these institutes, varying from a few hundred dollars, to \$12,000 (as in Wis.) per year. There are also numerous local organizations, known as farmers' clubs; a few experiment farms of a semi-public nature are conducted by wealthy individuals; and there is a sugar experiment station in La. supported largely by the planters in that state.

The action of the U. S. govt. in regard to unoccupied public land has drawn an immense number of settlers from foreign lands and led multitudes of farmers in the older settled states to move w. and secure fertile land at

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a merely nominal price. In 1841 these lands were opened to preemption by actual settlers, and 1862 a Homestead Act was passed which enables a citizen to secure a quarter section of land by residing thereon a specified time and paying very small fees. This has immensely increased the production of grain, and enabled us to export enormous quantities; but it has greatly reduced the profits of the farmers at the e. who have a large part of their capital invested in land. In 1850 Congress began granting land to promote the building of railroads in the w. portion of our then inhabited area, and many millions of acres have since been given to corporations engaged in this work.

A few stone drains (see DRAINAGE) had been previously made but under-drainage with tile was not begun till about 1836, and it was many years before it became extensive. Irrigation (q.v.) was commenced 1847 by the Mormons in Utah; but, elsewhere, owing to the low price of land which did not require such costly treatment, received little attention till about 1883, since which time large areas of arid ground have been reclaimed by it. Soon after 1840 guano became known as a valuable fertilizer, and ground bones also came into considerable use for the same purpose. Chemical investigations of the substances which plants take from the soil, led to the manufacture of commercial fertilizers (see FERTILIZERS) which became popular in the older settled states, and had reached (1893) a sale of about \$45,000,000 per year. There has also been greatly increased attention to the saving of manure.

Though A. is not conducted in this country, with the care which it receives in some of the most densely populated countries of the Old World, it has, since 1850, made marvellous progress. There is still a tendency to cultivate too large areas, to make insufficient use of fertilizing materials; and when the soil shows signs of approaching exhaustion, to move w. to new land, there to repeat the process of wearing out the soil. But there is a counter current of growing strength, and the thorough cultivation of small areas is becoming more common. This is true especially in the vicinity of large cities, where, by high manuring and thorough cultivation, the land is made to produce enormous crops. Another error has been the production, in certain sections, of wheat, corn, and recently of cotton, very far out of proportion to the quantity of other crops. The remedy, already adopted to a great extent, is found in a system of diversified farming. But in the latter half of the 19th c. vast areas have been settled; an extensive territory, which is part of what was known as the Great American Desert, has been brought under cultivation and made one of the most productive portions of the country; the number of farm animals has increased many fold, and the quality has been greatly improved; the dairy interest has assumed enormous proportions, immense quantities of fruit of numerous classes and highly improved varieties are now produced, and several crops which had been scarcely known have come into extensive cultivation. As a class the farmers of the U. S. manifest a restless activity com-

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bined with a degree of intelligence shown in few other lands, and a strong desire to avail themselves of all the assistance offered by science and invention.

The principal cereal crops of the country are Indian corn (which for more than half a century has been at the head in point of production), of which only a very small proportion is exported; and wheat, of which for many years, the United States has produced more than any other country in the world, and has sometimes exported, as grain and flour, more than 150,000,000 bushels a year. Both these crops are grown throughout the country, but principally in the n., n.w., and s.w. portions. Oats are grown in vast and rapidly increasing quantities, principally at the n., where also barley and rye are important crops. Hay and potatoes are leading products in all the n. states, and sweet potatoes are largely grown in the warmer parts of the country. The United States is by far the largest cotton-growing country in the world, and nearly 70 per cent. of the crop is exported. This is grown at the s., in some portions of which, sugar (q.v.) is also produced in large quantities, while smaller yields from different sources are secured at the n. Rice is grown in considerable quantities in a few of the s. states, and tobacco is an important crop in several of the states e. of the Mississippi river, both s. and n. A large number of other crops, more or less widely distributed and, in the aggregate, of very great value, are grown. Fruits of all the various kinds suited to temperate regions and in excellent varieties suited to almost every kind of soil and climate abound, and in Fla. and Cal. the growing of sub-tropical fruits is a large and rapidly increasing business. Of domestic animals, hogs are the most numerous, and horses the most valuable, followed by sheep in point of numbers and oxen and other cattle in respect to value. Large herds of cattle and flocks of sheep are kept on ranches in the w. and s.w. parts of the country. Live stock, meat, dairy goods, and other animal products, are exported to a considerable extent (see IMPORTS AND EXPORTS). For yield of crops and condition of the live stock interest see titles of the various states, crops, and animals; also UNITED STATES OF AMERICA—AGRICULTURE.

In Canada the govt. gives much encouragement to A. An agricultural college and 5 experiment farms have been established, and a member of the cabinet is at the head of the dept. which looks after agricultural interests. There are numerous societies, and about 20 agricultural and live stock journals are well conducted. Much attention is given to live stock and to dairy farming; large quantities of wheat are grown, and in the far n.w. are immense tracts of land specially suited to this grain, which have not yet been brought under cultivation. Barley, oats and rye are prominent crops, and Indian corn is grown in some regions. Fruit-growing also is an important agricultural interest. Large exportations of the various products named are annually made.—In Mexico, owing to the extent of the country and great differences in altitude,



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the agricultural products have a very wide diversity of character. The plants of tropical countries may be found on some of the plains, while only a short distance away, on an elevated plateau or a mountain side, are seen those of cooler parts of the temperate zone. Great numbers of cattle and sheep are kept, maize, wheat and other grains are grown, and in some regions tobacco, cotton, coffee, and sugar-cane are produced. The fruits of temperate regions are grown to some extent, and those of tropical and sub-tropical climates abound. The present administration is favorable to A., and a school for instruction in its principles is maintained; but till a recent period, the instability of the govt. has prevented rapid development of the immense resources of a large portion of the country.

South America has about the same area as N. America, which is twice that of Europe. Leaving out of the account the great mountainous regions, and some large plains, either useless or of very uncertain value for cultivation, there are about 4,228,000 sq. m. of land which can be readily brought to produce farm crops. This is an area more than 1,250,000 sq. m. larger than the entire land surface of the U. S., including all the territories except Alaska which is almost unavailable for agriculture. Except where modified by altitude, the products of S. America are largely those of sub-tropical and tropical regions. In some portions are vast pampas, or plains, on which great numbers of cattle, sheep and goats, are pastured, and on some elevated plains the llama, alpaca, and kindred animals are kept. Among the products of the soil are coffee, which in enormous quantities is grown in the most advanced agricultural countries for exportation, sugar-cane, cotton, tobacco, rice, Indian corn, wheat, rye, oats, barley, flax, and potatoes. Some varieties of apples, pears, peaches, and similar fruits are grown; grapes abound, as do also oranges, pineapples, and bananas in many sections. As would be expected from the general condition of society and education, A. has been but slightly developed; and it is to its immense possibilities, rather than to anything that has been accomplished in A., that this vast region attracts attention.

For a long period the British govt. has taken an active interest in A., and now appropriates \$1,500,000 a year for its benefit. Colleges are well attended, many agricultural societies and journals are sustained, and practical A. has reached high development as regards both the various crops produced and the live stock interest. An experiment farm established at Rothamsted, 1843, by Sir John B. Lawes (who has continued to pay its expenses and has provided an endowment for its future needs), has been conducted by him with the aid of Dr. J. H. Gilbert, and is by far the most famous institution of the kind in the world.—Germany appropriates nearly \$3,000,000 per year for promotion of A., and gives special attention to cultivation of the sugar beet, and to forestry. Scientific investigation of agricultural principles has long been made by numerous scholars with great care and skill, and the work

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is still carried on with undiminished zeal.—Austria pays about \$4,000,000 for the benefit of her farmers. A. is not as fully developed as horticulture, and in some districts is extremely backward. In some regions the live stock interest is neglected, but in others it is fostered by the govt. and carried to high perfection. The Russian govt. makes considerable appropriations for A., but on account of the system land tenure, and the conditions of soil and climate, and of education and society, it is in a low condition, though some portions of the empire are far in advance of others. The rate of production of the grain crops, wheat, rye, oats, and barley, varies greatly in different seasons; and provinces which in some years have large surplus, occasionally have to depend on others to supply food for home consumption.—The French govt. gives much encouragement to A., which in spite of the serious drawbacks of extreme subdivision of the land, and a high rate of taxation, has reached advanced development. A large proportion of the land has been brought under cultivation. Next to the United States, France is the greatest wheat-growing region in the world, and large quantities of oats, rye, barley, buckwheat, and Indian corn are produced. The beet root is largely grown for sugar, and the vineyards, though suffering greatly from attacks of the phylloxera, are widely celebrated. The live-stock interest is highly developed.—In Belgium and Holland the land is in very small holdings, but it is cultivated with great care and skill. In Holland, especially, the live stock and dairy interest has attained great expansion and success.—In Italy more than 65 per cent. of the people are engaged in A., but with widely varying degrees of success. In some districts transportation facilities are so deficient, that surplus products of the farm have no value. Wheat, Indian corn, rice, wine, oil, and oranges, are among leading productions.—In Spain, as would be expected from the general condition of govt. and society, A. is more backward than in some countries with far less natural advantages. In the cooler regions the live stock industry is prominent; but in the s. portions, various cereals, oil, and the fruits of tropical and sub-tropical countries are produced, and wine is made in great quantities.

Large portions of the vast continent of Asia have great agricultural resources; but, as a rule, they are very poorly developed though the aggregate production is immense. Immense quantities of wheat are grown in India, China, Japan, Turkestan, and other countries. Rye, oats, and barley are grown in the colder regions, and cotton is largely produced in India and other more limited areas. Tea is a staple product of China, Ceylon, and India. Arabia, India, the Dutch colonies, and Ceylon produce coffee. The sugar-cane thrives in the s. and s.w. parts of the continent, opium is largely produced in India and China, jute and tobacco are extensively grown in India, and rice is a prominent crop in China, India, Japan, and Turkestan. The silkworm is extensively grown, the various fruits suited to the climates of the different countries are pro-

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duced, and on the elevated plains of the interior, vast numbers of horses, cattle, and sheep, supply most of the wants of a large nomadic population.

As a large part of the great continent of Africa is as yet unexplored, its capacities for A. can only be vaguely estimated. It is supposed that more than 40 per cent. of the surface is practically a desert, and that about 35 per cent. is covered with grass but has no trees. Thus the forest and arable lands combined, make less than one-fourth of the country. Over vast areas the rainfall is insufficient for the growth of crops, and there are no facilities for irrigation. By the sinking of artesian wells, a considerable area of the desert of Sahara has been made productive, but this method of reclamation is costly and in many regions unavailable. In Egypt A. is pursued with considerable success: wheat, barley, Indian corn, tobacco, cotton, and sugar-cane are among the crops. In S. Africa also, A. has become a somewhat important interest. Cape Colony has a splendid climate for the vine, which is largely, though poorly, cultivated. Tobacco also is extensively grown, with other farm crops, and various fruits. Sheep and goats, including the common goat and the Angora, are kept in large numbers.

Only a small portion of the continental island of Australia has been settled. It is largely within the temperate zone, but the rainfall is exceedingly irregular, and the farmers and live stock owners suffer heavy losses from alternate droughts and floods. The cattle industry is prominent, sheep are kept in great numbers, and large quantities of wool are exported. There is considerable export of wheat, and Indian corn and other cereals are largely grown. In some parts cotton and sugar are among the products, tobacco is cultivated to some extent, potatoes form a common crop, and the fruits of temperate and of sub-tropical regions are well represented. Much has been done in constructing artificial lakes, and sinking wells to provide water for live stock in time of drought; and great expense has been incurred in an effort, very far from successful, to exterminate the rabbits which have multiplied amazingly, and have become terribly destructive in pastures as well as in cultivated fields.

For fuller information regarding the agricultural resources of the various countries of the world, and all classes of domestic animals, see their several titles.—Subjects connected with AGRICULTURE which are treated in this work are: Agricultural Chemistry, Apple, Barley, Beet, Bones as Manure, Broom Corn, Buckwheat, Butter, Cheese, Clover, Cultivated Plants, Cultivation, Diseases of Plants, Ensilage, Farm, Fence, Fertilizer, Fig, Flax, Floriculture, Fodder, Fruit, Gardening, Grafting, Grasses, Guano, Gypsum, Harrow, Hay, Hemp, Hop, Hoe-shoeing, Hybrid, Indian Corn, Insects, Irrigation, Jute, Lime, Lucerne, Mangel Wurzel, Manure, Milk, Mushroom, Nitrogen, Nursery, Oat, Oleomargarine, Onion, Orange, Orchard, Pasture, Pea, Peach, Peanut, Pear, Phosphate Rock, Pineapple, Plow, Plum, Potato, Quince, Reaping,

## AGRIGENTUM—AGRIMONY.

Rice, Rotation of Crops, Rye, Seed, Soil, Sowing of Seed, Straw, Subsoiling, Sugar Beet, Sugar Cane, Tobacco, Turnip, and many kindred topics (q.v.).

**AGRIGENTUM**, *äg'ri-jěn'tum* (Gr. *Akragas*), the modern Girgenti: town on the s. coast of Sicily, lat. 37° 17' n., and long. 13° 28' e.; founded by a colony from Gela B.C. 582, and, in the earlier ages, one of the most important places in the island. In its palmy days, it is said to have contained 200,000 inhabitants. After being at first free, and then subject to tyrants, it was demolished by the Carthaginians B.C. 405, but very soon rose again. In the course of the Punic wars, it was compelled to submit to the Romans. From A.D. 825 to 1086, it was in the possession of the Saracens, from whom it was conquered by Count Roger Guiscard. The modern city contains (1901) 25,024 inhabitants, is the capital of the province of the same name, and exhibits numerous and splendid ruins, which afford inexhaustible materials for pictorial representation. Among the best preserved of these remains of antiquity is the Temple of Concord, of which only the roof and part of the front are wanting. The most extensive of the temples was that of Jupiter, 340 ft. long, 120 ft. high, and 160 ft. wide, which, at the time of its destruction, appears to have been unfinished. Only the basement and some fragments remain. Considerable ruins of the temples of Juno Lucina, of Hercules, and Æsculapius, are still found. The trade of the modern city is inconsiderable. Some corn, fruit, oil, etc., is exported, but the harbor is little frequented.

**AGRIMONY**, n. *äg'ri-mön'ri*, also **AG'RIMO'NIA**, n. *-mön'ni-ä* [L. Gr. *agrīmōnia*—from Gr. *argos*, white]: a genus of plants of the natural order *Rosaceæ* (q.v.), sub-order *Potentilleæ*. The calyx is five-cleft, without bracts; the hardened



Common Agrimony (*Agrimonia Eupatoria*).

tube at length invests two carpels, and is covered with hooked bristles.—The COMMON AGRIMONY (*A. Eupatoria*) is a native of N. America and parts of Europe, growing in borders of fields, on waysides, etc; producing a spike of yellow flowers. It has an upright habit, attains a height of two feet or more, and has interruptedly pinnate leaves with the leaflets serrate and downy beneath. The flowers are small and yellow, in close racemes. The whole plant has a pleasant, slightly aromatic smell, and is bitter

and styptic. A decoction of it is used as a gargle; the dried leaves form a kind of herb tea; and the root has some celeb-

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rity as a vermifuge. Very similar to this is *A. suaveolens*, a native of Virginia, the Carolinas, etc., very fragrant. *A. parvifolia* is found in s. N. Y. and south and west.

AGRIPPA, *á-gríp'á*, CORNELIUS HENRY: 1486-1535; b. Cologne of a noble family: a remarkable character, distinguished as writer, philosopher and physician, who united great ability and extensive acquirements with quackery. He led an adventurous and unsettled life, quite in the spirit of his times. As early as 1509, he was appointed teacher of theology at Dôle, in Franche Comté, and attracted great attention by his lectures; but having drawn upon himself the hatred of the monks by his bitter satires, he was accused of heresy, and forced to leave Dôle. He next taught theology for some time in Cologne, occupying himself at the same time with alchemy, and then went to Italy, where he took military service under Maximilian I., and was knighted. He was afterwards made doctor of laws and of medicine, and gave lectures at Pavia, until, burdened with debt, he fled to Casale. After a time, he was appointed syndic of Metz; but in 1520 he was again in Cologne, having excited the hostility of the inquisition and the monks by his defense of a witch. His old enemies, the monks, persecuted him still in Cologne, so that he went to Freiburg in Switzerland, where he began to practice as a physician. In 1524, he went again to Metz, and there gained such a reputation that the mother of Francis I. chose him as her physician. As he declined to prophesy the issue of the campaign that Francis I. undertook in 1525 in Italy, he lost his post, and went to Holland. Here he wrote his celebrated book, *De Incertitudine et Vanitate Scientiarum* (Colog. 1527), a biting satire on the sciences as they then existed. An accusation against him having been brought before Charles V., on account of this book, he again became a fugitive, and repaired to Lyons. He there found the hatred he had early excited in France not yet extinguished, and was imprisoned; but being liberated, through the exertions of his friends, he retired to Grenoble, where he died. A. was a clear-headed man, and had the merit of successfully combating many of the prejudices of his age. His book, *De Occulta Philosophia*, containing a systematic account of the Cabbala (q.v.), directly contradicts the above work. A complete collection of his writings appeared at Lyons, 2 vols. without date (about 1550). See Life of A., and analysis of his works, by H. Morley (1856).

AGRIPPA, *a-gríp'á*, HEROD, I.: son of Aristobulus and Berenice, and grandson of Herod the Great: d. A.D. 44, in the 55th year of his age. He was educated at Rome, and lived there in a very extravagant style, giving splendid entertainments, especially to the princes of the imperial family, and scattering his money lavishly in gifts to the freedmen of the emperor, until his debts rendered it unsafe for him to remain longer in the city. He then took refuge in Idumea. From this period almost to the death of Tiberius, he suffered a variety of misfortunes, but having formed a friendship with Caligula, the latter, on his accession to the

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throne, gave him the tetrarchies of Abilene, Batanæa, Trachonitis, and Auranitis. After the banishment of Herod Antipas, he received his tetrarchy also—namely, Galilee and Perea. Claudius, whom A. helped to secure the possession of the empire, added to his dominions Judæa and Samaria, and he was thus the ruler of a more extensive territory than even Herod the Great had been. His government was mild towards the Jews, with whom he was remarkably popular; but he severely persecuted the Christians. He caused James, the brother of John, and the head of the church at Jerusalem, to be beheaded, and Peter to be thrown into prison. He died of a peculiarly loathsome disease at Cæsarea, in Palestine, while celebrating games in honor of the emperor. The account given of this in the Acts of the Apostles substantially agrees with that of Josephus.

AGRIPPA, HEROD, II.: 27-96: son of Agrippa I. He was at Rome when his father died, and only 17 years of age. Claudius, therefore, resolved to detain him for some time, and in the mean while retransformed the kingdom into a Roman province, but presented him with the little territory of Chalcis, when his uncle Herod, who was its ruler, died. In 53 he left Rome, and received from the emperor nearly the whole of his paternal possessions, which were subsequently enlarged by Nero. Like his father, A. was fond of fine buildings, a taste which he had probably acquired by his long sojourn at Rome. He spent great sums in adorning Jerusalem, Berytus, and other cities; but he was not prudent in the distribution of his favors, or just in his treatment of the high-priests, so that he failed to secure the good-will of the Jews. He did all in his power, however, to dissuade them from rebelling against the Romans; but when he found his advice and warnings neglected, he abandoned his countrymen, and joined the imperial troops. When Jerusalem was taken, he went with his sister to live at Rome, where he was made prætor, and where he died in the 70th year of his age—the last of the Herods. It was before him that the apostle Paul made his memorable defense.

AGRIPPA, MARCUS VIPSANIUS: B.C. 63-12: a Roman, who, though not of high birth, rose to an exalted position through his own talents. He first espoused Marcella, the niece, and then Julia, the daughter of Octavius. He was eminent both in war and in peace; and as a general, counselor, and friend of the emperor, did good service to him and to the Roman state. As a general, he laid the foundation for the sole dominion of Octavius, and commanded his fleet in the battle of Actium (31 B.C.). He was generous, upright, and a friend to the arts; Rome owed to him the restoration and construction of several aqueducts, and of the Pantheon, besides other public works of ornament and utility.

AGRIPPINA, *ag'rip-pī'nă*: d. A.D. 33: daughter of M. Vipsanius Agrippa, by his wife Julia: one of the most heroic and virtuous women of antiquity. She was married to Cæsar Germanicus (see GERMANICUS), whom she accompa-

## AGRIPPINA — AGUADO.

nied in all his campaigns. She openly accused Tiberius before the senate of having hired the murderers of her husband; and the tyrant, who hated her for her virtues, and the esteem in which she was held by the people, banished her to the island of Pandataria, near Naples, where she voluntarily died of hunger. The antiquarian museum at Dresden possesses four excellent busts of her.

AGRIPPINA, daughter of Agrippina (above): b. Cologne; d. A.D. 60: one of the most detestable women that have lived. In her second widowhood, she induced the emperor Claudius, her own uncle, to marry her, and espoused his daughter, although already betrothed to another, to her son Nero. In order to bring the latter to the throne, she ruined many rich and noble Romans, excluded Britannicus, the son of Claudius by Messalina, and finally poisoned the emperor, her husband. She then endeavored to govern the empire through her son Nero, who was chosen emperor; but her ascendancy proving intolerable, Nero caused her to be put to death. She enlarged and adorned her native city, Cologne, which received from her the name of Colonia Agrippina.

AGRISE, v. *ă-grīz'* [AS. *agrisan*, to dread, to fear greatly]: in *OE.*, to terrify; to disfigure; to be terrified.

AGRONOMY, n. *ă-grŏn'ŏ-mĭ* [Gr. *agros*, a field: *nŏmos*, a law]: the science of agriculture. AGRON'OMIST, n. *-mĭst*, one who studies scientific farming. AGRONOMICAL, a. *ăg'rŏn-ŏm'ĭk-ăl*, pertaining to the scientific management of farms.

AGROUND, ad. *ă-ground'* [AS. *a*, on, and *ground*]: on the ground; among *seamen*, stranded; run ashore.

AGTELEK, *ăg-tă-lĕk'*, CAVERN OF (in Hungarian, *Barad-la*, i.e., a suffocating place): one of the largest and most remarkable stalactitic caverns of Europe; near the village of Agtelek, in the county of Gomor, not far from the road from Pesth to Kaschau. It opens at the foot of a mountain with an entrance scarcely  $3\frac{1}{2}$  ft. high by 5 ft. wide. It consists of a labyrinth of caverns communicating with one another, many of which it is difficult, and even dangerous, to explore when the streams that flow through them are high. Numerous stalactitic structures occur in all the caverns, which, from their singular shapes, have given rise to the various names of 'the Great Church,' 'the Mosaic Altar,' 'the Image of the Virgin,' etc. The largest and most imposing of these caverns, situated about 200 paces from the entrance, is called the *Flower Garden*. It is 96 ft. high, 90 ft. wide, and nearly 900 ft. long in a straight line.

AGUADO, *ă-gwá'do*, ALEXANDER MARIA, Marquis de Las Marismas del Guadalquivir: 1784–1842; b. Seville, Spain: one of the wealthiest bankers of modern times. He was descended from a Jewish family, and in his youth was a soldier. During the Spanish war of independence, he fought with distinction on the side of Joseph, rose in the French army to the rank of colonel, and acted as aide-de-camp to Marshal Soult, but retired in 1815, and began a

## AGUARDIENTE—AGUE.

commission business in Paris. In this he soon realized such wealth as enabled him to found a bank. Good-fortune, energy, and boldness, with a singular talent for concerting schemes, advanced him in a short time to be one of the first bankers in Paris. He also obtained a political reputation by negotiating the Spanish loans of 1823-28-30, and '31. In these operations, the Spanish government frequently invested **him** with unlimited powers, which he dexterously employed to save his country from national bankruptcy. Ferdinand VII. conferred on him the title of Marquis de Las Marismas del Guadalquivir. His services were also recompensed by privileges in mining and in executing public undertakings. All the Spanish bonds issuing from his house received the name of *Aguados*. It was through A. that the Greek loan of 1834 was effected. He was naturalized in France in 1828, and at his death left a fortune of above 60,000,000 francs, of which he had invested part in landed property: the castle of Château-Margaux, celebrated for its wine, belonged to him. His distinguished collection of pictures gave occasion to Gavard for the publication of the *Galerie A.* (Paris, 1837-42).

AGUARDIENTE, n. *ág-wár'dē-ěn'tě* [Sp. *aguardiente*, burning hot-water; brandy—from L. *aqua*, water; *ardens*, burning]: a strong raw spirit of Portugal and Spain; brandy, or any particularly strong liquor.

AGUAS CALIENTES, *á'gwás ká-lē-ěn'tēs*: a well-built town in Mexico, province of Zacatecas; n. lat. 21° 53' and w. long. 101° 45'; in a plain 6,000 ft. above the sea-level, and on a stream of the same name, which is tributary to the Rio Grande de Santiago. Besides the cultivation of fields and gardens, the manufacture of woolen cloth is very considerable, and is carried on on the factory system. The town is favorably situated for trade, as the great road from Mexico to Sonora and Durango is here crossed by that from San Luis Potosi to Gaudalaxara. The environs abound in hot springs, from which the town takes its name. Pop. (1900) 35,042.

AGUE, v. *ā'gū* [OF. *agu* or *ague*; Fr. *aigū*, sharp, keen—from L. *acūtūs*, sharp]: to cause to shiver: N. intermittent fever, attended with cold fits and shivering. AGUING, imp. *ā'gū-īng*. AGUED, pp. *ā'gūd*: ADJ. struck with an ague; chill; shivering. AGUISH, a. *ā'gū-īsh*, somewhat cold and shivering.

AGUE, *ā'gū*, or INTERMITTENT FEVER, or FEVER AND AGUE: fever characterized by sudden rise of temperature during the paroxysm, equally sudden fall at its termination, and by regularity in the times of accession. It belongs to the class of malarial or paroxysmal fevers (see MALARIA), and is the type of the class. A person whose system has once been subjected to the phenomena of a regular attack is, for the remainder of his life, liable to a recurrence of the malady, even though he be not exposed to the action of its cause. Three principal forms of A. have long been recognized—namely, *quotidian*, recurring in 24 hours; *tertian*, in 48 hours; *quar-*



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*tan*, in 72 hours. The quartan type has been noted from early times for the tenacity with which it clings to its victims: the quartan type is of least frequent occurrence. Medical statistics relating to the health of the federal soldiers in the war of secession show that, of 98,237 cases of intermittent fevers, 51,623 were of the quotidian type, 44,857 of the tertian, and only 1,757 of the quartan. Less frequent or obscure types are the quintan, sextan, septan—5, 6, and 7 days respectively (after the Roman fashion of reckoning; but 4, 5, 6, after ours); and even an octan (or 8-day period) has been noted. Of more interest than these more or less theoretical types (beyond the quartan) is the *change* of type. Change from quotidian to tertian is frequent; less frequent is change from quotidian to quartan: *vice versa*, the types of less frequency of accession are changed into those of greater frequency. Sometimes the paroxysm comes twice in a day: *double quotidian*. A paroxysm may take place every day; but, because it has different characters on alternate days, the A. is then called, not quotidian, but *double tertian*. There is also a *double* and a *triple quartan*. But these forms, except *double tertian*, are rare.

The premonitory symptoms of A. are much the same as in all febrile disorders—viz., pain in the back and lower extremities, languor, lassitude, gastric irritation, loss of appetite, nausea, and, sometimes, vomiting: in some cases there are frequent calls to micturate, the urine being pale and highly acid. Then follow in succession the 3 stages, *cold*, *hot*, and *sweating*, succeeded by the *interval* or apyretic period, lasting for hours, according to the type of the disease. In the *cold* stage, the patient experiences a chill in the back; then rigors set in, at first faintly, becoming quickly more distinct, until the teeth chatter and the patient feels cold all over, and demands more coverings: the skin shrivels, the nails become blue, and there is a sensation of great discomfort. But the feeling of cold is purely subjective, the thermometer, even during the rigors, indicating a temperature 2 or 3 degrees above normal in the mouth or in the rectum, though the skin, from contraction of the superficial vessels, is colder than normally it is. Other phenomena of the cold stage are gastric irritation, foul tongue, quickened respiration. As the *hot* stage sets in, the patient grows warm all over, the face flushes, the pulse rises in frequency and volume, the skin grows hot, and the patient becomes restless, seeking ease for his aching head, back, and limbs in frequent change of posture; the tongue is usually dry, often bile-tinted; the bowels constipated. In the *sweating* stage, at first, beads of perspiration appear on the brow and face, and the hands become moist; soon, to the great relief of the sufferer, the whole body sweats freely, the temperature begins to decline, and the paroxysm is at an end. Its average duration is 6 hours.

The rapidity of the rise of temperature to 105°, 106°,

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and sometimes 107°, and the equal rapidity of its fall when the sweating stage begins, are facts of great diagnostic value. According to Wunderlich, nothing like this is to be seen in any other disease, except cases of relapse in typhoid, the febrile paroxysms in acute tuberculosis, and pyæmia. As soon as the sweating stage begins, the temperature declines—at first slowly, then as rapidly as it rose; when the defervescence is complete, a point one or two degrees below normal is reached, and there the temperature stands during the apyretic period. If the paroxysms be cut short by quinine, we may still detect, at the hour of expected attack, a distinct rise of the temperature, though none of the other symptoms of a paroxysm may occur, and the patient may be hardly sensible of it.

A. may be complicated by attacks of various diseases of greater or less severity—attacks often governed by climatic causes, by the habits of the individual patient, or by the fact that he has suffered previously from one or another of such diseases as pneumonia, bronchitis, asthma, dysentery, diarrhea, or epilepsy. Pneumonia is, of all complications, the most formidable. The rapidity with which consolidation of the lungs takes place in cases of intermittent fevers is very remarkable. Death from uncomplicated ague is very rare; but the indirect mortality from the malarial cachexia, occurring either *per se* or as a complication of other diseases, is very great.

Keeping in view the fact that every paroxysm of intermittent fevers, particularly in a hot climate, is a step, however short, on the road to the cachectic condition, the importance of breaking the recurrence of the paroxysms is apparent. That must be the first object aimed at in the treatment. The second object is hardly less important—namely, to improve the condition of the blood, to prevent further degeneration of organs, and to restore, as far as may be, affected tissues to their normal condition. There is no drug known to medical science that can arrest the stages of a true ague when once it has entered on its first or cold stage. Therefore, while the fit is on, all that can be done is to mitigate the patient's discomfort by supplying him with abundance of warm covering during the cold stage; if this is protracted unduly, draughts of warm tea should be given him: and should symptoms of collapse appear, at the end of the hot stage, restoratives and stimulants should be administered. Emetics are not to be employed, unless the patient's stomach should happen to be oppressed by a recent meal.

But in the 'interval,' after the paroxysm is past, energetic efforts must be made to bring the patient under the influence of quinine. At once the most effective and the most economical plan is to administer quinine, in solution, in a 10-grain dose at the end of the sweating stage, and to repeat it in 4 to 6 hours. The remedy should be continued daily so long as the clinical ther-

## AGÜERO--AGUESSEAU.

nometer indicates a rise of temperature at the time of expected attack, even if there be no sign of a regular cold stage. Four weeks after the fever has been subdued, the patient should be once again brought fully under the influence of quinine. The diet should be nutritious and easy of digestion.

*Pernicious* or *Malignant Intermittent Fever* differs from A. in many important respects, particularly in its great fatality; but it may be regarded as an aggravated form of A. In the United States, it prevails chiefly in the southern and southwestern states.

It is one of the most fatal of diseases. Its pernicious character may be masked in the first or the second paroxysm, while the third may be of the most *foudroyant* type. One of the most characteristic symptoms is delirium, which usually appears in the first paroxysm; or, instead of becoming delirious, the patient may fall into coma; or delirium may be followed by coma. Sometimes there are epileptiform convulsions. Symptoms resembling those of cholera sometimes appear—vomiting and purging, followed by great prostration, and collapse. Often there is profuse perspiration, and the extremities become cold. The pulse is feeble and irregular, and the respiration is labored.

A measure of relief may be afforded to the patient by the application of heat in every available way, as by bottles of hot water, hot bricks, warm blankets; by the use of mustard plasters; and by the administration of stimulants. When the paroxysm is past, recourse is to be had to quinine. The patient's strength must be sustained with a nourishing and easily digested diet. The beneficial effect of wine in such cases is obvious.

AGÜERO, JOAQUIN DE: Cuban revolutionist: 1816–1851, Aug. 12. He was a slave-owner, but freed his slaves 1843; was leader of an insurrection 1851, and, being defeated and taken prisoner, was shot to death.

AGUESSEAU, *â-gā-sō'*, HENRI FRANÇOIS D': 1668–1751; b. Limoge: a distinguished lawyer and chancellor of France, and pronounced by Voltaire to have been the most learned magistrate that France ever possessed. He received his earliest education from his father; afterwards devoted himself to the study of law, became *avocat-général* at Paris in 1690, and at the age of 32, *procureur-général* of the parliament. In this office he effected many improvements in the laws and in the administration of justice. He was noticeable for great benevolence during a famine which occurred in the winter of 1709, applying all the means in his power for the alleviation of the calamity. As a steady defender of the rights of the people, and of the Gallican Church, he successfully opposed the decrees of Louis XIV. and the Chancellor Voisin in favor of the papal bull *Unigenitus* (q.v.). During the government of the Duke of Orleans, he became chancellor; but in the following year fell into disgrace by opposing Law's system of finance, and retired to his country-seat at Fresnes. When, however, the ruin induced by Law's system produced a general outcry of dissatisfaction, A. was reinstated.

## AGUILAR DE LA FRONTERA—AHASUERUS.

in order to appease the people. But his well-meant efforts could not retrieve the desperate state of affairs. A. was afterwards exiled a second time, in consequence of his opposing Cardinal Dubois; and though he, 1727, obtained from Cardinal Fleury permission to return, yet he did not again resume the office of chancellor till 1737. He resigned 1750. His works, consisting of pleadings and speeches at the openings of the parliament, occupy 13 vols. (Paris, 1759-89; Paris, 1819).

AGUINALDO, EMILIO, chief of Filipino insurgents in the insurrection of 1896 and after the Spanish-American War of 1898; b. in 1870 at Imus, Province of Cavité, Luzon. In 1888 he went to Hong Kong, where he gained a knowledge of warfare. His general ability and magnetic personality gave him much influence among his countrymen. When the rebellion against Spain broke out in 1896 he was at the head of the diplomatic party to which Spain paid a large sum of money in order to induce the leaders to lay down their arms. A quarrel arose over the division of this money, and Aguinaldo went to Singapore, where he met the United States consul just prior to the Spanish-American War. On the recommendation of the consul Commodore Dewey asked to have Aguinaldo sent to him. The latter reached Cavité after the battle of Manila Bay, and was allowed to organize the Filipinos against the Spanish. On 1898, June 12, he organized the so-called Filipino Republic, over which he placed himself as president. After the treaty of peace, which ceded the Philippine Islands to the United States, he organized a conspiracy among the natives to massacre all the Americans and Europeans in Manila. This plot was soon discovered and frustrated, but in 1899, Feb. 4, his forces attacked the Americans. Shortly afterward the rainy season set in and operations against the Filipinos had to be postponed, but early in 1900 the insurrection was broken up, and Aguinaldo was captured in Palanon, Isabella Province, Luzon, by Gen. Funston, 1901, March 23. In 1902 he presented to Gov. Taft a plan for the relief of the Filipinos.

AHAB, *ā'hab*: king of Israel (from B.C. 918 to 897): son and successor of Omri. He married Jezebel, the daughter of Ethbaal, king of Sidon; through whose injurious influence the Phœnician worship of Baal was introduced, the king himself seduced to idolatry, and the priests and prophets of Jehovah cruelly persecuted. Yet the prophets retained their influence over the people; and Elijah dared openly to attack the priests of Baal, and reprove the wickedness of the king with the most severe threatenings of punishment. A. prosecuted three wars, with various success, against Benhadad, king of Syria; but in the last campaign he was killed by an arrow. His whole family was afterwards extirpated under king Jehu.

AHASUERUS, *a-hās'u-ē'rus*: name or rather, perhaps, the title, by which several kings of Media and Persia are mentioned in Scripture. The best known of these is Esther's husband (see ESTHER), probably the same as the Persian

## AHEAD—AHMEDNUGGUR.

king Xerxes; the Hebrew form of his name (Achaschverosch) pointing to the old Persian form of the name Xerxes (Khschyârsehan).

**AHEAD**, ad. *ă-hĕd'* [AS. *a*, at or on, and *head*]: in advance; further forward than another.

**AHEIGHT**, ad. *ă-hĭt'*, also АИГН, ad. *ă-hĭ'* [AS. *a*, on, and *height*]: in *OE*, on high; aloft.

**AHMEDABAD**, *ă'mĕd-ă-bād'*, or more properly АНМАДАБАД: chief town in the dist. of the same name, in the presidency of Bombay; is on the left bank of the Sabermutty, which flows nearly due s. into the Gulf of Cambay. It was built 1412, by Ahmed or Ahmad Shah, and underwent all the vicissitudes of government incident to the cities of Hindustan, till the year 1818, when it finally came under the power of the British. It was formerly one of the largest and most magnificent capitals in the East—in the opinion of a native writer, 'the handsomest city in Hindustan; perhaps in the world.' Its architectural relics are gorgeous, even in the midst of decay. The Jumna or Juma'ah Masjid, or Great Mosque, rises from the centre of the city, adorned by two superbly decorated minarets, 'each of which contains a circular flight of steps, leading to a gallery near the summit. Its domes are supported by lofty columns, regularly disposed; the concave of these cupolas is richly ornamented with mosaic and fret work. The pavement is of the finest marble.' The mosque of Sujaat Khan is extremely elegant. There is likewise an ivory mosque, which has obtained that name from the circumstance, that although built of white marble, it is 'curiously lined with ivory, and inlaid with a profusion of gems, to imitate natural flowers, bordered by a silver foliage on mother-of-pearl.' There are also the Fire Temple and the Tower of Silence of the Parsees. A. once abounded in gardens, aqueducts, reservoirs, etc.; but these, especially the gardens, are now sadly defaced and injured. Its prosperity has been almost wholly destroyed by the rapacity of the Mahrattas, although at one time it was famous for its manufacture of rich fabrics of silk and cotton, articles of gold, silver, steel, and enamel. 'It employed many artists in portrait-painting, and miniatures,' and had extensive trade in indigo, cotton, and opium. The old city-walls, built in 1485, which had in the course of ages, and through the assaults of enemies, become very dilapidated, were repaired in 1834 at an expense of 250,000 rupees. Water was also conveyed from the river through the city by means of pipes. Pop. (1901) 185,889. The dist. of A. in Guzerat has an area of 3,800 sq. m., and a population of 830,000.

**AHMEDNUGGUR**, or АНМАДНУГГУР, *ă'mĕd-nŭg'gĕr*: important town in the presidency of Bombay; 122 m. e. of the city of Bombay. It was founded in 1494 by Ahmad Nizam Shah. During the reign of his son, Boorhan Nizam Shah, it had high prosperity; but after his death, it witnessed an incessant series of wars, confusions, and murders. In 1797, it fell into the hands of the Mabrattas; and in 1803 was surrendered, after a trivial resistance of two days, to Gen-

## AHMEDNUGGUR—AICH-METAL.

eral Wellesley. It was, however, shortly afterwards restored to the Peishwa; but in 1817, the fort was again occupied by the British. The town has increased rapidly since it came under British protection and rule. It possesses a most singular defense, in addition to its wall; this consists of an 'immense prickly-pear hedge about 20 ft. high, which is so full of sap that no fire will kindle it, and so vigorous that it is almost impossible to force one's way through it.' A. contains an English church and a *dhurm salah* (or place of entertainment for travellers) capable of holding 250 persons. It also possesses a good supply of water by means of aqueducts. There are several places of the same name in Hindustan. Pop. 35,000. Area of the dist. of A., 6,650 sq. m.; pop. 775,000.

**AHMEDNUGGUR**, or **EDUR**: a Rajpoot state of Guzerat, in the Mahi Kanta agency, politically connected with the presidency of Bombay. It is under the rule of the Rajah of Edur, subject to British sovereignty. Pop. estimated over 217,000.—The principal town is Ahmednugger, on the banks of the Haut Mati, a branch of the Sabarmati, in an extensive plain, 92 miles n.n.w. from Baroda; surrounded by a fine old stone wall. Pop. 9,000.

**AHMEDPUR**, *â-měd-pôr'*: town of India, in the native state of Bhawulpur, 25 m. s.w. from Bhawulpur. The houses are mostly built of mud; but there is a large and lofty mosque, with four tall minarets. There are manufactures of matchlocks, gunpowder, cotton, and silk. Pop. estimated 30,000, though other estimates make it much less.

**AHOY**, int. *ă-hoy'* [AS. *a*, intensive: Dut. *hui*]: an exclamation used in hailing a boat; attend ye—a sailor's call; a call to a person.

**AHRIMAN**, *âh're-mân'* [in the Zend, *añhro mainyus*, i. e., the malignant spirit]: in the later dualistic doctrine of the followers of Zoroaster, the personification of malignity, the original source of all moral and physical evil, the chief of the devils and malignant spirits, the king of darkness and of death, the eternal enemy and opponent of Ormuzd and of his kingdom of light. See **ZOROASTER**.

**A-HULL**, ad. *ă-hŭl'* [AS. *a*, on, and *hull*]: maritime term, used to denote the position of a ship when all her sails are furled, and her helm lashed on the lee-side; in such a position, she lies nearly with her side to the wind, but with the head turned a little towards the direction of the wind. Nautical language comprises a large number of words formed on a principle similar to that of *ahead*, with the vowel *a* (a corruption of the Anglo-Saxon preposition *on*, meaning *on*, *in*, *at*) prefixed to a noun. Such are the following: *aback*, *abaft*, *aboard*, *abreast*, *a-cockbill*, *adrift*, *afloat*, *afore*, *aground*, *ahead*, *a-hull*, *a-lee*, *aloft*, *aloof*, *amain*, *amidships*, *an-end*, *apeak*, *ashore*, *astern*, *atrip*, *avast*, *a-weather*, *a-weigh*. See the articles under some of these titles.

**AICH-METAL**, *âch-*: an alloy of copper and zinc with a small addition of iron—sometimes used in the manufacture of cannon.

AID—AIDE-TOI ET LE CIEL T'AIDERA.

AID, n. *āid* [F. *aider*, to aid; *aide*, an assistant—from mid. L. *aidārē*, to help—from L. *adjutārē*, to assist]: help; relief; assistance; a person who gives help: V. to help; to support; to relieve. AID'ING, imp. AID'ED, pp. AID'ER, n. one who. AIDANT, a. *ād'ānt*, in *OE.*, helping; helpful. AIDANCE, n. *ād'āns*, help; assistance. AID'FUL, a. giving help. AID'LESS, a. destitute of help.—SYN. of 'aid, v.': to help; assist; succor; relieve; sustain; support.

AIDAN, *ā'dān*, SAINT: middle of 7th c.: one of those distinguished monks of the early Seoto-Irish Church, who were received into the calendar of saints by a sort of acclamation, and without the ceremony of canonization. He was the first efficient missionary who propagated Christianity in the north of England. Oswald, the celebrated king of Northumbria, requested the community of Iona to send to his court one of their brethren who would teach the Christian religion to his people. As the history has come down to us, the first person sent was a certain Cormac, who was too dogmatic and intolerant to be a successful missionary. On his returning after a failure, A., who possessed the patience, geniality, and popular manners fitted for the task, was successful. He left a great reputation, and, as the earliest promulgator of Christianity in the northern districts, is generally counted the first in the lists of the bishops of Durham.

AIDE DE-CAMP, n. *ād'dě-kōng*, plu. AIDES-DE-CAMP [F. *aide*, an assistant; *de camp*, of camp]: in an *army*, an officer who serves on the personal staff of a general, or in court to wait upon the sovereign. As a military officer he may be regarded as a kind of superior confidential attendant upon a general in active service. The A. is the organ of the general. He carries all orders on the field of battle; these he is to deliver in the plainest terms, so as to be distinctly understood; and when so understood, the orders are to be as implicitly obeyed as if the general himself were present and speaking. An A. also acts as secretary to the general, and assists him in his correspondence, when he has not specifically a military secretary. He aids likewise in dispensing the courtesies of the general's house or tent. The aides-de-camp in the U. S. army vary in number from two for a brig. gen. to six for a general. In England, besides these aides-de-camp to generals, the queen has power to appoint any number of aides-de-camp to herself, in her capacity of nominal head of the army. There are no particular duties attached to the office; but it is much sought after, both as an honor, and as conferring on the holder the rank of colonel in the army. In the year 1880, there were no fewer than 36 military aides-de-camp to the queen, of whom a certain proportion were peers of the realm. In addition there are naval aides-de-camp to the queen, about 12 in number.

AIDE-TOI ET LE CIEL T'AIDERA, *ād-twa ā lě siěl t'ād-ra* (Help yourself, and Heaven will help you): a moral aphorism, the cry of certain French political writers to the middle classes, about 1824, and became the watchword of a society formed to agitate voters in opposition to the govern-

## AIDIN—AIGRETTE.

ment, by means strictly legitimate. Most of its founders and active members belonged to the party of *Doctrinaires* (q. v.), as Guizot, who was president for some time, Duchatel, Duvergier de Hauranne, Dubois, Remusat, Thiers, Cavaignac, etc. *Le Globe* newspaper was the organ of the association, and afterwards *Le National*. It had a great share in bringing about the revolution, 1830, July, and was at first countenanced by the new government; but was dissolved, 1832.

AIDIN, *ī-dēn'*, or GUZEL-HISSAR: town of Asiatic Turkey, on the river Meander, in the pachalic of Anatolia, built out of the ruins of the ancient Tralles, which was on a plateau above the present town. It is 60 m. s.e. of Smyrna, is four miles in circuit, and carries on a trade next in importance to that of Smyrna. It is adorned, like all eastern cities, with numerous mosques and other religious edifices, and has a picturesque appearance. Pop. estimated 35,000–60,000; with 6,000 houses.

AIDONE, *ī-dō'nā*: town of Sicily, province of Caltanissetta, 20 m. e. by s. from Caltanissetta. It crowns a lofty height, commanding a view of the great plain of Catania. It was one of the settlements of the Lombards, who accompanied Roger the Norman in his conquest of Sicily. The road which leads to the town is very rugged, bordered by luxuriant prickly pears. Pop. 6,920.

AIDS: in feudal times mere benevolences granted by a tenant to his lord in distress; which gradually came to be regarded as matters of right. A. were demanded for three principal objects: 1st, to ransom the person of the lord when taken prisoner; 2d, to make his eldest son a knight; and 3d, to provide a suitable portion to his eldest daughter on her marriage. These A. were abolished by 12 Car. II. c. 24.

AID OF THE KING is where the king's tenants pray A. of the K. on account of rent demanded of them by others. In such cases, the proceedings are stopped till the king's or queen's counsel are heard to say what they think fit for avoiding the king's prejudice.

AIGRE, n. *ā'gēr*: see EAGRE.

AIGRET, n. *ā'grēt*, also EGRET, n. *ē'grēt* [F. *aigrette*]: the little white heron; in *bot.*, the feathery down of the thistle.

AIGRETTE, *ā grēt'*: a French word, denoting the down or plume (botanically, *pappus*) attached to many vegetable seeds, as the thistle and dandelion. It is also used in reference to the feathery tuft on the heads of several birds, as the heron; and in English zoology the name aigret or egret (q. v.) is applied to the smaller white heron, an elegant bird, with a white body and a feathery crest. Hence the term A. came to designate the long, delicate white feathers stuck upright in a lady's head-dress. Recently, the usage has been still further extended to any head-dress resembling a plume, even a bouquet of flowers, fastened with precious stones.



## AIGUES-MORTES—AILETTES.

**AIGUES-MORTES**, *aig-mort'* (*Aquæ Mortuæ*): small town in France—pop. about 4,000—in the dept. of Gard, which claims to have been founded by the Roman Marius. It is in an extensive marsh impregnated with sea-salt, and is about 3 m. from the Mediterranean, with which it is connected by a canal. It was from A. M. that St. Louis sailed in 1248, and again in 1270, for the Crusades—a proof that the sea then reached this spot. In 1538, Francis I. had an interview at A. M. with Charles V.

**AIGUILLE**, n. *ā'gwēl* [F. *aiguille*, needle—from mid. L. *acūc'lä*, a needle—from L. *acic'ulā*, dim. of *ācūs*, a needle]: applied to the sharp serrated peaks of lofty mountains; an instr. for piercing holes for the lodgment of powder when blasting. **AIGULET**, n. *ā'gū-lēt*, or **AIGLET**, n. *āg'lēt*, a point or tag on fringes.

**AIGUILLETTE**, *ā'gīl-lēt'*, or **AIGULET**: a part of the decorations of military dress; in Britain, formerly worn on the right shoulder by general officers of various grades; now worn chiefly by officers of the Life-Guards and Horse-Guards. It is composed of gold or silver cords and loops.

**AIGULET**: a rope called a lashing-rope, used in ships-of-war for securing the breeching of a gun.

**AIKEN**, *ā'kēn*: town; co. seat of Aiken co., S. C.; 17 m. n.e. of Augusta, Ga., 120 m. n.w. from Charleston, S. C. It is laid out with care and taste, has excellent hotels and boarding-houses; and its salubrious climate makes it a favorite winter resort for invalids, especially sufferers from lung disorders. A. has 7 churches, a public hall, and several schools. Pop. (1890) 2,362; (1900) 3,414.

**AIL**, v. *āl* [AS. *eglian*, to pain; *egle*, troublesome: Goth. *aglo*, affliction; *aglus* or *agls*, difficult; ailing]: to be sick; to trouble; to be in pain. **AIL'ING**, imp: **ADJ.** unwell; full of sickness. **AILED**, pp. *āld*. **AIL'MENT**, n. sickness; trouble; slight disease.

**AILANTUS**, n. *ā-lān'tūs*, often improperly **AILANTHUS** [from *ailanto*, tree of heaven, name in the Moluccas Islands]: genus of trees of nat. order *Simarubaceæ*. The common species, *A. glandulosa* or Chinese Sumach, has very long and pinnate leaves, with an odd leaflet resembling the ash. The leaves are food for a species of silkworm. The styles are combined at the base; the fruit consists of 3–5 *samaræ* (or winged *achenia*—q.v.). Its growth is rapid, and its propagation is usually by its abundant root-suckers. It is largely planted for shade in s. Europe and in parts of the United States, and is common in England. The A. is hardy, and thrives even in poor soils. Its timber is valuable for some uses. As the odor of the flowers of male trees is offensive, only female trees, which have inodorous flowers, should be grown.

**AILETTES**, *āl-lēt'* [Fr. little wings]: appendages to the armor worn by knights in the 13th c.; of leather, covered with cloth, and worn behind or at the side of the shoulders. A. are figured on many effigies, etc.

## AILS A CRAIG—AINMÜLLER.

**AILS A CRAIG.** *āl'să krāg*: remarkable islet about 10 m. from the s. coast of Ayrshire, opposite Girvan, lat. 55° 15' 12" n.; long. 5° 7' w. Rising abruptly out of the sea to a height of 1,114 ft., it is a most striking object, even at a distance. It is about 2 m. in circumference, and is accessible at only one point, where the accumulation of débris has formed a rough beach. The rock may be described generally as a mass of trap, assuming in some places a distinct columnar form, with dimensions far exceeding those of the basaltic pillars of Staffa. On the n.w., perpendicular cliffs rise 200 to 300 ft.; on the other sides, the Craig descends to the sea with a steep slope, covered with grass and wild flowers, with numerous scattered fragments of rock. The only inhabitants are goats, rabbits, and wild fowl. Solan geese, in particular, breed in the cliffs in countless numbers. About 200 ft. from the summit are some springs, and on the ledge of a crag on the eastern front are the remains of an ancient stronghold.

**AILURUS FULGENS:** see PANDA.

**AIM**, v. *ām* [OF. *esmer*, to estimate—from L. *æstimārē*, to value—*lit.*, to calculate the distance of the object or point desired to be struck]: to throw at an object; to direct a weapon to; to try to strike with a missive weapon; to endeavor; to purpose or design; in *OE.*, to guess or conjecture: N. the object or point intended to be struck; purpose; intention. **AIM'ING**, imp. **AIMED**, pp. *āmd.* **AIM'ER**, n. one who. **AIMLESS**, a. *ām'lēs*, without aim or purpose. **AIM'LESSLY**, ad. *-lŷ.*—**SYN.** of 'aim, n.': object; end; view; scope; design; purpose; scheme; drift; intention;—of 'aim, v.': to point; level; aspire; direct.

**AIMON:** see **AYMON**.

**AIN**, *ān*: river in France, rises in the mountains of the Jura, flows through the departments of Jura and Ain, and after a course of about 100 m., falls into the Rhone, 18 m. above Lyon.

**AIN**, *ān*: a frontier dept. of France; bounded on the n. by the departments of Jura and Saône-et-Loire, on the e. it is separated from Switzerland and Savoy by the Rhone, which also divides it from Isère on the s., while on the w. the Saône separates it from the departments of the Rhone and Saône-et-Loire. The e. is mountainous; but the s. portion of the part w. of the Ain forms an argillaceous plateau, abounding with marshes, which occasion epidemic fevers. This dep. contains five arrondissements—Bourg, Belley, Gex, Nantua, Trévoux—or 35 cantons. Area, 2,230 sq. m. Pop. (1901) 350,416. Chief town, Bourg.

**AINMÜLLER**, *īn'mül-er*, MAXIMILIAN EMANUEL: 1807–70: b. Munich; restorer of the art of painting on glass. He began the study of architecture, but afterwards entered the royal porcelain manufactory as decorator; and there he first overcame the technical difficulties in glass-painting. A separate institution was established for the art; and A., as inspector, brought its work near to perfection. He first is said to have conceived the happy thought of laying colored

## AINOS--AINSWORTH.

glass on colored, instead of laying colored glass on white, thus giving the command of above 100 variously colored glasses, in all gradations of tint. He was also the first, in conjunction with Wehrstorfer, to execute pictures on glass, and thus revive the art of miniature glass-painting. Not only technical improvements and inventions were his contribution to the art; his artistic culture qualified him also to aid the regeneration of taste that has accompanied it. The first work of the new institution was the restoration of the windows of the cathedral of Ratisbon, 1826-33, to which A. contributed the ornamentation, painting several of the figures. He made a like contribution to the splendid windows of the church of Maria-Hilf, Munich, 1833-38. In the contribution of king Ludwig of Bavaria to the cathedral of Cologne, and the numerous other windows executed at Munich for all parts of the world, A. displayed the highest artistic faculty. One of his most important and successful undertakings was providing the fine windows of the Glasgow cathedral as recently restored, including more than 100 biblical and historical pictures. A. also acquired a reputation as an architectural painter in oil.

AINOS, *î'noz*: a race inhabiting Yesso (q. v.) and Saghalin. See also JAPAN.

AINSWORTH, *ānz'wérth*, ROBERT: 1660-1743; b. Woodvale, near Manchester, England; d. near London: author of a Latin Dictionary extensively used in the last c. He was educated at Bolton, and taught a school there for some time; afterwards was engaged for many years in educational pursuits in London. In 1714, he commenced his Dictionary (Latin-English, and English-Latin), which, however, was not published until 1736. It has been superseded by more accurate and philosophical lexicons, such as Riddell's, and more recently by Smith's, Andrews's, and others.

AINSWORTH, WILLIAM FRANCIS: b. Exeter, England, 1807-1896, a relation of Robert: English physician, geologist, and traveller. He studied medicine at Edinburgh, whither he returned from foreign travel, 1828, and there conducted the publication of the *Journal of Natural and Geographical Science*, and delivered lectures on geology. In 1835 he was attached as physician and geologist to the Euphrates expedition under Col. Chesney, and returned, 1837, through Kurdistan, the Taurus, and Asia Minor. In the following year he went again to Asia Minor, being sent with Rassam and Russell by the Geographical Soc., and the Soc. for the Diffusion of Christian Knowledge. The objects were chiefly to explore the course of the Halys, and to visit the Christians in Kurdistan. On his return (1841) he published *Researches in Assyria*, etc. He has published also *The Claims of the Christian Aborigines in the East*, and *Travels in the Track of the 10,000*. He has edited *Lares and Penates, or Cilicia and its Governors; On an Indo-European Telegraph by the Valley of the Tigris*, a project which the Turkish government has since carried out; *All Round the World; The Illustrated Universal Gazetteer*, etc.

AINSWORTH—AIR.

He was a member of many foreign learned societies, and one of the founders of the West London Hospital.

AINSWORTH, WILLIAM HARRISON: 1805–82; b. Manchester, Eng., where his father was a solicitor: well known writer of fiction. His creative fancy began early to show itself in ballads and tales, in the local newspapers, and in contributions to the *London Magazine* and similar periodicals. He entered a writer's office; but forsook law for literature, and began a publishing business in London, which, however, he soon gave up in disappointment. He had previously published his first novel, *Sir John Chiverton* (1825). After spending some time on the continent, he returned to England, and wrote *Rookwood* (1834), which was favorably received. It was followed by *Crichton* (1837) and *Jack Sheppard* (1839). A. edited for a time *Bentley's Miscellany*, and in 1842 began his own *Ainsworth's Magazine*. He pub. the *Lancashire Witches* in 1848; six years later appeared the *Star Chamber*; in 1860, *Ovingdean Grange*; the *Lord Mayor of London* was pub. 1862, *Cardinal Pole*, 1863, and *John Law, the Projector*, 1864. More recent are the *Spanish Match*, the *Constable de Bourbon*, *Old Court*, *Middleton Pomphret*, *Merrie England*, *The Leaguer of Lathom* (1876), *Stanley Brereton* (1881). The 'Lancashire Novelist' was honored with a banquet in his native city in 1881.

AIN'T, *ānt*: colloquial contr. for 'am not'; improper contr. for 'is not': AR'N'T, colloquial for 'are not.'

AIN'TAB, *īn-tāb'*: a town of Syria, near the source of the Kowek, an affluent of the Euphrates, 59 m. n.n.e from Aleppo. It is tolerably well built: the houses are mostly of stone. It is well supplied with water, pure streams of which flow constantly through the streets. It has a castle built upon a mound, resting on rock, and of very striking appearance. The chief trade is in hides and leather; but cotton, sheep's and goat's wool, wax, wheat, and rice are also of commercial importance, being chief articles of produce in the surrounding district. A. is supposed by some to be the ancient *Antiochia ad Taurum*. Pop. 20,000, composed of Turks, Greeks, and Armenians.

AIR, n. *ār* [F. *air*—from Gr. or L. *āēr*, air: It. *aria*, tune, air]: the atmosphere; a gas; a light breeze; a tune or melody; look or mien; affected manner. AIRS, n. plu. show of pride; haughtiness. AIR, v. to dry; to expose to the air; to parade ostentatiously before the public. AIR'ING, imp. AIRED, pp. *ārd*. AIRY, a. *ār'ī*, high in air; light like air; trifling; vain. AIRILY, ad. *ār'ī-lī*. AIRING, n. a ride or walk in the open air. AIR'LESS, a. wanting fresh air. AIRINESS, n. *ār'ī-nēs*, the state of being opened freely to the air; lightness of manner; gayety; jauntiness. AIR-TIGHT, so close and compact as to prevent the passage of air. AIR-BED, a large air-tight bag filled with air for the repose of ailing persons. AIR-BLADDER, a vesicle filled with air; among *fishes*. a long silvery fibrous tunic within the abdomen of fishes, which is filled with air, and regulates their specific gravity with reference to that of water. AIR-CELLS, cavities in vegetable and animal structures filled

## AIR—AIR-BEDS.

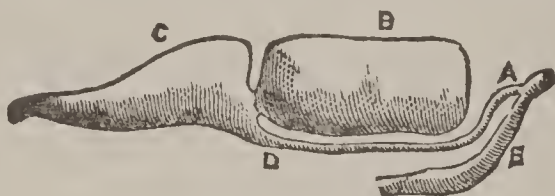
with air. AIR-CHAMBER, a large cell or cavity filled with air. AIR-GUN, a musket or gun in which compressed air, instead of powder, is made the propelling agent. AIR-HOLE, an opening to admit or discharge air. AIR-PIPE, a pipe for the escape or supply of air. AIR-PLANTS, plants rooted on others, and suspended, as it were, in the air. AIR-PUMP, a machine for exhausting or pumping out the air from vessels. AIR-SHAFT, a passage for the free admission and circulation of air into mines and subterraneous excavations. AIR-THERMOMETER, a thermometer in which air is employed instead of mercury or spirits of wine. AIR-VESSELS or AIR-SACS, spiral ducts in plants containing air, analogous to lungs in animals. The air is a compound of gases constituting the substance of our atmosphere. Formerly, all aëriform fluids were called 'airs,' but in this sense the word *gas* is now used. For the chief properties of air, and the phenomena that they give rise to, see ATMOSPHERE: AËRODYNAMICS: AËROSTATICS: AIR-PUMP: BAROMETER: BALLOON: FLYING; ETC. *Note.*—AIR, in the sense of 'tune or melody,' is derived from It. *aria*, through F. *air*, in the secondary signification of tune or song. See ARIA. Dr. Mackay derives *air* from Gael. *aireamh*, to number or compute.—SYN. of 'air, n.': manner; mien; demeanor; look; appearance; carriage.

AÏR, or ASBEN, *âs-bên'*: kingdom in the n. of the Soudan. Agades (q.v.) is the cap., and residence of the sultan, but his power is in large measure merely nominal. The country is inhabited principally by three large tribes—the Kel-owi, the Kel-geres, and Itisan, each of which has numerous subdivisions. There are, besides, the Kel-n-Negarru, the Inghad, etc. The word *kel* means 'people,' but specially denotes *settled* people, not *nomads*: thus, Kel-owi is people settled in the valley of Owi. Many of the tribes and families live not in fixed dwellings, but in movable tents of mats. The valleys of A. are naturally rich, but are poorly cultivated. Food and clothing are imported. The population, which is very considerable could not be sustained were it not for the salt-trade of Bilma, a town lying to the e. of A., in the Tebu country. Although the valleys of A. are in the region of the tropics, the climate is comparatively temperate. See Barth's *Travels in Central Africa*, vol. I.

AIR-BEDS and AIR-CUSHIONS: valuable in many cases of sickness. Air-beds were known at the beginning of the 18th c., but being made of leather, were expensive. After the invention of air-tight or Macintosh cloth their cost became more moderate. An air-bed is a sack in the form of a mattress, divided into a number of air-tight compartments; a projection at one end forms a bolster. Each compartment has a valve, through which the air is blown in by a bellows. The advantages of such beds are cleanness, coolness, lightness, and elasticity. The *travelling-cushion* is another contrivance of the same kind. Recently vulcanized India-rubber has been used instead of cloth.

## AIR-BLADDER—AIR-CELLS.

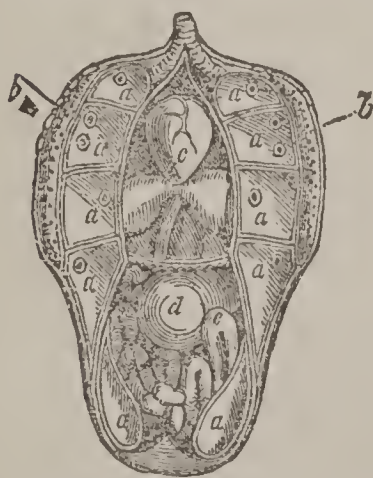
**AIR-BLADDER**, or **SWIMMING-BLADDER**, in Fishes: an organ supposed to contract or expand as the fish rises or sinks in the water. Without more proof of this, it is enough to say that its office is hydrostatic. One use may be to adapt specific gravity to quantity or absence of food ingested. It is in the abdomen, under the spine; and it is very various in size and form in different kinds of fishes. It usually has an opening into the œsophagus, or into the stomach, but apparently only for the ejection, not for the admission of air. In some fishes, it has no opening. The air with which the A. is filled appears to be the result of secretion; and in fresh-water fishes, consists in general almost entirely of nitrogen, but in sea-fishes contains a large proportion of oxygen, in deep-sea fishes amounting in some specimens to 87 per cent. The A. is in some fishes very small; in others, entirely wanting, particularly in fishes that are destined to live chiefly at the bottom of the water, as flat fishes, eels,



**Air-Bladder of Carp:**  
Consisting of two parts—B and C, joined by a narrow neck  
A D, a canal communicating with œsophagus, E.

etc.; but there are remarkable instances of its absence also in species of very different habits, such as the common mackerel, while it exists in other species of the same genus or family. The A. of fishes affords the finest isinglass.

**AIR-CELLS**, or **AIR-SACKS**, in Birds: remarkable cavities connected with the respiratory system: distributed along the inside of the whole cavity of the chest and abdomen; and in birds of strong wing and rapid flight, often send prolongations into the bones. They are connected with the extremely active respiratory system, and communicate with the lungs, giving an immense extension to the surface with which the air inhaled comes in contact. In the lungs of the mammalia, the cells into which air is conveyed by minute ramifications of the windpipe, in order to be brought into contact with the blood distributed on their walls, are very small; in man, only about one-hundredth part of an inch in diameter. See **BIRDS:**



**Lungs, etc., of Ostrich:**  
a a a a a, air-cells; b b, lungs;  
c, heart; d, stomach;  
e, intestines.

**RESPIRATION:** and for the breathing apparatus of the lower forms of life, **GILLS**. Air-cells, or air-sacs, may be said to form the whole respiratory apparatus in some of the lower

## AIR-CELLS—AIRDRIE.

kinds of animals (see ANNELIDA), while in others, higher in the scale of organization, particularly in insects, *air-tubes* arising from these ramify throughout the whole body. The air-tubes of insects are formed of a spiral fibre within a membranous coat, like the spiral vessels of plants, so that they have great elasticity.

**AIR CELLS** in Plants: cavities containing air in the stems or leaves. The orifices of the intercellular passages are closed up, so as to prevent the juices of the plant from entering them. They are very variable in size, figure, and arrangement, but are formed according to a uniform rule in each particular species in which they are found. They are large and numerous in many aquatic plants, evidently serving the purpose of buoying them up in the water. Besides A. of regular form, there are irregular cavities, also called by the same name, which seem to be formed by the tearing of the cellular tissue in the rapid growth of the plant, as in grasses and umbelliferous plants.

**AIRD**, *ārd*, THOMAS: 1802–76; b. Bowden, Roxburghshire, Scotland: a poet. He studied at the schools in his native county, from which he passed to the Univ. of Edinburgh, and he made the friendship of many distinguished men, especially Prof. John Wilson, who was accustomed to speak of him in high terms. He edited (1835-64) *The Dumfries Herald*, a new journal, started on Conservative principles. *The Devil's Dream*, his best-known poem, has a certain sublimity of conception, and much pathos. Whether the scenes are colossal, as in *The Devil's Dream*, or minute, as in *The Summer's Day*, there is the same clear, vigorous, and picturesque word-painting; but A.'s poetry has never become popular, and he did not fully realize the expectations raised by his early works. In 1827 he published *Religious Characteristics*, a piece of exalted prose-poetry; in 1845, the *Old Bachelor*, a volume of tales and sketches; in 1848, a collected edition of his poems—a second edition, 1856—and in 1852 he edited the select poems of David Macbeth Moir (the 'Delta' of *Blackwood*), prefixing a memoir for the benefit of Dr. Moir's family. See *Life and Poems* edited by J. Wallace (1878).

**AIRDRIE**, *ār'-drē*: flourishing town in Lanarkshire, 11 m. e. of Glasgow. The high-road between Edinburgh and Glasgow intersecting it, forms its principal street. It has risen rapidly, and is now one of the most flourishing inland towns in Scotland. Little more than a century ago it consisted of a solitary farm-house or two; but the abundance of iron and coal in the vicinity has given it a growth like that of an American city (see GARTSHERRIE). The Monkland canal and the Caledonian railway receive the produce of the coal pits and iron mines. The town has some neat buildings, is well paved, and lighted with gas. The weaving of cotton goods for the Glasgow manufacturers is carried on to a considerable extent, as is also the distillation of spirits, silk-weaving, and paper-making. It unites with Falkirk in sending a member to parliament. Pop. (1901) 22,288.

## AIRE—AIR-GUN.

**AIRE** or **AIRE-SUR-L'ADOUR**, *ār sūr-lâ-dôr'* (anc. *Vicus Julius*): a town of the dept. of Landes, France, on the left bank of the Adour, 76 m. s. from Bordeaux. It is a bishop's seat, and its cathedral, which has been often destroyed and rebuilt, is one of the most ancient in France. A. has been a place of consequence from the days of the Roman conquest of Gaul, and was the cap. of the Visigoths under Alaric, but is now much decayed, and diminishing in population. It has hat manufactories and tanneries. Pop. 3,000.

**AIRE** or **AIRE-SUR-LE-LYS**, *ār sūr-lâ-lēs'*: town of the dept. of Pas-de-Calais, France, on the Lys, 30 m. s.e. from Calais. It is a fortress of the third class; the town well built, but its situation low and marshy. The barracks can contain 6,000 men. There are manufactures of woollen stuffs, linen yarn, thread, hats, starch, Dutch tiles, and soap; also some trade in grain. Osier-work is carried on to some extent. Pop. 5,000.

**AIR-ENGINE**: see **CALORIC ENGINE**.

**AIR-GUN**: instrument for throwing bullets or other projectiles, by the force of compressed air instead of gunpowder. Various forms of construction have been adopted. The most usual plan is to insert a condensing syringe in the stock of the gun. The piston of this syringe is worked by an apparatus which passes through to the exterior of the gun; and this working causes a small body of air to be condensed into a chamber. The chamber has a valve opening into the barrel, just behind the place where the bullet is lodged. The gun is loaded from the muzzle, as ordinary muskets or fowling-pieces; and there is at that time just behind it a small body of highly compressed air, ready to rush out at any opening. This opportunity is afforded by a movement of the trigger, which opens the valve; the air rushes forth with such impetuosity as to propel the bullet. By a certain management of the trigger, two or three bullets, successively and separately introduced, can be thrown by one mass of condensed air. Another form of A. contains several bullets in a receptacle or channel under the barrel; by the movement of a cock or lever, one of these bullets can readily be shifted into the barrel; and thus several successive discharges can be made after one loading—on a principle somewhat analogous to that of the revolving pistol. Some varieties of A. have the condensing syringe detached, by which means a more powerful condensation of air may be produced; this done, the air-chamber is replaced in its proper position behind the bullet in the barrel. Those air-guns which present the external appearance of stout walking-sticks, and are thence called air-canes, have a chamber within the handle for containing condensed air, which can be unscrewed, and subjected to the action of the condensing syringe. One inventor has devised a form of A. with two barrels—one of small bore for the reception of the bullets, and another of larger bore for the reservoir of condensed air; the condensing syringe being within the stock of the gun. An attempt has more recently been made to combine the action of elastic springs with that of compressed air, in

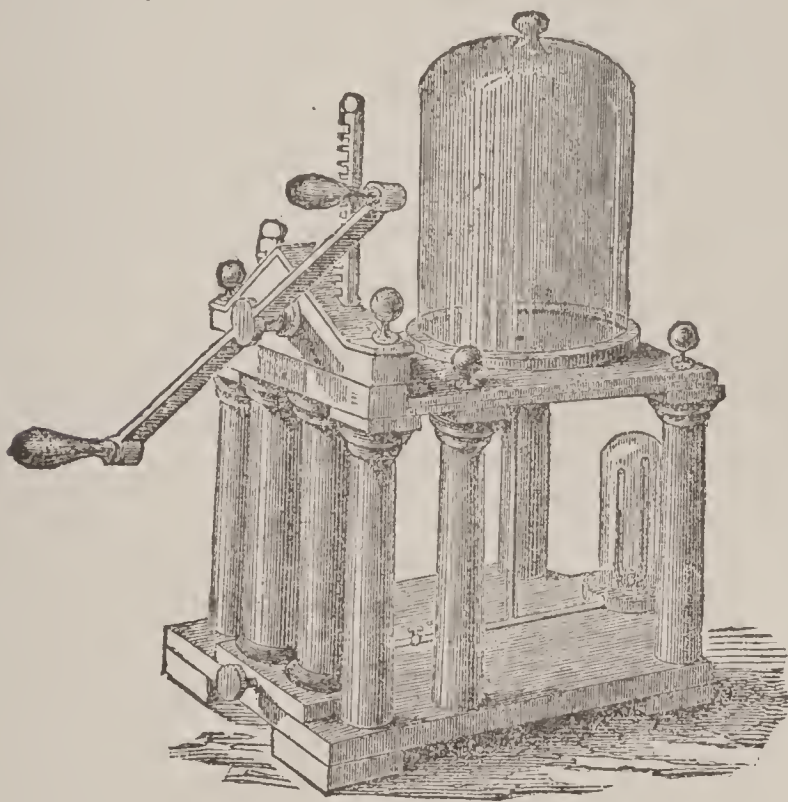


## AIR-PLANTS—AIR-PUMP.

an A.; springs of gutta-percha, or of vulcanized India-rubber, are employed in substitution of, or in co-operation with, a condensing syringe. No form of A. hitherto made has had power enough to propel a bullet to any considerable distance; and therefore the instrument is scarcely available in war; there are, however, circumstances in which such an arm may be useful—seeing that there is no expense for gun-powder, no noise, no smoke, no unpleasant odor. The A. was known in France more than two centuries ago; and the ancients were acquainted with some kind of apparatus by which air was made to act upon the shorter arm of a lever, while the larger arm impelled a bullet.

AIR-PLANTS: see EPIPHYTES.

AIR-PUMP: instrument for removing the air from a vessel. The essential part is a hollow brass or glass cylinder, in which an air-tight piston is made to move up and down by a rod. From the bottom of the cylinder, a connecting tube leads to the space which is to be exhausted, which is usually formed by placing a bell-glass, called the receiver, with edges ground smooth, and smeared with lard, on a flat, smooth plate or table. When the piston is at the bottom of the barrel,



Air-pump.

and is then drawn up, it lifts out the air from the barrel, and a portion of the air under the receiver, by its own expansive force, passes through the connecting tube, and occupies the space below the piston, which would otherwise be a vacuum. The air in the receiver and barrel is thus *rarefied*. The piston is now forced down, and the effect of this is to close a valve placed at the mouth of the connecting tube, and opening inwards into the barrel. The air in the barrel is thus cut off from returning into the receiver, and, as it

## AIR SHIP—AIRY.

becomes condensed, forces up a valve in the piston, which opens outwards, and thus escapes into the atmosphere. When the piston reaches the bottom, and begins to ascend again, this valve closes; and the same process is repeated as at the first ascent. Each stroke thus diminishes the quantity of air in the receiver; but from the nature of the process, it is evident that the exhaustion can never be complete. Even theoretically, there must always be a portion left, though that portion may be rendered less than any assignable quantity; and practically the process is limited by the elastic force of the remaining air being no longer sufficient to open the valves. The degree of rarefaction is indicated by a *gauge* on the principle of the barometer. By means of the partial vacuum formed by the A., a great many interesting experiments can be performed, illustrating the effects of atmospheric pressure, and other mechanical properties of gases. —The A. was invented by Otto Guericke (q.v.), 1654; and though many improvements and varieties of structure have been devised, the principle of all is the same. Two barrels are generally used, so as to double the effect of one stroke. In some air-pumps, stop-cocks turned by the hand take the place of valves; and in others, the entrance of the connecting tube into the cylinder is such that the piston is not required.

AIR SHIP: see AËRIAL NAVIGATION.

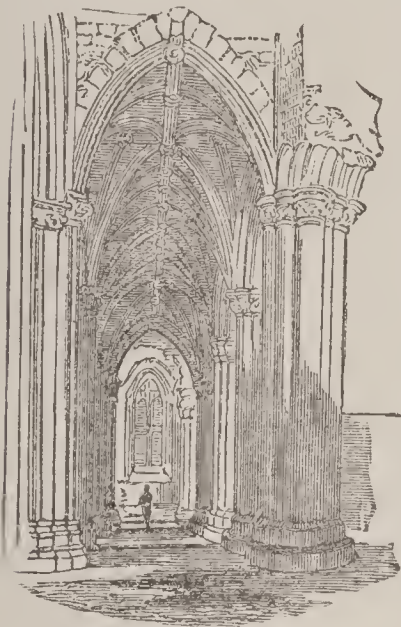
AIRY, *ār'-ī*, Sir GEORGE BIDDELL, K.C.B., F.R.S.: b. Alnwick, 1801, June 27—1892, Jan. 4. Astronomer Royal 1835–1881. In 1819 he went to Trinity College, Cambridge; in 1822 he was elected Scholar; in 1823 he took the degree of B.A., with the honor of Senior Wrangler, and in 1826 that of M.A. In 1826 he was elevated to the chair of science founded by Lucas, which he rescued from the reproach of being a sinecure by delivering a course of public lectures on experimental philosophy. In 1828 he was made Plumian professor, and was intrusted with the management of the newly-erected Cambridge Observatory. On account of his severe and unintermitting labors, his income was augmented from the funds of the university. He published his observations (*Astronomical Observations*: Cambridge, 1829–38, 9 vols.), arranged in a clear and simple manner, and they have served as a model ever since for those of Greenwich and other observatories. In 1835 the office of Astronomer Royal became vacant, and A. was appointed to it by Lord Auckland, First Lord of the Admiralty. He had introduced new or more nearly perfect scientific instruments, more rapid methods of calculation, and researches in magnetism, meteorology, photography, etc. He contributed the well-known article on 'Gravitation,' to the *Penny Cyclopædia* (1837). Equally excellent and popular is his treatise on Trigonometry, written for the *Encyclopædia Metropolitana* (1855). He had deservedly obtained the reputation of being one of the most able and indefatigable of living *savans*. He served on the Royal Commission appointed in 1868 to inquire into the standard weights and measures. In 1869, he communicated to the Royal Astronomical Soc. a remarkable discovery on 'Atmospheric Chromatic Dispersion, as affecting Telescopic Observation, and the mode of correcting it'

## AISLE—AIX.

He became a Companion (civil) of the Bath in 1871, and a Knight Commander in 1872. A. was an F.R.S.; an Hon. Member of the Institution of Civil Engineers, Cor. Member of the French Institute, D.C.L. of Oxford, and LL.D. of Cambridge and Edinburgh.

**AISLE**, n. *īl* [F. *aisle* or *aile*, a wing—from L. *ālā*, a wing]: wing of a house; the side passages of a church—the middle passage is called the *nave*. **AISLED**, a. *īld*, having aisles.

**AISLE**: any lateral division of any part of a church, whether nave, choir, or transept.



Aisle (Melrose Abbey).

The number of aisles varies in the churches of different countries. In England there is only one on each side of the nave or choir; in most foreign countries there are usually two, and at Cologne there are even three. The continental edifices, it would seem, have antiquity in their favor for this arrangement. See **BASILICA**. The word is often incorrectly applied to the open space in the nave of churches between the seats of the congregation.

**AISNE**, *ān*: tributary of the Oise, France; rises in the dept. of Meuse, and flows n.w. through the depts. of Marne and Ardennes, and then w. through that of Aisne and part of Oise, where it falls into the river Oise, above Compiègne. Its course extends to 150 m., of which 70 are navigable.

**AISNE**: a dept. in the n. of France, formed of a part of ancient Picardy and the Isle of France. It belongs to the basin of the Seine, and is intersected by the river A., and by other navigable streams and canals. The soil is fertile; the chief culture is wheat, and other grain. Its rich meadows supply Paris with hay. Area, 2,830 sq. miles. It is the seat of considerable cotton and other manufactures, the centre of which is St. Quentin (q.v.), and at St. Gobin is the famous manufactory of mirrors. The dept. is divided into 5 arrondissements and 37 cantons. Pop. (1891) 545,493. The chief town is Laon (q.v.).

**AIT**, n. *āt* [a contr. of *eyot*—from *eye*, an island]: a small flat island in a river.

**AIX**, *āks*: town in France, formerly cap. of Provence, now the chief town of an arrondissement in the dept. of the Bouches du-Rhone. It is believed to have been built by the Roman consul C. Sextius, B.C. 120, on account of the mineral springs in the neighborhood, and thence called *Aquæ Sextiæ*. A. is the seat of a court of appeal; and has an academy for theology and law, and a public library with nearly 100,000 vols., and 1.100 MSS. The baptistery of the

## AIX.

cathedral is believed to have been originally a temple of Apollo. The numerous public fountains give the place a pleasant appearance: one has a sculpture of the Good King René, by David. There is also an old clock-tower, the machinery of which, when the clock strikes, sets various quaint-looking figures in motion. The industry of this again flourishing town consists chiefly in the cultivation of the olive, in cotton spinning, leather-dressing, and trade in oil, wine, almonds, etc. The warm springs are slightly sulphureous, with a temperature 90° to 100° F., clear and transparent as the purest well-water, almost free from smell, yet with a slightly bitter taste. They have the reputation of improving the beauty of the skin, and are on this account especially frequented by women. The field on which Marius defeated the Teutones lies in the plain between A. and Arles. In the middle ages, under the counts of Provence (see RÉNÉ), A. was long the literary capital of Southern Europe. Pop. (1881) 23,887; (1893) 29,000.

AIX (*Aquæ Gratianæ Allobrogum*): small town of Savoy, in a delightful valley near Lake Bourget, seven m. n. from Chambéry. It was a much frequented bathing-place in the times of the Roman empire, and among its numerous remains of ancient times are the arch of Pomponius, the ruins of a temple and of a vaporarium. The king of Sardinia has a palace here. The hot springs, two in number, are of sulphureous quality, and of a temperature above 100° F. They are used both for drinking and as baths, and attract annually above 2,000 visitors. Pop. of A. about 3,000.

## AIX-LA-CHAPELLE.

AIX-LA-CHAPELLE, *āks-lá-shá-pěł'* (Ger. AACHEN): cap. of a district in Rhenish Prussia. It is in a fertile hollow, surrounded by heights, and watered by the Wurm; n. lat.  $50^{\circ} 47'$ , e. long.  $6^{\circ} 5'$ ; pop. (1900) 135,245, of whom a very small proportion are Protestants. A. is the centre of numerous thriving manufactories, especially for spinning and weaving woolen fabrics, and for needle and pin-making. There are also immense manufactures of machinery, bells, glass buttons, chemicals, cigars, etc. As a principal station on the Belgian-Rhenish railways, A. is an important staple place of Prussian trade. The city is rich in historical associations. It emerges from historical obscurity about the time of Pepin, and Charlemagne established its world-wide celebrity. Whether it was the birthplace of Charlemagne, is doubtful, but it became his grave, 814. In 796, Charlemagne caused the palace, called the Imperial Palace, to be entirely rebuilt, as well as the chapel, in which Pepin had celebrated Christmas in 765. The two buildings were connected by a colonnade, which fell into ruins a short time before the emperor's death, probably from the effects of an earthquake. The present town-house has been built on the ruins of the palace; the chapel, after being destroyed by the Normans, was rebuilt on the ancient plan by Otho III., 983, and forms the nucleus of the present cathedral. This ancient cathedral is in the form of an octagon, which, with various additions round it, forms, on the outside, a sixteen-sided figure. In the middle of the octagon, a stone with the inscription 'CAROLO MAGNO,' marks the grave of Charlemagne. Otho III. opened the vault in 997. The body of the emperor was found in a wonderful state of preservation, seated upon a marble chair, dressed in his robes, his sceptre in his hand, the Gospel on his knee, a piece of the holy cross on his head, and a pilgrim's scrip attached to his girdle. Otho caused the tomb to be built up again, after repairing the injuries of the arch. In 1165, when the emperor Frederick I. caused the vault to be re-opened, the bones of the great emperor were enshrined in a casket of gold and silver, and a large and beautifully-wrought chandelier was hung up over the tomb as a memorial. In 1215 Frederick II. caused the remains of the emperor to be inclosed in a costly chest, in which they are yet kept in the sacristy. The marble chair was, in later times, overlaid with gold plates, and used till 1558 at the imperial coronations, as a throne for the newly-crowned emperor. The imperial insignia were removed to Vienna in 1795. In the 14th c., a choir in the Gothic style was added to the e. side of the octagon, which had been built in the Byzantine style; while on the w. side, a square belfry was joined to it, as well as two small round towers, with winding stairs leading to the treasury. Here are kept the so-called 'great relics,' which, once in seven years, in the month of July, are still shown to the people, from the gallery of the tower. This spectacle attracts many thousands of strangers. Much has of late years been done to restore this venerable pile. The columns brought by Charlemagne from the palace of the exarch at Ravenna, to decorate the interior of the octagon, had been carried off by

## AIX-LA-CHAPELLE.

the French; and although part of them had been restored at the peace of Paris, they were not replaced in the building till recently.

The town-house—which incloses the remains of the Imperial Palace—adorns the market-place, having the Bell or Market Tower on the left, and on the right the Granus Tower, a memorial of old Roman times. The coronation-hall, 162 ft. long, 60 ft. wide, in the interior of the town-house, was, in the last c., divided in the middle by a wooden partition. This noble hall, in which thirty-five German emperors and fourteen empresses have been crowned, has been restored to its original form, and the walls have been lately decorated with large fresco-paintings of scenes from the life of Charlemagne, by Reihel. Before the town-house stands a beautiful fountain, with a bronze statue of Charlemagne. In the church of the Franciscans are to be seen a fine picture of the Taking Down of Christ from the Cross, by Vandyck, and two other pictures representing the Crucifixion, by A. Diepenbeeck. At a short distance from A., and surrounded by the river, stands Frankenburg, once the favorite abode of Charlemagne and of Fastrada, and rich in legends. It has been rebuilt from its romantic ruins. As a town A. has recently been much improved. It now has many fine buildings, among which are several large and splendid hotels. From being a quiet old city of historical interest, it has become a centre of manufacturing industry. In 1870, a new Polytechnic School was erected. A. was formerly noted for its gambling-tables; but these are no longer allowed.

The name of Aix or Aachen is evidently derived from the springs, for which the place has been always famous. See AA. The name Aquis Granum, which it received about the 3d c., may possibly be derived from Granus, one of the names of Apollo, who was worshiped by the Romans near springs. The French name, A., refers to the chapel of the palace. Charlemagne granted extraordinary privileges to this city. The citizens were exempted, in all parts of the empire, from personal and military service, from imprisonment, and from all taxes. The city also possessed the right of sanctuary: 'the air of A. made all free, even outlaws.' In the middle ages, this free imperial city (then included in the circle of Westphalia) contained more than 100,000 inhabitants; and held an important place among the confederated cities of the Rhine. The emperors were crowned in A. from Louis the Pious to Ferdinand I. (813–1531). Seventeen imperial diets and 11 provincial councils were held within its walls. The removal of the coronations to Frankfort, the religious contests of the 16th and 17th centuries, a great fire which in 1656 consumed about 4,000 houses in the city, combined with other causes to bring into decay this once flourishing community. In 1793, Jan., and again in 1794, A. was occupied by the French. By the treaties concluded at Campo Formio and Lunéville, it was formally ceded to France, and became the cap. of the department of Roer; at length, in 1815, the city fell to Prussia. See Quix *Geschichte der Stadt A.* (History of A.), 1841.

## AIX-LA-CHAPELLE.

The MINERAL SPRINGS of A., of which six are hot, and two cold, were known in the time of Charlemagne, and were much frequented as early as 1170. The hot springs are strongly sulphurous, and contain also hydrochlorates. The temperature varies from 111°–136° F. They act chiefly on the liver, and on the mucous surfaces and skin, and are therefore efficacious in cases of gout, rheumatism, cutaneous diseases, etc. The most remarkable is the 'Emperor's Spring,' which rises in the middle of the Hôtel Kaiserbad. The baths themselves are from four to five ft. deep, and are built quite in the old Roman style. The cold springs are chalybeate, and not so copious. The new 'Eisenquelle' (iron spring), first discovered in 1829, is provided with an elegant bath-house. The well-proved medicinal virtues of the mineral springs of A. bring yearly to the city many thousands of strangers.

TREATIES OF PEACE, and CONGRESS OF A.—The first Peace of A. ended the war carried on between France and Spain for the possession of the Spanish Netherlands. On the death of Philip IV., Louis XIV. laid claim to a large portion of those territories in the name of his wife, Maria Theresa, the daughter of Philip, urging the law of succession prevailing in Brabant and Namur respecting private property. The victorious progress of Louis was checked by the triple alliance between England, Holland, and Sweden; and a treaty of peace was concluded at A. in 1668, by which France retained possession of the fortresses of Charleroi, Lille, etc., which she had already taken.

The second Peace of A. concluded the war respecting the succession of Maria Theresa to the empire. See SUCCESSION, WARS OF. After the war had been carried on with various success for eight years, peace was concluded in 1748. In general, the possessions of the several states remained as before the war. Austria ceded Parma and Placentia to the Spanish infante, Philip; and the possession of Silesia was guaranteed to Prussia. The privilege of the Assiento Treaty (q.v.) was anew confirmed to England for four years, and the pretender was expelled from France. Owing chiefly to the exertions of her minister, Kaunitz, Austria came off with but small sacrifice, while England, notwithstanding her splendid victories, derived little solid advantage, and was left with a debt raised to £80,000,000.

The Congress of A. was held in 1818, for regulating the affairs of Europe after the war. It began on the 30th Sept., and ended Nov. 21. Its principal object was the withdrawal from France of the army of occupation, 150,000 strong, as well as the receiving of France again into the alliance of the Great Powers. The emperors of Russia and Austria, and the king of Prussia, were personally present. The plenipotentiaries were Metternich, Castlereagh, and Wellington, Hardenberg and Bernstorff, Nesselrode and Capo d'Istrias, with Richelieu on the part of France. France having engaged to complete the payment of the stipulated sums of money, was admitted to take part in the deliberations, and the five great powers assembled, signed a protocol

## AJACCIO—AJMEER.

announcing a policy, known as that of the 'Holy Alliance' (q. v.)

**AJACCIO**, *â-yât'chō*: chief town of the island of Corsica, which forms a dept. of France. The chief employments are the anchovy and pearl fisheries, and the trade in wine and olive oil, which the neighborhood produces in abundance, and of good quality. The harbor is protected by a strong fort. A. is remarkable as the birthplace of Napoleon; the house is still to be seen. Pop. (1896) 20,561.

**AJAN**, *â-zhân'*: a portion of the e. coast of Africa, extending from Cape Guardafui nearly to the equator.

**AJAR**, ad. *ă-jâr'* [Scot. *on char*; AS. *on cyrre*, to a side, on the turn: AS. *ceorran*, to turn: Swiss, *achar*, ajar]: a little opened; half open.

**AJAX**, *ă'jaks*: name of two of the Greek heroes of the Trojan war. One of them was called A. the Less, or the Loerian, being the son of Oïleus, king of the Loerians. At the head of forty Loerian ships, he sailed against Troy, and was one of the bravest of the Greek heroes; in swiftness of foot he excelled all except Achilles. When Cassandra fled to the temple of Minerva, after the taking of Troy, it is said that A. tore her from it by force, and dragged her away captive. Other legends are to the effect that he even violated the prophetess in the temple. Though he exculpated himself by an oath when accused of this crime by Ulysses, yet he did not escape the vengeance of the goddess, who caused him to be engulfed in the waves.

The other A., called by the Greeks the Greater, was the son of Telamon, king of Salamis, and, by his mother's side, a grandson of Ææus. He sailed against Troy with twelve ships, and is represented by Homer as, next to Achilles, the bravest and handsomest of the Greeks. After the death of Achilles, A. and Ulysses contended for the arms of the hero, and the prize was adjudged to Ulysses, which threw A. into such a state of rage and despair that he killed himself with his sword. This melancholy fate is the subject of one of the extant tragedies of Sophocles.

**AJMEER**, *ăj-mēr'*: one of the districts of Hindustan, directly under the government of India, lat. 25° 43'–26° 42'; long. 74° 22'–75° 33'. Its length from s.e. to n.w. is about 80 m.; breadth, 50; 2,661 sq. miles. The surface towards the s.e. is generally level. In the n., n.w., and w., it is broken by mountains and hills of the Aravulli range. The mountain of Taragurh, above the city of Ajmeer, contains carbonate of lead, manganese, copper, and abundance of iron ore. The general elevation of the plain of A. is about 2,000 ft., and the frosts in the winter are sometimes severe. Strong breezes are prevalent, and the climate on the whole is healthy. The scarcity of water, however, often occasions great distress. The only permanent stream is the Korce, the water of which is so impregnated with mineral salts as to be unfit for drink except during the rains. To compensate for this deficiency, water-tanks are numerous. The staple crop is bajra (*Holcus spicatus*). Sheep are reared in great numbers, and wool is cheap, affording the material of



## AJMEER—AKBAR.

clothing to the lower orders. Among the more prevalent diseases are small-pox and ophthalmia. The present limits of this district do not correspond to its former importance. In the 12th c., at the time of the Mussulman invasion, the sultan of A. and Delhi was the most powerful monarch in India. Under Akbar also, who acquired this territory in 1559, A. was a large and important province. It afterwards fell into the hands of the Mahrattas, from whom it was wrested by the British in 1817. The principal race of inhabitants are the Rajpoots, conquerors of the native Bheels, Mhairs, and Neenas. Pop. (1881) 460,722; of whom about 60,000 are Mussulmans, the rest Hindus; (1891) 542,358.

AJMEER: ancient city of Hindustan, cap. of the British district of A., 228 m. w. from Agra, in a picturesque and rocky valley, at the foot of the mountain of Taragurh, which is crowned by a fort, formerly strong, now dismantled. The city is surrounded by a stone wall, with five lofty and handsome gateways on the w. and n. Most of the streets are narrow and dirty, but some of them are spacious, and contain many fine residences, besides several mosques and temples of very massive architecture. A. is the seat of a British political agency, a medical school, and an English and Oriental school. The tomb of the Mussulman saint, Kwajah, within the town, is held in great veneration, and pilgrimages are made to it even by Hindus. The emperor Akbar journeyed to it from Agra on foot in 1570, in fulfilment of a vow after the visit of his son Jehanghir. In Oct., a great annual fair is held in honor of the saint, at which ridiculous miracles are pretended to be wrought. Pop. (1871), 34,763; (1891) 68,843.

AJURUOCA, *á-zhó-ró-õ'ká*: town of the province of Minas Geraes, Brazil, 100 m. n.w. from Rio de Janeiro, in a fertile country at the n. base of the Sierra Mantiqueira, on the river Ajuruoca, one of the head waters of the Parana. The surrounding district formerly yielded much gold, which has apparently been exhausted; but it produces excellent crops of tobacco, millet, mandioc, sugar, and coffee. Swine are reared for the market of Rio de Janeiro. Pop. (including dist.) about 12,000.

AKABAH, GULF OF: see RED SEA.

AKBAR, *ák'bér* (i.e., 'Very Great'), properly JELAL-ED-DIN-MOHAMMED, Emperor of Hindustan: 1542–1605: the greatest Asiatic monarch of modern times. His father, Humayun, was deprived of the throne by usurpers, and took refuge in Persia; and on the way thither, in the town of Amerkote, A. was born. Humayun recovered the throne of Delhi after an exile of 12 years; but died within a year. The young prince at first committed the administration to a regent-minister; but finding his authority degenerating into tyranny, he, by a bold stroke, shook it off, and took the power into his own hands, 1558. At this time, only a few of the many provinces once subdued by the Mongol invaders were actually subject to the throne of Delhi; in ten or twelve years, A.'s empire embraced the whole of Hindustan & of the Deccan; but although great in subduing, A. was yet greater

## AKBARPUR—AKENSIDE.

in ruling. The wisdom, vigor, and humanity with which he organized and administered his vast dominions, are unexampled in the east. He promoted commerce by constructing roads, establishing a uniform system of weights and measures, and a vigorous police. He exercised the utmost vigilance over his viceroys of provinces and other officers, to see that no extortion was practiced, and that justice was impartially administered to all classes of his subjects. For the adjustment of taxation, the lands were accurately measured, and the statistics taken, not only of the population, but of the resources of each province. For a Mohammedan, the tolerance with which he treated other religions was wonderful. He was fond of inquiries as to religious beliefs; and Portuguese missionaries from Goa were sent at his request to give him an account of the Christian faith. He even attempted to promulgate a new religion of his own, which, however, never took root. Literature received great encouragement. Schools were established for the education both of Hindus and Mohammedans; and numbers of Hindu works were translated from Sanscrit into Persian. Abu-l-Fazl, the able minister of A., has left a valuable history of his master's reign, entitled *Akbar-nameh* (History of A.); the third vol., containing a description of A.'s empire, derived from the statistical inquiries above mentioned, and entitled *Ayin-i-Akbari* (Institutes of A.), has been translated into English by Gladwin (3 vols., Calcutta, 1786; and London, 1800). A.'s latter days were embittered by the death of two of his sons from dissipation, and the rebellious conduct of the third, Selim (known as Jehanghir), who succeeded his father at his death.

AKBARPUR, *ák'bèr-pôr'*: a town of India, in the British dist. of Cawnpore, 28 m. w. from Cawnpore, on the route from Cawnpore to Etawa. It is the capital of a pergunnah of the same name. Pop. 6,330.

AKE, n. *āk*: another spelling of ACHE, which see.

AKEE, *ă-kē'* (*Cupania Blighia sapida*): fruit tree belonging to the natural order *Sapindaceæ* (q. v.), native of Guinea, introduced into Jamaica in the end of last century. It grows to the height of 20–25 ft. or upwards, with numerous branches and alternate pinnate leaves, resembling those of the ash. The flowers are small, white, on axillary racemes; the fruit is about the size of a goose's egg, with three cells and three seeds, and its succulent aril has a grateful subacid flavor. The fruit is little inferior to a nectarine. Boiled down with sugar and cinnamon, it is used as a remedy for diarrhea. The distilled water of the flowers is used by negro women as a cosmetic. The A. sometimes produces fruit in hot-houses in Britain, but to obtain this, the roots should be cramped in pots.—The AKI of New Zealand is a totally different plant, *Metrosideros buxifolia*, of the natural order *Myrtaceæ*, a shrub, which sends out lateral roots, and so attains the summits of the loftiest trees.

À KEMPIS, THOMAS: see KEMPIS, THOMAS à.

AKENSIDE, *ă'kèn-sīd*, MARK: 1721–70; b. Newcastle-on-Tyne, where his father was a butcher; d. London: author

## AKERS—AKHLAT.

of the didactic poem, *The Pleasures of the Imagination*, and some medical works. He began to study for the Presb. ministry, but soon turned to the study of medicine. He graduated as a physician at Leyden 1744, and practiced at Northampton, then at Hampstead, and finally in London, but with small success as a physician, owing, it is said, to his haughty and pedantic manner. He gained praise for some medical writings. At Leyden, he had formed an intimacy with Jeremiah Dyson, and this rich and generous friend allowed him £300 a year. His later poetry, chiefly odes and hymns, did not attain the popularity of his *Pleasures of the Imagination*, written in his 23d year. In *Peregrine Pickle*, Smollett has satirically sketched his character. A. has little originality, and is lacking in emotion: he has a rapid and stately march of lofty and often graceful words. A complete ed. of his works was pub. London 1773.

AKERS, *ă'kêrz*, BENJAMIN PAUL: sculptor: 1825, July 10—1861, May 21; b. Saccarappa, Me. He received an ordinary country school education, worked in a printing office in Portland, and had his attention turned to sculpture by seeing a plaster cast. He studied the art in Boston and Portland, and made busts of Longfellow and others, and ideal heads. In 1851 he went to Italy, where he remained two years; and returned there 1855 and 1859, when his health broke down. Among his principal works are *Peace, Una and the Lion, Isaiah, The Dead Pearl-Diver, Milton, Diana and Endymion, Paul and Francesca*, etc. He died in Philadelphia.

AKETON, *ăk'tôn*: a name for a portion of armor used in the feudal times, called the Gambeson (q.v.).

AKHALZIKH, *ă-kâl-zêk'*, or AKISKA, *ă-kis'ká*: town of Russian Armenia, 90 m. w. from Tiflis, on the left bank of the Dalka, an affluent of the Kur. It is in a valley of the Keldir mountains, at such an elevation above the sea, that the winter is severe, although the summer is very hot. A. was anciently called Keldir or Chaldir. It is without walls, but has a strong citadel on a rock. The mosque of Sultan Ahmed, built on the model of St. Sophia, in Constantinople, has a library which was accounted one of the most valuable in the east; but the Russians, after acquiring possession of A., carried off great part of its most valuable treasures to St. Petersburg. Maize, wheat, barley, flax, cotton, silk, grapes, figs, and honey are produced in the surrounding district. The town has some manufactures, and an active trade with various places on the Black Sea. Pop. about 15,000, two-thirds of whom are Armenians.

AK-HISSAR, *ăk'hîs-sâr'* (anc. *Thyatira*): town of Asia Minor, in Anatolia, 52 m. n.e. from Smyrna, on somewhat elevated ground in the valley of the Hyllus. The streets are paved with carved stone, and other relics of antiquity abound; but there are no ruins of ancient buildings. Cotton goods are exported. Pop. estimated 10,000, of whom two-thirds are Turks, the remainder mostly Greeks.

AKHLAT, *ăk-lăt'*, or ARDISH, *ar-dêsh'*: town of Asiatic

## AKHMIM—AKRON.

Turkey, in the vilayet of Van, and 58 m. n.w. from Van. It is on the n.w. shore of Lake Van, and surrounded by a double wall and moat, and further protected by towers and a citadel. The old city of A., at a little distance from the present town in a ravine, was the residence of the kings of Armenia, and the scene of many conflicts between the Greeks, Armenians, and Persians; and was completely destroyed by earthquake 1246.—Pop. estimated 6,000.

AKHMIM: see EKHMIM.

AKHTYRKA, *ák-tēr'ká*: a town of European Russia, in the govt. of Kharkov, 58 m. n.w. from Kharkov, on the small river A., an affluent of the Dnieper. It was founded by the Poles in 1641. It has manufactures of light textile fabrics, and a great annual fair. The neighborhood is very fertile. Pop. about 25,000.

AKIMBO, a. *ă-kím'bō* [AS. *a*, at or on; W. *cam*; It. *sghembo*, crooked, athwart; Gr. *skambos*, crooked, bow-legged]: arched; crooked; bent.

AKIN, a. *ă-kĭn'* [AS. *a* for *of*, and *cyn*, family]: of kin or near kin; related to by blood; having the same properties.

AL [L.]: a prefix, being another form of *ad*, signifying to': in *Ar.* AL, with its form EL, signifies *the*.

AKJERMANN, *ák'yér-mán'*, or AKKERMANN, *á'kér-mán'*: town of Russia, in Bessarabia, on the Black Sea, at the mouth of the Dniester, with a citadel and harbor. It is the Alba Julia of the Romans; and called, by the Poles, Bialogrod, which, as well as A., signifies the *white town*. It is of some importance, on account of its harbor, fortifications, commerce, and especially its extensive salt pits. Pop. (1880), 28,944; (1897) 28,303.

The Treaty supplementary of that of Bucharest (1812) concluded at A. in 1826, between Russia and Turkey, secured to Russia the free navigation of the Black Sea, and indemnification for losses sustained by her subjects from the Barbary corsairs; the institution of divans in Moldavia and Wallachia, and the power of re-electing the hospodars after their term of office; and the restoration of the privileges of Servia, in which Turkish troops were only to retain possession of the fortresses. The boundaries in Asia were to remain as they then stood, Russia consequently retaining the Turkish fortresses of which she had gained possession. The non-fulfilment of this treaty on the part of the Porte occasioned the war of 1828, terminated by the peace of Adrianople.

AKRON, *ăk'rōn*: city, cap. of Summit co., Ohio; at intersection of the Pennsylvania and Ohio and the Ohio and Erie canals, and on six railroads; 40 m. s. by e. of Cleveland, 246 m. n.e. of Cincinnati. It is a beautiful and enterprising city, 400 ft. above Lake Erie, being the highest ground on the line of the canal, between the lake and the Ohio river. The canals and the Little Cuyahoga river furnish water power for mills, etc. The manufactures are extensive, including agricultural implements, mining machinery, rubber goods, pottery, sewer-pipe, flour, matches, and many other articles. One of the most im-

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portant and sources of wealth is the clay fields of Akron, which produce some of the finest clay in the world. It is made into sewer-pipes, fire-brick, tiling, and all kinds of pottery. In the vicinity of A. are immense beds of mineral for fire-proof paint, which is largely exported. According to the U. S. census, the manufacturing industries of A. for the year ending 1900, May 31, were as follows: number of industrial establishments 431; capital employed \$24,199,310; hands 9,630; wages \$3,971,307; cost of materials \$13,474,282; value of products \$23,610,099; per cent. of increase since 1890: capital 50; wage-earners 18; wages 19; expenses 54; materials 31; value products 29. Statistics of education for 1889 show 11 public school buildings with accommodation for 4,700 pupils; a total of 89 teachers, and average daily attendance 3,925. There is a business college opened 1866, having about 50 pupils; and Buchtel College (Univ.) opened 1872. There are 3 national banks (combined capital \$575,000), 3 state banks (cap. \$350,000), and 2 fire insurance companies. A. has one daily paper, one Sunday, 2 tri-weekly, 4 weekly, one semi-monthly (organ of Buchtel College), and 4 monthly publications, of which one is agricultural, one educational, one literary, and one devoted to taxidermy and kindred subjects. There are free public libraries, and several parks. A. was settled 1825. Pop. (1890) 27,702; (1900) 27,702.

AKSHEHR, *ák-shé'hr'* [*White City*, anc. *Philomelion*]: city of Asiatic Turkey, in the pashalic of Karaman, 5 m. s. of the salt lake of Akshehr, at the entrance of an extensive mountain valley. The houses rise in successive terraces on the slope of a hill. There is here a celebrated carpet manufactory. Pop. estimated 6,000.

AK-SU, *ák-só'*: town of eastern Turkestan, 260 m. n.e. from Yarkand, on an affluent of the Tarim, and on the s. base of the Thian-shan mountains. It was formerly the residence of the kings of Kashgar and Yarkand. While eastern Turkestan formed part of the Chinese Empire, it was an important garrison town. In 1867, it was captured by the Atalik-Gkaze. In 1716, it was nearly destroyed by an earthquake, and in the beginning of the present c., suffered terribly from an inundation. It is celebrated for its manufactures of cotton cloth and saddlery. It is much resorted to by caravans, as an entrepôt of commerce between Russia, Tartary, and China. Sheep and cattle are extensively reared in the neighborhood. Pop. variously estimated from 6,000 to 20,000 and upwards. See TURKESTAN, EASTERN.

AKYAB, *ák-yáb'*: town of Farther India, chief seaport of the dist. of Akyab or Aracan Proper, cap. of the province of Aracan. It was formerly called Twet-twe, and sometimes still receives that name. It is on the e. side of the island of Akyab, at the mouth of the Kuladyne or Coladyne. The houses are well built, the streets broad and regular. The town is rapidly rising in importance. Lighthouses have been erected. Pop. 37,038.—The DISTRICT of A. has 5,535 sq. m.; pop. over 670,000.

## ALABAMA.

ALABAMA, *äl-a-bâ'ma*: state; one of the United States of America; 21st in order of admission into the Union, 4th (1880) in cotton, 5th in mules and molasses, 6th in sugar and corn, 7th in rice and iron ore, 16th in agriculture, 17th in pop., 32d in manufactures; name of Creek Indian origin, meaning 'here we rest.'

*Location and Area.*—A. is in lat.  $30^{\circ} 15'$ — $35^{\circ}$  n., long.  $84^{\circ} 56'$ — $88^{\circ} 48'$  w.; bounded n. by Tenn., e. by Ga. and Fla., s. by Fla. and the Gulf of Mexico, w. by Miss.; extreme length n. and s. 336 m., extreme breadth 200 m., average 154 m.; 52,250 sq. m. (33,440,000 acres); gulf-coast 60 m.; navigable rivers 1,500 m.; cap. Montgomery.

*Topography.*—The surface is generally low and nearly level, trending from the hills of the Blue Ridge, in the n.e., to the Gulf. The n. part comprises the fertile valley of the Tennessee river, and a continuation of the great central iron region, and is succeeded by the mineral, Black, and pine belts, the last in the extreme s. The mineral belt abounds in coal, iron ore, gold, and limestone; the Black belt is a prairie on which nearly all the cotton of the state is raised; the valley of the Tennessee river is very fertile, and yields cotton, corn, cereals, and fruit, besides supplying excellent grazing; and the pine belt yields rosin, tar, turpentine, and turpentine-oil in abundance. Dense and valuable forests of cypress are found in numerous swamps near the large rivers. The Tennessee river enters the state in the n.e. corner, takes a circular dip of nearly  $\frac{1}{2}^{\circ}$ , and flows outward in the n.w. corner, toward the Ohio river, which it joins at Paducah. The Mobile river, its tributaries, the Alabama and Tombigbee, and their affluents, the Black Warrior, Cahawba, Coosa, and Tallapoosa, drain the greater part of the state, and discharge into Mobile Bay. All these streams are navigable for a considerable distance, and might be artificially improved to great advantage. The Perdido river separates A. from Fla. Mobile Bay is the largest and finest on the Gulf of Mexico; Grand, Bonsecours, and Perdido bays are too shallow to possess commercial value.

*Climate.*—The climate is temperate and semi-tropical; particularly enjoyable and healthful in the n., where frost is seldom seen and intense heat seldom felt; warmer, with cool nights and light frost, in the central part; and hot, with heavy dews and cool nights, in the s. July is the hottest month, and fruit-trees begin to blossom early in Feb. The temperature ranges  $82^{\circ}$  to  $18^{\circ}$  F. in winter,  $105^{\circ}$  to  $60^{\circ}$  in summer; mean for year a little over  $60^{\circ}$ .

*Geology.*—The Silurian, carboniferous, cretaceous, and tertiary systems are represented in the rock formations. The Silurian and tertiary are here distinguished by a number of valuable mineral springs, some of which, as Blount, St. Clair, Bladen, Tallahatta, and Talladega, have become popular resorts. The mineral region of the n. portion extends from the n.e. corner s.w. about 160 m., and has an average width of 80 m. The central portion shows limestone and chalk, and the s. alluvial and diluvial deposits. The economic provisions of the state are coal, iron, white

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marble, granite, soapstone, flagstone, graphite, potter's, porcelain, and fire clays, and some gold (discovered 1836), silver, copper, and lead. The coal measures contain bituminous coal in seams 1 to 8 ft. thick. Red Mountain, extending across the state more than 100 m., has in its whole course a solid vein of red ore 2 to 8 ft. thick. Brown hematite ore is found in Bibb, Shelby, Jefferson, Talladega, St. Clair, and Claiborne counties. In the n. portion of A. are white, red, cup, pin, and post oak, hickory, chestnut, poplar, cedar, elm, mulberry, and pine; and in the centre and s., where the trees become draped with Spanish moss, are live-oak, cypress, yellow pine, and magnolia. The principal fruit-trees are apple, pear, plum, and peach in the n., and pomegrate, olive, apricot, scuppernong grape, and orange in the s.

*Zoology.*—Game is quite abundant, including deer, wild turkey, wild pigeon, partridge, rabbit, and gray squirrel; the opossum, raccoon, wild cat, prairie-wolf, fox, and bear are occasionally met; lizards, and the moccasin and milk-snake—both very venomous—occupy the swamp regions; and alligators are found in some of the rivers and bayous. Terrapins, turtles, a large variety of fish, and singing and bright-plumage birds also are abundant.

*Agriculture.*—In 1890 the farm-lands covered 19,853,000 acres (of which 7,698,343 were improved); they comprised 157,772 farms, valued, with fences and buildings, at \$111,051,590, and contained implements and machinery valued at \$4,511,645. The live-stock on hand was valued at \$30,776,750. The total yield in farm products was valued at \$66,240,190. The chief products (1880) were: barley 5,281 bush.; Indian corn 25,451,278; oats 3,039,639; rye 28,402; wheat 1,529,657; hay 10,363 tons; rice 810,889 lbs.; cotton 699,654 bales; Irish potatoes 334,925 bushels; sweet potatoes 3,448,819; tobacco 452,426 lbs.; wool 762,207; sugar 94 hogsheads; molasses 795,199 gallons; milk 267,387; butter 7,997,719 lbs.; and cheese 14,091. The live-stock comprised: 113,950 horses; 121,081 mules and asses; 75,534 working oxen; 271,443 milch cows; 404,213 other cattle; 347,538 sheep; and 1,252,462 swine. The value of orchard products was \$32,263.—Official reports (1890) gave: corn, 30,073,036 bushels, from 2,127,548 acres; oats, 3,231,085 bushels, 344,831 acres; wheat, 208,591 bushels, 39,641 acres; rye, 14,618 bushels, 2,190 acres; and (1902) corn, 23,223,623 bushels; oats, 2,320,141; wheat, 632,916. The farm animals 1903, Jan. 1, comprised: horses, 147,769, value \$7,846,319; mules, 155,339, \$10,856,028; milch cows, 234,792, \$4,371,827; oxen and other cattle, 399,319, \$2,975,843; sheep, 212,797, \$330,558; swine, 1,114,083, \$5,102,500—total head 2,264,099; value \$31,483,075.

*Manufactures.*—A. had (1890) 2,977 manufacturing establishments, employing 33,821 hands, using a capital of \$46,122,571, paying in wages \$12,676,029, using materials valued at \$23,432,281, and yielding products valued at \$51,226,605. The chief industry according to capital em-

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ployed was the manufacture of iron and steel, which had 35 establishments, employed a capital of \$17,879,583, paid wages \$2,522,008, materials \$7,425,344, and received \$12,544,227 for products. Next were lumber and other mill products from logs or bolts, 437 establishments, employed capital \$7,225,170, paid wages \$1,836,721, materials \$4,481,362, and received \$8,135,996 for products. Then followed the cotton goods with 13 establishments, having a capital of \$2,853,015, and paying out \$447,173 in wages. The material used was valued at \$1,459,048, and the total amount received for the products was \$2,190,771. Foundry and machine-shop products, engaging 41 establishments and employing a capital of \$2,355,253, came next. These paid \$844,944 wages, the material handled cost \$817,023, and the amount received for products was \$2,195,913. These are followed by steam railroad cars, excluding operation of railroad companies, 3 establishments, \$1,950,044 capital, \$542,549 wages, \$1,287,806 materials, \$2,023,930 products; flouring and grist-mill products, 702 establishments, \$1,410,730 capital, paying \$266,459 wages, working materials valued at \$2,471,828, and \$3,060,452 products. In 1892-3 cotton acreage was 2,271,634, and cotton mills had 213,358 spindles and 3,903 looms. The output of iron ore was (1890) 1,897,815 long tons, (1891) 1,986,830; the production of pig-iron (1892) was 915,296 long tons; number of furnaces 1893, Jan. 1, in blast 28, out of blast 24, total 52. In 1900 there were 5,602 manufacturing establishments, with \$70,370,081 capital and a combined output valued at \$80,741,449. The cotton crop of 1902 was 1,011,325 bales. In 1901 A. ranked fifth among the coal-producing States, with an output of 9,099,052 short tons, spot value \$10,000,892, and the same year the production of iron, chiefly red hematite, was 2,801,732 long tons.

*Commerce.*—In 1880 A. had 43 steam-vessels of 7,168 tons and 73 sailing-vessels of 7,936 tons—total 116 vessels, 15,104 tons; 130 vessels of 61,471 tons entered its only port, Mobile, and 156 vessels of 69,181 tons cleared. Imports were \$743,890; exports, chiefly cotton, \$7,187,703; foreign exports \$1,037. In 1889 the state comprised one U. S. customs district, headquarters at Mobile, and one internal-revenue district, headquarters at Montgomery. During the year ending 1889, June 30, domestic exports were \$3,202,245; imports \$125,329; entrances: American, 59 vessels of 20,190 tons, foreign, 103 vessels of 67,091, total 162 vessels, 87,281 tons; clearances: American, 54 vessels of 15,212 tons, foreign, 103 vessels of 68,629 tons, total 157 vessels, 83,841 tons; 15 foreign steamers of 18,757 tons entered, and 20 of 23,753 tons cleared; 130 American vessels of 10,312.50 tons were registered at the custom-house at Mobile. During the calendar year 1902 the imports of merchandise aggregated in value \$4,584,548, and the exports \$11,989,917, an increase in both accounts over the preceding year.

*Railroads.*—In 1880 there were 1787 m. of main and 132 m. of side tracks, total value of railroad property



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\$17,574,583; (1890) 3,422; (1901) about 4,415, with a total investment of over \$115,000,000.

*Religion.*—According to the revised census report on statistics of churches issued 1895, A. had in the census year 6,383 religious organizations, 6,013 church edifices (and 389 halls used for religious purposes), 559,171 communicants, and church property valued at \$6,768,477. The following table gives in detail the denominational statistics, omitting halls in column of 'edifices':

Denominations.	Organizations	Edifices.	Members.	Value of church prop.
Advent.....	15	13	688	\$ 3,055
Reg. Bapt., S.....	1,495	1,373	98,185	1,170,219
Reg. Bapt., Colored.....	1,374	1,341	142,437	795,384
Freewill Bapt.....	15	13	847	1,245
Primitiv. Bapt.....	384	349	15,441	132,414
Other Bapt.....	34	33	1,495	11,100
Rom. Cath.....	70	42	13,230	602,750
Christians.....	10	9	687	5,625
Congregational.....	28	22	1,683	91,755
Disciples of Christ.....	201	128	9,201	78,185
Jewish congregations....	8	5	3,168	103,500
Latter-day Saints.....	14	2	592	350
Lutheran Gen. Synod....	1	1	175	2,000
Luth. United Synod.....	3	1	75	1,200
Lutheran Syn. Confer....	5	5	534	12,200
Luth. Ind. Synods.....	1	.....	7	.....
Meth. Episc.....	318	289	18,517	248,300
Meth. Episc., S.....	1,101	1,050	57,912	1,123,523
Meth. Prot.,.....	77	72	4,432	79,850
African Meth.....	710	814	129,107	813,265
Other Meth.....	65	59	2,596	14,050
Presb., N.....	5	4	152	17,300
Presb., S.....	172	142	10,560	573,400
Cumberland Presb.....	202	175	10,494	213,905
Associate Presb.....	5	5	220	13,150
Ref. Presb.....	1	1	76	1,500
Prot. Episc.....	58	59	6,085	655,752
Universalist.....	10	6	365	3,500
Ind. bodies.....	1	.....	150	.....

The state with w. Fla. constitutes the Rom. Cath. diocese of Mobile, and alone, the Prot. Episc. diocese of A., with a bishop resident at Spring Hill and an asst. bishop at Montgomery.

At the eighth international Sunday-school convention, held in Boston, 1896, June 23-26, there were reported in A. 3,850 evangelical Sunday schools, 23,725 officers and teachers, and 205,240 scholars—total members 228,965, a gain of 2,254 in three years.

*Education.*—The biennial report of the supt. of education, closing with the school-year 1893-4, showed: Estimated number of children of school age 608,000; enrolled in public schools 306,014; in average daily attendance 185,100; public school districts 6,608; public schools 6,687; value of school property \$1,373,000, receipts \$780,953; and expenditures \$663,359, of which \$618,668 was for teachers' salaries. A preliminary report for 1895-6 showed an estimated school population of 322,644 white children and 268,113 colored—total, 590,757, and a total enrollment of 319,526. For secondary instruction there were

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51 public high schools, with 109 instructors, 2,593 pupils in secondary grades and 6,182 below such grades, 7,850 vols. in the libraries, grounds and buildings valued at \$170,250, and income \$63,239. The private secondary schools numbered 79 and had 181 instructors, 3,304 pupils in secondary grades and 4,172 below those grades, 17,287 vols. in the libraries, grounds and buildings valued at \$519,830, and income \$85,481. Six public normal schools reported 65 instructors, 1,498 students in all depts., 336 pupils in model classes, and income \$61,598; and 5 private normal schools reported 102 instructors, 1,454 students in all depts., grounds and buildings valued at \$220,000, and income \$72,172. The public and private normal schools and colleges with normal classes had in all 355 students preparing for teaching. Of the private secondary schools, 64 were non-sectarian, and 15 were under the auspices of religious denominations. There were 9 universities and colleges of liberal arts, with a total of 95 professors and instructors, 1,558 students in all depts. (1,213 males and 345 females), 37,000 vols. in the libraries, grounds and buildings valued at \$880,500, scientific apparatus and libraries \$154,375, productive funds \$365,000, and income (1894-5) \$106,625. Of all colleges, 3 were for males only, and 6 were co-educational. The colleges exclusively for women numbered 11, and had a total of 115 instructors, 1,390 students, 15,416 vols. in the libraries, grounds and buildings valued at \$430,000, scientific apparatus and libraries \$18,775, and income \$127,537. The A. Polytechnic Institute had 22 instructors, 271 students in all depts., 8 fellowships, 11 scholarships, 9,939 vols. in the library, grounds and buildings valued at \$135,000, scientific apparatus and libraries \$86,000, productive funds \$253,500, and income \$56,059.

Public normal schools were maintained at Florence, Jacksonville, Livingston (girls), Troy, Huntsville (colored), Montgomery (colored), and Tuskegee (colored). The colleges of liberal arts were: Blount College, Blountsville; St. Bernard College, Cullman; Howard College, East Lake; Southern University, Greensboro; Lafayette College, Lafayette; Linesville College, Linesville; Selma Univ., Selma; Spring Hill College, Spring Hill; and the Univ. of A., University Station. The principal colleges for women were: Athens Female College (Meth. Episc.), Athens; Bailey Springs Univ. (non-sect.), Bailey Springs; East Lake Athenæum (non-sect.), East Lake; Union Female College (non-sect.), Eufaula; Judson Female Institute (Bapt.), Marion; Marion Female Seminary (non-sect.), Marion; Central Female College (Bapt.), Tuscaloosa; and the A. Conference Female College (Meth. Episc.), Tuskegee. The Huntsville Female Seminary was closed 1894-5, and the Huntsville Female College was removed to Gadsden, and named the Jones College for Young Ladies. The State Agricultural and Mechanical College, at Auburn, had an experiment station staff of 6, faculty 22, students in all depts. 252, vols. in library 9,939, scientific pamphlets 8,000, area under cultivation 140 acres, value \$3,000, and buildings and equipments valued at \$197,260. A similar institution for colored students at Normal had ex-

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perimental staff 2, faculty 11, students 172, vols. in library 1,985, area under cultivation 230 acres, value \$10,000, and buildings and equipments valued at \$7,450.

*Illiteracy.*—In 1880 there were 851,780 persons 10 years old and upward enumerated, of whom 370,279 were unable to read, and 433,447 unable to write. The whites unable to write numbered 111,767. The percentage of total illiterates was 50.9; of native white illiterates 25; and of foreign white illiterates 7.7. In 1890 the number 10 years old and upward enumerated was 1,069,545, of whom 438,535 were classified as illiterates, 41 per cent. Of 590,115 whites, 107,335, or 18.2 per cent., were illiterates; of native whites 106,235, or 18.4 per cent.; and of foreign whites 1,100, or 7.9 per cent., were so classified. The colored population of same age limit numbered 479,430, of 331,200, or 69.1 per cent., were illiterate.

*Libraries.*—According to the govt. report on public libraries in the United States of 1,000 vols. and upward each 1900, A. had 43 libraries, containing 196,521 bound vols., and 29,588 pamphlets. The libraries comprised 9 general, 15 school, 11 college, 2 college society, 2 theological, 2 state, 1 medical, 1 Y. M. C. A., 1 scientific, and others not classified.

*Periodicals.*—In 1902 there were 232 newspapers and periodicals, of which 20 were daily, 3 semi-weekly, 183 weekly, 3 by-weekly, 6 semi-monthly, and 17 monthly publications.

*Finances.*—The report of the state treas. for the fiscal year ending 1896, Sep. 30, showed balance at beginning of year \$18,366, receipts from all sources \$1,999,930, total \$2,018,296, disbursements for all purposes \$1,959,977, and balance \$58,319. The assessed valuation of taxable property 1895 was \$241,338,025, and the amount of taxes \$1,328,817; and in 1901 the assessed valuation was \$284,622,937, the tax rate was 5½ mills, and amount of taxes \$1,565,437. The total bonded debt was \$9,357,600.

*Banking.*—1895, Oct. 31, there were 26 national banks in operation and 12 in liquidation; cap. of active banks \$3,585,000, deposits \$5,586,282, loans and discounts \$6,319,975, and resources \$1,559,949. There were also 17 state banks with cap. \$858,500, deposits \$817,022 resources \$1,981,889, and surplus \$253,287; and 7 private banks with cap. \$435,050, deposits \$512,609, and resources \$1,085,596.

*Post-offices.*—1896, Jan. 1, the total number was 2,213, of which 3 were first class, 3 second class, 30 third class (36 presidential), and 2,177 fourth class. There were 310 money-order offices and 16 limited money-order offices.

*Cotton Industry.*—The cotton crop 1895 was reported as 1,000,000 bales. In that year there were 26 cotton mills in operation in the state, with a total of 164,898 spindles, 2,756 looms, and 517 cards. Of all mills, 21 reported an aggregate capital of \$3,678,000. The largest plant was at Huntsville, which had \$650,000 capital, 25,000 spindles, and 750 looms, and the next two largest, at Gadsden and Rome, had nearly the same capital and equipment, and were operated by Mass. corporations. Two other mills

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were capitalized at \$500,000 each. In 1896 the number of spindles had increased to 186,269, and looms 3,170.

*History.*—1539, May, Hernando De Soto (q.v.), in his romantic quest of the new El Dorado, landed at Espiritu Santo Bay, Fla., whence with his companions he penetrated to the interior, passing n. through Fla. and Ga., as far as lat. 35° n., and then s., reaching the site of Mobile 1540, Oct. 18, and soon afterward having a severe engagement with the natives. This event was the genesis of the recorded history of A. No permanent settlement was made till 1702, when the French gov. of La., Bienville, moved the seat of the colony from Biloxi to Mobile Bay, and established a settlement, which was nearly broken up by famine a few years afterward. In 1711 the French platted the present city of Mobile, and all their settlements in this region were considered a part of La. colony till 1763, when, by the treaty of Paris, France ceded the territory to Great Britain. In 1783 the portion of the present state s. of lat. 31° n. was ceded by Great Britain to Spain, which made it a part of w. Fla., while the rest of the country was acquired by the United States, which subsequently claimed the Spanish part also under the La. purchase—a claim that Spain did not concede till 1819. After its acquisition by the United States, the greater portion of A. was considered a part of Ga., though S. C. claimed a strip 12 m. wide, along the s. boundary of Tenn.; and was incorporated in the Miss. Terr. 1802. In 1803 the portion of Fla. w. of the Perdido river was ceded to the United States by its treaty with France. During the war between the United States and Great Britain 1812–14, portions of Fla. were occupied by the British, and captured from them by the Americans under Gen. Jackson, and subsequently were restored to Spain. After two-years' negotiations between Spain and the United States, the former ceded all of Fla. to the latter 1821, July; and thus the portion of A. s. of lat. 31° n. also became American. While the war with Great Britain was in progress, A. was subject to a prolonged war with the Creek Indians, during which 480 whites were killed and 400 wounded, and 1,617 Indians killed. The Indians were ultimately defeated by Gen. Jackson, and forced to surrender three-quarters of their territory in A. Immigration began to increase after the settlement of the Indian troubles. Miss. was set off from the terr. of Miss. as a state and the terr. of A. organized 1817; and A. was set off from the terr. and admitted as a state 1819, Dec. 14. From that time till 1860, A. prospered exceptionally, becoming one of the largest slave-holding states in the s., and the first state in annual product of cotton. When the famous Charleston convention refused to adopt a strong pro-slavery platform 1860, Apr., the delegates from A. withdrew in a body; and as soon as it was ascertained that Abraham Lincoln had been elected pres., the state sent commissioners to the other southern states, urging secession and the establishment of an independent s. confederacy. 1861, Jan. 11, a state convention adopted the ordinance of seces-

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sion; directly afterward the gov. seized the forts at Mobile, U. S. arsenal, munitions of war, and revenue-cutter; the state's representatives in the federal congress resigned Jan. 21; delegates from all the southern states met in Montgomery Feb. 4, and organized the provisional Confederate govt.; and Montgomery was the capital of the Confederacy till July, when it was removed to Richmond. The state contributed liberally and promptly to the Confederate cause, raised and sent n. several bodies of state troops, and escaped bloodshed on its soil throughout 1861. In 1862, Feb., several Union gun-boats passed down the Tennessee river as far as the Muscle Shoals, and in Apr. a division of Gen. Buell's army, under Gen. Mitchell, captured Huntsville and Russellville, and for several months held the n. part of the state. No events of importance occurred 1863; but 1864 was notable for the naval operations under Admiral Farragut in Mobile Bay in Aug., and 1865 for the siege (Mar.) and capture (Apr. 12) of the city of Mobile by the joint army and naval expedition under command of Gen. Canby and Com. Thatcher, for the capture of Montgomery, Selma, and Chickasaw by a U. S. force under Gen. Wilson (Apr.), and for the surrender of all the Confederate forces, ships, and munitions of war in the state (May). Athens, Montevallo, Scottsborough, Talladega, and Tuscumbia were scenes of conflict also, but none were of importance. A. is believed to have contributed more than 120,000 men to the Confederate armies, one-third of whom died of wounds or disease.

Immediately after the occupation of Mobile, Lewis E. Parsons was appointed provisional gov., and the work of reconstructing the state began. On Sep. 25, following, a state convention held under milit. auspices declared the ordinance of secession and the state war-debt null and void, and adopted an ordinance prohibiting slavery in the state in the future. Robert M. Patton succeeded Parsons as gov. at the close of the year, and no further steps of importance were taken till 1867, when the state became a part of the 3d military district, under command of Gen. Pope. By his order a state convention was held to form a new constitution and state govt. Nov. 5. A proposed constitution was submitted to the people 1868, Feb. 4; and as it received a majority of votes cast but not a majority of those registered, it was considered as rejected. The 14th amendment to the federal constitution was ratified early in June; the state was restored to representation in congress by an act passed over Pres. Johnson's veto June 25; and it was turned over to the civil authorities July 14. The 15th amendment to the federal constitution was ratified 1870, and the present state constitution adopted 1875. The development, since, of its great coal and iron wealth, through the aid of northern capital and machinery, the planting of numerous costly industries previously unknown to the state, the great enlargement of its railroad system, and the establishment of manufacturing corporations with large re-

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sources in Anniston, Huntsville (q.v.), Montgomery (q.v.), Selma (q.v.), and elsewhere, have made A. one of the most prosperous of southern states.

*Government.*—The executive authority is vested by the constitution (1875) in a gov. elected for 4 years, salary \$3,000 per annum; the legislative in a general assembly, comprising a senate of 35 members elected for 4 years, and a house of representatives of 105 members elected for 2 years, salary of each \$4 per day and 20 cts. mileage, biennial sessions; and the judicial in a supreme court, comprising a chief-justice and two associate justices, elected by the people for 6 years, the 3 justices choosing one of their number chief-justice, salary of each \$3,000 per annum; 8 circuit courts, each with a judge elected by the people; 3 chancery courts, each with a chancellor elected by the people; probate courts in each co., each with a judge elected by the people for 6 years; court of co. commissioners in each co., each composed of the probate judge and 4 commissioners elected for 4 years; and justices of the peace. In case of the gov.'s impeachment, removal from office, death, or disability, the duties of his office devolve on the pres. of the senate till the next regular election; and in case of the impeachment, removal from office, death, or disability of the pres. of the senate while acting as gov., the duties of the office devolve on the speaker of the house of representatives. The sec. of state receives \$1,800 per annum; treas. \$2,150; auditor \$1,800; atty.gen. \$1,500; supt. public instruction \$2,250; state librarian \$1,500; 3 railroad commissioners \$2,000 to \$3,500 each; 3 U. S. district judges \$3,500 each; 2 collectors of internal revenue \$2,500 each; and 16 collectors \$1,000 to \$1,400 each. The general assembly is prohibited from passing special or local laws in cases which are or can be provided for by general laws; and the state cannot engage in works of internal improvement, lend money on its credit to aid such, be interested in any private or corporate enterprise, lend its money or credit to any individual, assoc., or corporation, nor authorize through the general assembly any co., city, or town to so lend its credit or appropriate money.

The successive gov., with their terms of service, are as follows: William W. Bibb 1819–20; Thomas Bibb 1820–21; Israel Pickens 1821–25; John Murphy 1825–29; Gabriel Moore 1829–31; John Gayle 1831–35; Clement C. Clay 1835–37; Arthur P. Bagby 1837–41; Benjamin Fitzpatrick 1841–45; Joshua L. Martin 1845–47; Reuben Chapman 1847–49; Henry W. Collier 1849–53; John A. Winston 1853–57; Andrew B. Moore 1857–61; John G. Shorter 1861–63; Thomas H. Watts 1863–65; Lewis E. Parsons (provisional) 1865; Robert M. Patton 1865–68; William H. Smith 1868–70; Robert B. Lindsay 1870–72; David P. Lewis 1872–74; George S. Houston 1874–78; Rufus W. Cobb 1878–82; Edward A. O'Neal 1882–86; Thomas Seay 1886–90; Thos. G. Jones 1890–94; Wm C. Oates 1894–96; Joseph F. Johnston 1896–1900; W. J. Sanford 1900–2; William D. Jelks, 1902–6.

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*Counties, Cities, and Towns.*—In 1890 A. was divided into 66 counties. The most populous *counties* were: Jefferson 88,501; Montgomery 56,172; Mobile 51,587; Dallas 49,350; Madison 38,119; Barbour 34,892; Calhoun 33,835; Marengo 33,095; Lowndes 31,550; Wilcox 30,816; Tuscaloosa 30,352; Sumter 29,574; Talladega 29,346; Lee 28,694; Jackson 28,026; Hale 27,501; Bullock 27,063; Chambers 26,319; Tallapoosa 25,460; Henry 24,847; Pike 24,423; Russell 24,093; Morgan 24,089; Lauderdale 23,739; Clarke 22,624; Pickens 22,470; Greene 22,007; Etowah 21,926; Elmore 21,732; and *cities and towns*: Mobile 31,076; Birmingham 26,178; Montgomery 21,883.

*Politics.*—State elections are held quadrennially on the first Monday in Nov.; congressional and presidential on Tuesday after the first Monday in Nov. The state govt. (1903) was democratic, with a party majority of 35 in the senate, 101 in the house, 136 on joint ballot. A. has 11 electoral votes. Her votes for pres. and vice-pres. have been as follows: 1820, James Monroe and Daniel D. Tompkins 3; 1824, Andrew Jackson and Martin Van Buren 5; 1828, Andrew Jackson and John C. Calhoun; 1832, Andrew Jackson and Martin Van Buren; 1836, Martin Van Buren and Richard M. Johnson; 1840 Martin Van Buren and Richard M. Johnson; 1844, James K. Polk and George M. Dallas 9; 1848, Lewis Cass and William O. Butler; 1852, Franklin Pierce and William R. King; 1856, James Buchanan and John C. Breckinridge; 1860, John C. Breckinridge and Joseph Lane; 1864, no vote; 1868, U. S. Grant and Schuyler Colfax 8; 1872, U. S. Grant and Henry Wilson 10; 1876, Samuel J. Tilden and Thomas A. Hendricks; 1880, Winfield S. Hancock and William H. English; 1884, Grover Cleveland and Thomas A. Hendricks; 1888, Grover Cleveland and Allen G. Thurman; 1892, Grover Cleveland and Adlai E. Stevenson; 1896, Wm. J. Bryan and Arthur Sewall; 1900, Wm. J. Bryan and Adlai E. Stevenson.

*Population.*—(1820) white 85,451, free colored 571, slave 41,879, total 127,901; (1830) white 190,406, free colored 1,572, slave 117,549, total 309,527; (1840) white 335,185, free colored 2,039, slave 253,536, total 590,753; (1850) white 426,514, free colored 2,265, slave 342,844, total 771,623; (1860) white 526,271, free colored 2,690, slave 435,080, total 964,201; (1870) white 521,384, colored 475,510, total 996,894; (1880) white 662,185, colored 600,320, total 1,262,505; (1890) 1,513,017; (1900) 1,828,697.

'ALABAMA' CLAIMS, 'THE': claims of the United States on Great Britain, based on the action of the Brit. govt. relative to an armed vessel of the Confederacy, the *Alabama*, which inflicted terrible injury on the shipping of the northern states during the civil war. The *Alabama* was a small vessel, built for speed, carrying a few guns, and intended not for fighting but for preying on defenseless merchant ships. She was built in a British port, and never at any time entered a port of the state by which she was commissioned.

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At the beginning of the civil war in 1861, the Confederate States had neither ships nor seamen; and the U. S. govt. promptly instituted an effective blockade of nearly all their ports. The secessionists had no lack of able naval officers, for a majority of the senior naval officers of the United States were Southern men. Early in 1861, while parleying was still going on between the North and the South, Capt. Raphael Semmes (q.v.) had been empowered by the Southern leaders to purchase ships and stores, and 1861, June, the Confederate States sent to sea under his command their first armed cruiser, the *Sumter*. As no Confederate port was open for disposal of his prizes, he adopted the system of burning them at sea—allowable in an emergency, but as a *system* approaching piracy in its utter dispensing with adjudication before a prize court. The *Sumter*, in about six months, captured and burned 18 vessels; then was declared unseaworthy at Gibraltar, and her successor was the *Alabama*.

This vessel, built for the Confederate govt. by Laird & Sons, at Birkenhead, England, was a screw steam-sloop, 1,040 tons register, built of wood, and for speed rather than strength. She was bark-rigged and had two engines of 350 horse power each; she was pierced for 12 guns, and had the means of carrying two heavy pivot guns amidships. Capt. Semmes was, 1862, June, appointed to superintend her equipment, and take command of her when ready for sea. The Confederate govt. enjoined utmost secrecy as to the destination of the vessel, and careful avoidance of anything which would give the British govt. a pretext for seizing her. The destination of 'No. 290,' as she was called from her number in the list of steamships constructed by the Lairds, was so well concealed that she was nearly finished before it was suspected by the emissaries of the United States. It had been held lawful to build vessels for a belligerent in neutral ports, and lawful to purchase guns and stores in neutral ports, though they might be for the equipment of vessels thus built. What had been held unlawful, was the equipment with guns and warlike stores of a vessel built for a belligerent in a neutral port, previous to her leaving the neutral jurisdiction. Capt. Semmes did not intend to equip his vessel at Birkenhead. But the U. S. minister called on the British govt. to detain 'No. 290,' submitting some evidence that she was intended for a Confederate war-vessel. It was maintained on the part of the United States that her construction was so different from that of vessels built for trade, as itself in some measure to constitute an equipment for war. The British govt. consulted the crown lawyers, who at first thought the evidence of destination insufficient. Afterward, when further evidence had been presented, a delay was caused by the illness of the queen's advocate. When an opinion favorable to the detention of the vessel was at length given, 'No. 290' was gone. The builders, aware of the danger, had made haste. Under pretense of a trial trip, she made her way down the Mersey to Moelfra Bay, where the work remaining was active-



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ly carried on; and warning having been given that she was to be seized 1862, July 31, on that day 'No. 290' steamed away from the British coast. The ablest English lawyers were of opinion that there had been no infringement of the law, but that a case had been presented which the British govt. was bound to submit to a court of law. The detention of the vessel during a protracted lawsuit would have served the purposes of the United States almost as well as her condemnation; and as she must have been detained but for the delay caused by the advocate's illness, it was not without reason that the U. S. govt. claimed from Great Britain indemnification for the losses consequent on her escape.

'No. 290' made for Terceira, one of the Western Islands, where she arrived Aug. 13; and a few days afterward she was joined by the *Agrippina*, of London, carrying her guns, stores, and supply of coal, and by the *Bahama*, with Capt. Semmes and his officers. Aug. 24 she had shipped her armament and stores, and was ready for sea; and now Capt. Semmes named the vessel the *Alabama*, and hoisted the Confederate flag. The sailors on the *Alabama* and her consorts were Englishmen, all entered for a feigned voyage; but with few exceptions they enlisted under Capt. Semmes. The crew consisted of 80 men all told; and the armament of eight 32-pounders. The *Alabama* made her first capture Sep. 5. Within 11 days thereafter, she captured and burned property whose value exceeded her own cost. The people of the United States were filled with indignation against Great Britain for permitting the escape of such a 'pirate.' Several fast-sailing cruisers were sent in search of her. Capt. Semmes made for the American coast, and lay on the track of the California mail-steamers between Aspinwall and New York; and captured the *Ariel* mail-steamer, with 140 marines, several U. S. officers, and 500 other passengers. The passengers and crew of the *Ariel* were too numerous to be taken on board the *Alabama*; and as Capt. Semmes found yellow fever raging at Kingston in Jamaica, where he had intended to land them, he was unable to destroy the vessel, and had to set her free, taking a bond for a large sum to be paid at the end of the war. Cruising off Galveston, Tex., the *Alabama* (1863, Jan. 11) gave battle to the U. S. gunboat *Hatteras*, an old vessel, her inferior in armament, and sunk her after a few broadsides. The history of the *Alabama* consists of a monotonous succession of captures in different seas, her prizes being merchant-vessels incapable of resistance, which were burned, or, when there was convincing evidence of the neutral ownership of her cargo, which did not often happen, liberated on bond. She captured in all 65 vessels; and the value of the property destroyed has been estimated at \$4,000,000. It was, however, by the heavy insurance for war-risks, and still more by the difficulty that she caused in getting freights, that her career inflicted the greatest injury on the shipowners of the United States. When the pursuit of her became too hot on the American coast, she sailed for the Cape of Good

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Hope, and cruised in the eastern seas. Returning to Europe, she arrived in the English Channel, 1864; and, June 11, entered the French port of Cherbourg to refit and supply herself with stores. She had been nearly two years at sea, and was in bad condition. Permission to make the necessary repairs was given by the authorities of the port of Cherbourg.

But within a few days the U. S. steamer *Kearsarge*, commanded by Capt. John A. Winslow (q.v.), a former shipmate of Capt. Semmes, arrived at Cherbourg; and she made a demonstration, which the officers and crew of the *Alabama*—aware that their career had been inglorious—regarded and resented as a challenge. Capt. Semmes sent notice to the U. S. consul that he would sail out and fight the *Kearsarge*. The two ships were, to appearance, equally matched; in reality the *Kearsarge* had considerably the advantage in number of crew, armament, speed, and general condition; besides that, she was in some degree protected amidships by a rude armor. The extent of her superiority seems to have been unknown to Capt. Semmes. The fight took place on Sunday, June 19, outside the port of Cherbourg, all Cherbourg gazing at it from the neighboring heights. The *Kearsarge*, having the superiority in sailing, was able to keep at a distance of about 500 yards from her enemy; her armor in some measure protected her from the enemy's shot, and, as might be expected, her guns were better tended than those of her adversary. Before the fight had lasted an hour, Capt. Semmes found his ship was sinking, and gave orders to pull down his flag. The boats were got out, and the wounded placed in them; but before the *Kearsarge* could come to the rescue, the *Alabama* went to the bottom. The boats of the *Kearsarge* saved many of the crew. Others, including Capt. Semmes, were picked up by an English yacht, the *Deerhound*, which had been allowed by Capt. Winslow to assist in the rescue. These the *Deerhound* immediately carried within the neutral jurisdiction. Semmes and the others saved by this vessel were afterward charged with having broken their faith as prisoners who had asked for quarter from the *Kearsarge*; however, as regards the *Deerhound*, the seamen of the *Alabama*, once upon its deck, were entitled to the protection of Great Britain, and no previous compact could have deprived them of it.—See *The Cruise of the Alabama and the Sumter*, compiled from the papers of Capt. Semmes.

The 'Alabama Question' was fairly raised in the winter of 1862-3, when Mr. Seward, in his diplomatic correspondence, declared that the U. S. govt. held itself entitled at a suitable time to demand full compensation for damages to American property by the Anglo-rebel vessels; and the question never ceased to be a source of irritation between the two peoples till its final settlement by special tribunal of arbitration. This court met at Geneva, 1871, Dec. 17; and the claim for indirect damages to American commerce having been dropped, award was given 1872, Sep. 14, in favor of the United States (\$15,693,749.86). See GENEVA ARBITRATION.

## ALABANDINE—ALAGOAS.

**ALABANDINE**, n. *ăl'ă-băn'dîn* [L. *ălăbăndicus*]: stone named from Alabanda, where it was cut and polished; a sulphuret of manganese usually in massive granular crystals of iron-black color and semi-metallic lustre.

**ALABASTER**, n. *ăl'ă-băs'tér* [Gr. *alabăs'trôn*]: **ADJ.** pertaining to; made of alabaster. The name A. is given to two kinds of white stone, chemically distinct, but resembling each other in appearance, and both used for ornamental purposes. A. proper is a white, granular, semi-transparent variety of gypsum (q.v.) or *sulphate* of lime. It occurs in various countries, the finest near Volterra, in Tuscany, where it is worked into a variety of the smaller objects of sculpture, vases, time-piece stands, etc. Gypseous A. of good quality is found also in Derbyshire, and many ornamental articles are made of it at Matlock and other places. Not being quite insoluble



Alabastra.

in water, it does not bear exposure to the weather; and its softness makes the surface easily become rough and opaque. Nor is it generally found in sufficient masses for large works. The other stone is a compact, crystalline *carbonate* of lime deposited from water in the form of stalagmite, etc. It is distinguishable from the gypseous alabaster by its effervescing with an acid, and by its hardness; real alabaster may be scratched with the nail.—The name is derived from Alabastron, a town in Upper Egypt, where this kind of stone was abundant, and was manufactured into pots for perfumes. A. occurs in N. Y. and Tenn. Imitative forms of it, like flowers, are found in the Mammoth Cave, Ky.

**ALABASTRUS**, n. *ăl'ă-băs'trüs* [L. *alabaster*, a rose-bud in its green state]: in *bot.*, the flower-bud while yet green and before it opens.

**ALACK**, int. *ă-lăk'* [corrupted from *alas*]: an exclamation expressive of sorrow. **ALACK-A-DAY**, an exclamation to express regret or sorrow. *Note.*—Because *alack* would be an unusual phonetic change of *alas*, it is suggested that *alack* is a vulgar corruption of *Ah! Lord!* or, *Ah! Lord Christ!* thus forming originally a prayer for aid or comfort. **ALACK-A-DAY**, give help or comfort this day.

**ALACRITY**, n. *ă-lăk'rî-tî* [L. *alacritas*, liveliness, ardor—from *alacer*, brisk: F. *alacrité*—from OF. *alaigreté*]: cheerfulness; gayety; a smart willingness or readiness.

**ALAGOAS**, *ă-lă-gô'ăs*: maritime province of Brazil, which formed at one time a dist. of the prov. of Pernambuco; is bounded on the n. and w. by Pernambuco, and on the s. is divided from the province of Sergipe by the navigable river San Francisco. The country is mountainous in the n.w., and low, marshy, and unhealthy on the coast.

## ALAIN DE LILLE—ALAMANNI.

The chief productions are the sugar-cane, cotton-plant, mandioc or cassava, maize, rice, etc., and also timber and dyewoods. The capital, A., is on the lake Manguaba. The name A. is derived from the lakes (*lagoas*) in which the province abounds. Pop. of prov. 511,440.

ALAIN DE LILLE, *â-lăng' deh lël*, or ALANUS AB INSULIS: Flemish scholar: about 1114-1203; b. Lille or Ryssel. He was one of the most learned men of his time, a Cistercian monk, who for a while held a bishopric, which he resigned. He studied alchemy and nat. philosophy, besides theology; and wrote on these and other subjects, chiefly in verse. He was so esteemed for his many acquirements, that his birthplace was claimed by Scotland, Spain, and Sicily.

ALAIS, *â-lă'*: town of the dept. of Gard, France, in a fertile plain on the right bank of the Gardon, at the base of the Cevennes mountains, 23 m. n.w. from Nîmes, with which it is connected by railway. It embraced the Protestant cause in the religious wars of France; and Louis XIII., in person, accompanied by the Cardinal de Richelieu, besieged it, and having taken it, in 1629, demolished its walls. Three years later, the Baron of Alais having taken part in the rebellion of Montmorency, the castle was destroyed. Protestantism still prevails. A. is a very flourishing town, chiefly by reason of the mineral wealth of the surrounding district, which produces coal, iron, lead, zinc, and manganese. The coal and iron mines are of chief importance. There are large iron-foundries in the town and neighborhood. There are also manufactures of ribbons, stockings, gloves, vitriol, and earthenware. A. is an episcopal seat. Pop. (1896) 24,382. (1893) 22,000.

ALAJUELA, *â-lă-hwă'lâ'*: city of the state of Costa Rica, Central America, 23 m. w.n.w. from Cartago, and a little on the w. side of the water-shed between the Atlantic and the Pacific. It contains many good houses, and has extensive suburbs of detached houses, embowered among trees and flowering shrubs. The culture of the sugar-cane is the chief industry in this region. Pop., including suburbs, 12,575.

ALAMANNI, *â-lă-mân'ê*, LUIGI: 1495-1556; b. Florence: distinguished Italian poet. His father, of noble birth, was a zealous partisan of the Medici, and Luigi stood high in their favor, till, in revenge for some real or fancied wrong, he conspired against the life of Cardinal Guiliamo, the representative of Leo X. When this became known, A. fled to Venice, and thence, on the accession of the cardinal to the papal chair, to France. In 1527, encouraged by the pope's reverses, he returned to Florence, and urged the republic to seek the protection of Charles V., by means of Andrea Doria's friendly mediation. The republic declared such a proposal treachery, and A. sailed with Doria for Spain. Finally, he settled in France, employed as a diplomatist by Francis I. and Henry II. He d. at Amboise. He wrote epics, dramas, and minor poems, much admired in their day, and the honor of introducing blank verse into Italian poetry belongs either to A. or to Trission.

## ALAMEDA—ALAN.

**ALAMEDA**, *á lá-mā'da*: town in Alameda co., Cal.; on the e. side of the Bay of San Francisco, on a peninsula at the mouth of San Antonio Creek; and on the Southern Pacific railroad, 8 m. e.s.e. of San Francisco, with which it is connected by a steam-ferry. The town-site was sold 1852 for \$14,000, in 1881 the valuation was \$5,000,000, the improvements being worth \$2,000,000. Its manufactures include planing and grist mills, powder works, nut oil and soap factories, oil refinery, etc. A. is well lighted, and has liberal supply of pure water from artesian wells. It is a place of residence for persons doing business in San Francisco, and a resort for excursion parties, having a number of bathing establishments, and being made attractive to visitors by its profusion of magnificent oak trees. Pop. (1890) 11,165; (1900) 16,464.

**ALAMO**, *á lá-mō*, **THE** [Sp. and Port. *alamo*, the poplar tree, or cottonwood]. name of an ancient Spanish mission on the San Antonio river, Tex., now in the heart of the city of San Antonio. The period of its construction is unknown. It has historical importance from the massacre within its walls, during the Texan war against Mexico for independence. The mission comprised a convent, chapel, and stockaded fort, built for protection against the Indians. In 1836, Feb. 23, this position—occupied by Col. James Bowie, Col. Wm. B. Travis, and Col. David Crockett, with 140 men—was besieged by the Mexicans under Gen. Santa Anna, 4,000 strong. The siege lasted until Mar. 6, when, after a night attack, only 6 of the besieged remained alive, including Bowie, Travis, and Crockett, who were immediately butchered by order of Santa Anna. Only a servant woman and her child escaped—the child was afterward adopted by the repub. of Texas, and educated at the public cost. At the battle of San Jacinto, soon after the massacre, Santa Anna was utterly defeated and captured by the Texan force, whose battle cry was, 'Remember the Alamo.' A restoration of the ruins has been undertaken.

**A-LA-MODE**, ad. *á'lá-mōd'* [F. after the fashion]: according to the fashion. **A-LA-MORT'**, ad. *·mōrt'* [F. to the death]: half dead; desperately; in a depressed state.

**ALAMOS, LOS**, *lōs á'lá-mōs* [i.e., *The Poplars*]: town of Mexico, state of Sonora, dept. of Sinaloa, 110 m. n.n.w. from Sinaloa. It is in a barren plain, but in a region famous for its silver mines. The houses are mostly of stone or brick, covered with stucco. Provisions are dear, being brought from a distance, and the town is very insufficiently supplied with water. Pop. 10,000.

**ALAN** (or **ALLYN**, or **ALLAN**), *á'l'ēn*, **WILLIAM**: Cardinal: 1532–1594, Oct. 16; b. Rossall, Lancashire, England. He was educated at Oxford, and 1550 was elected fellow of Oriel College. In 1568 he founded the English College at Douay. In 1587 he was created cardinal. His influence, prevented the decay of the Rom. Cath. Church in England during his life. He wrote *Apology for the Seminaries* (1581); his *Letters and Memorials* were re

ALAND ISLANDS—ALARCON Y MENDOZA.

printed (1882) edited by Fathers of the Oratory. He died in Rome.

ALAND ISLANDS, *aw'länd*, or *ö'länd*:- a numerous group of small islands and rocks at the entrance of the gulf of Bothnia, opposite Abo, about 25 m. from the Swedish coast, and 15 from that of Finland. They are called, by the Finns, *Ahvenanmaa*. About 80 of them are inhabited. Although these rocky isles are covered with but a thin stratum of soil, they bear Scotch fir, spruce, and birch trees, and, with proper cultivation, produce barley and oats, besides affording subsistence to a hardy breed of cattle. The inhabitants are of Swedish origin, skilful sailors, fishermen, and seal-hunters. Pop. about 16,000. The largest of the islands, which gives its name (signifying 'Land of Streams') to the whole group, is about 18 m. long by 14 broad. It is moderately wooded and fruitful; pop. nearly 11,000. These islands belonged formerly to Sweden, but were seized by Russia in 1809. Previous to this, they had several times changed hands between these two powers. In 1717, the Swedes were defeated by the Russians in a naval engagement near Aland, the first important exploit of the Muscovite navy. The importance of these islands as a military position led to the construction, in the reign of the emperor Nicholas, of those strong fortifications at Bomarsund which, in August, 1854, were destroyed by the Anglo-French force, commanded by Sir Charles Napier and Baraguay d'Hilliers. Two thousand prisoners were taken. This extensive fortress (supposed to have been but the first of an intended series in the Baltic) commanded the anchorage of Ytternæs, capable of containing a large fleet.

ALANGIACEÆ, *ă-lăn-jă-ă'cě-ě*: a natural order of dicotyledonous plants, allied to *Myrtaceæ* (q.v.), and containing but a very few known species, trees, and large shrubs, of which the greater number belong to India. The American genus *Nyssa*, called Tupelo, Pepperidge, or Sour-gum, formerly classed here. The one-celled fruit, and pendulous albuminous seeds, constitute marks of distinction from *Myrtaceæ*. The fruit of *Alangium decapetalum* and *A. hexapetalum*, natives of the East Indies, are eatable, but mucilaginous and insipid. The timber is good; the roots are aromatic.

ALARCON Y MENDOZA, *â-lar-kôn' ē men-dō'thá*, JUAN RUIZ DE: one of the most eminent of Spanish dramatists; b. Tasco, Mexico, about the end of the 16th c.; d. 1639. He belonged to the ancient family of the Ruizes of Alarcon, of which a branch had emigrated to America. Having studied at the college that had been instituted in Mexico, he removed to Spain, where he is mentioned as *Relator del real consejo de las Indias* (Reporter of the royal council of the Indies), 1622. His early success, and his haughtiness towards the public and his brother writers in his consciousness of superior powers, made him the object of venomous epigrams by the most famous poets of the time, in which the deformed upstart from New Spain, with his pride and contemptuousness, was held up to public ridicule. Even during his lifetime,

## ALARIC I.

his best pieces were attributed to others, and were printed and represented under the names of more favored poets. This early withdrawal and oblivion of his name, together with the scarcity of his works, and the *éclat* of Lope de Vega's and Calderon's dramas, have been the cause that he has seldom been mentioned, and but little appreciated by historians of literature, even to the latest times. Yet some of the best critics rank him next to Calderon and Lope de Vega as a dramatic writer. Besides many single or detached pieces printed in collections, he published a number in his *Comedias* (vol. i., Madrid, 1628; vol. ii., Barcelona, 1634). Hartzzenbusch began a collected edition at Madrid, 1848. A. attempted almost all the kinds of drama in vogue in his time; and was especially eminent in the heroic, as the best specimens of which may be mentioned *El Tejedor de Segovia* and *Ganar Amigos*, or *La que mucho vale mucho chesta*. A.'s mastery in delineating character is shown in the *Comedias de Costumbres*, or character comedies, of which he may be held as the creator. The best known are *La Verdad Sospechosa* (imitated by Corneille in his *Menteur*) and *Las Paredes Oyen* (Walls have Ears), which are yet represented on the Spanish stage. Of his comedies of intrigue, the best specimen is *Todo es ventura*. It does not appear that A. wrote any *Autos* or sacramental allegorical dramas, though his two pieces, *El Antichristo* and *Quien mal ande en mal acaba*, betray a tendency to ascetic mysticism. Lope and Calderon, the coryphæi of that age, are the only dramatists that excel A. Combining, in no mean degree, the characteristics of both, he excels them in purity of language and elevation of moral feeling.

ALARIC I., *äl'ä-rik* [a form of *Athalaric*, 'noble ruler']: d. 410: belonged to one of the noblest families of the Visigoths. He makes his first appearance in history in 394, as leader of the Gothic auxiliaries of Theodosius in his war with Eugenius; but after the death of the former he took advantage of the dissensions and weakness that prevailed in the Roman empire to invade, 395, Thrace, Macedon, Thessaly, and Illyria, devastating the country, and threatening Constantinople itself. Rufinus, the minister of Arcadius, appears to have sacrificed Greece in order to rescue the capital, and Athens was obliged to secure its own safety by ransom. A. proceeded to plunder and devastate the Peloponnesus, but was interrupted by the landing of Stilicho in Elis with the troops of the west. Stilicho endeavored to hem in the Goths on the Peneius; but A. broke through his lines, and escaped with his prisoners and booty to Illyria, of which he was appointed governor, 396, by the emperor Arcadius, who was frightened by his successes, and hoped, by conferring this dignity on him, to make him a peaceful subject instead of a lawless enemy. In 402 he invaded upper Italy, and Honorius, the emperor of the west, fled from Rome to the more strongly fortified Ravenna. On the way to Gaul, A. was met and defeated by Stilicho at Pollentia on the Tanaro; but it was not till the following autumn that the result of the battle of Verona forced him to retire into Illyria. Through the mediation of Stilicho, A. concluded a treaty with Honorius, according to which he was to advance into Epirus,

## ALARIC II.

and thence attack Arcadius in conjunction with the troops of Stilicho. The projected expedition did not take place, yet A. demanded indemnification for having undertaken it; and Honorius, by the advice of Stilicho, promised him 4,000 pounds of gold. When, after the death of Stilicho (q.v.), Honorius failed to fulfil his promise, A. advanced with an army, and invested Rome, which he refused to leave till he had obtained the promise of 5,000 pounds of gold, and 30,000 of silver. But neither did this negotiation produce any satisfactory result, and A. again besieged Rome, 409. Famine soon rendered some arrangement necessary; and in order to this, the senate proclaimed Attalus, the prefect of the city, emperor instead of Honorius. But A. soon forced him publicly to abdicate. The renewed negotiations with Honorius proved equally fruitless with the former, and A. was so irritated at a perfidious attempt to fall upon him by surprise at Ravenna, that he advanced on Rome for the third time. His victorious army entered the city 410, Aug. 24, and continued to pillage it for six days, though A. strictly forbade his soldiers to dishonor women or destroy religious buildings. When A. quitted Rome, it was only to prosecute the conquest of Sicily; the occurrence of a storm, however, which his ill-constructed vessels were not able to resist, forced him to abandon the project for the time; and his death soon afterwards at Cosenza, in Calabria, prevented his resuming it. In order that his remains might not be discovered by the Romans, they were deposited in the bed of the river Busento, and the captives who had been employed in the work were put to death. Rome and all Italy celebrated the death of A. with public festivities; and the world enjoyed a momentary repose. But A. himself was much less barbarous than his followers. He admired and sought to preserve those monuments of civilization with which the Eternal City abounded, and checked the excesses of his fierce soldiery. Yet through him the Goths learned the way to Rome. See Simonis, *Versuch einer Geschichte des A.* (Göttingen, 1858), and Eicken, *Der Kampf der Westgöten u. Römer unter A.* (Leipz. 1876).

ALARIC II., eighth king of the West Goths, or Visigoths; succeeded his father, 484. He was of a peaceful disposition, and wished to live on friendly terms with the Franks. His dominions were very extensive. Besides Hispania Tarraconensis and Bætica, he possessed numerous rich provinces in Gaul, and formed an alliance, which still further increased his power, with Gondeband and Theodoric, the latter of whom was his father-in-law and king of the East Goths. At length, however, he came into collision with the Frankish monarch, Clovis, whose cupidity had been excited by the extent and fertility of the territories over which A. ruled. An excuse was found for breaking the peace which existed between the two nations, in the fact that A. was a zealous Arian. This circumstance had given great offense to many of his subjects, who were orthodox Catholics; and ostensibly to vindicate the true doctrine, the newly converted barbarian, Clovis, declared war against him. The result was fatal to A. He was slain by the hand of Clovis himself at Vouillé, near Poitiers, and his forces completely routed.



## ALARM—ALA-SHEHR.

**A.** is said to have been indolent and luxurious in his youth; but this may simply imply that he was not fond of those sanguinary pleasures which captivated his savage contemporaries. He was tolerant in his religious convictions. Though an Arian, he did not persecute the Catholics. He enacted several useful statutes, and kept a watchful eye on all parts of his kingdom. It was during his reign that the *Breviarium Alaricianum*, or code of **A.**, was drawn up. It is a selection of imperial statutes and writings of the Roman jurisconsults. **A.** sent copies of it to all his governors, ordering them to use it and no other. An edition of it was published by Sichard, at Basle, in 1528.

**ALARM**, v. *ă-lârm'* [F. *alarme*, alarm, a call to arms; *alarmer*, to frighten—from It. *all'arme*, to arms—from mid. L. *ad illas armas*—from L. *ad*, *arma*, arms—*lit.*, to call to arms]: to give a sign to warn of approaching danger; to surprise; to arouse to danger: **N.** an outcry to announce danger; sudden surprise; terror. **ALARM'ING**, imp.: **ADJ.** terrifying; awakening. **ALARMED**, pp. *ă-lârm'd'*. **ALARM'INGLY**, ad. *-lĭ*, in a manner to excite apprehension. **ALARM'IST**, n. *ă-lârm'ist*, one prone to terrify with danger.—**SYN.** of 'alarm, n.': terror; fear; fright; consternation; trepidation; panic; apprehension; affright; dismay; agitation; disquiet; disturbance.

**ALARUM**, n. *ă-lâr'ŭm* (see **ALARM**): in *OE.*, a call to arms; a piece of mechanism in a *clock* by which a loud noise is produced at any fixed time.

**ALARY**, a. *ă-lâr-ĭ* [L. *ălă*, a wing]: in *OE.*, wing-like. **ALATE**, a. *ă-lât*, winged; furnished with appendages like wings.

**ALAS**, int. *ă-lăs'* [OF. *alas*—from *a!* *ah*, *las!* wretched—from L. *ah!* *lassus*, wearied: F. *he!* *las*, weary: Prov. *ai las!* *ah!* wretched me! *alas!*): an exclamation of sorrow or pity.

**ALA-SHEHR**, *ă-lâ-shĕr'* [i. e., *The Exalted City*, ancient *Philadelphia*]: city of Asia Minor, pashalic of Anatolia, 75 m. e.-by-s. from Smyrna, at the n.e. base of Mount Tmolus. It was founded by *Átalus Philadelphia*, king of Pergamos, about B.C. 200, and is famous as the seat of one of the 'Seven Churches of Asia.' It is still a place of considerable importance, and carries on a thriving trade by caravans, chiefly with Smyrna. It is surrounded by a wall, and is of large extent; but the streets are narrow and dirty. There are many interesting remains of antiquity. Pop about 8,000, including 250 Greek families.

## ALASKA.

ALASKA: a territory of the United States, occupying the extreme n.w. of America and adjacent islands, purchased of Russia by the U. S. in 1867 for the sum of \$7,200,000. It consists of a great peninsula between the Arctic and Pacific Oceans, and Bering Sea, together with a long coast region between British Columbia and the Pacific, and its adjacent islands, and many islands between America and Asia. The islands have an aggregate area of over 30,000 sq. m., and the entire area of the territory is 590,307 sq. m., or more than that of the original thirteen states.

The population in 1900 was 63,592, probably increased by 25,000 by the gold immigration in 1901-3.

The country naturally divides itself into three districts: the Yukon district, a wide stretch of rolling plains with many lakes, swamps, and peat lands, and low ranges of hills besides isolated mountains, watered by the great river from which it is named; the Aleutian district, including the islands of that name and many others, and the mountains looking towards them, mostly of volcanic formation, with many prairies between the mountains and the sea, and the Sitkan district, including 500 m. of coast separating British Columbia from the Pacific, with the adjacent islands, with the greatest mountain region of N. America.

Among the mountains of A. are Mt. McKinley (20,464 ft. high), the loftiest mountain in N. America; Mt. St. Elias (18,024 ft.); Mt. Wrangel (17,500 ft.); Mt. Crillon (15,900 ft.); Mt. Fairweather (15,292 ft.); Mt. Vancouver (15,666 ft.), and Mt. Cook (13,758 ft.). Alaska contains the most remarkable glaciers in the world, of which the best known are near the head of the Sym Canal and Glacier Bay. The Muir Glacier has at its discharge a front 200 ft. high and 3 m. wide. The Pacific Glacier discharges a great number of icebergs. The Malaspina Glacier has an area of over 500 sq. m., and its surface elevation is over 1,500 ft. Valdez Glacier has a frontage of cliffs of ice 15 m. wide. A. abounds in hot and mineral springs. The Yukon rises in British Columbia back of the Sitkan district, and its course is at first n.w. Turning w. it flows through the main body of A. into Bering Sea. It is impeded by shallows and islands in the middle of its course, and empties by a delta 70 m. wide, with bars at its mouth; but it is 2,000 m. long, and for 1,000 m. of its course 5 m. wide, and ranks with the Mississippi and Amazon as one of the greatest rivers of the world.

The tribes of the native population were not separately enumerated in the census of 1900, but in 1890 were reported as follows: Innuits or Eskimos, 15,000, Aleuts 2,145, Creoles 1,756, Tinneh 5,100, Thlingets 3,000 and Hydale 788. The white population was reported in 1900 as 30,493. The name Eskimo was given by their neighbors to the natives in derision, meaning *raw-fish eaters*. They call themselves Innuits,

## ALASKA.

which means *our people*. The Alaskans are superior physically to the Eskimos of Greenland and Labrador, being muscular and often six feet tall, with full beards. They speak a common language, but each locality has its own dialect. Their dwellings appear as a round mound of earth covered with grass, with a small opening at the top for the escape of smoke, the entrance being a small and narrow hallway to the main room, which is from 12 to 20 feet in diameter but without light or ventilation, while small bedrooms sometimes open into the main room. They live on the meat of the moose, reindeer, bear and smaller fur-bearing animals; and upon fish, the white whale, walrus, seal and various water-fowl. They are inveterate smokers, men, women and children. The census of 1900 reported the native population as 29,536, more than half Eskimos. They are willing to work and adapt themselves to civilized conditions.

The chief native occupation is fishing. The waters abound in salmon, herring, trout, bass, mackerel, and halibut, and the codfish banks rival those of Newfoundland. Whales were formerly common in their waters, and were an important dependence for the support and comfort of the people, and many whalers of the Arctic fleet visited them. Fifty whaleships came in 1841 and 278 in 1851 in which year the catch was valued at \$14,000,000; but the business has declined till only five or six whaleships come in the course of a year. The salmon fishery has grown to great proportions. Immense canning establishments have been built, and in 1901 the salmon pack amounted to \$6,926,167. In 1899 the canneries employed 1,298 white laborers, 830 Eskimos, and 1,859 Chinese. It is not a very desirable industry for the country.

The earliest interest was the seal fishery. The early explorers reported great opportunities for fur trade, and many Russian adventurers gained wealth in this pursuit, while not a few met with disaster. The Russian-American Company chartered in 1799, controlled the country for half a century, trying to rival the British Hudson Bay Company. The most important furs were the sealskins taken at the Pribilof Islands, and sent to London and Belgium to be dressed, where they supplied the most of the sealskins for the markets of the world. After the purchase of A. by the U. S., in 1867, the sealing of the Pribilof Islands was leased by the Government to the Alaska Commercial Company in 1870 for twenty years. The company employed four steamers and a number of sailing vessels, and employed native seal-fishers; paying 40 cents for each skin taken. They also paid the Government \$55,000 per annum for their franchise, besides an internal revenue tax of \$2 for each skin, and the company furnished fuel and food for the inhabitants of the islands. The skins were sold in Europe for \$15 each and it is

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estimated that the aggregate value since 1867 has been more than \$50,000,000. There has been great difficulty in enforcing the rules protecting the interests of the company and meant to save the seals from unlawful and wasteful slaughter. International negotiations have not been successful, and there have been great fears of their total extermination.

The mineral resources of A. include extensive coal and oil fields, and immense areas of gold-producing gravels and mountains of gold, silver, copper, and iron ores. Marble of superior quality and inexhaustible quantity, bismuth and kaolin, gypsum, graphite, tin, amethyst, zoelites, garnets, agates, carnelians, and fossil ivory are found, and large quantities of sulphur almost pure. Coal deposits have long been known, and occasionally utilized by steamers. Silver was produced in 1899 to the amount of \$181,000.

Gold was first mined about 1870 on Douglas Island in southeastern Alaska. Works were erected to crush the quartz, and the town of Juneau grew up on the mainland opposite. About 1,500 stamps are used continually. Gold was discovered in the Yukon district of Canada in 1886, and in 1887 Circle City was founded by miners on the Alaska side of the boundary. But the great development of gold-mining was nearly ten years late (see KLONDIKE), and in 1898-99 the wonderful mines were discovered at Cape Nome. The Klondike mines yielded about \$7,000,000 in 1901, and the entire output of Alaska in 1903 was estimated at \$20,000,000. This changed all economic conditions in A., and Nome grew to have a reputed pop. of 40,000.

There are two distinctly marked climates in A., that of the s.e. district with the coast and islands, affected by the warm current of the Pacific, while north of the mountains there is a short, almost tropical summer with the thermometer during the long days sometimes rising to 100°, but in winter falling from 50° to 78° below zero.

The Yukon district along the rivers in the eastern part as limited forests of cottonwoods and Norway spruce. Large portions of the Sitkan district have dense forests of spruce, hemlock and cedar. The U. S. Agricultural Experiment Station in the Yukon valley has shown that oats, barley, wheat, and hardy garden vegetables can be raised with profit; and the country in summer is covered with beautiful wild flowers, and red and black currants, cranberries, raspberries, thimbleberries, gooseberries, killiknickberries, salmonberries, blueberries, heathberries, and roseberries and in some places wild strawberries, and through southern A., between the mountains and the sea, the prairies are covered with perennial wild grasses. Yet practically as yet agriculture has very narrow limitations. The Aleutian Islands have no large trees, but the coast from Kadiak to British Columbia is cov-

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ered with forests, which are more valuable as we go south, including white birch and poplar, sometimes of great size, as well as extensive forests of spruce, hemlock and cedar.

In view of the decline of the whaling industries, and the gradual extinction of walrus, and caribou, the Rev. Sheldon Jackson undertook to introduce reindeer from Siberia in 1890. At first he could not secure the help of the U. S. Government, and in 1891 brought the first herd of 16 reindeer across Bering Straits by the help of private subscriptions. Later the Government assisted the work, Congress appropriating \$6,000 in 1894 and gradually increasing the appropriation to \$25,000 in 1903, and the Government becoming owner of the larger part of the 54 herds, including over 6,000 reindeer distributed through the country in 1903. The reindeer feed in winter on a moss which covers vast regions of Siberia and Alaska. Though covered with deep and even crusted snow, the deer break through and burrow with their broad hoofs until they obtain food. An attempt to bring reindeer to Alaska in 1898 from Lapland was unsuccessful mainly because of bad transportation from Seattle; but the Lapp herders brought with them have been distributed through the country and were employed in teaching the work to the natives. Most of the deer are owned by the Government, which loans a certain number to mission stations or individuals who have shown ability. Deer are owned by 60 individuals, of whom 44 are Eskimos. The present rate of natural increase doubles the number every three year, and even without further importation will secure the permanence of this useful domestic animal in A. In the winter of 1902-03 reindeer teams carried the mail from Nome to Candle City on the Arctic Ocean, 260 m., hauling heavy loads of passengers and freight in a journey of 8 days; for which dog-teams would have required 15 or 20 days. The reindeer can travel at night as well as in daylight. They make also good packers in summer, and can be ridden in the saddle. In the winter of 1897-98, relief was carried by reindeer to 400 whalers imprisoned in the Arctic ice near Point Barrow, who would otherwise have perished. The reindeer communication has been of vital importance in the development of the gold-mining communities. The Russian Government has substituted reindeer for horses in its caravan service in Siberia, with a saving of \$60,000 a year; and the Alaskan service promises as good results; while the domestic use of these gentle animals promises great and permanent betterment to the native condition.

There are excellent harbors in the southern coast, accessible all the year as far north as Sitka and Juneau. Ocean steamers ply to Nome from the port of St. Michael's, 60 m. from the mouth of the Yukon, as

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well as to Victoria, B. C., Seattle, and San Francisco. The Yukon is navigable about three months by shallow draft stern-wheel steamers, which connect with the ocean steamers at St. Michael's, and ascend the river 1,500 m. to Eagle City. From Skagway on an inlet 160 m. n.w. from Juneau, a railroad crosses White Pass to Whitehouse Rapids, where passengers go by steamer on the upper Yukon to Dawson. Telegraph lines connect Skagway and White Pass, Eagle City and Valdez and there is a cable from St. Michael's to Nome. Among the more important towns which have grown up Nome is the largest with a reported population in 1902 of 40,000. Juneau had at the same time a permanent population of 3,000; Skagway of 1,500. The census of 1900 included 78 settlements.

In 1901, 186 American vessels and 127 foreign entered Alaskan ports. Foreign imports of merchandise into A. in 1901 amounted to \$558,000; exports \$2,534,000. Gold to the amount of \$15,816,000 was brought through A., product mostly of the Yukon district of Canada.

The Russian explorers in their first settlements prepared the way for schools and churches. They founded a Russian Greek Church in 1794 at Kadiak, and during the century established congregations and chapels at every Aleut settlements, as well as at St. Michael and at Sitka and Juneau and other towns. In 1902 they reported 18 Russian ministers in A. They have been followed since 1867 by missions of Roman Catholic and Protestant churches in America with great devotion. The U. S. government has also established schools for white and native children in every considerable town. In 1901-02 there were 40 public schools, including training schools for girls and boys at Sitka. The total enrollment in 1902 was 1,791. The schools have been a great part of the care of the missionaries and owe much of their effectiveness to their direction and charitable labor. Many Swedes, Finns, and Germans were employed by the Russian-American Fur Company, and a Lutheran minister was sent to Sitka in their behalf in 1839. Swedish missionaries in more recent times, and others from Norway have joined the American missionaries and teachers in the work of elevation. The public schools are supported by direct appropriations by Congress, the first grant being in 1884 of \$25,000. The annual appropriation by Congress has latterly been \$30,000, and many incorporated towns have added to this, one-half of the fees collected for licenses.

A. is a territory incompletely organized. From its purchase it had at first a military government, a company of the U. S. army being stationed at Sitka. In 1877 this was withdrawn, and a naval police substituted. Alaska has no general legislature, and is controlled directly by Congress. Its governor, residing

## ALASKA—ALB.

at Sitka, surveyor-general, attorneys, and judges are appointed by the President of the U. S. Towns of a certain size are allowed to incorporate and elect local governing bodies. There are three judicial districts with headquarters at Juneau, St. Michael's and Eagle City. The three judges appoint commissioners who act as justices of the peace, recorders, probate judges, etc. Congress adopted a new criminal code in 1899, and a civil code in 1900. The homestead law was extended to A. in 1898. The question of the Canadian boundary, after dragging for years, was pressed into international importance by the development of the Klondike mines. The decision hung upon the meaning of the treaty signed between Great Britain and Russia in 1825. This was referred to arbitrators and a *modus vivendi* agreed upon in 1901, and most of the claims of the United States were approved. A treaty was signed between the United States and Great Britain in January, 1903, and the decision of the boundary was referred to an international commission which held its first session in London in September, 1903.

**ALATYAN**, a. *ă-lă' tî-ăn* [from *Alatys*, which the Tartars of Siberia call themselves]: a name used to designate all those languages not connected with the two great families of speech, Aryan and Semitic.

**ALASI**, *ă-low-sē*: town of the republic of Ecuador, S. America, prov. of Chimborazo, 70 m. e. of Guayaquil, 7,980 ft. above the sea, in a fertile valley of the Andes. Pop. 6,000.

**ALAVA**, *ă-lă-vă*, **DOON MIGUEL RICARDO DE**: Spanish general: 1771—1843; b. Vittoria, of a noble family in the prov. of Alava. At first a partisan of France. he changed to the English side, 1811; gained the confidence of Wellington, in whose army he became Spanish commissary. In the war of independence, A. distinguished himself. In 1820, after the revolution, he became cap.gen. of Aragon. In the Cortes 1823, he voted for the suspension of royal authority, and when absolute monarchy was re-established in Spain, he took refuge in Brussels and England, till recalled by the regent Christina. In 1834 he was Spanish ambassador to London. Later, he showed a new zeal for the moderate system. After the insurrection of La Granja, he refused to swear to the constitution of 1812, and retired to France, where he died.

**ALB**, or **ALBE**, n. *ălb* [OF. *albe*—from mid. L. *alba*, an alb— from L. *albus*, white]: a long vestment of white linen extending to the feet, worn in early times by all ecclesiastics at divine service, and now worn by the



Alb.

## ALBA.

Rom. Cath. clergy. It differed from the more modern surplice (q. v.), which is a modification of it, in having narrower and shorter sleeves. At the foot and wrists were embroidered ornaments called *apparels*. In the ancient church newly-baptized persons were obliged to wear a similar garment for eight days; and hence catechumens were called *albatii*; and the Sunday after Easter, on which they usually received baptism, came to be called Dominica in Albis. See WHITSUNDAY.

ALBA, *ál'bá* (ancient *Alba Pompeia*): a very ancient city of n. Italy, in the province of Cuneo, on the right bank of the Tanaro, 31 m. s. e. from Turin, in a plain surrounded by hills. The neighborhood produces much wine and silk, besides corn, oil, and fruits. The town has an extensive trade in cattle. It is an episcopal seat. The cathedral was founded in 1486. Pop. 12,259.

ALBA, *ál'bá*, or ALVA, *ál'vá*, FERDINAND ALVAREZ DE TOLEDO, Duke of, prime-minister, and general of the Spanish armies under Charles V. and Philip II.: 1508-82; descendant of one of the most illustrious families of Spain. He was educated under the eye of his grandfather, who instructed him in the arts of war and of government. He fought, while yet a youth, at the battle of Pavia, and had the custody of Francis I. while a prisoner. He commanded under Charles V. in Hungary, was present at the siege of Tunis, and accompanied the expedition against Algiers. He defended Perpignan against the dauphin, distinguished himself in Navarre and Catalonia, and was in consequence created Duke of A. His cautiousness and his taste for political intrigue afforded as yet no very high evidence of his military talents; and even Charles V., whom he counselled, when in Hungary, to build a bridge of gold for the Turks rather than hazard a decisive battle, seems to have intrusted him with the command rather as matter of personal favor than recognition of his abilities. His pride was hurt at the low estimation in which he was held; and his real genius began to show itself. The victory which Charles V. gained at Mühlberg over John Frederic, Elector of Saxony, 1547, was due to the able generalship of the Duke of A. Under his influence, as president of the council of war, the captive elector was condemned to death; and it was entirely against his wish that the emperor commuted the sentence. He took part under the emperor in the expedition against Henry II., king of France, who had taken possession of Metz; but here his exertions, as well as those of the emperor, proved unavailing. He was more fortunate in Italy against the combined armies of the pope and the French king, which he repeatedly defeated during the campaign of 1555. After the abdication of the emperor Charles V. in 1556, he continued to hold the command of the army, and overran the states of the church, which, after the retreat of the French army, 1557, lay entirely at his mercy. He was obliged, however, by the command of Philip II., to conclude a peace with Pope Paul IV., and restore all his conquests. Being recalled from Italy, he ap-



## ALBA.

peared in 1559 at the court of France, with which Spain had become reconciled by the peace of Château-Cambresis, 1559, April 3; and as proxy for his sovereign, espoused Elizabeth, Henry II.'s daughter.

When the inhabitants of the Netherlands, who had been accustomed to freedom, revolted against the tyranny of Spain, and especially against the hated inquisition, the Duke of A.'s counsel was to suppress the insurrection forcibly and with rigor. The king accordingly committed the matter to his hands, and sent him to the Netherlands, 1567, with unlimited power and a large military force. His first step on arriving was to establish what was called the 'Bloody Council,' in which he himself at first presided, and over which he afterwards appointed the sanguinary Don Juan de Vargas. This tribunal condemned all without distinction whose opinions appeared dubious, or whose wealth excited jealousy. The present and the absent, the living and the dead, were subjected alike to trial, and their property confiscated by the council. A number of the merchants and mechanics emigrated to England; above 100,000 abandoned their native country, and many others enlisted under the banners of the proscribed princes, Louis and William of Orange. A., rendered still more savage by a defeat which befell his lieutenant, the Duke of Aremberg, put to death the counts Egmont and Horn on the scaffold. He afterwards defeated Prince Louis, and compelled William of Orange to retire to Germany; upon which he entered Brussels in the greatest triumph, 1568, Dec. 22. The pope presented him with a consecrated hat and sword, as Defender of the Catholic faith, an honor which, having been hitherto conferred only on crowned-heads, increased his insolence to the highest degree. He caused a statue to be cast, in which he was represented as trampling under foot two human figures, representing the nobles and people of the Netherlands, and this he set up in Antwerp. His executioners shed more blood than his soldiers; and none now withstood his arms except Holland and Zealand. But these provinces continually renewed their efforts against him, and succeeded in destroying the fleet equipped by his orders. This disaster, and perhaps still more the apprehension that he might lose the king's favor, induced him to request that he might be recalled. Philip gladly acceded, as he perceived that the obstinacy of the rebels was only increased by these cruelties, and he was desirous of trying the effect of milder measures. A. accordingly resigned the command of the troops to Don Louis de Requesens, and (1573, Dec. 18) left the country, in which, as he himself boasted, he had executed 18,000 men. The war which he had kindled burned for sixty-eight years, and cost Spain \$800,000,000, her finest troops, and the loss of seven of the richest provinces of the Netherlands.

A. was received at Madrid with the highest distinction, but did not long enjoy his former consideration. Don Frederic, one of his sons, having seduced one of the queen's ladies of honor under promise of marriage, and being arrested on this account, the father assisted him to escape,

## ALBACETÉ—ALBA LONGA.

and, in opposition to the desire of the king, united him in marriage to one of his relatives. He was in consequence banished from the court to his castle of Uzeda, where he lived two years. But now the troubles in Portugal, the crown of which Philip claimed as his hereditary right, induced the king to draw A. anew from his retreat. The duke accordingly led an army into Portugal, and drove out Don Antonio, who, as grandson of John III., had taken possession of the throne. The whole country was speedily conquered (1581), and A., with his accustomed cruelty and rapacity, seized the treasures of the capital himself, while he allowed the soldiers to plunder without mercy the suburbs and the surrounding country. Philip, dissatisfied with these proceedings, desired to have an investigation of the conduct of the duke; but the haughty bearing of the latter, and the fear of a revolt, induced him to abandon it. A. died at Lisbon, at the age of 74. He had a fine countenance, with a haughty air, and a robust frame; he slept little, while he both labored and wrote much. It has been said of him, that during sixty years of military service he never lost a battle, and never allowed himself to be surprised.

ALBACETÉ, *ál-bá-thā'tā*: town of Spain, cap. of the province of the same name, in Murcia, 138 m. s.e. from Madrid, and a station on the railway from Madrid to Alicante. It stands in a fertile, but treeless plain; is built with some regularity, and contains a number of squares and many good houses. It is a place of considerable trade, and has great cattle-fairs in Sept. It is noted in Spain for the manufacture of knives and other steel goods, not, however, of superior quality. Pop. 18,976.

ALBACETÉ, the province, is formed partly from the former kingdom of Murcia, partly from New Castile; 5,966 sq. miles. It is generally hilly, and in some parts mountainous, some of its mountains attaining a height of 5,000 ft.; but it contains also rich plains and fertile valleys. Agriculture is more advanced than in most parts of Spain; corn and wine are largely produced, as also oil, hemp, tobacco, saffron, fruits of various kinds, and honey. Great numbers of sheep, goats, oxen, horses, mules, and asses are reared. The mineral wealth of the province appears to be considerable, but is not turned to much account. Pop. (1877) (1887) 229,492; (1900) 237,877.

ALBAINS, n. plu. *ál-bānz'*, or AUBAINS, n. plu. *aw-bānz'* [mid. L. *albānus*, a foreigner or alien—from L. *alībīnātī*, elsewhere born]: persons not born in a country; not natives; the right which a French king formerly possessed of seizing upon the property of foreigners on their death.

ALBA LONGA, *ál'bá lon'ga*: one of the most ancient cities of Italy, on the rocky ridge that runs along the e. shore of the Alban lake, between the lake and the Alban mount. See ALBANO. According to legendary history, it was built by Ascanius, the son of Æneas, about 300 years before the foundation of Rome, which is represented as a colony of A. Notwithstanding this, the Romans, under

## ALBAN—ALBANIA.

Tullus Hostilius, destroyed the city, and removed the inhabitants to Rome. It seems certain that A. was an important city long before the existence of Rome, and the head of a confederation of Latin towns, and that when it was destroyed, many of its inhabitants settled at Rome. Some traces of its walls are yet to be seen.

ALBAN, *awl-băn*, SAINT: the first martyr of Britain: b. Verulam, 3d c. After having long lived a heathen, was converted to Christianity, but put to death at the commencement of Diocletian's persecution of the Christians. His anniversary is June 22. The town of St. Albans (q.v.), which bears his name, is believed to stand on the site of his birthplace, or the scene of his martyrdom.

ALBANI, *äl-bā'nē*: a rich and celebrated family of Rome, who came originally from Albania in the 16th c., and settled first at Urbino. The great influence of the family dates from the accession (1700) of Giovanni Francesco A. to the papal throne as Clement XI. It has since furnished a succession of cardinals. It was Cardinal Alessandro A. (1692-1779) who formed the famous collection of objects of art in the Villa A., outside the Porta Salaria at Rome. It is still a rich collection, although part of it was carried off by the French. The pieces taken away were restored in 1815; but the then possessor, being unable to pay for their removal to Rome, sold them to the king of Bavaria.

ALBANI, FRANCESCO: 1578-1660; b. and d. Bologna: painter of the Bolognese school, of the time of the Caracci. He with Guido Reni, studied first under Calvaert, afterward under the Caracci. He painted above fifty altar-pieces, worthy of the Caracci school; but his inclination and work were more to the representation of scenes of a playful and pastoral, or of a mythical kind. He had by his second wife a family of twelve children of extraordinary beauty, in whom he found exquisite models for his Venuses, Galateas, and angels' heads; with the disadvantage, however, of imparting a certain uniformity to the countenances of his figures. His representation of the Four Seasons, so often imitated, gained him great renown. A.'s chief defect is in the expression of life and feeling.

ALBANIA, *äl-bā'nē-ā*: the s. w. dist. of European Turkey, occupies the w. of the Balkan peninsula from the Bojana river to the Gulf of Arta. To the n. it is bounded since 1878-80 by Montenegro, Dulcigno, and Bosnia; on the south it is separated, since 1881, from Greece by the Arta river. Upper A. was Illyria; Lower A. ancient Epirus. On the e. boundary forming the water-shed of the peninsula, rises the range of the Bora-dagh (*dagh*, in Turkish, means *mountain*), and the Pindus. The first detaches itself from the wild masses of the Tshar-dagh and Argentaro mountains; and w. of it lie parallel chains, inclosing on the one side, long elevated valleys, and sinking on the other in terraces down to level strips along the coast, consisting mostly of unhealthy swamps and lagoons. Pindus, to the s., is also flanked by isolated basins or hollows, whose western edges

## ALBANIA.

pass into the jagged and thick-wooded Epirotic highlands. These highlands advance to the sea, forming steep rocky coasts; one promontory, the Acroceraunian, projecting in Cape Linguetta far into the sea, reaches a height of 4,000-5,000 ft.

The chief rivers are the Bojana, the Drin, the Skombi, Ergent, Vojussa, Glykys or Acheron (which follows for some distance a subterranean channel, and, reappearing, is called Mauropotamos), the Arta, and the upper course of the Aspropotamos. Among the lakes, Bojana, Ochri, and Janina, are most important.

A fine climate, the heat of which is tempered by high mountains and the proximity of the sea, and a favorable soil, seem to invite the inhabitants to agriculture; but for the most part in vain. In the n., little or nothing is cultivated but maize; in the moist valleys, a little rice and barley are produced; but the mountain terraces are used as pastures for numerous herds of cattle and sheep. In Epirus there is more variety. Here the slopes of the lower valleys are covered with olives, fruit and mulberry trees, intermixed with patches of vines and maize, while the densely-wooded mountain-ridges furnish valuable timber. The plateau of Janina yields abundance of grain; and in the valleys opening to the s., the finer fruits are produced, with maize, rice, and wheat. Even cotton and indigo might be profitably cultivated in the moist valleys; but in its present wretched condition, the country barely supports its scanty population.

The inhabitants, estimated about 1,000,000, are a peculiar people, the Albanians or Arnauts; they call themselves Skipetars. They are descendants of the ancient Illyrians, mixed with Greeks and Slaves, and not to be confounded with the Albani that live on the Caspian Sea. The Albanians are half-civilized mountaineers, frank to a friend, vindictive to an enemy. They are constantly under arms, and are more devoted to robbery and piracy than to cattle-feeding and agriculture. They live in perpetual anarchy, every village at war with its neighbor, and even the several quarters of the same town carrying on mutual hostilities. Many of them serve as mercenaries in other countries, and they form the best soldiers of the Turkish army. At one time, the Albanians were all called Christians; after the death of their last chief, the hero Scanderbeg, and their subjugation by the Turks, a large part became Mohammedans, who distinguished themselves by cruelty and treachery towards the tribes that remained true to their old faith. There are three main divisions of the Albanians—the *Gheg* (*Ghegides*), in Upper A., the purest representatives of the ancient Illyrian stock; the *Toshk* (*Toskides*), in Central and Lower A.; and the *Epirots*, largely mixed with Greeks in the s. To the latter section belong the Suliots (q.v.). The Mirdites, who are Roman Catholics, are the noblest of the northern tribes. The Albanian or Skipetar language, a distinct and peculiar tongue, belongs to the Indo-European group, and is derived from the ancient Illyrian, mixed with Greek, Turkish, and other intrusive elements. There are

## ALBANO—ALBANS, ST.

two main dialects, northern and southern. A. was officially divided by the Turks into the vilayets of Scutari and Janina. The Berlin congress of 1878 granted a considerable addition of territory to Montenegro, including Podgoritza and Antivari. This cession, as also that of Dulcigno, demanded from the porte by the western powers in 1880, was opposed by the Albanians, who formed a national league to prevent it. A conference of plenipotentiaries, Berlin, 1880, insisted that the porte should carry out the recommendation of the Berlin congress, and cede to Greece the portion of A. s. of the Kalamas river. Turkey, however, agreed in 1881 to cede only the portion e. of the river Arta, with the town of Arta.

the portion e. of the river Arta, with the town of Arta. New Balkan troubles developed early in 1903. The Russian consul at Mitrovitza, Macedonia, was killed by an Albanian sentry, and his successor was wounded (April) by alleged Albanians. Under pressure by the great powers the Sultan again promised to institute reforms in the Balkan provinces, and revolts in various parts were the first results.

ALBANO, *ál-bá'nō*: town of Italy, about 18 m. from Rome, on the declivity of the lava-walls which encompass the lake Albano, and opposite the site of Alba Longa. It is the seat of a bishop, and is surrounded by the mansions of wealthy Romans. A valuable wine is made here. Pop. 6,200.

The ALBAN LAKE, or Lago di Castello, is in the basin of an extinct volcano, and has a circumference of 6 m., with the enormous depth of more than 1,000 ft. Its elevation is nearly 1,000 ft. above the sea. While the Romans were at war with the Veientes (390 B.C.), this lake rose to an extraordinary height in the heat of summer, and without any apparent cause. Etruscan diviners declared that the conquest of Veii depended upon letting off the waters of the lake. Stimulated by this, the Romans, under the direction of the Etruscans, opened an emissary or tunnel through the lava-wall which bounds it. In the execution of this work they acquired the art of mining, which they now applied to undermine the walls of Veii. The tunnel, which still remains, and still fulfils its ancient office, is  $1\frac{1}{2}$  m. in length, with a height of 7 ft., and a width of 4 ft. On the e. bank of the lake rises Monte Cavo, the ancient Mount Albanus, 3,000 ft. high, affording an extensive and magnificent view from its summit. Upon it once stood the splendid temple of Jupiter Latiaris.

ALBANS, ST., *-awl'bǎnz*: ancient borough in Hertfordshire, situated on the top and northern side of a picturesque hill, 21 m. n.w. from London. The Ver, a small tributary of the Colne, separates it from the site of the ancient Verulamium (Verulam), an important station in the time of the Romans, and the scene of a terrible slaughter in the insurrection under Boadicea. In honor of St. Alban, said to have suffered martyrdom here in 297, a Benedictine monastery was founded by Offa, king of Mercia, 796. The foundation of the town is supposed to be due to Ulsig (or Ulsin), abbot about 150 years later. Two battles were fought near St. A. during the Wars of the Roses, 1455 and 1461. In the first,

## ALBANY.

Henry VI. became a captive; in the other he was set at liberty by his brave queen, Margaret of Anjou. The old abbey church, restored in 1875 by Sir Gilbert Scott, is a cruciform building of irregular architecture, 547 ft. in length, 206 in breadth, with an embattled tower 146 ft. high. The abbot of St. A. had a seat in the house of peers, and had precedence of all other English abbots. In St. Michael's Church is a monument to the memory of the great Bacon, who bore the titles of Baron Verulam and Viscount St. A. More recently, the Beauclerk family have taken from this place the title of duke, and the Grimston family that of earl. The borough was disfranchised 1852 for bribery. Pop. (1891) 12,895, many of whom are employed in straw-plaiting. St. A. has recently been made the centre of a new diocese of the Church of England; its first bishop having been enthroned 1877, June.

ALBANY, *äl' bǎ-nĭ*, or ALBAINN: an ancient name for the Highlands of Scotland, retained in some degree of use to our own day. Connected with it is the term *Albiones*, applied to the inhabitants of the entire British island in Festus Avienus's account of the voyage of Hamilcar, the Carthaginian, B.C. 5th c.; also the term *Albion*, which appears as the name of the island in Aristotle's *Treatise of the World*. It may, indeed, be safely assumed that Albion or Albany was the original name of Britain among its Celtic population; and that it only became restricted to the n.w. provinces of Scotland when the Celts had for the most part become confined to the same region. Albainn means a country of heights (the root being *alb* or *alp*, a height); and it is remarkable to find Albania also a mountainous country. The modern use of the name A. may be said to have taken its rise in an act of a Scottish council at Scone, 1398, June, when the title of Duke of A. was conferred on the brother of King Robert III., then regent of the kingdom. The title, being forfeited in the son of the first holder, was afterward conferred on Alexander, second son of King James II., in the person of whose son, John, it became extinct, 1536. Subsequently it was conferred in succession on Henry Lord Darnley, on Charles I. in infancy, on James II. in infancy, and (as a British title) on Frederick, second son of George III. Prince Charles Stuart assumed the appellation of Count A. as an incognito title, and gave the title of Duchess of A. to his legitimated daughter. The title Duke of A. was restored in 1881, when the queen conferred it on Prince Leopold; at his death, his son, Leopold, succeeded to the title 1884.

AL'BANY: town, co.-seat of Dougherty co., Ga.: 107 m. s. of Macon, 260 m. w. of Savannah, on Flint river, at the head of navigation; and on the Central of Georgia, Savannah Florida and Western, and Brunswick and Western railroads: it has also branch roads to Thomasville and Arlington. A. is in an agricultural country, producing cotton, sugar-cane, rice, and corn; it has a court-house, bank, 8 churches, and 2 daily newspapers. Pop. (1890) 4,008; (1900) 4,606.

## ALBANY.

**ALBANY**, *aw'ba-ni*: city, cap. of Albany co. and of the state of N. Y. on the w. bank of the Hudson river; at e. terminus of the Erie Canal (q.v.); on the Boston and Albany the Delaware and Hudson Canal Co.'s, the New York Central and Hudson river, and the West Shore railroads; 145 m. n. of New York. Its site at a short distance from the river rises more than 200 ft., affording an extensive view. The city is handsomely built, and contains a number of fine streets, Broadway and Pearl st., parallel with the river, being important thoroughfares; and State st., a splendid avenue, 100 ft. wide, leading from the river up to and past the new Capitol. This building, which contains the halls of legislature and the state offices, is of New England granite, in the style of the Renaissance, and is a magnificent and imposing pile. The corner-stone was laid 1869, July 7, the expenditures to 1894, Dec. 31, were over \$21,400,000, and a large amount still needed for completion. Its site is the most elevated ground in the city, and its tower is 320 ft. high. The new City Hall, completed 1883 at a cost of more than \$200,000, is a beautiful structure in the modern Gothic style. Other notable buildings are the Rom. Cath. Cathedral of the Immaculate Conception on Eagle street; the Prot. Episc. Cathedral of All Saints, cost \$500,000; the State Museum of Natural History; St. Peter's Church (Prot. Episc.); in the 12th c. Gothic style; U. S. govt. building (cost \$500,000); Dudley Observatory on Lake Ave.; New State Arsenal on Washington Ave.; State Normal College on Willett St; Y. M. C. A building on No. Pearl St.; and Harmans Bleecker Hall on Washington Ave. In the w. part of the city a tract of more than 81 acres was set apart 1869 for public uses, to be known as Washington Park, and the city has spent more than \$1,000,000 in its improvement. Work was also begun in the spring of 1894 upon a new park in the Southern part of the city, named Beaver Park.

A. is connected by river and canals with Lakes Erie, Ontario, and Champlain; has 6 steamboat lines; 3 bridges (2 for railroads only) across the Hudson river; paid fire dept. with 9 steam engines and 3 trucks; water works with storage reservoirs at West A. supplied from an artificial lake and from the river by pumping; is at the head of navigation on the Hudson; and as a U. S. port of entry has large trade, especially in the shipment of lumber.

According to the census of 1900 A. had 1,566 manufacturing establishments, with \$21,328,764 capital and a combined output valued at \$24,992,021. The principal industries according to capital employed were the manufacture of malt liquors, foundry and machine-shop products, tobacco, clothing, boots and shoes, planing-mill products, agricultural implements, and stoves, the latter being an old and growing industry of the city. A. is the centre of the cattle trade for N. Y. and New England. In 1901 the assessed valuations were: real, \$59,580,370, personal, \$5,492,905—total, \$65,073,275; tax rate, \$21 per \$1,000. The report of the city chamberlain 1902, Feb. 1, showed

## ALBANY.

general debt \$2,356,000, water debt \$1,486,300, total bonds, 3,842,300, sinking funds, \$1,521,009, net debt \$2,321,291.—There were (1894) 79 churches, divided denominationally as follows: Rom. Cath. 14; Presb. 12; Bap. 11; Prot. Episc. 9; Meth. Episc. 9; Lutheran 6; Reformed 6; Congl. 3; Hebrew 3; Evang. 2; Christian 1; Univ. 1; Friends 1; Christian Scientist 1.—In 1894 there were 21 public school buildings, valued with sites at \$1,026,000; 32,138 children of school age (5 to 21), of whom 13,491 attended school; 40 private schools with 5,000 pupils; 286 public school teachers; 6,600 volumes in dist. libraries; and receipts and expenditures of \$244,324. A. also contained the law and medical schools of Union University. Financial institutions included 6 national banks (cap. \$1,550,000), 4 state banks (cap. \$700,000), 7 savings banks, 1 private bank, 1 loan and investment co., and 3 fire insurance cos. (cap. \$870,000, assets \$1,378,544, liabilities \$1,175,326). There were 8 daily, 2 semi-weekly, 13 weekly, 1 semi-monthly, 6 monthly, and 1 quarterly, publications.

A. is the second oldest settlement in the original 13 colonies, and the third oldest chartered city in the United States. It was established by the Dutch, 1614, as a trading-post, and 1623 was the site of Fort Orange. It was afterward named Beverwyck and Willemstadt, and 1664 was called Albany, in honor of the Duke of York and Albany, afterward James II. The transfer from the Dutch to the English govt. was made 1664, Sep. 24. In 1672, Charles II. declared war against the Dutch provinces, and in July of the following year a Dutch fleet anchored off Sandy Hook in the lower bay, and Fort James having capitulated, the province returned to its former name of New Netherland, and Albany surrendered a few days later and again became Willemstadt. Yet in less than a year the process was once more reversed; the treaty of Westminster restored the province to the British and to the Duke of York and Albany, and 1674, Nov. 10, Edmund Andros took possession of New York, and an English ensign, a sergeant, and 18 men received the surrender of Fort Nassau. In 1683, under a charter from the Duke of York and Albany, the province began to be governed by the votes of the freeholders, and the first general assembly met in New York; 1685 a treaty of peace with the Indians was signed at Albany; and 1686, July 22, under the charter of Gov. Dongan, it became an incorporated city. The French war and the constant danger of attack by the Indian allies of the Canadian French kept A. in a state of alarm till the treaty of peace signed at Ryswick, Holland, 1697, Sep. 21. From this period the city prospered till the war between the French and English broke out afresh, 1744, and A., with the other frontier towns, suffered both from the active operations of the enemy and from a general stagnation of business. This war lasted four years, until the treaty of Aix-la-Chapelle, 1748, after which affairs improved; and the renewal of hostilities 1755, which led to the capture by the British of Quebec and Montreal, and the surrender of Canada, concluded



## ALBANY.

the long series of troubles from which A. in particular had suffered so much, from its situation in the direct way of each invading army. The action of the colonies 1774-76 was readily acceded to by N. Y., and the citizens of A. were very spirited and determined in resistance to British tyranny. The convention elected for the purpose adopted the constitution of the state 1777, Apr. 20, and Brig.Gen. George Clinton was elected first gov. The legislature assembled first at Kingston, then at Poughkeepsie, where it perfected the state govt., and then again at Kingston. It was not until 1780 Jan. 4, that it held its first session in A., afterward removing to New York. In 1797 the public offices of the state were placed in A., and it became the state capital. Introduction of steam-navigation 1807 gave it a great impetus; and the Erie canal was one of the early factors in its growth.

Pop. (1870) 69,423; (1880) 90,758; (1890) 94,923; of whom, males 45,589; females 49,334; native-born 72,630; foreign-born 22,293; colored 1,141; (1900) 94,151.

## ALBANY.—ALBATROSS.

ALBANY, *æl'ba-nĩ*: city, cap. of Linn co., Or.; on the Willamette river, at the mouth of the Callapooya river, and on the Oregon and California and the Oregon and Pacific railroads; 79 m. s. of Portland. Its numerous manufactories are operated by water-power, brought from the Santiam river, in the mountains, by a canal 15 m. long; and the same stream furnishes the supply for the water-works. The city contains 1 national bank (cap. \$50,000), 1 state bank (cap. \$25,000), 1 private bank, 8 churches, 4 public-school buildings, Albany College, 2 daily and 2 weekly newspapers. There are 6 hotels. The city has 2 foundries and machine-shops; 3 flour-mills (capacity 150 to 400 bbls. each per day), 3 saw and planing mills, 3 wagon factories, agricultural implement works, and several minor industries. The vicinity produces wheat, oats, barley, rye, and all kinds of fruit excepting peaches; and the city ships flour, grain, and fruit. Pop. (1890) 3,079; (1900) 3,149.

ALBANY, LOUISA-MARIA-CAROLINE, also ALOYSIA, COUNTESS OF, wife of the unfortunate Prince Charles Edward (q.v.), grandson of James II. of England: 1753-1824; daughter of the Prince Gustavus Adolphus of Stolberg-Gedern, who fell in the battle of Leuthen in 1757. During her married life, bore the name of the Countess of A. She had no children; her marriage proved an unhappy one; and to escape from the ill-usage of her husband, who lived in a state of continual drunkenness, she sought refuge in a nunnery, 1780. At the death of the prince in 1788, the court of France allowed her an annual pension of 60,000 livres. She outlived the house of the Stuarts, which became extinct at the death of her brother-in-law, the Cardinal of York, 1807. She died at Florence, her usual place of residence. Her name and her misfortunes have been transmitted to posterity through the works and autobiography of Alfieri (q.v.), to whom she was privately married. Their remains repose in the same tomb in the Church of Santa Croce at Florence, between the tombs of Macchiavelli and Michael Angelo. See Life by Vernon Lee (1884).

ALBATA, n. *äl-bä'tä* [L. *albātus*, made white—from *albus*, white]: British plate or German silver, consisting of copper, tin, and nickel.

ALBATROSS n. *äl'bä-trös* [F. *albatros*—from Port. *alcatraz*, a sea-fowl]: (*Diomedea*) a genus of web-footed birds of the family of the *Laridæ*, nearly allied to gulls and petrels. Their feet have no hind-toe nor claw; they have a large, strong beak—the upper mandible, with strongly-marked sutures, and a hooked point. The common A. (*D. exulans*), also called the wandering A. is the largest of web-footed birds, the spread of wing (usually 11 ft.) being sometimes 17 ft. and the weight 20 lbs or upwards. The wings are, however, narrow in proportion to their length. This bird is often seen at a great distance from land, and abounds in the southern seas, particularly near the Cape of Good Hope, whence sailors sometimes call it the Cape Sheep. It often approaches very near to vessels, and is one of the objects of interest to voy-

PLATE 6.

Akee  
Alcove



Akee.



Wandering Albatross (*Diomedea exulans*).



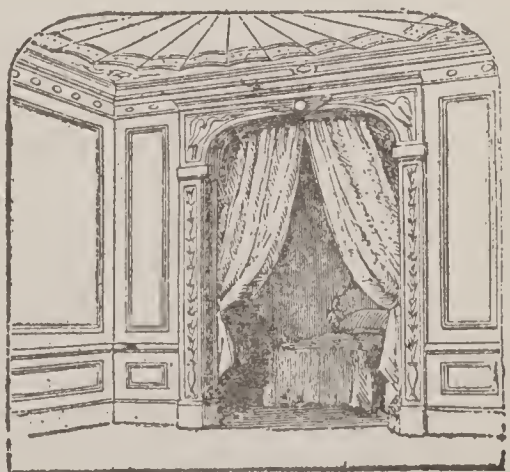
Albatross.



Albumen. Section of a grain of wheat.



Alburnum. *aa*, Alburnum or Sapwood; *bb*, Heart-wood; *c*, Pith; *dd*, Bark.



Alcove.

## ALBAY—ALBERONI.

agers far away from land, particularly when it is seen sweeping the surface of the ocean in pursuit of flying-fish. It seems rather to float and glide in the air than to fly like other birds, as, except when it is rising from the water, the motion of its long wings is scarcely to be perceived. The plumage is soft and abundant, mostly white, dusky on the upper parts, some of the feathers of the back and wings black. The bill is of a delicate pinky-white, inclining to yellow at the tip. The A. is extremely voracious; it feeds chiefly on fish and mollusca, but has no objection to the flesh of a dead whale, or to any kind of carrion. It is not a courageous bird, and is often compelled to yield up its prey to sea-eagles, and even to the larger kinds of gulls. When food is abundant, it gorges itself, like the vultures, and then sits motionless upon the water, so that it may sometimes be taken with the hand. Not unfrequently, however, on the approach of a boat, it disgorges the undigested food, and thus lightened, it flies off. Its cry has been compared to that of the pelican; it also sometimes emits a noise which has been likened to the braying of an ass. Its flesh is unpalatable. It heaps up a rude nest of earth not far from the sea, or deposits its solitary egg in a slight hollow which it makes in the dry ground. The egg is about four inches long, white, and spotted at the larger end; it is edible. There are seven species of this genus. One of these (*D. fuliginosa*), chiefly found within the Antarctic Circle, is called by sailors the Quaker Bird. Albatrosses in great numbers visit the Kurile Islands and Kamtchatka near the end of June.

ALBAY, a province in the S. E. part of Luzon, Philippine Islands. It is best known as a large hemp-growing region, having produced as much as 40,000 tons of hemp in a season. In order to control this province and open up to trade its various hemp ports Brig.-Gen. W. A. Kobbe, U. S. Vol., was, in 1900, January, made its military governor. After several severe engagements with the Filipinos he succeeded in taking possession, with the support of the navy. Albay contains the volcano, Mayon, in eruption several times, the last in 1888. Pop. (1899) 195, 129.

ALBEMARLE, *ăl'be-mărl*, SOUND: inlet of the sea in the coast of N. C.; length 60 m., width 4-15 m. Into A. S. empty the Roanoke and Chowan rivers; natural channels connect it with Currituck and Pamlico sounds.

ALBERONI, *ăl-bă-ro'nē*, GIULIO, Cardinal: 1664-1752; b. Firenzuola, in Parma; the son of a poor vine dresser. From being merely a chorister in a church at Piacenza, he quickly rose, through his abilities, to the dignity of chaplain and favorite of Count Roncovieri, Bishop of St. Donino. He was afterwards sent to Madrid as *chargé d'affaires*, by the Duke of Parma, where he gained the favor of Philip V., of Spain, and had the honors successively conferred on him of grandee, cardinal, and prime minister. In this last capacity he was of singularly great service to Spain, overthrowing the intriguing family of Ursini, bringing about the second marriage of Philip V. with Elizabeth Farnese, and stimulat-

## ALBERT.

ing the expiring energies of Spain. A new life dawned upon the nation, which learned to forget the hardships it had suffered in the Spanish wars of succession; although, on the other hand, it was principally through his instrumentality that the last liberties and rights of the people were sacrificed in favor of absolutism. He was ambitious, despotic, and unscrupulous; hence, to gratify the covetous desires of his new mistress, he suddenly invaded Sardinia, in violation of the Peace of Utrecht, cherishing the hope of re-establishing the monarchy of Charles V. and Philip II., and startling Europe by his insolent audacity. The regent of France broke off his alliance with Spain, and united himself with England and the emperor; but A. was not dismayed. Even when the Spanish fleet in the Mediterranean was destroyed by an English fleet, he contemplated an extensive war by land, in which all the European powers would have been entangled. He patronized the Pretender, to annoy England, and the French Protestants, to annoy Louis. He sought to unite Peter of Russia and Charles XII. with him to plunge Austria into a war with the Turks, to stir up an insurrection in Hungary, and, through his influence with one of the parties at the French court, he actually accomplished the arrest of the regent himself (the Duke of Orleans). But so universal became the complaints against A., that Philip lost courage, and concluded a treaty of peace, the chief condition of which was that the cardinal should be dismissed, which was effected through the influence of Elizabeth herself, now weary of the arrogance of her late favorite. A. received a command, 1720, Dec. 20, to quit Madrid within 24 hours, and the kingdom within 5 days. Exposed to the vengeance of every power whose hatred he had drawn upon himself, he knew no land whither he could flee. Not even to Rome could he venture, for Clement was more bitterly inimical to him than any secular potentate. He wandered about in disguise, and under fictitious names. At length he was imprisoned in the Genoese territory, through the solicitation of the pope and the Spanish monarch; but he speedily recovered his liberty, and two years after the death of Clement, was reinstated by Innocent XIII. in all the rights and dignities of a cardinal. In 1740 he retired to Piacenza, where after 12 years he died at the age of 88. He bequeathed his possessions in Lombardy to Philip V., while his cousin and heir, Cæsar A., became possessor of 1,000,000 ducats.

ALBERT, *âl-bâr'*, ALEXANDER MARTIN: b. Bury (Oise) 1815: member of the Provisional Government of France after the revolution of Feb., 1848. His father was a peasant, and he himself learned a mechanical trade at Paris. He took part in the revolution of July, 1830, and was implicated in the celebrated trial of 1834. He commenced at Lyon the republican journal called *La Glaneuse*, on account of which he was condemned to a fine of 5,000 francs when the insurrection broke out at Lyon. In 1840 he began *L'Atelier*, a paper conducted exclusively by operatives, and devoted to their interests. On the evening before the proclamation of the republic, 1848, Feb., he was making

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buttons in his workshop; and on the nomination of Louis Blanc, he was called to take part in the Provisional Government. He was afterwards chosen president of the Commission for National Rewards, but soon resigned this post. He was elected by a large majority of voices as the representative of the dept. of the Seine in the National Assembly; but involving himself in the attempt of 1848, May 15, against the government as it then existed, he was arrested, and sentenced to transportation. He was, however, soon liberated.

ALBERT, *äl'bert*, COUNT OF BOLLSTÄDT, usually called Albertus Magnus, also Albertus Teutonicus: 1205 (or 1193)–1280; b. Lauingen, Swabia: a man less distinguished for originality than for the extent of his acquirements and his efforts for the spread of knowledge, especially of the works and doctrines of Aristotle. After finishing his studies at Padua, he entered the order of the Dominican friars, and taught in the schools of Hildesheim, Ratisbon, and Cologne, where Thomas Aquinas became his pupil. In 1230 he went to Paris, where he publicly expounded the doctrines of Aristotle, in spite of the prohibition of the church. In 1249, he became rector of the school at Cologne, and in 1254, provincial of the Dominican order in Germany. In 1260, he received from Pope Alexander IV. the bishopric of Ratisbon. But in 1262, he retired to his convent at Cologne, to devote himself to literary pursuits; and here he composed a great number of works, especially commentaries on Aristotle. The fullest edition of his works was prepared by Pierre Jammy, the Dominican (21 vols., Lyon and Leyden, 1651); but it is far from complete. Many of the writings attributed to A. seem spurious; among others, that entitled *De Secretis Mulierum*, which was widely circulated during the middle ages. The extensive chemical and mechanical knowledge which A. possessed, considering the age in which he lived, brought upon him the imputation of sorcery; and in German tradition he has a very ambiguous reputation. It is recorded, for instance, that in the winter of 1240, he gave a banquet in the garden of his convent, at Cologne, to William of Holland, king of the Romans; and that during the entertainment, the wintry scene was suddenly transformed into one of summer bloom and beauty. This myth rests most likely on the fact of A. having had a greenhouse.—The scholastics who followed A.'s opinions took the name of *Albertists*.

ALBERT, FRANCIS (ALBERT) AUGUSTUS-CHARLES-EMMANUEL, Prince of Saxe-Coburg-Gotha, Consort of Victoria, Queen of Great Britain: 1819–61: second son of Ernest II., Duke of Saxe-Coburg-Gotha, by his first marriage with Louisa, daughter of the Duke of Saxe-Gotha-Altenburg. The prince was b. 1819, Aug. 26; and after a careful domestic education, with his elder brother, who became duke, attended the university of Bonn, where, in addition to the sciences connected with state-craft, he entered with ardor on the study of natural history and chemistry, and evinced great taste for the fine arts, especially painting and

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music. Several of his compositions obtained publicity, and an opera was performed in London said to have been composed by him. Gifted with a handsome figure, he attained expertness in all knightly exercises. It was this accomplished prince that the young queen of Great Britain selected as her partner for life. The marriage was celebrated in London 1840, Feb. 10. On his marriage, Prince Albert received the title of Royal Highness, was naturalized as a subject of Great Britain, and obtained the rank of field-marshal, the knighthood of the Order of the Bath, and the command of a regiment of hussars. As the union proved in the highest degree happy, the prince was loaded with honors and distinctions both by the queen and the nation. The title of Consort of Her Most Gracious Majesty was formally conferred in 1842, and that of Prince Consort, in 1857, made him a prince of the United Kingdom. He was also made a member of the Privy Council, Governor and Constable of Windsor Castle, Colonel of the Grenadier Guards, Acting Grand Master of the Order of the Bath, Chancellor of the University of Cambridge, Master of the Trinity House, etc. Notwithstanding his high and favored position, the prince, with rare prudence and tact, abstained from meddling with state affairs, and thus escaped the jealousy and detraction of parties. When the whig ministry of 1840 proposed for him the income of £50,000, as consort of Queen Victoria, the tories, in conjunction with the radicals, succeeded in limiting the sum to £30,000. This appears to have been the only instance of any manifestation of party feeling with reference to the prince. On the other hand, he opened for himself a wide sphere of action, in the encouragement and promotion of science and art, appearing as the patron of many useful associations and public undertakings. The Exhibition of 1851 owed much to him. He died 1861, Dec. 14. His *Life*, by Theodore Martin, in five vols., appeared 1874-80.

ALBERT, or ALBRECHT, *ál'brékt*, I., Duke of Austria and Emperor of Germany: 1248-1308; eldest son of Rudolph I. Rudolph, about the close of his career, made an effort to have A. appointed his successor; but the electors, tired of his authority, and emboldened by his age and infirmities, refused. After Rudolph's death, Austria and Styria revolted; but A., having vigorously crushed the insurrection, had the audacity to assume the insignia of the empire without waiting for the decision of the diet. This violent measure induced the electors to choose, in preference to him, Adolphus of Nassau. Disturbances in Switzerland, and a disease which cost him an eye, now rendered him more humble; he delivered up the insignia which he had so rashly assumed, and took the oath of allegiance to the new emperor, who, however, after some years, so completely disgusted his subjects, that A. began to entertain hopes of recovering his imperial dignity. In 1298, Adolphus was deposed, and A. elected; but the former having resolved to maintain his title, A. was obliged to fight for the crown. The rivals drew up their forces near Worms, where a battle ensued, in which Adolphus was defeated and slain. A., feeling that

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he might now safely display magnanimity, voluntarily resigned the crown which had been recently conferred upon him; and, as he had anticipated, was unanimously re-elected. His coronation took place at Aix-la-Chapelle, 1298, Aug. But the pope, Boniface VIII., denied the right of the princes to elect A., declared himself to be the only true emperor and legitimate king of the Romans, summoned the former before him, required him to ask pardon and do penance, forbade the princes to acknowledge him, and released them from their oath of allegiance. A., on the other hand, with his usual intrepidity, defied the pope, formed an alliance with Philip the Fair, of France, secured the neutrality of Saxony and Brandenburg, invaded the electorate of Metz, and forced the archbishop to break off his alliance with Boniface and to form one with himself for the next five years. The pope was alarmed by his success, and entered into negotiations with him. A., whose duplicity and unscrupulousness equaled his courage, suddenly broke off his alliance with Philip, admitted the western empire to be a papal grant, and declared that the electors derived their right of choosing from the Holy See. Moreover, he promised upon oath to defend the rights of the Roman court whenever he was called upon. As a reward, Boniface gave him the kingdom of France, excommunicating Philip, and declaring him to have forfeited the crown; but the latter severely chastised the pope for his insolence in daring to give away what was not his own. In the following year, A. made war unsuccessfully against Holland, Zealand, Friesland, Hungary, Bohemia, and Thuringia. Shortly afterwards, the news reached him that a rebellion had broken out among the Swiss in Unterwalden, Schweitz, and Uri, in Jan. 1308. A. had not only foreseen, but desired this, in order that he might find a pretext for completely subjugating the country. A new act of injustice, however, occasioned a crime which put an end to his ambition and life. His nephew, Duke John, claimed Swabia as his rightful inheritance, and had set his claims before A., but in vain. When the latter was departing for Switzerland, the former renewed his demand. A. scoffingly refused; and Duke John resolved to be revenged. With four others he conspired against his uncle's life, and assassinated him on the way to Rheinfelden, while separated from his followers by the river Reuss. The emperor died in the arms of a beggar-woman sitting by the wayside. His daughter Agnes, queen of Hungary, frightfully revenged her father's death. See JOHN, THE PARRICIDE. A. left five sons and five daughters, the children of his marriage with Elizabeth, daughter of the Count of Tyrol.

Five sovereign dukes of Austria (q.v.) bore the name A., of whom two (I. and V.) were also emperors of Germany.

ALBERT THE BEAR (so called, not from any peculiarity of character or appearance, but from the heraldic cognizance that he assumed), Margrave of Brandenburg: 1106-70; one of the most remarkable princes of his age; son and successor of Otho, the rich Count of Ballenstädt, and of Elica, eldest daughter of Magnus, Duke of Saxony. Hav-



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ing proved faithful to the emperor Lothario, he received from the latter Lusace, to be held as a fief of the empire; but the Duchy of Saxony, to which he had the best claim, was given to Henry of Bavaria (1127), the son of the youngest daughter of the duke. As a compensation, A. was made Margrave (Markgraf) of the Northern March or Marck (Salzwedel); but in 1138, Henry having been put under the imperial ban, the duchy reverted to the former, when he took the title Duke of Saxony. Henry, however, again got the upper hand, and A. was compelled to flee, and to content himself with the margraviate of Northern Saxony, and the government of Swabia, which was given him as an indemnity. Returning to his own country, he claimed and secured the lands which he had conquered from the Wends as a hereditary fief of the empire, and thus became the founder and first margrave of the new state of Brandenburg. Under A. the margravedom was afterwards raised to be an electorate, and he himself became Elector of Brandenburg. After he had quelled a revolt of the Wends in 1157, he determined to take extreme measures against the vanquished. He almost depopulated their country, and then colonized it with Flemings. On his return from a pilgrimage to Palestine in company with his wife, in 1159, he exerted himself to suppress the language and paganism of the Wends, and to introduce Christianity among them. He died in 1170, at Ballenstädt, where he was buried. Brandenburg continued in the possession of his descendants for two centuries, and finally (1415) fell to the house of Hohenzollern (q. v.).

ALBERT, last grand-master of the Teutonic Order, and first Duke of Prussia: 1496-1568; son of the Margrave Fred-eric of Anspach and Baireuth, who having several children, wished him to be a priest. He was educated under the care of Archbishop Hermann, of Cologne, where he became canon. He did not, however, neglect knightly exercises. He accompanied the emperor Maximilian I. in his expedition against Venice, and was present at the siege of Pavia. In 1511, when scarcely 21 years old, he was chosen grand-master of the Teutonic Order, the knights expecting their feudal allegiance to Poland to be abolished, on account of his near relationship to Sigismund, the monarch of that country, while they also hoped for protection against the latter from his friends in Germany. He was consecrated at Mergentheim, with his father's consent. In 1512 he removed to Königsberg, having been acknowledged by Poland likewise; but refusing to take the oath of allegiance, he was brought into a war with Sigismund in 1520. The next year, a four-years' truce was agreed to at Thorn. A. next made his appearance at the imperial diet at Nürnberg, as a German prince of the empire, to induce the other princes to assist him against the Poles. But Germany could at that time grant no assistance to any one. Disappointed in his hopes, A. threw himself into the cause of the Reformation, which had rapidly spread into Prussia, and broken the last strength of the declining order, whose possessions now appeared a certain prey to Poland. A. still hoped to preserve these, by

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acting upon Luther's advice, which was, to declare himself secular Duke of Prussia, and place his land under the sovereignty of Sigismund. This was done with great pomp at Cracow, 1525, April 8, the duchy being secured to him and his descendants. During the remainder of his life, A. zealously sought to further the welfare of his duchy. He regulated the administration of all affairs, both secular and ecclesiastical, established the ducal library, founded in 1543 the Univ. of Königsberg, gathered many literary men around him, and caused their works to be printed. In 1527, he married Dorothea, daughter of Frederick, king of Denmark. A. earnestly desired peace, but his was not an age in which peace could be purchased. It was a transition period from the old to the new, and the duke found himself entangled in conflicts with the nobles, and in theological disputes, which, with other troubles of a more personal character, saddened the close of his life. See PRUSSIA.

ALBERT, Archbishop of Magdeburg, and Elector of Mentz, generally called A. of Brandenburg: 1489-1545; younger son of the elector John Cicero, of Brandenburg. In 1513, he became Abp. of Magdeburg; in the same year, also, Administrator of the bishopric of Halberstadt, and in the following year, Abp. and Elector of Mentz. Leo X. having granted him permission to sell indulgences, on condition that he should deliver up half the booty to the papal exchequer, A. appointed the Dominican Tetzels 'indulgence preacher,' who by the shameless manner in which he went about his work, first stirred Luther to post up his well-known ninety-five theses. Even in the archbishop's own diocese, the reformer's doctrines found not a few adherents, so that A. was compelled, at the imperial diet at Augsburg, to act the part of peace-maker. When he joined the Holy Alliance against the Treaty of Schmalkald, Luther made a fierce attack on him in writing. He was the first of all the German princes who received the Jesuits into his dominions. In 1541, he granted religious liberty to his subjects, under the condition that they should pay his debts, amounting to 500,000 florins. He did this, not from any love of religious liberty, but either because of the consideration referred to, or from a dread of popular compulsion. The last days of his life were spent in Aschaffenburg.

ALBERT, or ALBRECHT, Archduke of Austria; 1559-1621; third son of the emperor Maximilian II.; brought up at the Spanish court, and dedicated himself to the church. In 1577, he was made cardinal; in 1584, Abp. of Toledo, and, 1594-96, held the office of viceroy of Portugal. He was next appointed Stadtholder of the Netherlands, where, as the representative of the Spanish monarch, he discharged the duties of his function with prudence and dignity. Cardinal Bentivoglio, who resided a considerable time at his court, praises his uprightness, his moderation, his love of serious study, his industry, his perseverance, and his discretion, though he does not conceal the fact that he was a prince better fitted for peace than for war. He showed at first both courage and enthusiasm, but afterwards was

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accused of dilatoriness. Abandoning his ecclesiastical profession, he married (1598) the Infanta Isabella.

**ALBERTA**, *äl bër ta*: one of four provisional districts formed 1882 from the North-west Territories of Canada; on the n. border of the United States between Assiniboia on the e. and Brit. Col. on the w.;<sup>7</sup> pop. (1901) 65,876. The district possesses great and varied agricultural and mineral resources. In the s.w. portion, s. of the Canadian Pacific railway, are the great cattle ranges of Canada, of which the chief centres are Fort McLeod and Calgary.

**ALBERT COAL** or **ALBERTITE**, *äl bër-tīt*, pitch like mineral, in subcarboniferous fissure, Nova Scotia. It differs from asphaltum in solubility and fusion.

**ALBERT EDWARD**, King of Great Britain and Ireland and Emperor of India, under the title of Edward VII.; born Buckingham Palace, England, 1841, Nov. 9; eldest son of Queen Victoria and the late Prince Consort. He received his early education from private tutors, and afterward attended lectures in Christ Church, Oxford, and in Cambridge Univ. He visited the United States and Canada 1860; married Princess Alexandra, of Denmark, 1863, Mar. 10, nearly lost his life from typhoid fever 1871, but took part in the great thanksgiving service in St. Paul's Cathedral 1872, Feb. 27, over his recovery; visited India 1875-6, the Paris Exposition 1878, and 89; Berlin during the celebration of the silver wedding of the Crown Prince of Germany with the Princess Royal of England 1883; Greece and Egypt 1889; and with his wife made a tour of Ireland 1885. He was called to the bar and bench of the Middle Temple 1861, and has received the degrees D.C.L. from Oxford, 1868, and LL.D. from Trinity College, Cambridge, Edinburgh, Dublin 1868, and Calcutta 1874. He has the patronage of 29 ecclesiastical livings and a state income of £76,000. Six children have been born of his marriage, three princes and three princesses, and two princes have died. His oldest son, Prince ALBERT VICTOR, b. 1864, Jan. 8, was created Duke of Clarence 1890, May 23; d. 1892, Jan. 14. On the death of Queen VICTORIA (1901, Jan. 22) he became king and emperor; took the oath (23d); and was proclaimed (24th) with ancient ceremonies. The coronation of the king and queen was fixed for June 26, but he was suddenly prostrated three days before that date. An operation resulting successfully, their majesties were crowned with restricted ceremonies Aug. 9.

**ALBERT EDWARD N'YANZA**, *äl'bért éd'wérd nī-än'za*, formerly the Southern Nyanza (lake) or Nyanza of Usongora, and appearing on some maps as Muta Nzigé: lake in the equatorial region of Africa. The names Albert Nyanza and Muta Nzigé were long used interchangeably for one body of water. When it was found that there were two distinct lakes, the former name was given to the northern and the latter to the southern and smaller one. Stanley saw this lake from a distance in 1876, and in 1889 discovered that the Semliki river carries its overflow to Lake Albert. The river, which in some portions is 250 to 300

## ALBERT LEA—ALBERT N'YANZA.

ft. broad and 9 ft. deep, receives while on its way about 50 other streams. In its course of perhaps 75 m., are many rapids and abrupt falls, with total descent of about 900 ft. Stanley named the lake A. E. N., in honor of 'the first British prince who has shown a decided interest in African geography.' This is the upper one of the lakes belonging to the w. part of the Nile system, and is much smaller than either of the others, being only about 50 m. in length. Its elevation above sea-level is about 3,000 ft. It receives the waters from the w. which, through the Semliki river, reach the Albert Nyanza, and forms the source of the s.w. branch of the White (or true) Nile, while the s.e. branch flows from the Victoria Nyanza.

ALBERT LEA, *äl'bért lē*: town, co.-seat of Freeborn co., Minn., between two lakes; 12 m. n. of the Iowa state line, and 100 m. s. of St. Paul; on the Burlington and Cedar Rapids, the Minneapolis and St. Louis, the St. Paul and Milwaukee, and the Albert Lea and Fort Dodge railroads. It was settled 1855. A. is in a grain and stock-raising country, but has manufactures of plows and wagons, flour, and iron. It has a court-house, park, library, 2 banks, 2 weekly newspapers, high school, and churches. Pop. (1880) 1,966; (1890) 3,305; (1900) 4,500.

ALBERT N'YANZA, *-nī-än'zǎ* (the Little Luta Nzige of Speke): large lake of East Central Africa, one of the reservoirs of the Nile, situated in a deep rock-basin, 80 m. w. of the Victoria N'yanza. The A. N. is of oblong shape, and, as proved by M. Gessi, one of Col. Gordon's party in 1876, is 140 m. long from n. to s., and 40 m. broad. It is crossed by the equator near its centre. On the e. it is fringed by precipitous cliffs, having a mean altitude of 1,500 ft., with isolated peaks, rising from 5,000 to 10,000 ft. The surface of the lake is 2,720 ft. above the sea, and 1,470 ft. below the general level of the country; its water is fresh and sweet, and it is of great depth towards the centre. The n. and w. shores are bordered by a massive range of hills, called the Blue Mountains, which have a height of about 7,000 ft. The existence of this vast lake first became known to Europeans through Speke and Grant, who, 1862, heard of the Luta Nzige as a narrow reservoir forming a shallow back-water of the Nile. See map to article NILE. When Speke and Grant, after the discovery of the Victoria N'yanza, were, 1863, descending the Nile on their return to Europe, they met, at Gondokoro, Mr. (now Sir) Samuel White Baker (q.v.), who was ascending the river in the hope of meeting with and aiding these travellers. As soon as they informed him of the reputed great lake, Baker agreed to undertake its exploration. Joining a trading party, he travelled s.e. to Latooka, which he describes as the finest country he had seen in Africa. His course was now s. and s.w., through the countries of Obbo and Madi, crossing the Asua, a tributary of the Nile, 1864, Jan. 9. Journeying next in a s. and s.e. direction over uninhabited prairies and swampy hollows, he came upon the Nile at the Karuma Falls, lat. 2° 17' n., at the identical spot where it had been crossed by Speke and Grant. Being prevented by the

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jealousy of King Kamrasi from following the course of the stream to the w., he was forced to proceed, by slow marches southward on the w. side of the Somerset or Nile, to M'rooli, whence by a toilsome march of 18 days s.w., on the s. side of the Kafoor river, the party reached the A. N. at Vacovia, lat. 1° 14' n., long. 30° 40' e. Baker named the lake in memory of Prince Albert; and embarking, the party coasted n.e. and in 13 days arrived at Magungo, lat. 2° 16' n., near the mouth of the Somerset river. At this part, the lake was under 20 m. in width, and appeared to stretch away in a n.w. direction. From Magungo, 250 ft. above the lake, the travellers had a view of the Nile Valley for 15 or 20 m. n. Ascending the Somerset, at a distance of 25 m. from its mouth, the canoe-voyage was interrupted by a grand cataract 120 ft. high, which was named the Murchison Falls. The explorers proceeded s.e. for about 30 m. to Kisoona, and then a march n.e. for about the same distance brought them to the Karuma Falls, where they first entered the lake region. The name Somerset is adopted from Speke's first map, in order to distinguish that river from the Nile proper. It issues from the Victoria N'yanza at the Ripon Falls, and flowing n.w. and w. for about 230 m., it enters the A. N. within 30 m. of its n. extremity, and soon quits it to form the true Nile. From the Ripon Falls for 30 m. n., and from the Karuma to the Murchison Falls, 45 m., the Somerset forms a series of rapids. The A. N. receives the drainage of a great equatorial mountain range, where rain falls during ten months of the year. The scenery of the lake is described as extremely beautiful. Salt, which is very abundant in the soil on the e. shores of the lake, is now the only article of trade to the inhabitants. Formerly, Magungo was a large town, when the trade from Karague, in lat. 2° s. was conducted in large boats sent by Rumanika, the king of the country, with cowrie shells and brass bracelets from Zanguebar, to be exchanged for ivory.

ALBERTUS MAGNUS: see ALBERT OF BÖLLSTADT.

ALBESCENT, a. *äl-bēs'ěnt* [L. *albes'cens*, or *albescen'tem*, growing white—from *albus*, white]: growing white; moderately white; in *bot.*, having a pale tinge or hoary appearance. ALBICANT, a. *äl'bi-kānt* [L. *al'bicans*, being white]: growing whitish,—in same sense as preceding.

ALBI, *al'bē* or *äl-bē'*: cap. of the dept. of Tarn, France; is built on a height. It is very old, and suffered greatly during the religious wars which devastated the land in the time of the Albigenses. Besides the usual government offices, it has a public library of 12,000 vols., and a museum. The chief buildings are the cathedral, built in the style of the 13th c., the old palace of the Count of Albigeois, and the theatre. There is considerable trade in corn, wine, fruit, etc.; and linen, cotton, woolen, and leather manufactures. Pop. (1896) 21,490.

ALBICATION, n. *äl-bi-kā'shūn* [L. *albicare*, to grow white]: in *bot.*, a turning white; development of white spots or patches in foliage.

## ALBIFY—ALBIGENSES.

ALBIFY, v. t. *ăl'бі-ѳі* [M. L. *albificare*, to make white]: to whiten; to make white.

ALBIGENSES, n. plu. *ăl'бі-жѳн'сѳз* [L., people of *Albiga*, now Albi]: 'heretics' of various sects that abounded in the s. of France about the beginning of the 13th c. The chief sect was the Cathari (q. v.); but they all agreed in renouncing the authority of the popes and the discipline of the Roman Church. The name arose from the circumstance that the dist. of Albigeois in Languedoc—now in the dept. of Tarn, of which Albi is the cap.,—was the first point against which the crusade of Pope Innocent III. (1209) was directed. The immediate pretense of the crusade was the murder of the papal legate and inquisitor, Peter of Castelnau, who had been commissioned to extirpate heresy in the dominions of Count Raymond VI. of Toulouse; but its real object was to deprive the count of his lands, as he had become an object of hatred from his toleration of the heretics. It was in vain that he had submitted to the most humiliating penance and flagellation from the hands of the legate Milo, and had purchased the papal absolution by great sacrifices. The legate, Arnold, Abbot of Citeaux and Milo, who directed the expedition, took by storm Beziers, the capital of Raymond's nephew, Roger, and massacred 20,000—some say 40,000—of the inhabitants, Catholics as well as heretics. 'Kill them all,' said Arnold; 'God will know his own!' Simon, Count of Montfort, who conducted the war under the legate, proceeded in the same relentless way with other places in the territories of Raymond and his allies. Of these, Roger of Beziers died in prison, and Peter I. of Aragon fell in battle. The conquered lands were given as a reward to Simon of Montfort, but he never came into quiet possession of the gift. At the siege of Toulouse (1218) he was killed by a stone, and counts Raymond VI. and VII. disputed the possession of their territories with his son. But the papal indulgences drew fresh crusaders from every province of France, to continue the war. Raymond VII. continued to struggle bravely against the legate and Louis VIII. of France, to whom Montfort had ceded his pretensions, and who fell in the war in 1226. After hundreds of thousands had perished on both sides, a peace was concluded, 1229, at which Raymond purchased relief from the ban of the church by immense sums of money, gave up Narbonne and several lordships to Louis IX., and had to make his son-in-law, the brother of Louis, heir of his other possessions. These provinces, hitherto independent, were thus, for the first time, joined to the kingdom of France, and the pope sanctioned the acquisition, in order to bind Louis more firmly to the papal chair, and induce him more readily to admit the Inquisition. The heretics were handed over to the proselytizing zeal of the order of Dominicans, and the bloody tribunals of the Inquisition; and both used their utmost power to bring the recusant A. to the stake, and also, by inflicting severe punishment on the penitent converts, to inspire dread of incurring the church's displeasure

## ALBINO—ALBOIN.

From the middle of the 13th c. the name of the A. gradually disappears. The remnants of them took refuge in the east, and settled in Bosnia. See Hahn, *Geschichte der Ketzler im Mittelalter* (1845); Schmidt, *Histoire et doctrine de la secte des Cathares ou Albigeois* (Strasb. 1849); and Peyrat, *Histoire des Albigeois* (2 vols., Paris, 1882).

**ALBINO**, n. *äl-bī'nō* [Port. *albino*, an albino—from L. *albus*, white]: a person, or any animal, with white hair and red eyes, arising from the absence of pigment-matter; said to have been originally applied to white negroes, found by the Portuguese on the w. coast of Africa. **ALBINISM**, n. *äl'bīn-izm*, state of being an albino; in *bot.*, a pale or whitish condition of a plant, owing to the absence of chlorophyll.

**ALBINOS**—called also Leucæthiopes, or white negroes, and by the Dutch and Germans Kakerlaken: at one time considered a distinct race; but closer observation has shown that the same phenomenon occurs in individuals of all races, and that the peculiar appearance arises from an irregularity in the skin, which has the name of *leucopathy* or *leucosis*. It consists in the absence of the coloring matter which, in the normal state, is secreted between the cuticle and the true skin, and also of the dark pigment of the eye; so that the skin has a pale, sickly white color, while the iris of the eye appears red, from its great vascularity. As the pigment in the coats of the eye serves to diminish the stimulus of the light upon the retina, A. generally cannot bear a strong light; on the other hand, they see better in the dark than others. The coloring matter of the hair is also wanting in A., so that their hair is white. *Melanism* is the opposite of Albinism in men or animals; thus at the south and west, there are black females of the ordinarily yellow Turnus butterfly. Albinism is born with the individual, and occurs not only in men, but also in other mammalia, in birds, and probably in insects. It is not improbable that the peculiarity may, to some extent, be hereditary. The opinion that A. are distinguished from other men by weakness of body or mind is completely refuted by facts.

**ALBION**, n. *äl'bī-ōn* [L. *albus*, white,—but probably from a native Celtic word]: the most ancient name on record of the island of Great Britain: frequently used in poetry—so called from the appearance of the white chalk cliffs on its coast. See **ALBANY** or **ALBAINN**.

**ALBION**, *äl'bī-on*: town, co.-seat of Orleans co., N. Y., on the Erie canal, and the New York Central railroad; 10 m. s. of Lake Ontario, 30 m. w. of Rochester. It has a court-house, jail, public halls, several hotels, 6 churches, 3 banks, and 4 weekly newspapers. It has manufactures of flour, furniture, and agricultural implements; also saw-mills, foundry, etc. Pop. (1890) 4,586; (1900) 5,749.

**ALBITE**, n. *äl'bīt* [L. *albus*, white]: a soda felspar, white or whitish: it gives yellowish flame under the blow-pipe.

**ALBOIN**, *äl boyn*: founder of the Lombard dominion in Italy; succeeded his father, 561, as king of the Lombards, settled in Pannonia: d. 574. Lombards returning from Italy

## AL-BORAK—ALBOX.

brought back reports of the beauties and riches of the country. This determined A., 568, to enter Italy with his own nation of Lombards, the remains of the Gepidæ, and 20,000 Saxons. He soon overran and subdued the n. of the country as far as the Tiber, fixing his principal residence at Pavia, which long continued to be the cap. of the Lombards. A.'s barbarity cost him his life. During a feast at Verona, he made his queen drink out of the skull of her father, which he had converted into a wine-cup. In revenge, she incited her paramour to murder her husband, 574. Strangely, A. was a just and beneficent ruler. He was beloved by his subjects, whom he stimulated into that vital activity that characterized their descendants for ages. For several centuries his name continued to be illustrious among the German nations, who celebrated his praises in martial songs. To escape the fury of the Lombards, Rosamond fled with her associate and the treasure to Longinus, the exarch, at Ravenna. Longinus becoming a suitor for her hand, she administered poison to Helmichis, her paramour, who, discovering the treachery, caused her to swallow the remainder of the cup, and die with him.

AL-BORAK, n. *âl'bō-râk'* [Ar. *al*, and *boraka*, to shine, to flash; *borak*, lightning]: the winged creature having the face of a man on which Mohammed is said to have journeyed or flown to Jerusalem and heaven; others say 'a white mule.'

ALBORNOZ, *âl-bor-noth'*, GIL ALVAREZ CARILLO DE: a warlike prelate of the middle ages; b. Cuença, d. 1367. He studied at Toulouse, and subsequently became almoner to Alfonso XI., king of Castile, who appointed him Archdeacon of Calatrava, and finally Abp. of Toledo. He took part in the wars against the Moors, saved the life of the king in the battle at Tarifa, and was present at the siege of Algeciras, where the king dubbed him knight. On account of the Christian boldness with which he denounced the criminal excesses of Peter the Cruel, he fell into disgrace, and had to flee to Pope Clement VI., at Avignon, who made him a cardinal. Innocent VII. also recognized his political talents, and sent him as cardinal-legate to Rome, where, by his tact and vigor, he secured, in spite of the intricate complication of affairs, the restoration of the papal authority in the states of the church (1353-62). Pope Urban V. owed the recovery of his dominions to him, and out of gratitude appointed him legate at Bologna in 1367. In the same year he died at Viterbo, but expressing a wish to be buried at Toledo, almost royal honors were rendered to his dead body by the Spanish monarch, Henry of Castile, and Urban even granted an indulgence to all who had assisted in the transference of his remains from Viterbo to Toledo. He left a valuable work upon the constitution of the Romish Church, printed first at Jesi, 1473; now very rare.

ALBOSTAN, *âl-bos-tân'*: town of Asiatic Turkey, in the pashalic of Marash, 39 m. n.e. by n. from Marash. Pop. est. 9,000.

ALBOX, *âl-boh'*: town of Andalusia, Spain, province of



## ALBUERA—ALBUM.

Almeria, 42 m. n.e. from Almeria, on a small affluent of the Almanzora, which divides the town into two parts. It has some good streets and buildings, and a fine square. Blankets, coarse linen and hempen fabrics, and earthenware are manufactured. There are also corn and oil mills. There is a great annual fair in Nov., lasting for a fortnight. Pop. 9,430.

ALBUERA, *ál-bô-â'râ*: an insignificant hamlet, in the Spanish province of Estremadura, famous for the battle, 1811, May 16, between the combined English, Spanish, and Portuguese forces under General Beresford; and the French under Marshal Soult, who were scarcely so numerous, but had abundant artillery. The object of the latter was to compel the English to raise the siege of Badajos. The result was, that Soult was obliged to retreat to Seville, with the loss of 9,000 men; the loss of the allied forces was about 7,000. In proportion to the numbers engaged, the battle was the most sanguinary in the whole contest. The French had at first got possession of a height which commanded the whole position of the allied army, but they were driven from it by 6,000 British, only 1,500 of whom reached the top unwounded.

ALBUFERA, *ál-bô-fâ'râ* [an Arabic word meaning 'The Lake']: lake near Valencia, Spain, about 10 m. in length and the same in breadth, divided from the sea by a narrow tongue of land; a canal connects it with the city of Valencia. It is rich in fish and fowl, and is said to have been excavated by the Moors. From it Marshal Suchet (q.v.) took the title of Duke.

ALBUGINEOUS, a. *ál'bū-jīn'ě-ŭs* [L. *albūgo*, or *albū-gīnēm*, a white spot—from *albus*, white]: like the white of an egg. ALBUGO, n. *ál-bū'gō*, a white opacity of the cornea; the white of the eye.

ALBUGO, *ál-bū'gō*: term employed in surgery to designate the white opacity that often follows ulceration of the cornea of the eye. In infancy, the comparatively rapid interchange of materials will often diminish to a great extent both the extent and density of these spots; but in after-life, they do not undergo similar absorption, nor are they amenable to surgical relief.

ALBUM, n. *ál'bŭm* [L. *album*, a white color, a white tablet—from *albus*, white—*lit.*, a book or tablet, white or unwritten upon]: a scrap-book; a memorial book. ALBUM GRÆCUM, n. *ál'bŭm grē'kŭm* [L. *Græcum*, of or belonging to Greece]: Greek-white; the whitish hardened excrements of dogs, wolves, etc.—formerly used in medicine under that name, now partially used by tanners.

ALBUM: among the Romans, a white tablet overlaid with gypsum, on which were written the *Annales Maximī* of the pontifex, edicts of the prætor, and rules relative to civil matters. It was so called, either because it was composed of a white material, or because the letters used were of that color. To tamper with the names written on an A. was a serious offense, and involved a severe penalty. In

## ALBUMIN.

the middle ages, the word was used to denote any list, catalogue, or register, whether of saints, soldiers, or civil functionaries. In the gymnasia and universities of Europe, the list of the names of the members is called the A. The name is also applied to the 'black board' on which public notifications of lectures, etc., are written up. But its popular signification in modern times is that of a book for containing photographs, or a blank-book for a drawing-room table, and intended to receive fugitive pieces of verse, or the signatures of distinguished persons, or sometimes merely drawings, prints, marine plants, etc.

ALBUMIN, n. *äl-bū'mĭn*, or ALBUMEN, *äl-bū'mĕn* [L. *albu'men*, white of egg, from *albus*, white]: organic compound possessing the same chemical constitution and reaction as white of egg; specifically, white of egg itself, and then spelt preferably *albumen*. It exists both in animal organisms and in plants. ALBUMENIZE, v. *älbū'mĕn-ĭz*, to saturate or cover with albumen. ALBU'MENIZ'ING, imp. ALBU'MENIZED', pp. *-ĭzd'*: ADJ. prepared with a coating of albumen, as *albumenized* paper. ALBUMINOUS, a. *äl-bū'mĭ-nūs*, having the nature of albumen. ALBUMINOIDS, n. plu. *äl-bū'mĭn-oydz* [Gr. *eidos*, resemblance]: a group of substances found in all plants and animals in a greater or less degree, of which *albumen* and *fibrin* may be regarded as typical examples; proteine bodies. ALBU'MINOSE, a. *-mĭ-nōs*, the soluble portion of fibrin. ALBUMINURIA, n. *äl'bū-mĭ-nūr'ĭ-ä* [Gr. *ouron*; L. *urĭna*, the urine]: a diseased state in which albumen may be detected in the urine; a term indicative of the presence of albumen in the urine.—*Albumin* forms the chief ingredient in the white of egg, and abounds in the blood and chyle, and more or less in all the serous fluids of the animal body; it exists also in the sap of vegetables, and in their seeds and other edible parts. A. forms the starting-point of animal tissues, for in an egg during incubation all the parts of the chick are formed out of it. The organized substances, fibrine and caseine, have a chemical composition similar to A.: and hence, with A., they are called albuminous compounds. A. may be considered the raw material of fibrine, and fibrine as animalized A.

The chief component elements of A. are carbon, hydrogen, nitrogen, and oxygen, with small proportions of phosphorus and sulphur. It is believed to be a definite chemical compound, though the exact proportions and the rational formula have not been definitely ascertained. Carbon forms about 54 per cent. of it; nitrogen, 16; and sulphur, 2. It is the sulphur of the A. that blackens silver when brought in contact with eggs, and the smell of rotten eggs arises from the formation of sulphuretted hydrogen during the decomposition.

A. is soluble in water, and in such a state of solution is found in the egg, the juice of flesh, the serum of blood, and the juice of vegetables; but when heated from 140° to 160° it coagulates, and is no longer soluble in water. With bichloride of mercury (corrosive sublimate) sulphate of

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copper (blue vitriol), acetate of lead (sugar of lead), nitrate of silver (lunar caustic), it forms insoluble compounds, and is therefore used as an antidote to these poisons. The property of coagulating with heat adapts A. for the purpose of clarifying in sugar-refining and other processes. The A. is added to the liquid in the cold state, allowed to mix thoroughly therein, and then, when heated, it coagulates, entangling and separating all the impurities suspended in the liquid. A. is likewise coagulated by the majority of the mineral acids, but not by acetic acid. Alcohol, ether, creosote, and tannic acid likewise cause the coagulation of A., and hence the efficacy of these substances, especially the two latter, in coagulating and thereby killing the nerves which cause so much pain in toothache. For A. as an element in diet, see FOOD.

ALBUMIN, in plants, is a store of nutritive matter, distinct from the embryo, but inclosed with it within the integuments of the seed. It is also known by the names *Perisperm* and *Endosperm*. When a seed has a store of A. separate from the embryo, it is said to be *albuminous* or *perispermic*. When the nutritive matter is stored up in the cotyledons or lobes of the seed itself, as in the bean, pea, wall-flower, etc., the seed is said to be *exalbuminous* or *aperispermic*. In these the A., as a distinct part of the seed, is wanting, and the entire seed consists of embryo and integument. When the A. is present, it is sometimes very small, as in the nettle; in other instances, on the contrary, it is very much larger than the embryo, as in the cocoa-nut, of which it forms the edible part. It is also the edible or useful part of many other seeds—as in the different kinds of corn—and in coffee, nutmeg, etc. It is sometimes *mealy* or *farinaceous*, as in the cereals; *oily*, as in the poppy; *horny*, as in coffee; *cartilaginous*, as in the cocoa-nut; *mucilaginous*, as in the mallow. Vegetable ivory is the A. of a palm (genus *Phytelephas*) which grows on the banks of the Magdalena, and is used in place of ivory. The presence or absence, and various peculiarities of A., afford botanical characters of great value. The A. appears to be a store provided for the nourishment of the embryo, and consists of starchy, oily, and albuminous matter. *Vegetable A.*, in a chemical sense, exists, often in large quantity, even in seeds which, according to the language of descriptive botany, are exalbuminous or destitute of A.; and to prevent confusion, *perisperm* has begun to be employed as the botanical term, though not yet in general use.

## ALBUMINURIA—ALBUÑOL.

ALBUMINURIA, *ăl-bū-mĭ-nū'rĭ-a* [L. *albumen*, white of egg; Gr. *ouron*, urine]: condition of the animal economy characterized by the presence of albumin in the urine. Albumin may occur in the urine without any disease whatever; but continuous elimination of it leads to anæmia and changes in the system, that usually produce the following symptoms: pallid pasty complexion; dry skin; tendency to œdema of the cellular tissue, noticeable in the eyelids and on the shins; deranged digestion, flatulence, and irregularity of the bowels; nervous disorder, shown by muscular weakness, lassitude, vague pains about the loins, and headache; calls to urinate during the night. A. is produced by various conditions—e.g., changes in the blood, changes in the circulation, changes in the kidney. The A. of heart disease depends on changes in the circulation; the A. of nephritis on alterations in the kidney. An important distinction is drawn, by Dr. T. Lauder Brunton, between A. due to alteration in the kidney and A. produced by other causes; the former condition he calls *True A.* The structural changes in the kidney which cause A. are acute and chronic inflammation, waxy degeneration, and cirrhosis. In *False A.*, the treatment indicated is to counteract the solution of blood corpuscles: for this purpose, quinine is very often useful. In *True A.*, depending on venous congestion of the kidneys, measures must be taken to lessen the congestion and to draw the blood from the interior to the surface of the body, as by cupping or by wet-packing: warm baths are sometimes injurious. The tone of the renal vessels may be improved by the employment of diuretics; the administration of iron is beneficial, as diminishing or removing the symptoms of anæmia, and, by increasing the tone of the vessels, thus reducing the loss of albumin.—A. is often regarded as synonymous with Bright's Disease; but, though Bright's Disease is usually, in all its forms, accompanied by A., the latter may exist without Bright's Disease, as, for example, when the elimination of albumin is due to venous congestion. See BRIGHT'S DISEASE: KIDNEYS.

ALBUÑOL: *ăl-bôn-yôl'*: town in Spain, province of Granada, 41 m. s.e. from Granada, about 3 m. from the coast of the Mediterranean. It is a well-built town, with clean paved streets. The surrounding district abounds in vineyards, and is also very productive of figs and almonds. The making of wine and brandy, and the drying of raisins, are the chief occupations of the inhabitants of the town itself. The port of A. is a small place called La Rabitá. Pop. of A. 8,764.

## ALBUQUERQUE—ALBURNUM.

ALBUQUERQUE: *ál-bó-kěr'kā*, town of Bernalillo co., New Mexico, on the left bank of the Rio Bravo del Norte, 41 m. s.s.w. from Santa Fé. Pop.(1890) 5,518; (1900) 6,238.

ALBUQUERQUE: town of Estremadura, Spain, province of Badajoz, 24 m. n. from Badajoz. It is a decaying place. Cotton and woolen fabrics are manufactured; also earthenware, soap, and chocolate. The neighborhood is fruitful, producing corn, wine, oil, flax, honey, and fruits. Pop. 7,470.

ALBUQUERQUE, *ál'bu-kérk* or *ál-bó-kěr'kā*, ALFONSO THE GREAT, viceroy of the Indies, called also the Portuguese Mars: 1453-1515; b. near Alhandra, not far from Lisbon, of a family of the royal blood of Portugal. In that age, the Portuguese were distinguished for heroism and a spirit of adventure. They had discovered and subjugated a great part of the w. coast of Africa, and were beginning to extend their dominion over the seas and the people of India. A. being appointed viceroy of these new possessions, went to the coast of Malabar, 1503, Sep. 26, with a fleet and some troops; conquered Goa, which he made the seat of the Portuguese government, and the centre of its Asiatic commerce; and afterwards the whole of Malabar, Ceylon the Sunda Isles, the peninsula of Malacca, and (1515) the island of Ormuz at the entrance of the Persian Gulf. When the king of Persia sent for the tribute which the princes of this island had formerly rendered to him, A. presented bullets and swords to the ambassador, saying: 'This is the coin with which Portugal pays her tribute.' He made the Portuguese name profoundly respected among the princes and people of the east; and many of them, especially the kings of Siam and Pegu, sought his alliance and protection. All his undertakings bore the stamp of an extraordinary mind. He maintained strict military discipline, was active, far-seeing, wise, humane, and equitable, respected and feared by his neighbors, while beloved by his subjects. His virtues made such an impression on the Indian people, that long after his death, they resorted to his grave, to implore his protection against the misgovernment of his successors. Notwithstanding his valuable services, A. did not escape the envy of the courtiers and the suspicions of King Emmanuel, who appointed Lopez Soarez, a personal enemy of A., to supersede him as viceroy. This ingratitude affected him deeply. Ismaël, the shah of Persia, offered his assistance to resist the arbitrary decree of the Portuguese court; but A. would not violate his allegiance. A few days afterwards, commending his son to the king in a short letter, he died at sea near Goa, 1515, Dec. 16. Emmanuel honored his memory by a long repentance, and raised his son to the highest dignities in the state. His life is well portrayed in the *Commentarios do Grande Affonso de A.* (Lisbon, 1576 and 1774), pub. by his son Blasius.

ALBURNUM, n. *ál-bér'nēm* [L.—from *albus*, white]: or SAP-WOOD, in Botany: that part of the wood of exogenous trees which is still imperfectly hardened; and, consisting of the woody layers most recently formed, is interposed

## ALCA—ALCALA DE GUADAIRA.

between the *bark* (q.v.) and the *heart-wood* or *duramen* (q.v.). There is often a very marked division between it and the duramen, in trees whose age is such that the latter has been perfected. The A. differs from the duramen in having its tubes still open for the passage of fluids; and these tubes appear to be the vessels which chiefly serve for the ascent of the sap. See SAP. It gradually hardens, and is transformed into duramen, new layers being added externally. It is almost always of a white or very pale color, while in many trees the duramen is highly colored. The A. is pale even in ebony, in which the duramen is black. In general, the A. is much inferior in value to the hardened or perfected wood, and the different proportions which they bear to each other in the thickness of the stem, go far to determine the relative values of some kinds of trees. These proportions, however, are different not only in trees of different kinds, but even in trees of the same kind at different ages, and according as circumstances have been favorable or otherwise to rapidity of growth. When there is a great proportion of A., the wood dries slowly and with difficulty, owing to the quantity of sap it contains.

AL'CA and ALCADÆ: see АУК.

ALCÆUS, *äl-sē'us*, of Mitylene: end of B.C. 7th c. or beginning of 8th; one of the greatest lyric poets of Greece. His odes, in the Æolic dialect, are occupied with his grief for the dissensions of his country, his hatred of tyrants, his own misfortunes, and the sorrows of exile; while on other occasions he celebrates the praises of love and wine. He is said to have been an admirer of Sappho, who was a contemporary. A. himself took part in the civil war, first as the coadjutor of Pittacus, but afterwards against him when he proved tyrannical. Being banished from Mitylene, he endeavored, at the head of the other exiles, to force his way back; but fell into the hands of Pittacus, who, however, granted him his life and freedom. He was the inventor of the form of verse which, after him, is called the Alcaic, and which Horace, the happiest of his imitators, transplanted into the Latin language. Of the ten books of A.'s odes, only fragments remain, collected in the *Cambridge Museum Criticum*, and in Bergk's *Poetæ Lyrici Græci* (Leip. 1843).

ALCAHEST, or ALKAHEST, n. *äl'kä-hěst'* [Ar.]: a pretended universal solvent. See ALCHEMY.

ALCAIC, a. *äl-kā'ik*, relating to Alcæus, or to the verse invented by him: N. a Greek metre, consisting of five feet—viz., a spondee or iambic, an iambic, a long syllable, and two dactyls.

ALCAID, or ALCADÉ, or ALCAYDE, n. *äl-kād'* [Sp. *alcaide*; F. *alcade*; Ar. *al-qûid*]: Moorish title applied in Spanish and Portuguese usage to a military commander of a fortress or prison.

ALCALA DE GUADAIRA *äl-kâ-lâ' dâ gwâ-dî'râ* [*The Castle of the Guadaira*], the ancient Carthaginian *Hienippa* ('place of many springs'): town of Andalusia, Spain, prov. of Seville; 7 m. e. by s. from Seville. It stands

## ALCALA DE HENARES—ALCALDE.

near the Guadaira, partly on a hill, so that some of the streets are very steep, and is overlooked by the ruins of an ancient Moorish castle, once one of the most important, as its ruins are among the finest, in Spain. This town is beautifully situated, and on account of the salubrity of its climate, is much resorted to as a summer residence by the inhabitants of Seville. It is celebrated for producing the finest bread in Spain; there are more than fifty bakeries in the town, and Seville is chiefly supplied from it. The water-mills and mule-mills for making flour are more than 200 in number, and, with the bakeries, give employment to great part of the population. Every process connected with the making of bread is conducted with the greatest care. Seville is also supplied with water from the hill above A., which is perforated by tunnels, some of them 6 m. in length, forming underground canals. Some of the tunnels are believed to be Roman works, but most of them are known to have been made by the Moors. The water flowing through the subterranean canals is as clear as crystal. The neighborhood of A. is fertile, producing corn, wine, oil, silk, honey, and fruits, also sheep and oxen. Pop. 8,000.

ALCALA DE HENARES, *-ān-ā'rēs* [*El Calaat*, in Arabic, means 'the castle']: town in Spain, prov. of New Castile; on the Henares, 22 m. from the cap. It is built in the old style, and boasts of a university, founded by Cardinal Ximenes in 1510, whose world-wide fame was formerly second to that of Salamanca alone. When Francis I. visited it, while a prisoner in Spain, he was welcomed by 11,000 students. The library contains the original of the celebrated polyglot Bible which was printed in this town, and called the Complutensian, from the ancient name of the place (Complutum). A. has, besides, a military academy, and a celebrated powder and leather factory. It is said to have been the birthplace of Cervantes, and various other distinguished persons. Pop. 12,000.

There are several other towns in Spain having the name *ALCALA*: as A. of Chisberte, in Valencia (pop. 6,000): A. de Guadaira, near Seville (8,000): and A. la Real, in Jaen (16,000), producing superior wine, fruit, sheep, etc.

ALCALA LA REAL, *-lā rā-āl'* [*The Royal Castle*]: city of Andalusia, Spain, prov. of Jaen; 26 m. n.w. from Granada. It is on a conical hill, in a narrow valley, on the n. side of the mountains which separate the province of Jaen from that of Granada, and is nearly 3,000 ft. above the sea. It is a very picturesque town, irregularly built, with steep and narrow streets and bold towers. It was the stronghold of the Alcaide Ibn Zaide; and being taken, 1340, by Alonso XI. in person, it obtained the name *Real*. It has a hospital, formerly an abbey, a very fine building. The neighborhood produces grain and fruits of the finest quality, and the inhabitants of the town are mostly engaged in agriculture. There is some trade in wine and wool. Pop. 15,901.

ALCALDE, n. *āl-kāl'dē* [Sp. *alcalde*: Ar. *al-kādi*, the judge]: the general title of judicial and magisterial office in

## ALCAMO—ALCANTARA.

Spain, the special function being denoted by another term. Thus, there are *alcaldes de aldea*, village-justices; *alcaldes pedaneos*, justices of the peace; *alcaldes de corte*, judges of the court, etc.

ALCAMO, *âl-kâ-mō*: town of Sicily, prov. of Trapani; 23 m. e. from Trapani, in the Val di Mazzara, on the high-road between Palermo and Trapani. It is said to have been founded by the Arabs, on their first invasion of Sicily in 827. The original town stood on a hill, and long retained a Moslem population, who were driven out by the emperor Frederick II. 1233, and the new town was built at the foot of the hill. A. is surrounded by a battlemented wall of the 14th c. The houses are mostly mean, and the streets irregular and dirty, the whole place having an air of poverty and decay. It contains, however, some fine old churches and palaces. Pop. over 39,000.

ALCAÑIZ, *âl-kân-yēth'*: town of Aragon, Spain, prov. of Teruel, 63 m. s.e. from Saragossa; on a rising ground on the right bank of the Guadalupe, here crossed by a bridge of nine arches. It is well built, with wide paved streets, and a number of squares. It has a magnificent collegiate church, in which are many fine tombs and pictures. There are manufactures of silk, woolen, and coarse linen fabrics, hats, and soap; there are also flour and oil mills, and some trade in grain, cattle, and the manufactures of the town. Pop. 7,400.

ALCANTARA, *âl-kân'tâ-râ*: seaport town of Brazil, prov. of Maranhão; 17 m. n.w. from Maranhão, near the mouth of the bay of St. Marcos. Most of the houses are of only one story. The more wealthy residents are mostly cotton-planters; the poorer classes live chiefly by fishing, and by making hammocks of some of the peculiar fibres of the country. There are salt-pits not far from the town. Cotton, rice, and salt are exported. Pop. 10,000.

ALCANTARA, *âl-kân'tâ-râ* [*Al-kantarah*, Arabic, 'the bridge']: the *Norba Cæsarea* of the Romans, an old fortified Spanish town, built by the Moors in the prov. of Estremadura. It was plundered by the French under Gen. Lapisse in 1809. The bridge from which it takes its name was built, for Trajan, 105. It consists of six arches, the two central ones with a span of 110 ft.; the whole length is 670, and the height 210 ft. This remarkable structure was partially blown up by the English in 1812, and was again destroyed during the civil war of 1836; and though it might be easily repaired, it is left in a state of ruin, the Spaniards being ferried over in a lumbering boat. Pop. about 4,000.



Order of Alcantara.

THE ORDER OF A. (formerly St. Julian), one of the religious orders of Spanish knighthood,



## ALCARAZ—ALCHEMILLA.

was founded (1156) as a military fraternity for the defense of Estremadura against the Moors. In 1197, Pope Celestine III. raised it to the rank of a religious order of knighthood; bestowed great privileges on it, and charged it with the defense of the Christian faith, and the maintenance of eternal war with the infidel. Alfonso IX., having taken the town of Alcantara, ceded it in 1218 to the order of Calatrava (q.v.); but the knights of this order, unable to hold it with their other great possessions, yielded it to the knights of St. Julian, who transferred to it their seat, and henceforth were known by its name. At length the grand-mastership of the order was, by Pope Alexander VI., united to the Spanish crown in 1495. The order is still richly endowed. The knights, who follow the rule of St. Benedict, take now only the vows of obedience and poverty, having, since 1540, been absolved from that of celibacy. A special vow binds them to defend the dogma of the immaculate conception of the Virgin. At their nomination, they must prove four generations of nobility. For a time, the knights of A. acknowledged the superiority of the knights of Calatrava, but they were latterly absolved from it. Both the costume, however, and the cross are still the same, except the color, which is green. The crest of the order is a pear-tree.

ALCARAZ, *âl-kâ-râth'*: town of La Mancha, Spain, prov. of Albacete; 36 m. w.s.w. from Albacete, on the slope of an isolated hill, on the left bank of the Guadarmena, a feeder of the Guadalquivir. A ruined castle crowns the summit of the hill; and there are also the remains of a fine Roman aqueduct. Some of the streets are very steep. The inhabitants are partly employed in weaving and iron-working, partly in agriculture. Pop. 4,325.

ALCAUDETE, *âl-kow-dâ'tâ* (anc. *Uditunum*): town of Andalusia, Spain, prov. of Jaen; 22 m. s.w. from Jaen; in a hollow, inclosed by three hills, on an affluent of the Guadalquivir; overlooked by the ruins of an ancient castle, and moderately well built. There are fine pictures in some of the churches. Oil and rope making, weaving, and agriculture are the chief employment of the inhabitants. Grain, silk, oxen, sheep, goats, pigs, mules, and asses are produced in the neighborhood. Pop. 8,242.

ALCAZAR DE SAN JUAN, *âl-kâ'thèr dâ sâ'n hô-ân'* (anc. *Alce*): town of New Castile, Spain, prov. of Ciudad Real; 49 m. n.e. from Ciudad Real, on the Madrid and Alicante railway. It is regularly built, and has two good squares. There are manufactories of soap, nitre, and gunpowder. Pop. 8,540.

ALCEDO, n. *âl-sê'dō* [L.]: the king-fisher (q.v.).

ALCHEMILLA: see LADY'S MANTLE.

## ALCHEMY.

**ALCHEMY**, n. *ál'kě-mě* [OF. *alchemie*; F. *alchimie*, alchemy—from Ar. *al kímíá*, the secret art: probably Ar. *al*, and late Gr. *chēmei'á*, chemistry: Gr. *chúmá*, a melting or fusion; *chúmos*, juice, liquid]: the professed art of changing the other metals into gold; the art that professed to discover a universal remedy, the philosopher's stone, the elixir vitæ, and other impossible things. **ALCHEMIC**, a. *ál-kěm'ík*, or **ALCHEMICAL**, a. *ál-kěm'í-kál*, relating to alchemy. **ALCHEMIST**, n. *ál'kě-míst*, one who practices alchemy. **AL'CHEMIS'TICAL**, a. **AL'CHEMIS'TICALLY**, ad. *-lí*. *Note*.—The above are also spelt with *y* for *e*, as **ALCHYMY**, etc.

**ALCHEMY**: related to modern chemistry as astrology to astronomy, or legend to history. In the eye of the astrologer, a knowledge of the stars was valuable only as a means of foretelling, or even of influencing future events. In like manner, the genuine alchemist toiled with his crucibles and alembics, calcining, subliming, distilling, not with a view to discover the chemical properties of substances, as we understand them, but with two grand objects, illusory as those of the astrologer—to discover (1) *the secret of transmuting the baser metals into gold and silver*, and (2) *the means of indefinitely prolonging human life*.

Tradition points to Egypt as the birthplace of A. Hermes Trismegistus (q.v.) is represented as the father of it. The Greeks and Romans under the empire seem to have become acquainted with it from the Egyptians; there is no reason to believe that, in early times, either people had the name or the thing. The word *chēmeia* occurs in the lexicon of Suidas, 11th c., and is explained by him to be 'the conversion of silver and gold.' It is to the Arabs, from whom Europe got the name and the art, that we owe the prefixed article *al*. As if *chemia* had been a generic term embracing all common chemical operations, such as the decocting and compounding of ordinary drugs, the grand operation of transmutation was denominated *the chemia* (*al*-chemistry)—the chemistry of chemistries. The Roman emperor Caligula is said to have instituted experiments for the producing of gold out of orpiment (sulphuret of arsenic); and in the time of Diocletian, the passion for this pursuit, conjoined with magical arts, had become so prevalent in the empire, that that emperor is said to have ordered all Egyptian works treating of the chemistry of gold and silver to be burnt. For at that time, multitudes of books on this art were appearing, written by Alexandrine monks and by hermits, but bearing famous names of antiquity, such as Democritus, Pythagoras, and Hermes.

At a later period the Arabs took up the art; and it is to them that European A. is directly traceable. The school of polypharmacy, as it has been called, flourished in Arabia during the caliphates of the Abbassides. The earliest work of this school now known is the *Summa Perfectionis*, or 'Summit of Perfection,' composed by Gebir (q.v.), 8th c.; it is consequently the oldest book on chemistry proper in the world. It contains so much of what sounds like jargon in our ears, that Dr. Johnson ascribes the origin of the word 'gibberish' to the name of the compiler. Yet when

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viewed in its true light, it is a wonderful performance. It is a kind of text-book, or collection of all that was then known and believed. It appears that these Arabian polypharmacists had long been engaged in firing and boiling, dissolving and precipitating, subliming and coagulating chemical substances. They worked with gold and mercury, arsenic and sulphur, salts and acids; and had, in short, become familiar with a large range of what are now called chemicals. Gebir taught that there are three elemental chemicals—mercury, sulphur, and arsenic. These substances, especially the first two, seem to have fascinated the thoughts of the alchemists by their potent and penetrating qualities. They saw mercury dissolve gold, the most incorruptible of matters, as water dissolves sugar; and a stick of sulphur presented to hot iron penetrates it like a spirit, and makes it run down in a shower of solid drops, a new and remarkable substance, possessed of properties belonging neither to iron nor to sulphur. The Arabians held that the metals are compound bodies, and made up of mercury and sulphur in different proportions. With these excusable errors in theory, they were genuine practical chemists. They toiled at the art of making 'many medicines' (polypharmacy) out of the various mixtures and reactions of such chemicals as they knew. They had their pestles and mortars, their crucibles and furnaces, their alembics and aludels, their vessels for infusion, for decoction, for cohabitation, sublimation, fixation, lixiviation, filtration, coagulation, etc. Their scientific creed was transmutation, and their methods were mostly blind gropings; yet, in this way, they found out many a new body, and invented many a useful process.

From the Arabs, A. found its way through Spain into Europe, and speedily became entangled with the fantastic subtleties of the scholastic philosophy. In the middle ages, it was chiefly the monks that occupied themselves with A. Pope John XXII. took great delight in it, though it was afterwards forbidden by his successor. The earliest authentic works on European A. now extant are those of Roger Bacon (1214–84) and Albertus Magnus (1205–80). Roger Bacon (q.v.) appears rather the earlier of the two as a writer, and is really the greatest man in all the school. He was acquainted with gunpowder. Although he condemns magic, necromancy, charms, and all such things, he believes in the convertibility of the inferior metals into gold, but does not profess to have ever effected the conversion. He had more faith in the elixir of life than in gold-making. He followed Gebir in regarding potable gold—that is, gold dissolved in nitro-hydrochloric acid or *aqua regia*—as the elixir of life. Urging it on the attention of Pope Nicholas IV., he informs his Holiness of an old man who found some yellow liquor (the solution of gold is yellow) in a golden phial, when plowing one day in Sicily. Supposing it to be dew, he drank it off. He was thereupon transformed into a hale, robust, and highly accomplished youth. Bacon no doubt took many a dose of this golden water himself.—Albertus Magnus (q.v.) had a great mastery of the practical chemistry

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of his times; he was acquainted with alum, caustic alkali, and the purification of the royal metals by means of lead. In addition to the sulphur and-mercury theory of the metals, drawn from Gebir, he regarded the element, water, as still nearer the soul of nature than either of these bodies. He appears, indeed, to have thought it the primary matter, or the radical source of all things—an opinion held by Thales, the father of Greek speculation.—Thomas Aquinas (q.v.) also wrote on A., and was the first to employ the word *amalgam* (q.v.).—Raymond Lully (q.v.) is another great name in the annals of A. His writings are much more disfigured by unintelligible jargon than those of Bacon and Albertus Magnus. He was the first to introduce the use of chemical symbols (q.v.), his system consisting of a scheme of arbitrary hieroglyphics. He made much of the spirit of wine (the art of distilling spirits seems then recent), imposing on it the name of *aqua vitæ ardens*. In his enthusiasm, he pronounced it the very elixir of life. One of the most celebrated of the alchemists was Basil Valentine (q.v.), (b. 1394), who introduced antimony into medical use. He, with some previous alchemists, regarded salt, sulphur, and mercury as the three bodies contained in the metals. He inferred that the philosopher's-stone must be the same sort of combination—a compound, namely, of salt, sulphur, and mercury; so pure that its projection on the baser metals should be able to work them up into greater and greater purity, bringing them at last to the state of silver and gold. His practical knowledge was great; he knew how to precipitate iron from solution by potash, and many similar processes, so that he is ranked as the founder of analytical chemistry.

But more famous than all was Paracelsus (q.v.), in whom A. proper may be said to have culminated. He held, with Basil Valentine, that the elements of compound bodies were salt, sulphur, and mercury—representing respectively earth, air, and water, fire being already regarded as an imponderable—but these substances were in his system purely representative. All kinds of matter were reducible under one or other of these typical forms; everything was either a salt, a sulphur, or a mercury, or, like the metals, it was a 'mixt' or compound. There was one element, however, common to the four; a fifth essence or 'quintessence' of creation; an unknown and only true element, of which the four generic principles were nothing but derivative forms or embodiments: in other words, he inculcated the dogma, that there is only one real elementary matter—nobody knows what. This one prime element of things he appears to have considered the universal solvent of which the alchemists were in quest, and to express which he introduced the term *alcahest*—a word of unknown etymology, but supposed by some to be composed of the two German words *alle geist*, 'all spirit.' He seems to have had the notion that if this quintessence or fifth element could be got at, it would prove to be at once the philosopher's-stone, the universal medicine, and the irresistible solvent.

After Paracelsus, the alchemists of Europe became divided

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into two classes. The one class was composed of men of diligence and sense, who devoted themselves to the discovery of new compounds and re-actions—practical workers and observers of facts, and the legitimate ancestors of the positive chemists of the era of Lavoisier. The other class took up the visionary, fantastical side of the older A. and carried it to a degree of extravagance before unknown. Instead of useful work, they compiled mystical trash into books, and fathered them on Hermes, Aristotle, Albertus Magnus, Paracelsus, and other really great men. Their language is a farrago of mystical metaphors, full of 'red bridegrooms' and 'lily brides,' 'green dragons,' 'ruby lions,' 'royal baths,' 'waters of life.' The seven metals correspond with the seven planets, the seven cosmical angels, and the seven openings of the head—the eyes, the ears, the nostrils, and the mouth. Silver was Diana, gold was Apollo, iron was Mars, tin was Jupiter, lead was Saturn, and so on. They talk perpetually of the powder of attraction, which drew all men and women after the possessor of the alcahest, and the grand elixir, which was to confer immortal youth upon the student who should approve himself pure and brave enough to kiss and quaff the golden draught. There was the great mystery, the mother of the elements, the grandmother of the stars. There was the *philosopher's-stone*, and there was the *philosophical-stone*. The philosophical-stone was younger than the elements, yet at her virgin touch the grossest calx (ore) among them all would blush before her into perfect gold. The philosopher's stone, on the other hand, was the first-born of nature, and older than the king of metals. Those who had attained full insight into the arcana of the science were styled Wise; those who were only striving after the light were Philosophers; while the ordinary practitioners of the art were called Adepts. It was these visionaries that formed themselves into Rosicrucian societies and other secret associations. It was also in connection with this mock-A., mixed with astrology and magic, that quackery and imposture so abounded, as is depicted by Scott in the character of Dousterswivel in the *Antiquary*. Designing knaves would, for instance, make up large nails, half of iron and half of gold, and lacquer them, so that they appeared common nails; and when their credulous and avaricious dupes saw them extract from what seemed plain iron an ingot of gold, they were ready to advance any sum that the knaves pretended to be necessary for pursuing the process on a large scale. It is from this degenerate and effete school that the prevailing notion of A. is derived—a notion unjust to the really meritorious alchemists who paved the way for genuine chemistry.

It is interesting to observe that the leading tenet in the alchemists' creed—the doctrine of the transmutability of other metals into gold and silver—a doctrine which it was at one time thought that modern chemistry had utterly exploded—receives not a little countenance from a variety of facts every day coming to light. The multitude of phenomena known to chemists under the name of *Allotropy* (q.v.) are leading speculative men more and more to the opinion that

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many substances hitherto considered chemically distinct are only the same substance under some different condition or arrangement of its component molecules, and that the number of really distinct elements may be very few indeed. See Kopp's *Geschichte der Chemie; Alchemy and the Alchemists*, by Dr. Samuel Brown, in Chambers's *Papers for the People* (No. 66); and the article ALCHEMY in the 9th ed. (1875) *Encyclopædia Britannica*. See CHEMISTRY.

ALCIBIADES, *ăl-sĩ-bĩ'-ă-dēz*: B.C. 450–404; b. Athens, son of Clinias and Dinomache. He lost his father in the battle of Chæronea; and was educated in the house of Pericles, his uncle. In youth he gave promise of his future greatness, excelling both in mental and in bodily exercises. His handsome person, his distinguished parentage, and the high position of Pericles, procured him a multitude of friends and admirers. Socrates was one of the former, and gained considerable influence over him; but was unable to restrain his love of luxury and dissipation, which found ample means of gratification in the wealth that accrued to him by his union with Hipparete, the daughter of Hipponicus. His public displays, especially at the Olympic games, were incredibly expensive. He bore arms for the first time in the expedition against Potidæa, B.C. 432, where he was wounded, and where his life was saved by Socrates—a debt which he liquidated eight years after at the battle of Delium, by saving, in his turn, the life of the philosopher; but he seems to have taken no part in political matters till after the death of the demagogue Cleon, when Nicias brought about a treaty of peace for fifty years between the Athenians and Lacedæmonians. A., jealous of the esteem in which Nicias was held, persuaded the Athenians to ally themselves with the people of Argos, Elis, and Mantinea, and did all in his power to stir up afresh their old antipathy to Sparta. It was at his suggestion that they engaged in the celebrated enterprise against Sicily, to the command of which he was elected, with Nicias and Lamachus. But while preparations were being made, it happened during one night that all the statues of Mercury in Athens were mutilated. The enemies of A. threw the blame of this mischief upon him, but postponed the impeachment till he had set sail, when they stirred up the people against him to such a degree, that he was recalled, in order to stand his trial. On his way home, he landed at Thurii, fled, and betook himself to Sparta, where, by conforming to the strict manners of the people, he soon became a favorite. He induced the Lacedæmonians to send assistance to the Syracusans, persuaded them to form an alliance with the king of Persia, and after the unfortunate issue of the Athenian expedition in Sicily, to support the people of Chios in their endeavors to throw off the yoke of Athens. He went thither himself, and raised all Ionia in revolt against that city. But Agis and the other leading men in Sparta, jealous of the success of A., ordered their generals in Asia to have him assassinated. A. discovered this plan, and fled to Tissaphernes, a Persian satrap, who had orders to act in concert with the Lacedæmonians. He now resumed his old manners, adopted the luxurious

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habits of Asia, and made himself indispensable to Tissaphernes. He represented to the latter that it was contrary to the interests of Persia entirely to disable the Athenians. He then sent word to the commanders of the Athenian forces at Samos that he would procure for them the friendship of the satrap if they would control the extravagance of the people, and commit the government to an oligarchy. This offer was accepted, and Pisander was sent to Athens, where he got the supreme power vested in a council of 400 persons. When it appeared, however, that this council had no intention of recalling A., the army at Samos chose him as their commander, desiring him to lead them on instantly to Athens, and overthrow the tyrants. But A. did not wish to return to his native country till he had rendered it some service, and he accordingly attacked and defeated the Lacedæmonians both by sea and land. Tissaphernes now ordered him to be arrested at Sardis on his return, the satrap not wishing the king to imagine that he had been accessory to his doings. But A. found means to escape; placed himself again at the head of the army; beat the Lacedæmonians and Persians at Cyzicus; took Cyzicus, Chalcedon, and Byzantium; restored to the Athenians the dominion of the sea; and then returned to his country, B.C. 407, to which he had been formally invited. He was received with general enthusiasm, as the Athenians attributed to his banishment all the misfortunes that had befallen them.

The triumph of A., however, did not last. He was again sent to Asia with 100 ships; but not being supplied with money for the soldiers' pay, he was obliged to seek assistance at Caria, where he transferred the command in the mean time to Antiochus, who, being lured into an ambuscade by Lysander, lost his life and part of the ships. The enemies of A. took advantage of this to accuse him and appoint another commander. A. went to Thrace, where he lived in voluntary exile in Pactyæ, one of the castles which he had built out of his earlier spoils. But being threatened here with the power of Lacedæmonia, he removed to Bithynia, with the intention of repairing to Artaxerxes, to gain him over to the interests of his country. At the request of the Thirty Tyrants of Athens, and with the concurrence of the Spartans, Pharnabazus, a satrap of Artaxerxes, received orders to put A. to death. He was living at this time in a castle in Phrygia; Pharnabazus ordered it to be set on fire during the night, and as his victim was endeavoring to escape from the flames, he was pierced with a volley of arrows. A. was singularly endowed by nature, being possessed of the most fascinating eloquence (although he could not articulate the letter *r*, and stuttered in his speech), and having in a rare degree the talent to win and to govern men. Yet in all his transactions, he allowed himself to be directed by external circumstances, without fixed principles of conduct. On the other hand, he possessed that boldness which arises from conscious superiority, and shrunk from no difficulty, because he was never doubtful concerning the means by which an end might be attained. His life has been written by Plutarch and Cornelius Nepos.

## ALCIRA—ALCOHOL.

**ALCIRA**, *ál-thē'râ* (anc. *Sæbaticula*): town of Spain, province of Valencia, 20 m. s. by w. from Valencia, on an island in the river Xucar, the two branches of which are here crossed by stone bridges. It is surrounded by old walls, with strong towers. The principal streets are wide, but the town is ill built. The inhabitants are chiefly employed in the manufacture of earthenware, the production of silk, and agriculture. The surrounding country is much intersected by canals, exhibiting an admirable specimen of the system of irrigation introduced by the Moors. Pop. 16,400.

**ALCMAN**, *ălk'man*: ancient lyric poet; b. at Sardis, cap. of Lydia, Asia Minor, but lived first as a slave, and afterwards as a freeman in Sparta. He is the earliest erotic poet, and is said to have introduced some new metrical forms called *Alemanica Metra*. He composed in the Doric dialect a poem of the Dioscuri, Parthenia, or songs sung by choruses of virgins, bridal-hymns, verses in praise of love and wine, etc. We have only a few fragments of A., and these do not justify the high opinion entertained of his merits by the ancients, though some of them exhibit considerable beauty. A. died of a loathsome disease (*morbus pedicularis*).

**ALCO**, *ăl'kō*: a variety of dog, domesticated in Mexico and Peru before the discovery of America by Europeans, also found in a wild state in these countries. But whether it is originally a native of them, or has escaped from domestication, is uncertain, nor is the variety well known to naturalists. It is described as having a very small head and pendulous ears; the latter being in dogs one of the ordinary results of domestication. Humboldt supposed it to be allied to the shepherd's dog. It has been attempted to elevate it into a species under the name of *Canis A.* It is not improbable that the name A. was given to more varieties than one.

**ALCOHOL**, n. *ăl'kō-hōl* [OF. *alcohol*; F. *alcool*—from Ar. *al kohol*, or *alqohl*, the impalpable powder of antimony with which the orientals stain their eyelids, a pure extract—*lit.*, fine powder]: spirits of wine; distilled spirits highly rectified; the intoxicating principle in all spirituous or fermented liquors; in *chem.*, any body consisting of an organic radical united with one or more atoms of hydroxyl, comprising such bodies as naphtha, fusel oil, glycerine, etc. **ALCOHOLIC**, a. *ăl'kō-hōl'ik*, pertaining to alcohol. **ALCOHOLATE**, n. *ăl'kō hōl'ăt*, a salt containing alcohol. **ALCOHOLIZE**, v. *ăl'kō-hō-liz'* to convert into alcohol. • **ALCOHOLIZ'ING**, imp. **ALCOHOLIZED'**, pp. *līz'd'*. **ALCOHOL-IZA'TION**, n. *-hōl'ī-zā'shūn*, the art of rectifying spirits of wine till it is absolutely pure. **ALCOHOMETER**, n. *ăl-kō-hōm'ēt-ēr* [Ar. *al kohol*; Gr. *metron*, measure]: instrument for ascertaining the strength of spirits. **ALCOHOLISM**, n. *ăl'kō-hōl-izm*, the diseased condition produced by over-indulgence in the use of alcoholic liquids.



## ALCOHOL.

**ALCOHOL**: name given to a class of compounds differing from the hydro carbons in the substitution of the monatomic radical hydroxyl in the place of one or more hydrogen atoms.

Ordinary A., or *ethyl* A. occurs in nature in several growing plants as an occasional constituent of their juices, in the fruit and pedicels of *Heracleum giganteum*, the fruit of the parsnip, and the unripe fruit of *Anthriscus cerefolium*. But practically there is but one source of A., viz. fermentation of saccharine matter. Some plants contain free sugar, and still more contain starch, which can be converted into sugar. Hence the best vegetable substances for yielding A. are those containing the largest amount of sugar or starch. See **DIASTASE**: **FERMENTATION**: **DISTILLATION**.

Owing to the attraction of A. for water it is impossible to procure pure A. by distillation alone. Common spirits such as brandy, whisky, etc., contain 50 or 52 per cent. of A.; in other words, they are about half A., half water. *Proof-spirit*, the standard by means of which all mixtures of A. and water are judged, contains 57·27 per cent. by volume, and 49·50 per cent. by weight of A. The specific gravity of proof spirit is ·9186; and when a spirit is called *above proof*, it denotes that it contains an excess of A.; thus, *spirit of wine*, or rectified spirit, with specific gravity ·838, is 54 to 58 over-proof, and requires 54 to 58 per cent. of water to be added to it to bring the strength down to that of proof-spirit; while the term *under-proof* has reference to a less strong spirit than the standard. See **HYDROMETER**. The highest concentration possible by distillation gives 90 per cent. of A., still leaving 10 per cent. of water. In order to remove this, fused chloride of calcium, quicklime, or fused carbonate of potash, is added to the alcoholic liquid, the whole allowed to stand 12 hours, and then the spirit may be distilled off practically free from water. Spirit of wine may also be deprived of its remaining water by suspending it in a bladder in a warm place; the bladder allows much of the water to pass through and evaporate, but little of the A. The latter method is called Soemmering's process, and depends on the different degrees of rapidity with which the bladder admits of water and A. passing through it. Thus, introduce into one bladder eight ounces of water, and into a second eight ounces of A., and allow both bladders to be similarly exposed on a sand-bath till all the water has evaporated through the pores of the membrane, which will be accomplished in about four days, and it will then be observed, that while eight ounces water have made their exit from the bladder, only one ounce of A. has thus evaporated, and seven ounces remain in the bladder. This experiment explains why smugglers, a few generations ago, could supply a whisky, which was stronger, and hence esteemed preferable, as they carried the whisky in bladders around their persons, and the water escaping therefrom in much greater proportion than the A., a stronger spirit was left.

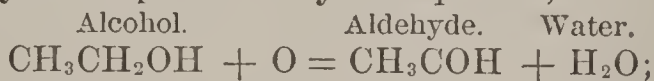
Absolute or anhydrous A. has a specific gravity of ·793 at the temperature of 60°. It boils at 173°, and has not until recently been frozen by any cold. Reduced to a

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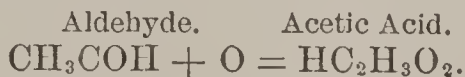
temperature of  $-130^{\circ}$ , A. becomes of oily and greasy consistence; at  $-146^{\circ}$  it assumes the aspect of melted wax; and at  $-166^{\circ}$  becomes still thicker, and congeals only under pressure at a temperature of  $-200^{\circ}$ . This property of non-freezing at any degree of cold to which the earth is subjected has led to the employment of A. colored red by cochineal in the thermometers sent out to the Arctic regions. A. is highly inflammable, its combustion yielding only carbonic acid and water. When mixed with water, heat is evolved, and a contraction in volume takes place. The formula of A. is  $C_2H_5OH$ . Besides the A. used in wine, beer, and spirits, it is much employed in pharmacy and in the arts. It is a powerful solvent for resins and oils; and hence is employed in the preparation of varnishes.

During recent years, there has been much enlargement in the knowledge of the properties of ordinary A. and of the general class of bodies to which the term *Alcohols* is applied, in consequence of their resemblance, in certain chemical reactions, to ordinary alcohol. The alcohols all are compounds of carbon, hydrogen, and oxygen, and are perfectly neutral to test papers. Many of them are produced together with ethyl A. in the process of fermentation, and alter the flavor of the resulting liquor; such are amylic (fusel-oil) and butylic A. Alcohols are characterized chiefly by yielding, on treatment with acids, neutral bodies called ethers, the formation of water being a part of the reaction. According to the theory of chemical types (see TYPES, CHEMICAL), the alcohols are divided into monatomic (comprising the important series of methyl, ethyl, propyl, and other alcohols referred to below) and polyatomic. According to their behavior on oxidation, they are further divided into primary, secondary, and tertiary.

In a nearly anhydrous state, A. has little tendency to oxidation, but when freely diluted, and exposed to the air, it rapidly becomes oxidized into acetic acid. This conversion is, however, not direct, an intermediate compound, termed Aldehyde (q.v.), being first formed, which is rapidly oxidized into acetic acid. The oxidation of alcohol into aldehyde is represented by the equation,



and the further oxidation of aldehyde into acetic acid is represented by

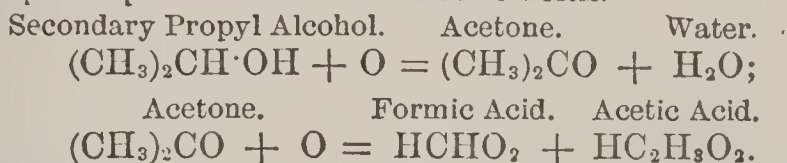


In the first reaction, A. loses two atoms of hydrogen, water being formed; in the second, aldehyde takes up one atom of oxygen.

Every A. which like ordinary A. yields on oxidation an aldehyde, and on further oxidation an acid having the same number of carbon atoms as the A. itself, is termed a primary A. To take another example, primary propyl A.,  $C_3H_7OH$ , is oxidized first into propyl aldehyde,  $C_3H_5OH$ , then into propionic acid,  $HC_3H_5O_2$ . Primary alcohols are subdivided into normal and iso-alcohols, but it would lead us too far to explain this distinction.

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Secondary alcohols on oxidation lose two atoms of hydrogen, and are converted into bodies known as acetones or ketones, which differ from aldehydes inasmuch as they are not converted on oxidation into acids having the same number of carbon atoms, but are split up into acids having a smaller number of carbon atoms. Thus secondary A. is oxidized into acetone, and on further oxidation, acetone splits up into formic and acetic acids.



It will be observed that propyl A. and secondary propyl, A., aldehyde, and acetone, are respectively isomeric. See ISOMERISM.

Tertiary alcohols on oxidation give neither aldehydes nor ketones, but split up into acids having a smaller number of carbon atoms. Thus tertiary butyl A.,  $(\text{CH}_3)_3\text{COH}$ , which is isomeric with primary and with secondary butyl A., splits up on oxidation into acetic and formic acids. Only a comparatively small number of secondary and tertiary alcohols are at present known, and their properties and reactions have not been so thoroughly studied as those of the much more numerous class of primary alcohols. Theoretical considerations, however, lead to the belief that their number will be largely increased.

Ordinary or ethyl A. is monatomic—i.e., it may be regarded as derived from the type HOH, by the substitution of its radical ethyl,  $\text{C}_2\text{H}_5$ , for one atom of hydrogen. This view is expressed by the formula  $\text{C}_2\text{H}_5\text{OH}$ .

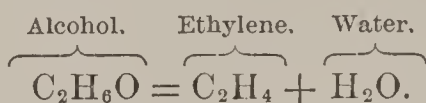
The *monatomic alcohols* are more abundant than all the polyatomic alcohols together. There are several series of them, of which the most important are alcohols whose radical is of the formula  $\text{C}_{2n} + \text{H}_{2n+1}$  (as methyl,  $\text{CH}_3$ ; ethyl,  $\text{C}_2\text{H}_5$ ; propyl,  $\text{C}_3\text{H}_7$ , etc.), and which are represented by the formula  $(\text{C}_n\text{H}_{2n+1})\text{HO}$ . They are intimately related to the fatty acids, whose general formula is  $\text{C}_n\text{H}_{2n}\text{O}_2$ , which may be formed from the alcohols by oxidation,  $\text{H}_2$  being replaced by O. The three highest alcohols of this set, cetylic, cerylic, and melissylic alcohols, have the formulæ  $\text{C}_{16}\text{H}_{34}\text{O}$ ,  $\text{C}_{27}\text{H}_{56}\text{O}$ , and  $\text{C}_{30}\text{H}_{62}\text{O}$ , and are solid, waxy, or fatty matters.

Of the *polyatomic alcohols*, *diatomic alcohols* belong to the secondary water type  $(\text{H}_2\text{O})_2$ . Thus the most important diatomic A., glycol,  $\text{C}_2\text{H}_6\text{O}_2$ , is represented, according to the theory of types, by the formula  $(\text{C}_2\text{H}_4)''\text{O}_2\text{H}_2$ , its radical,  $\text{C}_2\text{H}_4$ , being marked with two dashes, to indicate that it replaces two atoms of hydrogen. So also there are *triatomic*, *tetratomic*, and *hexatomic alcohols* corresponding to 3, 4, and 6 molecules of water, examples of which are glycerine,  $(\text{C}_3\text{H}_5) + \text{O}_3\text{H}_3$ ; erythrite (obtained from litmus),  $(\text{C}_4\text{H}_6)''''\text{O}_4\text{H}_4$ ; and mannite (obtained from manna),  $(\text{C}_6\text{H}_8)''''''\text{O}_6\text{H}_6$ .

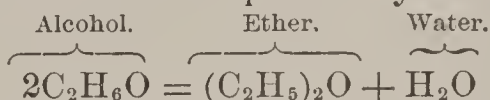
Dry chlorine and absolute A. have a very curious mutual reaction—the final product being a solid compound of alcohol with a very remarkable colorless oily fluid called

## ALCOHOL.

chloral, of peculiar penetrating and irritating odor, and having the formula  $C_2Cl_3OH$ . Dilute A. distilled with chloride of lime (bleaching powder), yields chloroform; and this is the most economical process for obtaining this invaluable compound. Heated with an excess of sulphuric acid, alcohol loses all its oxygen in the form of water, and is converted into ethylene, the result being shown by the equation,



A less complete dehydration, under the action of sulphuric acid, converts A. into ether. The process is a complicated one, but the final result is expressed by the equation,



The best tests for discovering the presence of A. are—  
 1. Its hot pungent taste, its odor, and its great volatility.  
 2. Absorbed in asbestos, it burns with pale blue flame, which deposits no carbon on white porcelain; and when burned in the mouth of an inverted test-tube, containing a few drops of solution of baryta, it produces a well marked deposit of carbonate of baryta—carbonic acid and water being the products of its combustion. 3. When boiled with sulphuric acid and a few drops of a saturated solution of bichromate of potash, it reduces this salt to green chromic sulphate. 4. The least trace of A. in an aqueous solution can be detected by adding a little chloride of benzoyl, and then a little caustic potash: benzoate of ethyl, a liquid of characteristic aromatic odor, is formed, and enables  $\frac{1}{1000}$  part of A. to be detected in a teaspoonful of water.

A. is of a double use to the chemist, inasmuch as it furnishes a cleanly and valuable fuel for the spirit-lamp, and possesses remarkable solvent powers without in general exerting chemical action on the dissolved substances. It dissolves many of the gases more freely than water, e.g., nitrous oxide, carbonic acid, phosphuretted hydrogen, cyanogen, and the hydro-carbons, for instance, ethylene. Among the mineral substances which it dissolves are iodine, bromine, boracic acid, the hydrates of potash and soda, the chlorides of calcium, strontium, magnesium, zinc, platinum, and gold, the perchloride of iron, corrosive sublimate, the nitrates of lime, magnesia, etc., while among organic matters, it dissolves many organic acids, bases, and neutral bodies, the resins, the soaps, and the fats, which latter, however, dissolve more freely in ether than in alcohol. The alcoholic solutions of substances used in medicine are called *essences*, *spirits*, and *tinctures*. See BRANDY: WHISKY: FUSEL OIL: AMYL.

USES OF ALCOHOL: PHYSIOLOGICAL AND PATHOLOGICAL EFFECTS.—The only alcohols which require to be taken into consideration are those belonging to the methyl, ethyl, propyl, butyl, and amyl series. It is of interest to observe that these alcohols increase in activity in direct proportion to their rise in atomic weight; amyl A. or pota-

## ALCOHOL.

to spirit, for instance, is about five times as powerful as ethyl A. or spirit of wine. Ethyl A. alone is in general use, and it displays the most characteristic series of effects—to it, therefore, attention is here directed. When applied to the skin and allowed to evaporate, A. cools the surface of the body, and causes contraction of the local vessels, with diminution of the secretions. It may therefore be employed as a refrigerant and astringent, to lessen the surface temperature and check excessive perspiration. If, on the other hand, it is kept in contact with the skin without evaporation, it produces increased flow of blood in the part by penetrating through the cuticle, and it may be used in this way as a rubefacient when counter-irritation is desired. Upon the terminations of the nerves of sensation, it acts at first as a stimulant, and causes a feeling of heat and pain, but it afterward has a depressing effect upon them, and produces numbness. In this way it is of importance as an ingredient in lotions and liniments intended for application to painful parts. When brought in contact with mucous membranes, A. produces effects similar in kind to those mentioned in connection with the skin, but, on account of the greater sensitiveness of the former, the effects are more marked. As A. coagulates albumen, it forms a film of white color upon the mucous membranes by acting on the albuminous elements of the secretions.

The effects of alcohol when taken into the stomach have been the subject of much debate. Its first effect is to interfere with the secretion of the gastric juice. The introduction of 2 oz. of brandy has been found to produce almost complete paralysis of the stomach. So great is the avidity of alcohol for water that it absorbs the water from every part of the body with which it comes in contact; it is itself mostly absorbed from the stomach through the veins of the alimentary surface, and so passes directly into the circulation; there its effect on the red corpuscles is exceedingly marked, changing their form or causing them to run together and adhere in rolls; in the latter case they pass with great difficulty through the minute blood-vessels, and in either case their function as carriers of oxygen and carbonic acid is greatly impaired. No proof has ever been given that alcohol acts in any degree as a food. As showing that it cannot so act, the following lines of proof are adduced. It cannot build up the structure, since it contains no nitrogen; it cannot act as a heat-producer, since the temperature of the body is lowered by its use; it is not consumed by uniting directly with oxygen, since the amount of carbonic acid exhaled is not increased, but actually diminished by the use of alcohol; whether the alcohol acts directly as a fat-producer has not yet been determined, since the fattening often observed to attend the use of liquors may be due to other ingredients than the alcohol they contain, or to simple retardation of waste. Carefully conducted experiments prove that the use of alcohol reduces muscular strength, the administration of 2 oz. of pure whiskey reducing muscular force one third within 2 hours.

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Circulating in the blood, it gives rise to specific effects on the nervous system, and through it on the different organs of the body. On nervous structures it produces a brief, transient stimulation, followed by depression, of their functions. Its first effect is shown by dilatation of the vessels throughout the body, with reduction of arterial pressure, and acceleration of the action of the heart—these being the consequence of depression of the vaso-motor nerves regulating the vessels, which has supervened on the brief excitement of these nerves. The surface of the body becomes flushed and moist from dilatation of the vessels and consequent increased secretion of the sweat glands. At the same time, from the loss of heat by radiation from the surface, the body-temperature falls. A. is therefore worse than useless as a means of sustaining heat in cold climates. The respiration is accelerated by small quantities, and retarded by larger amounts, and the organs throughout the body generally are congested and stimulated to activity by alcohol, especially the kidneys.

On the central nervous system, A. after the brief excitement above mentioned, acts by causing progressive impairment of the centres, from the higher or intellectual to the lower or organic; and the effects are directly proportional to the quantities taken. After the use of a small quantity of alcohol there is a temporarily increased activity of these nervous centres, which shows itself by greater clearness of reasoning, strength of volition, vividness of imagination, depth of emotion, acuteness of sensibility, and force of muscular movement. As a consequence, thoughts flow swiftly, the speech becomes fluent, and is often accompanied by lively gesticulations. If the amount taken, however, is beyond the limits of a strict moderation, there is some disturbance of the various functions. The intellectual centres suffer in the first place, and while the imaginative and emotional, as well as sensory and motor functions are still stimulated, the reasoning faculties and the will become obscured and impaired. The imagination and emotions next become perverted, and, lastly, sensibility and motility are depressed. The muscles become irregular in their movements, so that the gait is staggering, or they may be paralyzed so that the erect posture becomes an impossibility. If the quantity taken is very great, it may cause paralysis of the vital centres in the medulla oblongata, in which case death ensues from failure of respiration or circulation, or of both. Experiments on animals show like results. If a poisonous dose of alcohol be given to an animal (a dog, for example), its action on the nervous system is the first point that is noticed. The dog ceases to exhibit the ordinary control over its muscular movements, which seem to be no longer under the influence of the will. It walks with uncertain and doubtful steps, till the hind legs lose their power, the fore-legs still preserving some activity. The general sensibility becomes more or less abolished, and the animal can no longer see or feel. Soon afterward the respiration fails; and finally, the circulation is arrested, and life ceases

## ALCORA.

with the last beat of the heart. From the fact that much of the A. is not eliminated from the system in its original form as alcohol, while the production of heat and of carbonic acid is reduced, Dr. B. W. Richardson draws the following conclusion: 'The inference is that the alcohol is not burned after the manner of a food which supports animal combustion; but that it is decomposed into secondary products by oxidation at the expense of the oxygen which ought to be applied for the natural heating of the body.' The use of A. as a medicine is much less than formerly, with a tendency to increased disuse. The Red Cross Hospital, New York city, has received (1892-97) about 1,000 patients, all of whom have been treated without the use of A., the death-rate being but one per cent.

As cases are frequent in which it is almost impossible for non-professional persons (e.g., the police) to distinguish between extreme drunkenness and certain other morbid conditions, as apoplexy, concussion of the brain, and opium-poisoning, a few rules on this subject may be practically useful. In concussion and in extreme intoxication, there is profound coma or sleepiness; but in intoxication the odor of the breath removes all difficulty of diagnosis. The most difficult cases are those in which the symptoms of concussion or apoplexy are associated with an alcoholic odor of the breath; in such cases the head should be most carefully examined for marks of violence, and every effort made to obtain a history of the case from those who had previously seen the patient. In poisoning by opium or laudanum, the peculiar smell of the drug may usually be detected in the breath (a test which, however, fails if morphia has been taken). In poisoning by opium, the face is pale, and the pupils of the eyes are contracted, while in drunkenness, the face is flushed, and the pupils are generally dilated. Another difference (to which Dr. A. S. Taylor calls attention) is this—that while perfect remissions are rare in poisoning by opium, in poisoning with alcohol the patient often recovers his senses, and subsequently dies. In either kind of poison, the stomach-pump should be used, and the ejected contents of the stomach may facilitate the diagnosis. A sulphate of zinc emetic should be prescribed, if there is no stomach pump at hand; and after the stomach has been well cleared out, coffee and other strong stimulants should be given. See **FOOD AND DRINK: DIPSOMANIA: DELIRIUM TREMENS: DELIRIUM EBRIOSUM: DELIRIUM NERVOSUM: INTOXICATION: TOTAL ABSTINENCE: PROHIBITION of the Liquor Traffic.**

**ALCOHOLEMETRY**, n. *ăl'cō-hōl-ōm'ēt-rĭ*: process of estimating the percentage of absolute alcohol in a sample of spirits: see **AREOMETER**. The word is often contracted to **ALCOHOMETRY**.

**ALCORA**, *ăl-ko'râ*: town of Valencia, Spain, province of Castellon, 40 m. n.n.e. of Valencia. Corn, grapes, silk, and hemp are among the principal productions of the neighborhood, and fruit is exported. Pop. (1893) 4,499.

## ALCORAN—ALCOTT.

**ALCORAN**, n. *äl'kō răn'* [Ar. *alkorân*]: the book containing the Mohammedan law, precepts, and doctrines—now more commonly spelt *Koran*. **ALCORAN'IC**, a. *-ik*, of or pertaining to the Alcoran, or its doctrines and precepts. **ALCORAN'IST**, n. *-ist*, an adherent to the strict letter of the Koran. See **KORAN**.

**ALCOTT**, *awl'kot*, AMOS BRONSON: 1799. Nov. 29—1888, Mar. 4; b. Wolcott, Conn.: teacher and reformer. While a youth, he was sent to the south with a stock of small wares for sale. He landed at Norfolk, Va., and from that point went about among the planters, where he was received hospitably. The planters observing his literary tendency lent him books, which he studied with diligence, and thus obtained the groundwork of his education. Returning to Connecticut, he opened an infant school, with which he was successful, but in 1828 he removed to Boston and there conducted a similar school for some years. He had remarkable skill in his methods of teaching young children of from five to seven years of age, showing extraordinary sympathy with their educational needs. He taught at the Masonic Temple, and, though he made many friends, his mode of tuition was in advance of public opinion, and the newspapers denounced him to such an extent that he gave up the enterprise. He afterward settled in Concord, Mass., where he resided till near the close of his life. Here he devoted himself to study, mainly in the direction of natural theology and reforms in education and sociology. In 1842, invited by a fellow-laborer of Pestalozzi, he went to England, taking with him a letter of introduction from Ralph Waldo Emerson to Carlyle. Alcott's name had preceded him, and he had in England many friends, some of whom had given the name 'Alcott House' to their school at Ham near London. Returning to America and bringing with him two English friends, the three established an educational community called 'Fruitlands' at Harvard, Mass. This scheme was soon abandoned, and the two Englishmen sold the farm and returned to their native country. A. then entered upon the life of a peripatetic philosopher, visiting different cities and villages when invited, and there declaiming on divinity, human nature, ethics, dietetics, and many practical questions. In the mean time *The Dial* had been started in Boston by the Transcendentalists, Margaret Fuller being the editor and Emerson a chief contributor, and to this publication A. contributed papers entitled *Orphic Sayings*. He also published several books, including *Conversations with Children on the Gospels* (1838); *Spiritual Culture* (1840); *Tablets* (1868); *Concord Days* (1872); *Table Talk* (1877); *Sonnets and Canzonets* (1882); and *The New Connecticut*, autobiographical poem (1887). A.'s theology showed strong tendency toward spiritual mysticism, and latterly inclined noticeably toward Evangelical Christianity, though he never allied himself with any sect.

**ALCOTT**, LOUISA MAY: author: 1832, Nov. 29—1888, Mar. 6; b. Germantown, Penn.: daughter of Amos Bronson A. While still in her teens she began to write fairy tales, and in 1855 published a volume entitled *Flower Fables*.



## ALCOTT—ALCOY.

This was followed by a number of stories contributed to the Boston journals, and later by some published in the *Atlantic Monthly*. In 1864 she published her first volume of fiction for the young, entitled *Moods*. This was followed by *Morning Glories* (1867), and in the following year by *Little Women*, which was received with great favor, and has ever since been one of the most popular of children's books. In 1869 she published *An Old-fashioned Girl*, and in 1871 *Little Men*, a sequel to *Little Women*, which at once commanded almost equal popularity. Her remaining books are: *My Girls*, *An Old-fashioned Thanksgiving, Work* (1873); *Eight Cousins* (1874), and its sequel, *Rose in Bloom* (1876); *Under the Lilacs* (1878); *Jack and Jill* (1880); *Proverb Stories* (1882), *Spinning-Wheel Stories* (1884); and *Lulu's Library* (1885). Besides the above she published at different times a number of volumes of short stories, including *Cupid and Chow-chow*, *Silver Pictures*, and *Aunt Jo's Scrap Bag*.

ALCOTT, MAY (Mrs. ERNEST NIERIKER): artist: 1840–1879, Dec.; b. Concord, Mass.; daughter of Amos Bronson A. She studied art in Boston, London, and Paris, in which latter city chiefly she resided after her marriage. She was noted as a copyist and as a very successful painter of still life in oils and water-colors. As a copyist of Turner she was so fortunate as to gain the commendation of John Ruskin, while some of her work was placed in the South Kensington School in London as examples for the pupils to copy. She published one book, *Concord Sketches* (1869).

ALCOVE, n. *ăl-kōv'* [F. *alcove*—from It. *alcovo*, a recess: Sp. *alcoba*, a part of a room railed off to hold a bed—from Ar. *al-qobbah*, a vaulted space covered as a tent]: architectural term, denoting a recess in a chamber where one may recline, or where a bed or side-board may be placed. An A. is either hung with curtains or closed with doors during the day. It was known to the ancients, and at one time very common in France, when the immoderate size of the apartments rendered it absolutely necessary as a preventive against the cold during sleep. It is no longer common or fashionable, eminent physicians having declared its closeness injurious and prejudicial to health. A. is applied also to the bays or open recesses for book-shelves in a library hall: also a shady recess in a garden.

ALCOY, *ăl-kō'ē*: town of Spain, prov. of Alicante, a portion of the former kingdom of Valencia. It is 'built in a funnel of the hills, on a tongue of land hemmed in by two streams, with bridges and arched viaducts.' The houses hang picturesquely over the terraced gardens and ravines. The walls of A. are of clay, and suffered considerable damage during the last war; but the town contains some new edifices, and has numerous manufactories. 'Here is made the *papel de hilo*, the book *Librito de fumar*, which forms the entire demiduodecimo library of nine tenths of Spaniards, and with which they make their *papelitos*, or little paper-cigars;' 200,000 reams are annually made, of which 10,000 are used for writing, 10,000 for packing, and 180,000 for the

## ALCUDIA—ALCUIN.

paper-cigars. A. is also famous for its sugar-plums. It has a consistory, town-hall, poor asylum, public granary, etc. Pop. (1900) 32,053.

ALCUDIA, *ál-kó'de-á*: MANUEL DE GODOY, Duke of, known as the Prince of Peace: 1767–1851: b. Badajos, Spain. Poor, but handsome and musical, at the age of 20 he entered the king's body-guard at Madrid, and soon became a favorite of the weak Charles IV., as well as of his queen. Honors and emoluments flowed in rapidly. In 1801, he led the Spanish army against the Portuguese, and signed the treaty of Badajos. In 1804, he was made generalissimo of the Spanish forces on sea and land, and invested with unlimited power. The alliance of Spain with France, and the war with England which ensued, in spite of the sums paid by Spain to secure neutrality, the defeat of Trafalgar, and consequent check to commerce—all tended to exasperate the public mind, and a court-party was formed against him, with the Prince of Asturias at its head. A. now resolved to shake off the French alliance, and to treat secretly with the Lisbon court. But, however cautiously taken, his warlike measures reached the ears of Napoleon, and determined him to carry out his project of dethroning the Bourbons. Meanwhile, the people had been further exasperated against the favorite by his unprincipled accusations against the Prince of Asturias; and when, in 1808, Charles abdicated in favor of his son, the duke's life was saved only by the promise of his trial. This trial, however, never took place. Napoleon, who knew his influence over the minds of their Spanish majesties, had him liberated, and brought to Bayonne, where he instigated all measures taken by the ex-king and queen, retaining their favor till their death. After his fall, he lived chiefly in France. In 1808, his income had been estimated at 5,000,000 piastres. After the revolution of 1830, he was subsisting in Paris upon a small pension bestowed by Louis-Philippe. In 1847, his return to Spain was permitted, and his titles, together with great part of his wealth, restored. He died at Paris.

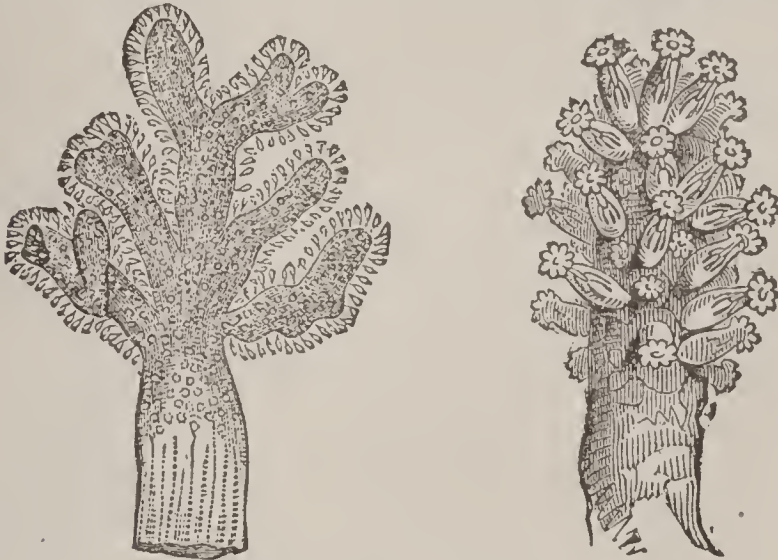
ALCUIN, *ál'kwín*, or FLACCUS ALBINUS: abt. 735–804; b. York, Eng.: the most distinguished scholar of the 8th c., the confidant and adviser of Charlemagne. He was educated under the care of Abp. Egbert, and his relative, Aelbert, and succeeded the latter as master of the School of York. Charlemagne became acquainted with him at Parma, as he was returning from Rome, whither he had gone to bring home the *pallium* for a friend; and in the year 782, this monarch invited him to his court, and availed himself of his assistance in his endeavors to civilize his subjects. A. became the preceptor of Charlemagne himself, whom he instructed in the various sciences. To render his instructions more available, Charlemagne established at his court a school called *Schola Palatina*, the superintendence of which, as well as of several monasteries, was committed to him. In the learned society of the court, A. went by the name of Flaccus Albinus. Most of the schools in France were either founded or improved by him. Among others, he founded the school in the Abbey of St. Martin, in Tours

## ALCYONITE—ALCYONIUM.

(796), taking as his model the School of York; and in this school he himself taught after his retirement from court (801). While living at Tours, he frequently corresponded with Charlemagne. At his death he left, besides numerous theological writings, a number of elementary works on philosophy, mathematics, rhetoric, and philology; also poems, and a great number of letters. His letters, while they betray the uncultivated character of the age generally, shew A. to have been the most accomplished man of his time. He understood Latin, Greek, and Hebrew. Good editions of his works appeared, 1777 and 1873. See the life of A. by Lorenz (1829); Monnier's *A. et Charlemagne* (1864); and Mullinger's *Schools of Charles the Great* (1871).

ALCYONITE, n. *äl-si'ö-nit* [L. *Al'cyonē*, a daughter of Æolus]: a term applied to the spongiform fossils common in the chalk-formation. ALCYONARIA, n. plu. *äl-si'ö-nä'ri-ä*, a division of the Cœlenterata, comprising the sea-pens, red-corals, fan-corals, etc.

ALCYONIUM, *äl-si-ö'ni-üm*: a genus of Cœlenterata, the type of an order called *Alcyonaria*, belonging to the class



Alcyonium digitatum.

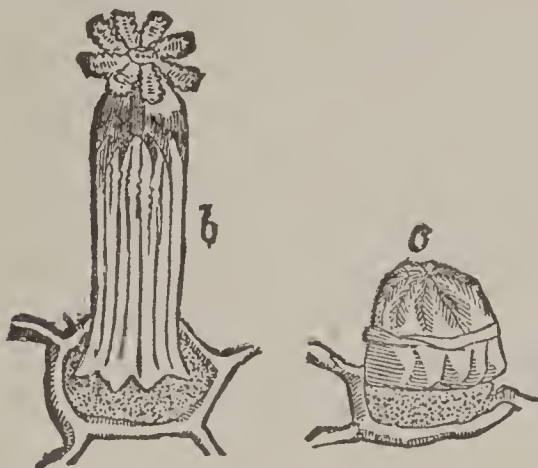
1. Reduced general figure.

2. A portion showing the polypes protruded, and with extended tentacula.

*Actinozoa* (see ZOOLOGY), and consisting of a polype-mass with starlike pores and protrusive polypes. *A. digitatum* is extremely common on the British shores, on stones, old shells, etc., in deep water. It sometimes appears as a mere crust, about the eighth of an inch in thickness, but commonly rises up in rounded cones, and often assumes forms which have procured for it the popular name of *Dead Man's Fingers*, and other similar appellations. The polype-mass is gelatinous within, and covered with a sort of leathery skin, the mass being traversed by a multitude of minute canals, terminating on the outer surface in starlike figures, which, if the whole be placed in sea-water, are seen to project considerably from the surface, and appear as polypes with eight tentacula or feelers; so that what seems to be a disgusting fleshy mass in the fisherman's net proves to be, when placed in its proper element, a structure of surprising beauty and full of animal life, existing under peculiar and

## ALCYONIUM.

wonderful conditions. The manner in which the polypes protrude and retract themselves has been likened to that in which the horns of a snail are protruded and retracted. Their tentacula are short, obtuse, and elegantly fringed at the margins. The external part of the body of the polype is a membrane so transparent, that by the employment of a magnifying-glass the whole internal structure can be seen through it. See fig. 3, *b*. This delicate membrane, how-



3. *Alcyonium digitatum*:  
*b*, the polype fully protruded, magnified; *c*, the polype partially protruded, magnified.

ever, is composed of two very thin membranes, intimately united, the outer of which increases in thickness at the base of the polype, coalesces with that of adjacent polypes, and is continuous with the common leathery skin of the polype-mass. The inner membrane retains its extreme delicacy throughout; it extends into and lines the cell of the polype (see fig. 4) and the tube or canal which proceeds from the cell into the mass, and is

thus also continuous with the corresponding membranes of other polypes; for the canals divide into branches in their course from the base of the polype-mass to the surface, and the intimacy of union in the whole is increased by a fine tubular network which occupies the spaces between the principal canals. If a portion of an *A.* is irritated, not only the particular polypes immediately subjected to irritation retract themselves as to withdraw from danger, but the gradual collapse and contraction of the whole polype-mass shows that the irritation has been felt through it all. The contraction of the mass is owing to a discharge of water which the polypes, when protruded, imbibe, and which circulates through and distends the polype-mass, so that when the polypes are undisturbed and in full activity, it has twice or three times the size which it has as we find it cast out upon the beach. The stomach of each polype is cylindrical (as may be seen in fig. 3, *b*, immediately under the oval disk or expanded tentacula), and beneath it is a comparatively large cavity, into which hang loosely (as may also be seen in the figure just referred to) eight twisted filaments or threads, the use of which is not well ascertained, and has been the subject of very different



4. *Alcyonium digitatum*:  
Section showing internal structure.

## ALCYONIUM.

opinions among naturalists. In the gelatinous substance of the polype-mass, which fills the interstices of the tubular network, numerous crystalline calcareous spicula lie immersed, like the *raphides* (q.v.) found in the intercellular passages of some plants. They are toothed on the sides, but are of various forms, and have no organic connection with any part of the animal structure; their only use apparently being to impart some degree of strength to the whole. These spicula are of general occurrence in zoophytes of this order, and are secreted by the common skin of the polype-mass. The polype-mass increases by *gemmae* or buds, which grow into new branches; but the propagation of the species takes place by *ova* or eggs, which first appear as minute smooth warts on the membrane of the canals in the interior. The constriction of the neck, by which they grow, separates them from the parent membrane, and they move through the canal by means of very minute vibrating cilia or hairs with which they are furnished, until they reach the stomach of a polype, into which they enter, and through which they slowly proceed till at last they are ejected by the mouth (the only opening), and committed to the waves and tides. The ova seem capable of feeling while within the parent mass, and may be observed to move backwards and forwards, and to contract their sides as if by voluntary action in their passage through the body of the polype. These wonderful phenomena of nature are the more easily observed, because the ova are of a deep vermilion color, beautifully contrasting with the pure white of the polype, through the tunic of which they are seen.—One of the most remarkable known species of A., and the largest, is that called *A. poculum* or Neptune's Cup, which was discovered by Sir Stamford Raffles upon the coral-reefs of Sumatra, and

is found in the neighborhood of Singapore. It grows erect, sometimes attaining nearly three feet in height and eighteen inches in diameter. Specimens are now frequent in museums in this country.

The name *Alcyonium* was formerly also given to many zoophytes now found to be of very different structure, some of which now bear the name *Alcyonidium*, others that of *Alcyonella*. The name zoophytes, now generally obsolete, was given to various plant-like animals, mostly the *Cœlenterata*. The most common British species is *Alcyonidium gelatinosum*. It resembles a sponge in appearance, but is more pellucid and gelatinous, and is full of polypes, each having 15 or 16 long slender tentacula. It is attached to old shells and stones, and is



*Alcyonidium gelatinosum*.  
Reduced.

sometimes much lobed, as in the preceding figure, some-

## ALDBOROUGH—ALDEBARAN.

times almost simple. The color varies from a very pale brown to clear yellow; the surface is speckled with minute dots, from which, when it is placed in sea-water, the polypes protrude. The polype differs widely from that of *Alcyonium* in having an intestine, which, proceeding from the stomach to the aperture of the cell, opens there by an orifice distinct from the mouth, a difference characteristic of the classes to which they respectively belong. The ova are clothed with cilia, and their motions either are, or most strikingly resemble, voluntary motions.—*Alcyonella* belongs to the mulluscoid *Polyzoa* (= *Bryozoa*). See ZOOPHITES. There is one British species, *Alcyonella stagnorum*, found in stagnant waters, especially in autumn, in shapeless, jelly-like masses, of a blackish-green color, usually adhering to the leaves of aquatic plants. The jelly-like mass is traversed from base to surface by multitudes of tubes, which open by a roundish or five-angled aperture; the heads of the polypes project a little way from the aperture, and expand into a circle of about fifty tentacula. About 1,600 polypes are situated on a square inch of the surface of the mass. The number of tentacula on a specimen of moderate size has been computed at more than 5,000,000. The tentacula are covered with minute cilia, only to be observed with a high magnifying power, by means of which a constant whirlpool is maintained, centring in the mouth of the polype, and essential, probably, for breathing as well as for the supply of food. Each polype is organically connected with the mass, its tunic being continuous with the tube. The alimentary canal has two openings. The ova are to be found in vast numbers in the tubes which traverse the mass. They are dark brown, whilst the tubes are colorless or tinted with green, of a lens-like form and destitute of cilia. They are produced from all parts of the inner side of the gelatinous tubes; and as there seems to be no aperture for their escape, it is supposed that they are liberated from the parent mass only on its death and decomposition. The *Alcyonella* is an interesting object in a fresh-water aquarium, but is rather difficult to preserve. It is not, however, always to be found even in ponds where it might be expected, and is abundant in particular seasons and rare in others. The ova are probably capable of remaining long dormant, until some occurrence of circumstances favors the development of the germ of life which they contain. In the above account of *Polyzoa*, polypide is the word preferred by recent authors, who confined polyp to *Celenterata*.

ALDBOROUGH, *awl'd bŭr-ŭh*: decayed town of the West Riding of Yorkshire, on the river Ure and on Watling Street. Before 1832 it sent two members to parliament. Extensive remains of the Roman town of Isurium have been found here.—There is another small coast town of the same name in the n.e. of Suffolk.

ALDEBARAN, n. *äl-děb'ă-răn*, [Ar. *al-dabarân*, the following—from *dabara*, to follow]: a star of the first magnitude in the eye of Taurus—so called because it follows upon the Pleiades. It is the largest and most brilliant of a

## ALDEHYDE—ALDEHYDES.

cluster of five which the Greeks call the Hyades. From its position, it is sometimes termed 'the Bull's Eye.'

**ALDEHYDE**, n. *āl'dē-hīd* [a contraction of *alcohol* and *dehydrogenitum*]: a pungent volatile liquid obtained by the removal of hydrogen from an alcohol. **AL'DEHY'DIC**, a. *-hī'dīk*, of or pertaining to.

**ALDEHYDE**,  $\text{CH}_3\text{COH}$ : a volatile fluid produced by the oxidation and destructive distillation of alcohol and other organic compounds. There are many modes of obtaining it; the following is the method described by Liebig: A mixture of 2 lbs. of strong alcohol, 2 lbs. of water, and 3 lbs. of sulphuric acid, is distilled in a large retort connected with a receiver surrounded with ice. As soon as the distillate reddens litmus-paper, the operation is stopped. The product in the receiver, weighing about 3 lbs., is then twice rectified over chloride of calcium, being thus reduced to about 12 oz. This is then mixed with twice its volume of ether, and then saturated with ammonia gas. After cooling, crystals of aldehyde-ammonia,  $\text{C}_2\text{H}_4\text{ONH}_3$ , are formed, which are then mixed with dilute sulphuric acid, and distilled at a low temperature. The hydrated A. thus obtained is dried with chloride of calcium, and again rectified by distillation. The product, A., is a thin, transparent, colorless liquid, very inflammable, burning with a blue flame, and having a spec. gr. of 0.800, a boiling point of about  $70^\circ$ , and a pungent, suffocating odor. It mixes in all proportions with water, alcohol, and ether, and dissolves sulphur, phosphorus, and iodine. As is shown in the article **ALCOHOL**, it constitutes an intermediate state in the oxidation of alcohol into acetic acid. When potassium is gently heated with A., one atom of H is replaced by one of K, the resulting compound being aldehydate of potash,  $\text{C}_2\text{H}_3\text{CKO}$ . Various compounds of this kind may be formed, of which the most important is aldehydate of ammonia, or aldehyde-ammonia,  $\text{C}_2\text{H}_4\text{ONH}_3$ , which is obtained in transparent shining crystals, and is a compound that has led chemists to the discovery of a large number of very remarkable derivatives.

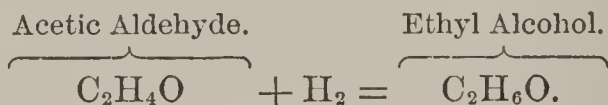
**ALDEHYDES**: class of organic compounds, intermediate between primary alcohols and acids. Each aldehyde is derived from the corresponding alcohol by the abstraction of two atoms of hydrogen, and each aldehyde is converted into its corresponding acid by the addition of one atom of oxygen.

Ten A. of the series  $\text{C}_n\text{H}_{2n}\text{O}$ , corresponding to  $n = 1, 2, 3, 4, 5, 7, 8, 11, 12,$  and  $16$ , are at present known, the simplest being formic aldehyde,  $\text{CH}_2\text{O}$ , and the highest being palmitic aldehyde,  $\text{C}_{16}\text{H}_{32}\text{O}$ .

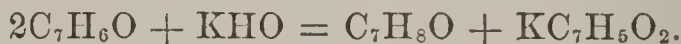
Among A. not connected with the preceding group may be mentioned various organic compounds which have been recently shown to belong to this class—thus, acrolein,  $\text{C}_3\text{H}_4\text{O}$ , is acrylic aldehyde; camphor,  $\text{C}_{10}\text{H}_{16}\text{O}$ , is camphoric aldehyde; bitter-almond oil,  $\text{C}_7\text{H}_6\text{O}$ , is benzoic aldehyde; oil of cumin,  $\text{C}_{10}\text{H}_{12}\text{O}$ , is cuminic aldehyde; oil of cinnamon,  $\text{C}_9\text{H}_8\text{O}$ , is cinnamic aldehyde. Most of these

## ALDEHYDES.

A. are obtained directly from plants, and either exist in them ready formed, or are given off as volatile oils on distillation with water. Owing to their great tendency to oxidize into their corresponding acids, the A. are powerful reducing agents. They reduce the silver in silver salts to the metallic state. On the other hand, by the action of nascent hydrogen upon the A., the corresponding alcohols are regenerated. Thus ordinary alcohol may be obtained from ordinary aldehyde.



With the acid sulphites of the alkalies the A. forms sparingly soluble crystalline compounds. When treated with caustic alkali, many of the A. are converted into the corresponding alcohols, and the potassium salt of the corresponding acid. Thus benzoic aldehyde yields benzyl alcohol and benzoate of potash:



The A. have a great tendency to form polymeric compounds. Thus ordinary aldehyde passes readily into two polymeric modifications (see ISOMERISM): (1) Paraldehyde, a liquid which boils at  $255^\circ$ ; (2) Metaldehyde, a solid body which sublimes at  $248^\circ$ , and is converted back into ordinary aldehyde by heating to  $239^\circ$  for a few hours in a closed vessel.



## ALDEN.

ALDEN, *arol'dén*, EDMUND KIMBALL, D.D.: Congl. clergyman: b. Randolph, Mass., 1825, Apr. 11. He graduated at Amherst College 1844, and at Andover Theol. Seminary 1848. In 1850, he became pastor of the First Church (Congl.), Yarmouth, Me. Four years later he was settled at Lenox, Mass., where he remained 5 years; and in 1859 became pastor of Phillips Congl. Church, South Boston, Mass. He was made sec. of the American Board of Commissioners for Foreign Missions, Boston, 1876; having charge specially of the home department of that great organization. In this position his persistent objection to the appointment of missionaries who were not prepared to disclaim sympathy with the 'Andover hypothesis,' of a probation in the future life for such heathen as had not had Christ presented to them in this life, brought upon him severe animadversion from some of the most prominent contributors to the work of the American Board, but his action was sustained by a large majority of the board at its annual meeting, 1887, Oct., at Springfield, Mass.; though subsequent meetings showed that the majority did not desire to maintain their views by intolerant measures. Dr. A., esteemed for most faithful service, died 1896, April 30.

ALDEN, HENRY MILLS, LITT.D.: editor: b. at Mt. Tabor, Vt., 1836, Nov. 11: graduated at Williams College, 1857, and at Andover Theol. Seminary, 1860. Soon after completing his education, he was invited to deliver a course of lectures before the Lowell Institute, Boston, and accordingly prepared and delivered a series of 12 lectures on *The Structure of Paganism*, he being the youngest of all the Lowell Institute lecturers. In 1864, he entered the employment of Harper & Bros., publishers, New York, as managing editor of *Harper's Weekly*; and, in 1868, became editor of *Harper's Magazine*, which position he still holds (1903). In conjunction with Alfred H. Guernsey he prepared *Harper's Pictorial History of the Rebellion* (1863-65). His books, *God in His World* (1892), and *A Study of Death* (1896), drew wide attention.

ALDEN, ISABELLA (MACDONALD): author: b. New York, 1841. She married Rev. G. R. Alden in 1866, May. Her juvenile stories, published under the name *Pansy Books*, and comprising nearly 60 titles, are interesting and popular. They include: *Helen Lester*, a prize story written when she was a young girl; *One Commonplace Day*; *Mrs. Harry Harper's Awakening*; *Ester Ried*; *Tip Lewis and his Lamp*; *The Browning Boys*; *Links in Rebecca's Life*; *An Endless Chain*; *The King's Daughter*; *Mary Burton Abroad*; *The Pocket Measure*; *Spun from Fact*; *Three People*; *Ruth Erskine's Crosses*; *Chautauqua Girls at Home*; *Four Girls at Chautauqua*; *New Year's Tangles*; *Six Little Girls*; and *Chrissy's Endeavor* (1889). A. has been connected with the Chautauqua Summer School from its beginning. She is known also as the editor of *Pansy*, a juvenile publication.

## ALDEN—ALDER.

**ALDEN, JAMES:** 1810, Mar. 31—1877, Feb. 6; b. Portland, Me.; naval officer. He was appointed a midshipman in the U. S. navy 1828; was commissioned lieut. 1841, lieut.-commander 1855, capt. 1863, commodore 1866, and rear-adm. and commander of the European squadron; and was retired 1873. During his naval career he took part in the Wilkes exploring expedition around the world; the capture of Vera Cruz, Tuxpan, and Tabasco, in the Mexican war; the Indian war on Puget's Sound; and the civil war, distinguishing himself in the last as commander of the *Richmond* at the passage of Forts Jackson and St. Philip and capture of New Orleans, and of the *Brooklyn* in the capture of Mobile Bay and the two attacks on Fort Fisher.

**ALDEN, JOHN:** 1599—1687, Sep. 12; b. England: Plymouth colonist. He was working at the cooper's trade in Southampton while the pilgrim ship *Mayflower* was being prepared there for her voyage to America, and signing the famous compact 1620 became the youngest member of the party. In 1621 he married Priscilla Mullens, and about 1635 was chosen magistrate of Plymouth colony, an office which he held till his death. Longfellow made him one of the principal characters in his poem, *Miles Standish's Courtship*. His descendants in America are numerous.

**ALDEN, WILLIAM LIVINGSTON:** author: known for his satirical and humorous contributions to the editorial page of the *New York Times* during several years: b. Williamstown, Mass., 1837, Oct. 9. He received his education at Lafayette and Jefferson colleges, graduated 1858, and studied law. He became a popular contributor to the magazines, and introduced canoeing as a recreation into the United States, founding 1870 the New York Canoe Club. His published books include: *Domestic Explosives* (1878); *Shooting Stars* (1879); *Canoe and Flying Proa* (1880); *The Moral Pirates* (1881); *Life of Christopher Columbus* (1882); *The Cruise of the Ghost* (1882); *The Cruise of the Canoe Club* (1883); *Adventures of Jimmy Brown* (1885); and *Loss of the Swansea* (1889). In 1885 he was appointed U. S. consul-general at Rome, and on the appointment of his successor 1889 decided to spend several years in literary work in Europe.

**ALDER**, a. *ál'dér* [OE. and AS. *alder*, of all, wholly; entirely—from AS. *æl*, all]: in OE., a common prefix of adjectives in superlative degree, and signifying, of all; wholly; entirely; in the highest degree: as, **ALDERFIRST**, first of all. **ALDERLAST**, last of all. **ALDERLEST**, least of all. **ALDERLIEFEST**, *-lēf'ēst* [AS. *leofest*, most loved]: most loved, or dearest of all. **ALDERMOST**, most of all. **ALDERWISEST**, wisest of all. *Note.*—In later times 'all' seems to have been substituted for *alder*—see *all* as a prefix.

**ALDER**, n. *ál'dér* [AS. *alr*: Ger. *eller*: Icel. *elrir*: Sw. *al*: L. *alnus*]: a tree resembling the hazel; the *Alnus glutinōsa*, Ord. *Betulicęæ*, whose charcoal is used in the manufacture of gunpowder. **AL'DERN**, a. made of alder.

**ALDER** (*Alnus*): genus of plants of the natural order *Betulaceęæ* (regarded by many as a sub-order of *Amentaceęæ*:

## ALDER.

see BIRCH and AMENTACEÆ). The genus consists entirely of trees and shrubs, natives of cold and temperate climates; the flowers in terminal, imbricated catkins, which appear before the leaves; the male and female flowers in separate catkins on the same plant; the male or barren catkins loose, cylindrical, pendulous, having the scales 3-lobed, and each with three flowers whose perianth is single and 4-partite; the fertile catkins oval, compact, having the scales sub-trifid, and each with two flowers destitute of perianth; styles two; fruit, a compressed nut without wings.—The COMMON or BLACK A. (*A. glutinosa*) is a native of Britain, and of the n. parts of America and Asia. It has roundish, wedge-shaped obtuse leaves, lobed at the margin and serrated. The bark,



Alder Tree.

except in very young trees, is nearly black. It thrives best in moist soils, and helps to secure swampy river-banks against the effects of floods. It attains a height of 30-60 ft. Its leaves are somewhat glutinous. The wood is of an orange-yellow color, not very good for fuel, but affording one of the best kinds of charcoal for the manufacture of gunpowder, upon which account it is often grown as coppice-wood. Great numbers of small A. trees are used in Scotland for making staves for herring barrels. The wood is also employed by turners and joiners; but it is particularly valuable on account of its property of remaining for a long time under water without decay, and is therefore used for the piles of bridges, for pumps, sluices, pipes, cogs of mill-wheels and similar purposes. The bark is used for tanning and for dyeing, also for staining fishermen's nets. It produces a yellow or red color, or with copperas, a black color. The leaves and female catkins are employed in the same way, by the tanners and dyers of some countries. The bark is bitter and astringent, and has been used for gargles, and also administered with success in ague. The seeds are a favorite food of greenfinches.—The Alder is one of the

## ALDERMAN.

ornaments of many of the most exquisite landscapes in Britain. The dark green of its foliage, and the still darker hue of its bark, contrast beautifully with the colors of the other trees with which it is usually associated on the banks of rivers. In boggy grounds it is often almost the only kind of tree that appears, and in many parts of the Highlands, groups of alders are scattered over the lower and moister parts of the mountain-slopes. The individual tree viewed by itself may be regarded as somewhat stiff and formal in appearance; but in groups or clusters, it is always far otherwise.—The common *A.* ceases on the Swedish shore of the Gulf of Bothnia, in the south of Angermannland, and is



Alder leaves, etc.:

*a*, a branchlet with male and female catkins, reduced; *b*, a branchlet with leaves and female catkins in a more advanced stage, reduced; *c*, the fruit-bearing female catkin; *d*, the same cut across, to show the small nuts or seeds.

there called the Sea *A.*, because it grows on low grounds near the sea.—In the United States, the SPECKLED or HOARY *A.*, called sometimes Gray or White *A.* (*A. incana*) is the common species northward, along streams; it is native also of Europe; it grows 8—20 ft. high, has the oval leaves rounded at base and (except in the var. *glauca*) downy; fruit orbicular.—The Smooth *A.* (*A. serrulata*), the common species from s. New England s. and w., grows 6—12 ft., the obovate leaves acute at base.—The GREEN or MOUNTAIN *A.* (*A. viridis*) has flowers developed with the leaves, and the fruit winged; from the north it extends s. on the Alleghanies.—The SEA-SIDE *A.* (*A. maritima*) flowers in autumn, has large catkins, grows to 20 ft., is found in Del. and Md., and thought to be the same as a species in Japan.—*A. cordifolia* is a large tree, native of s. Italy.—Several species are natives of the Himalayas.—The BERRY-BEARING *A.*, or *A.* BUCKTHORN, is a totally different plant. See BUCKTHORN.

ALDERMAN, *n.* *ál'dér-mán*, *pl.* AL'DERMEN [*AS.* *eald*, old; *ealder* or *ealdor*, an elder, a chief]: a senior or superior; a civic dignitary next in rank to the mayor. AL'DERMAN'IC, *a.* *-ík*, in the manner of an alderman. AL'DERMAN'LY, *a.* *-lí*. *Note.*—Originally a dignity of the highest rank, very nearly that of a king.

ALDERMAN: a title given to a grade of civic officers of municipalities in the United States, and in England, Wales, and Ireland: the corresponding title in Scotland is Bailie. Their functions differ in different cities—in some involving

## ALDERNEY—ALDERSHOT CAMP.

considerable magisterial power, especially in affairs of internal police. Some cities (e.g. Philadelphia), have dispensed with this title for their officials. In New York an A. is a member of the common council elected by the people. The London court of aldermen consists of 26 aldermen, including the lord mayor, and constitutes the bench of magistrates for the city, besides having judicial and legislative authority in the corporation. Whether any definite and invariable functions were connected with the ancient rank of *ealdorman*, is not clearly ascertained. The term was generally applied to persons of high and hereditary distinction, such as princes, earls, and governors. Its special significance in the titles 'A. of all England' (*Aldermannus totius Angliæ*) and 'King's A.' (*Aldermannus Regis*), is not distinctly indicated. There were also aldermen of counties, hundreds, cities, boroughs, and castles.

ALDERNEY, *awl'dér-nĩ* (Fr. *Aurigny*, Lat. *Aurinia*): island in the English Channel (see CHANNEL ISLANDS), lat. 49° 45' n., long. 2° 13' w., separated from the coast of Normandy by a strait about 7 m. in breadth, called the Race of Alderney. Through this channel, which is very dangerous in rough weather, the remnant of the French fleet escaped after their defeat at La Hogue in 1692. The distances between Alderney and the nearest points of Guernsey, Jersey, and Great Britain, are respectively about 15, 33, and 60 m. The length of the island is about 4 m., the breadth about 1½. The coast to the s.e. is bold and lofty; to the n.e. and n., it descends, forming numerous small bays, one of which, that of Crabby, affords the only anchorage in the island. A harbor of refuge and breakwater have been constructed on the n. side of the island. Six m. to the w. are the Caskets, a small cluster of rocks, on which are three light-houses. The soil in the centre of the island is highly productive; and the A. cows, a small but handsome breed, have always been celebrated. The climate is mild and healthy, and good water abounds. Pop. (1851) 3,333; (1871) 2,733; (1891) 1,857. Education to some extent is universal. The population was originally French, but half the inhabitants now speak English, and all understand it. Protestantism has prevailed here since the Reformation. A. is a dependency of Guernsey, and subject to the British crown. The civil power is vested in a judge appointed by the crown, and six *jurats* chosen by the people. These with twelve popular representatives or *douzainiers* (who do not vote), constitute the local legislature. The court of justice is composed of the judge and jurats, the royal procureur and comptroller and the registrar (*greffier*), nominated by the governor. There is a local militia, consisting of two companies of infantry, and a brigade of artillery. The 'Town,' in a picturesque valley near the centre of the island, contains a few public buildings, among which is the old church, said to have been erected in the 12th c., and a new one in the early English style, with a tower 104 ft. high. The living is a perpetual curacy in the archdeaconry and diocese of Winchester.

ALDERSHOT CAMP, *awl'dér-shõt*: a permanent camp

## ALDINE EDITIONS.

for military review, evolution, exercise, and training; comprising 7,063 acres on Aldershatt Heath, 18½ m. from Windsor, Eng.; purchased by the government for £130,000, and opened for the reception of soldiers, 1855. There are usually 10,000 to 15,000 troops of all arms at A.—different regiments occupying it in turn for an experience of camp-life. A thriving town has sprung up near the camp; pop. over 25,000. See BARRACKS.

ALDINE EDITIONS: name given to the works from the press of Aldo Manuzio (q.v.), (Lat. Aldus Manutius) and his family in Venice (1490-1597). Recommended by their intrinsic value, as well as by their handsome exterior, they have been highly prized by the learned and by book-collectors. Many of them are the first editions (*editiones principes*) of Greek and Roman classics; others contain corrected texts of modern classic writers, as of Petrarch, Dante, Boccaccio, etc., carefully collated with the MSS. All of them are distinguished for the remarkable correctness of the typography; the Greek works, however, being in this respect somewhat inferior to the Latin and Italian. The editions published by Aldus, the father, form an epoch in the annals of printing, as they contributed in no ordinary measure to the perfecting of types. No one had ever before used such beautiful Greek types, of which he caused nine different kinds to be made, and of Latin as many as fourteen. It is to him, or rather to the engraver, Francesco of Bologna, that we owe the types called by the Italians *Corsivi*, and known to us as Italics, which he used for the first time in the 8vo edition of ancient and modern classics, commencing with Vergil (1501). Manuzio's impressions on parchment are exceedingly beautiful; he was the first printer who introduced the custom of taking some impressions on better paper—that is, finer or stronger than the rest of the edition. The first example of this is in the *Epistolæ Græcæ* (1499). It would be difficult to name another who has brought so much zeal, disinterestedness, taste, and knowledge to the furtherance of literature, especially classical literature. After his death, 1515, his business was superintended by his father-in-law, Andreas Asulanus. Paul, the son of Aldus, possessed the same enthusiasm for Latin classics that his father had for Greek. He died at Rome in 1597. The printing establishment founded by Aldo continued in active operation for 100 years, and during this time printed 908 different works. The distinguishing mark is an anchor, entwined by a dolphin, generally with the motto, *Sudavit et alsit*. Under the direction of the grandson of the founder, it lost the superiority which it had formerly maintained over all the other printing-presses in Italy. The demand which arose for editions from this office, and especially for the earlier ones, induced the printers of Lyon and Florence, about 1502, to begin the system of issuing counterfeit Aldines. The Aldomania has considerably diminished in later times. Among the A. works which have now become very rare may be mentioned the *Horæ Beatæ Mariæ Virginis* of 1497; the *Virgil* of 1501; and the *Rhetores Græci*; besides the editions from 1494 to 1497, which are now extremely rare. The most

## ALDRICH.

complete collections known are those of the former Grand Duke of Tuscany, and of Renouard, the bookseller of Paris. In 1834 appeared a third edition of the monograph published by Renouard, *Annales de l'Imprimerie des Aldes, ou Histoire des Trois Manuces, et de leurs Editions: par A. Renouard* (Paris, 1834). Ebert has published a catalogue of all the authentic A. E. in the supplement to Vol. I. of his *Bibliographical Dictionary*.

ALDRICH, *awl'dritch* or *awl'drij*, NELSON WILMARTH: merchant: b. Foster, R. I., 1841, Nov. 6. He passed the early part of his life at Killingly, Windham co., Conn., and was educated there and at the Providence Conference Seminary, East Greenwich, R. I. Removing to Providence, he entered on a mercantile career, which has continued with great prosperity to the present time. He was a member of the common council of the city of Providence, 1869-75, and its pres., 1872-3. In 1875-6, he was a member of the general assembly of R. I., and in the latter year speaker of the house of representatives. He was a member of the 46th congress, and was re-elected to the 47th as a republican by a large majority. In 1881, he was elected by the legislature U. S. senator, to fill the unexpired time of the late Gen. Burnside. In 1886, 1892, and 1898 he was re-elected for full terms. He has been an active member of important senate committees; was a strong supporter of the McKinley tariff act; and was one of the most influential senators in the session of 1902-3.

ALDRICH, THOMAS BAILEY: poet and prose writer: b. Portsmouth, N. H., 1836, Nov. 11. With the intention of entering college he began preparatory study, but on the death of his father abandoned this design, and became a clerk in the counting-room of his uncle, a merchant in New York, where he remained three years. In 1855, he published his first volume, entitled *The Bells*, and 1856 wrote his poem *Babie Bell*, which at once gave him fame, being copied by the press all over the country. This led him into a literary career as a profession, and he contributed thereafter to *Putnam's Magazine*, the *Knickerbocker*, and the weekly newspapers, writing poems and prose tales as the humor struck him. His *Daisy's Necklace, and What Came of It*, a prose poem, gained general popularity. In 1856, he became a member of the staff of the *Home Journal*, at that time under the editorship of N. P. Willis and George P. Morris, and here he remained three years, writing considerably, and always with gratifying result. At the beginning of the publication of *Every Saturday* he became its chief editor, and continued such until 1874, when it was stopped. In 1881 he was made editor of the *Atlantic Monthly*, to which he had for several years sent all his contributions; and he held this chair till 1890, June, when he resigned and was succeeded by Horace E. Scudder. His published works include *The Ballad of Babie Bell, and Other Poems* (1856); *The Course of True Love Never Did Run Smooth* (1858); *Pampinea, and Other Poems* (1861); *Out of His Head, a Romance in Prose* (1862); a collection of poems (1863); a volume of poems published in Boston (1865); and

## ALDROVANDI—ALDSTONE.

*The Story of a Bad Boy*, which was first made popular as a serial in *Our Young Folks*, afterward published in book form (1870). *Marjorie Daw and Other People* (1873); *Pru- dence Palfrey*, and *Cloth of Gold, and Other Poems* (1874); *Flower and Thorn* (1876); *The Queen of Sheba* (1877); *The Stillwater Tragedy* (1880); *Friar Jerome's Beautiful Book* (1881), *Mercedes, and Later Lyrics* (1884); and *Wyndham Towers* (1889); *The Sisters' Tragedy* (1891).

**ALDROVANDI**, *âl-dro-vân'dē*, **ULYSSES**: prob. abt. 1522-1605; b. Bologna: one of the most distinguished naturalists of the 16th c. He was descended of a noble family, and received an excellent education, partly in his native city and partly at Padua. Some of his religious opinions having been called in question, he travelled to Rome in 1550 to vindicate himself; and while there, studied Roman antiquities, and wrote a treatise on ancient statuary. At Rome, he formed the acquaintance of Rondlet. On his return, he studied botany, and having taken his degree in medicine at the Univ. of Bologna in 1553, he was in the following year appointed to the chairs of Philosophy and Logic, and to the lectureship on Botany. He practiced medicine for some time in Bologna, and appears after a short time to have exchanged some of the chairs which he held in the university for that of Natural History. He established the Botanical Garden at Bologna in 1567. He was employed many years, in forming a museum of natural history, which he bequeathed to the senate of Bologna, and it became the foundation of the splendid public museum of that city, where many of A.'s specimens remain to this day. He left at his death, a prodigious mass of valuable manuscripts, still in the public library of Bologna, in which there is probably much correspondence of eminent men, showing the first steps of the science of natural history, after the long dormancy of the middle ages. All his studies and collections were made subservient to his work on Natural History, the first vol. of which—on Birds—appeared in 1599. Six vols. appeared during A.'s life; other seven were published under the direction of his colleagues and pupils after his death. The story, that, by his scientific pursuits, A. reduced himself to great poverty and that he died in a public hospital at Bologna, though Bayle has adopted it in his dictionary, has no sufficient evidence. It may well be doubted. Complete editions of A.'s works are rare, the vol. on Minerals especially so. A. has been censured for excessive copiousness in things of little importance—due evidently to his conscientious anxiety to set forth all that is known on every subject of which he treats.

**ALDSTONE**, *awld'ston*, or **ALSTON**, *awl'ston*, sometimes called **ALSTON MOOR**: market-town of the county of Cumberland, Eng., 30 m. c.s.e from Carlisle. . The parish of A. contains extensive and very productive lead mines, formerly belonging to the earls of Derwentwater, and now to the Lords Commissioners of the Admiralty. The town has manufactures of worsted yarns and flannel. It is in a mountainous district, on the declivity of a steep hill, near



## ALE—ALEMAN.

the confluence of the Nene and South Tyne. The produce of the lead mines has fallen off considerably during recent years. Pop. about 2,500; of parish (1871) 5,680; (1881) 4,621.

**ALE**, n. *āl* [AS. *eale*; Icel. *öl*; Lith. *alus*, a kind of beer; Gael. *ol*, to drink]: beer; a drink made from malt. **ALE-BERRY**, n. *āl'bēr-rī*, a beverage made by boiling ale with spice, sugar, and sops of bread. **ALE-COST**, an herb. **ALE-HOOF** [AS. *heúfod*, a head]: ground ivy; the *Nepēta glechōma*, or *Glechōma hederacēæ*, Ord. *Labiātæ*, used for preserving ale before the use of hops. **ALEGAR**, n. *āl'ě-gār* [*ale*, and F. *aigre*, sour]: sour ale.

**ALE**: apparently the current name in England for malt liquor in general before the introduction of hops. This took place, according to Johnston (*Chemistry of Common Life*) as late as the reign of Henry VIII., about 1524. As the use of hops was derived from Germany, the German name for malt liquor (*bier*), *beer*, was used at first to distinguish the hopped liquor from *ale*, the unhopped. The word *ale* had in all likelihood been introduced by the Danes and other Scandinavian settlers—for *öl* (allied probably to *oil*) is still the name for malt liquor in the Scandinavian tongues—and must have driven out the *beor* of the Anglo-Saxons, which that people had in common with the other Teutonic nations. As now used, ale signifies a kind of beer (see **BEER: FERMENTATION**), distinguished chiefly by its strength and the quantity of sugar remaining undecomposed. Strong ale is made from the best pale malt; and the fermentation is allowed to proceed slowly, and the ferment to be exhausted and separated. This, together with the large quantity of sugar still left undecomposed, enables the liquor to keep long without requiring a large amount of hops. The Scotch ales are distinguished for the smallness of the quantity of hops they contain, and for their vinous flavor. They are fermented at an unusually low temperature. The ales of Edinburgh and Prestonpans have a high reputation. Burton ale is the strongest made, containing as much as 8 per cent. of alcohol; while the best brown stout has about 6 per cent., and common beer only 1 per cent. India pale ale has a larger quantity of hops.

**ALECTROMANCY**: see **Cock**.

**A-LEE**, ad. *ā-lē'* [AS. *hleō*, shelter]: a term used to denote the position of a ship's helm when put in a direction opposite to that from which the wind blows, thus bringing the ship's head to windward: it is expressed by the French *sous le vent*, or 'under the wind.'

**ALEMAN**, *āl'e-män*, **MATEO**: famous Spanish novelist, b. Seville, about the middle of the 16th c., d. in Mexico during the reign of Philip III. In 1604, he published a poetical biography of St. Antonius of Padua; and in 1608, while in the New World, an *Ortografia Castellana*, written during his voyage; but his great work is *Guzman de Alfarache* a novel with a rogue for the hero, like some of the

## ALEMANNI.

more recent English fictions. It was first published at Madrid in 1599, became immensely popular, and in half a dozen years had gone through twenty-six editions, consisting of not less than 50,000 copies, in Spain and other countries. As regards the delineation of manners and the purity of style, this masterly creation of A. ranks next to that most celebrated of all Spanish novels of the same character—the *Lazarillo de Tormes* of Mendoza. It shows keen observation, and a ripe and cultivated mind. Mendoza's hero has the advantage in originality, freshness, and vivacity; but Guzman exhibits a richer variety of gifts in the various characters he is compelled by circumstances to assume, such as a stable-boy, beggar, thief, coxcomb, mercenary, valet, pander, merchant, etc. The manners of the author's own age are hit off with great skill and effect, and the narrative is interspersed with shrewd and solid reflections and moralizings. A. is considered to rank with Mendoza, Cervantes, etc., as one of the masters of the Castilian style.

ALEMANNI, *äl'ē-măn'i*, [that is, *all-men*]: name of a military confederacy of several German tribes which appeared on the Lower and Middle Maine about the beginning of the 3d c. Caracalla fought with them first on the Maine in 211, but without conquering them; Alexander Severus was equally unsuccessful; but Maximinus at length succeeded against them, and drove them beyond the Rhine. After his death, they again invaded Gaul, but were defeated by Posthumius, who pursued them into Germany, and fortified with ramparts and ditches the boundary of the Roman territory, called the *Agri Decumates*. The mounds near Pförung, on the Danube, the rampart extending through the principality of Hohenlohe to Jaxthausen, and the ditch with palisades on the n. side of the Maine, are remains of these works. The A., however, did not desist from their incursions, although they were repeatedly driven back. After 282, being pressed upon from the n.e. by the Burgundians, they took up permanent settlements within the Roman boundary from Maintz to Lake Constance. At last, Julian came (357) to the relief of Gaul, which had been suffering from the incursions of the A., and soon compelled eight of their chiefs to sue for peace. Their united force, in their principal battle with Julian, amounted to 35,000 men. After the 5th c., the confederated nation is spoken of as A. and Suavi or Suevi. In the course of the 4th c., they had crossed the Rhine, and extended as far west as the Vosges, and south to the Helvetian Alps. At length, Clovis, king of the Franks, broke their power in 496, and made them subject to the Frankish dominion. The s. part of their territory was formed into a duchy, called Alemannia. The name of Swabia came afterwards to be applied to the part of the duchy lying e. of the Rhine. From the A., the French have given the name of *Allemands* and *Allemagne* to Germans and Germany in general, though the inhabitants of the n. of Switzerland, with those of Alsace and part of Swabia, are the proper descendants of the Alemanni.

## ALEMBERT.

ALEMBERT, *á-lón-bár'*, JEAN LE ROND D': 1717-83; b. Paris: one of the most distinguished mathematicians and writers of the 18th c. He was the illegitimate son of Madame de Tencin, a woman of considerable notoriety in the time of the Regency, and of a M. Destouches. He was exposed by his mother on the steps of the church of St. Jean le-Rond, and the policeman who found him committed the seemingly dying infant to the care of the wife of a poor glazier, thinking it too weak to be taken to the depôt. The father, without publicly avowing the child, secured to him an allowance of 1,200 francs yearly. At the age of twelve, he entered the College Mazarin, where he soon gave indication of the passion for mathematical studies which distinguished him through life. On leaving college, he returned to the humble home of his kind foster-mother, where he continued to live and pursue his favorite studies for nearly forty years, sharing with her household his small revenue. Although the good woman loved him as a son, so little did she encourage his exclusive devotion to science, that when he spoke of his discoveries or writings, she replied with a sort of pity: 'You will never be anything but a philosopher; and what is a philosopher, but a fool who torments himself during his life, that people may talk about him when he is dead.' At first, his friends urged him to qualify himself for some profitable career; but after trying for a time the study of law, and then of medicine, he gave up the attempt as hopeless, and abandoned himself without reserve to his passion for science. In 1741, at the age of 23, he was admitted a member of the Academy of Sciences, having already attracted attention by several physico-mathematical tracts. Two years later appeared his *Treatise on Dynamics*, founded on a new and fertile principle which makes an epoch in mechanical philosophy. 'This principle consists,' says Condorcet, 'in establishing the equality, at every instant, between the changes which the motion of the body has undergone, and the forces which have been employed to produce them;' in other words, it reduces all the laws of motion to the consideration of Equilibrium. Among the more important of his other scientific works are: his *Theory of the Winds*, which gained the prize of the Academy of Berlin, 1746, and contains the first conception and use of the Calculus of Partial Differences; a treatise on the *Precession of the Equinoxes*, 1749, giving for the first time an analytical solution of that phenomenon, as well as of the nutation of the earth's axis; *Essay on the Resistance of Fluids*, 1752; *Researches on some Important Points in the System of the Universe*, 1754 and 1756. His *Mathematical Opuscles* contain an immense number of memoirs, some on new subjects, some containing developments of his previous works.

But A. did not confine himself to physical science. Diderot (q.v.) having conceived the idea of the famous *Encyclopédie*, enlisted the services of A., who wrote the *Preliminary Discourse*, which is allowed by all to be a noble tribute to literature and philosophy—a model of lucid and

## ALEMBIC.

eloquent exposition, combining an immense extent of knowledge with rare judgment. Besides numerous articles in the *Encyclopédie*, he published *Elements of Philosophy*, 1759; *Mélanges of Literature and Philosophy*; *The Destruction of the Jesuits*, etc. He also wrote a great many *éloges* of members of the Academy of Sciences, of which he was elected sec. 1772. His literary works have been published in a collected form, new edition, by Bossange (Paris, 1821, 5 vols. 8vo). This edition contains the correspondence of A. with Voltaire and the king of Prussia. His scientific works have never been collected.

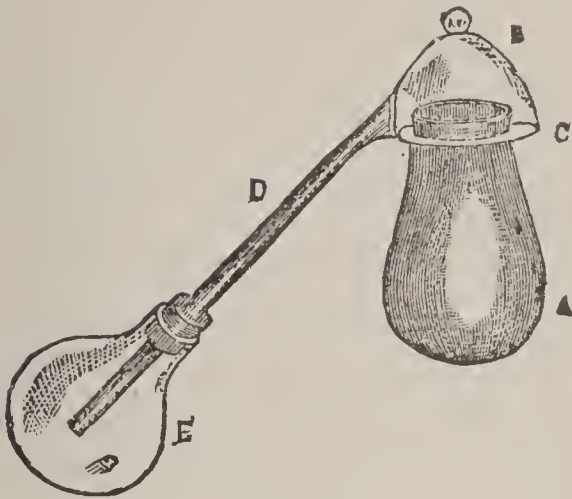
A. gave striking proof of how little he regarded riches and distinctions, or the flatteries of the great, and how genuine was his independence. Frederick II. of Prussia offered him the presidency of the Academy of Berlin, 1752, but he declined to leave France, and only accepted a subsequent offer of a pension of 1,200 francs. The king of France granted him a similar sum. In 1762, Catharine II. of Russia invited him, through her ambassador, to undertake the education of her son, with a salary of 100,000 francs; and when he declined, she wrote him a letter with her own hand, urging that to refuse to contribute to the education of a whole nation was inconsistent with his own principles: and inviting him, if he could not reconcile himself to the breaking-off of his pursuits and friendships, to bring all his friends with him, and she would provide both for them and for him everything they could desire. But A. remained steadfast. When the Grand Duke afterwards visited Paris, he good-humoredly reproached A. with his refusal; and to the excuse of the rigor of the climate and feeble health, the prince replied, with the compliment: 'In truth, monsieur, it is the only false calculation you have made in your life.' A. was never married. He was tenderly attached for many years to a Mademoiselle Espinasse, although their intimacy, it is believed, never went beyond a warm friendship. The death of the lady was a severe blow to A. His own health began to give way; for he was suffering from the stone, and would not consent to an operation. He d. 1783, Oct. 29.

A. was truthful, frank, and benevolent. He held it as a principle of morals that a man has no right to dispose at will of his own superfluous means while there are others in want of the necessaries of life. A stigma has attached to the name of A. from his intimate association with Voltaire and other assailants of Christianity; but A. in his published writings never denied the Christian revelation. From his private correspondence it is gathered that his opinions favored a simple theism.

ALEMBIC, n. *ă-lēm'bīk* [Ar. *al, the; anbiq*, a chemical vessel in the shape of a gourd: Sp. *alambique*: Gr. *ambiks*, a cup, a goblet]: a gourd-like vessel with a lid for distilling; a chemist's retort—now obsolete. It was a form of still introduced into chemistry by the alchemists, and used by ancient experimenters in manipulative chemistry for the distillation and sublimation of substances, such as alcohol, or formic acid obtained by heating a decoction of red ants

## ALEMTEJO—ALENÇON.

in water. The vessel consisted of a *body*, *cucurbit*, or *matrass*



Alembic.

(A), in which the material to be volatilized was placed; a *head* or *capital* (B) into which the vapors rose, were cooled, and then trickled down to the lower part (C), whence by a *pipe* (D) the distilled product passed into the *receiver* (E). Where very volatile liquids were being distilled, it was customary to introduce the receiver (E) into a vessel with cold water, so as to

increase the perfectness of the condensing part of the arrangement. The A. has now been entirely superseded by the retort and receiver or by the flask attached to a Liebig's condenser. See RETORT.

**ALEMTEJO**, *â-lêng-tā'zho*: province in the s. of Portugal; 9,388 sq. m. It is partly washed by the Atlantic on the w., and stretches to the Spanish frontier on the e. It is traversed by a number of mountain-chains, and is watered by the Tagus, Guadiana, and Saado or Sado. In the s. and w. the climate is hot and dry; the plains are covered with brown heath, unrelieved by a tree or a shrub, and only broken at intervals by marshy wastes, while the vegetation is extremely scanty. In the e. the valleys are fertile, and the mountains adorned with forests. The productions are singularly abundant. They consist of wheat, barley, rice, maize, the vine, and a variety of choice fruits—such as the citron, the lemon, the fig, the pomegranate. In the valleys, the principal trees are the oak with edible fruits, the evergreen-oak, the cork-oak, the chestnut, and the pine; in the plains, lavender, rosemary, juniper, myrtle. The pasturage is extraordinarily fine. Great attention is given to the rearing of swine, goats, and sheep, and in a less degree, of horned cattle, asses, and mules. As the population is sparse, more grain is produced than is consumed; but manufactures are backward. Even mining, which might be very profitable, is neglected. Chief towns are Evora (the cap.), Elvas, Portalegre, Beja, Estremoz, and Mertola. Pop. (1900) 413,531.

**ALENÇON**, *â-lôn-sôn'*: chief town of the dept. of Orne, France; on the Sarthe, lat. 48° 25' n., and long. 0° 5½' e. The town-church—a structure of the 16th c., in the Gothic style, contains the remains of the tombs of the A. family, which were almost completely destroyed at the Revolution. It has a fine porch and exquisitely painted windows. A. is a clean and handsome town, with good streets and a delightful public walk. The inhabitants produce excellent woolen and linen stuffs, embroidered fabrics, straw-hats, lace-work, artificial flowers, hosiery, etc. The manufacture

## ALENGTH—ALEPPO.

of A. point lace (*points d'A.*), although still important, is not as extensive as formerly. The cutting of the so-called A. diamonds (quartz-crystals), found in the vicinity of the town, has also greatly declined. Pop. (1893) 16,367.

The old DUKES OF A. were a branch of the royal family of Valois, and were descended from Charles of Valois, who perished at the battle of Crecy in 1346. His grandson, John I., fell at Agincourt in 1415. His successor, John II., allying himself with the enemies of the court, was twice condemned to death, but pardoned. René, son of John II., also excited, not without cause, the suspicion of the French monarch, Louis XI., who confined him for three months in an iron cage at Chinon; but as the parliament had never condemned him, he was released at the death of Louis, and restored by Charles VIII. to his title and estate. René's son, who had married the sister of Francis I., was general of the advance-guard of the French army in the Netherlands. He commanded the left wing at the battle of Pavia, where, instead of supporting the king at a critical moment, he fled with his troops; and to him, therefore, has been attributed both the disastrous defeat sustained by the French, and his sovereign's falling into the hands of the enemy. With him expired the old House of A. The duchy was then given to the Duke of Anjou. Louis XIV. conferred it upon the Duke of Berri, and Louis XVI. on the Count of Provence.

ALENGTH, ad. *ă-lěngth'* [*a*, and *length*]: stretched to the full extent.

ALEPPO, *ă lěp'pō*: town in the n. of Syria, cap. of a Turkish vilayet of the same name, between the Orontes and the Euphrates, on the banks of the little desert stream, Nahr-el-Haleb. It stands in a large hollow, surrounded by rocky hills of limestone. The fruitful gardens, celebrated for their excellent plantations of pistachios, are the sole contrast to the desolation which environs the city, whose numberless cupolas and minarets, clean, well-paved streets, and stately houses, make it even yet one of the most beautiful in the East. It is a telegraphic station in connection with Damascus, and with Diarbekir, on the Indo-European line. Formerly, it supplied a great part of the East with fabrics of silk, cotton, and wool, and gold and silver stuffs; but in 1822 an earthquake swallowed up two-thirds of the inhabitants, and transformed the citadel into a heap of ruins. The plague of 1827, the cholera of 1832, and the oppression of the Egyptian government nearly completed its destruction. Under the Egyptian power, however, a new citadel and some other edifices were erected; but scarcely half of the mosques and baths have been rebuilt. The aqueduct is the oldest monument of the town. A. is one of the principal emporiums of the inland commerce of Asia. Its port is Alexandretta or Iskanderoon (q.v.). A. has a large trade in cotton and silk goods, skins, tobacco, wine, and oil, and manufactures cloth which is much admired (silk, cotton, wool; flowered and striped), carpets, cloaks, and soap. Once the centre of Saracenic power, it still retains much of the Arabic character, and its citizens are famed for their manners. Pop. 127,150.

## ALERT—ALESSANDRIA.

**ALERT**, a. *ă-lért'* [F. *alerte*, take care! an alarm: OF *allerte*, alert—from old It. *all'erte*, take care! It. *all'erta*, on the alert]: on one's guard; watchful; sprightly, nimble. **ALERT'NESS**, n. watchfulness; nimbleness.—**SYN.** of 'alert': smart; brisk; nimble; active; vigilant; lively; quick; bright; watchful; prompt; sprightly; agile;—of 'alertness': alacrity; briskness; agility; activity.

**ALESIA**, *a-lé'shĭ-a*: town of ancient Gaul, the siege and capture of which form one of Cæsar's greatest exploits. The Gauls were making a last effort to shake off the Roman yoke; and Vercingetorix, their bravest leader, after several defeats, had shut himself up with 80,000 men in A., there to await the reinforcements which he expected from a general insurrection of the country. The town was on a lofty hill, and well fitted for defense. Cæsar, with his army of 60,000 men, completely surrounded the place, with the view of starving it into a surrender. He fortified his position by two lines of rampart of prodigious extent and strength; one towards the town, for defense against the sallies of the besieged; the other towards the plain, against the expected armies of relief. Before they could assemble, 250,000 strong, he was ready for them; and all their assaults, combined with the desperate efforts of the besieged, were of no avail. A. was obliged to surrender, and Vercingetorix was made prisoner. A. was afterwards a place of some note under the empire, but was destroyed by the Normans in 864. Near the site of the ancient A., w. of Dijon, stands the modern village of Alise or Sainte-Reine.

**ALESSANDRIA**, *ál-ēs-sán'drē-á*: principal fortress and town of the province of the same name in the n. of Italy; in a marshy country, near the confluence of the Bormida and Tanaro. It was built in 1168 by the inhabitants of Cremona, Milan, and Placentia, as a bulwark against the emperor Frederick I. Its original name was Cæsarea, but it was afterwards called A. in honor of Pope Alexander III., who established a bishopric in it. Designed at first as a fortress to guard the passage of the Bormida and Tanaro, and being the central point of intercourse between Genoa, Milan, and Turin, the town has frequently been the object of sanguinary strife. It was taken and plundered, 1522, by Duke Sforza; besieged, but without success, by the French, under the Prince of Conti, 1657; and again taken, in spite of an obstinate resistance, by Prince Eugene, 1707. After the prostration of Austria at the battle of Marengo, 1800, Bonaparte concluded an armistice at A. with his enemies, according to which, Upper Italy, as far as the Mincio, was ceded to the French, with twelve fortresses. It was the principal armory of the Piedmontese during the insurrection of the Lombardo-Venetian states in 1848-9, when many new fortifications were added to it. At present, the citadel is one of the strongest fortresses in Europe; of enormous size, larger, it is said, than many a town, and in the event of a war in Italy, the whole surrounding country can be inundated by means of the sluices of the Tanaro. A. has considerable trade in linens, woollens, silk fabrics, stockings, hats, etc.,

## ALESSANDRIA DELLA ROCCA—ALEWIFE.

and there is much culture of flowers. Two fairs are held in A. annually, and are largely frequented. Pop. exclusive of the garrison (1894) 74,700; (1901) 71,298.

ALESSANDRIA DELLA ROCCA, *-děl'lá rôkk'á*: town of Sicily, province of Girgenti; 17 m. n. by w. from Girgenti, picturesquely situated in a mountainous district. Pop. 6,000.

ALETHIOLOGY, n. *ă-lē'thī-ōl'ō-jī* [Gr. *alēthēs*, true, *logos*, word, doctrine]: doctrine or principle of truth.

ALETHOPTERIS, n. *ăl'ē-thōp'tēr-īs* [Gr. *alēthos*, truly; *ptēris*, fern]: a genus of fossil ferns abounding in the lower coal-formations.

ALEURONE, n. *ă-lū'rōn*, also ALEU'RINE, n. *-rīn* [Gr. *aleuron*, flour or meal]: microscopic rounded granules in seed-cells, not colorable by iodine; formed from protoplasm, to which they return when the seed germinates.

ALEUTIAN ISLANDS, *ă-lū'shī-ăn-*, or the CATHERINE ARCHIPELAGO: a group of islands, numbering above 150, and consisting of several clusters, which now belong to the United States, and form an insular continuation of the N. American peninsula of Alaska (q.v.), in the shape of an arch or bridge between North America and Asia; 55° n. lat., separating the Sea of Kamtchatka from the Pacific. They naturally subdivide themselves into five groups: 1. the Komandorski Islands, sometimes not regarded as belonging to the A. I.; 2. the Sasignan, or 'Nearest' Islands; 3. the Rat Islands; 4. the Andreianowsky, which are very small and little frequented; 5. the Fox Islands; among which is Unimak, the largest in the archipelago. The islands are all craggy, and have a desolate appearance from the sea. They exhibit traces of violent internal commotion. Several volcanoes are still periodically active; and warm volcanic springs are numerous. The whole chain or group forms a connecting-link between the volcanic range of the w. coast of America and Kamtchatka. On account of the numerous rocks off their shores, they are not very accessible to ships. Under a climate which exchanges only for a short time the monotonous rigor of winter for a cloudy spring and a hot summer, little can be expected of so niggardly a soil. There are plenty of low scrubby bushes, grasses, moss, and lichens, but no strong and stately growth of trees. An experiment tried at Unalaska of planting pines had very little success. Here and there, however, European kitchen-gardens have been attempted with better results; and the cultivation of the potato has likewise succeeded. The islands abound in springs, and are overrun with foxes, dogs, and reindeer, while the coasts swarm with fish, seals, and otters. The natives (*Aleuts*), formerly numerous, now number not more than 3,000: they are variously regarded as of Asiatic or American origin. Their occupation is hunting and fishing. Their trade is chiefly in furs and fish, of which the principal *entrepôt* is Alexandria, in the island of Rojak.

ALEWIFE (*Alosa tyrannus*): a fish of the same genus with the Shad (q.v.) which, in the end of spring and begin-



## ALEXANDER I—ALEXANDER II.

ning of summer, appears in great numbers on the e. coast of North America, and enters the mouth of rivers to spawn. It appears in Chesapeake Bay in March, on the coasts of New York and New England in April, and on those of the British provinces about May 1. It abounds in the Bay of Fundy, but is more rare in the Gulf of St. Lawrence; and the Bay of Miramichi appears to be its n. limit. It ascends rivers only as far as the tide extends, and after spawning, returns to the sea in the middle of summer. It prefers a soft, muddy bottom. Its length is not more than 12 inches. The A. is called *Spring Herring* in some places, and *gaspeau* by the French Canadians. It is inferior to the herring, yet it is a valuable fish. The fishery is prosecuted in the rivers, by small-meshed seine-nets set across the stream. Large quantities are taken in the rivers of New England, New Brunswick, and Nova Scotia. The harbor of St. John's, New Brunswick, alone produces from 12,000 to 20,000 barrels annually. This fish, salted, forms a considerable article of export from the n. parts of America to the West Indies.

ALEXANDER I., King of Scotland: younger son of Malcolm Ceanmor, succeeded his brother, Edgar, 1107, and amidst incessant disturbances, governed Scotland for seventeen years with great ability; d. Stirling, 1124. Through his mother, Margaret of England, he had the advantage of mental cultivation. He quelled several formidable insurrections. His determined resistance to the pretensions of the English hierarchy secured the independence of the Scottish Church, while his liberal patronage of the monasteries promoted the strength of the church at home. In 1123 he founded the Abbey of Inchcolm.

ALEXANDER II. King of Scotland: 1198-1249; succeeded his father, William the Lion, 1214; reigned 34 years. He early evinced that wisdom and strength of character, in virtue of which he holds so high a place in history among Scottish kings. The first act of his reign was to enter into a league with the English barons who had combined to resist the tyranny of King John. This drew down upon him and his kingdom the papal excommunication; but two years subsequently (1218), the ban was removed, and the liberties of the Scottish Church were even confirmed. On the accession of Henry III. to the English throne A. brought the feuds of the two nations to a temporary close by a treaty of peace (1217), in accordance with which he married Henry's eldest sister, the princess Joan (1221). The alliance thus established was broken after the death, without issue, of Queen Joan (1238), and the second marriage of A. with the daughter of a nobleman of France. In 1244 Henry marched against Scotland, to compel A.'s homage. In this emergency the Scottish king received the steady support of the barons, whose ordinary policy was opposition to the crown, and is said, in a short time, to have found himself at the head of 100,000 foot and 1,000 horse. A peace was concluded without an appeal to arms. While engaged in one of those warlike expeditions which the turbulence of his

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subjects so frequently rendered necessary, A. died of fever at Kerrera, a small island opposite Oban, on the w. coast of Argyleshire.

ALEXANDER III. King of Scotland: 1241–85; succeeded his father, Alexander II., at the age of eight; and, two years later, 1251, he married the princess Margaret, eldest daughter of Henry III. of England. The tender age of the sovereign enabled Henry to prosecute successfully for some time his schemes for obtaining entire control over the Scottish kingdom; but long before he reached manhood, A. showed an energy and wisdom which indicated that the attempt to reduce him to submission would be vain. Very shortly after he had come of age he was summoned to the defense of his kingdom against the formidable invasion of Haco, king of Norway (1263), who claimed the sovereignty of the Western Isles. In attempting a landing at Largs, on the coast of Ayr, the Norwegian prince sustained a total defeat; and A., as the result of the important victory, secured the allegiance both of the Hebrides and of the Isle of Man. The alliance between Scotland and Norway was strengthened in 1282 by the marriage of A.'s only daughter, Margaret, to Eric, king of Norway. This princess died in the following year, leaving an infant daughter, Margaret, commonly designated the Maiden of Norway, whose untimely death, on her way to take possession of her throne, was the occasion of so many calamities to Scotland. During the concluding years of A.'s reign, the kingdom enjoyed a peace and prosperity which it did not taste again for many generations. The justice, liberality, and wisdom of the king endeared his memory to his subjects, while the misfortunes that followed his death heightened the national sense of his loss. His only son, A., who had married the daughter of Guy, Count of Flanders, died without issue, 1284. A. contracted a second marriage in 1285 with Joleta, daughter of Count de Dreux. The hopes of the nation were soon after clouded by his untimely death. Riding on a dark night between Burntisland and Kinghorn, he fell with his horse over a precipice, and was killed on the spot.

ALEXANDER VI. (BORGIA), Pope: 1430–1503; b. Valencia, Spain; the most celebrated of the eight popes (see POPES) of his name, also the most infamous one that ever lived, and the most vicious prince of his age (reigned 1492–1503). His most conspicuous qualities were a cunning and insidious cruelty, united with great fearlessness in danger, an unwearied perseverance and vigilance in all his undertakings, a soft and plausible manner towards his inferiors, a harsh and grasping spirit towards the rich. In spite of his talents and his love of art and science, he disdained, throughout his dissolute career, no means of gratifying his lust—not even perjury, murder, and poisoning. His own name was Rodrigo Lenzuoli, but he assumed the ancient and famous name of his mother's family, Borgia. He had five children by Rosa Vanozza, a woman celebrated for her beauty, two of whom equalled himself in criminality, Cæsar and Lucretia. See BORGIA. A. was made a cardinal by his

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uncle Calixtus III., and on the death of Innocent VIII. was elevated to the papal chair, which he had previously secured by flagrant bribery. The long absence of the popes from Italy had weakened their authority and curtailed their revenues. To compensate for this loss, A. endeavored to break the power of the Italian princes, and to appropriate their possessions for the benefit of his own family. To gain this end, he employed the most execrable means. He died from having partaken, by accident, as is commonly believed, of poisoned wine intended for his guests. Under his pontificate the censorship of books was introduced, and Savonarola, the earnest and eloquent Florentine priest, who had advocated his deposition, was condemned to be burned as a heretic.

ALEXANDER I. (PAULOVITCH), Emperor and Autocrat of All the Russias: b. 1777, Dec. 23; d. 1825, Dec. 1 (reigned 1801-25). His education, in which his father, Paul I., had no hand, was conducted by his grandmother, Catharine II., and Col. Laharpe and other tutors. He always showed great affection for his mother, Maria, daughter of Eugene, Duke of Würtemberg. With a humane and benevolent disposition, the 'northern Telemaque' was imbued by Laharpe with the enlightened principles of the age. Professor Kraft instructed him in experimental physics, and Pallas in botany. It was thought better not to devote his attention to poetry and music, as it would have required too much time to make any great acquirements. In 1793 he married Elizabeth, daughter of Karl Ludwig, crown prince of Baden, and, on the assassination of his father Paul (q.v.), 1801, March 24, succeeded him upon the throne. Although A. doubtless knew of the conspiracy to dethrone his father, there is no reason to believe that he contemplated the crime of murder. His accession was celebrated by Klopstock in an ode, *To Humanity*, indicative of the high expectations formed of him. The young ruler seemed deeply penetrated with a sense of his obligation to make his people happy and to promote their civilization and prosperity. He was the first to lay the foundation of the national culture and popular instruction on a regular plan, to introduce organization into the internal administration, unshackle the industry of the nation, raise the foreign commerce of Russia, and awaken in the people a feeling of unity and a spirit of patriotism.

Among the improvements effected by A., his exertions on behalf of the language, literature, and general culture of the Slavonic nations deserve special notice. Seven universities, at Dorpat, Kasan, Charkow, Moscow, Wilna, Warsaw, and St. Petersburg, were either instituted or remodelled by him; 204 gymnasiums and normal schools, and above 2,000 district elementary schools, were erected; and fresh life and activity given to the higher scientific institutions in St. Petersburg and Moscow. He did more than any other sovereign in Europe for the spread of the Bible, by supporting the Bible Society (suppressed, however, in 1826); and in 1820 he had a bishop instituted for the evangelical Lutheran Church, and a general consistory in St. Petersburg

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for the whole empire. He applied large sums to the printing of important works, such as Krusenstern's *Travels* and Karamsin's *History of Russia*, and prized and rewarded scientific merit both at home and abroad. Several scientific collections were purchased by him, and in 1818 he invited two orientalists, Demange and Charmoy, from Paris to St. Petersburg, to promote the study of the Arabic, Armenian, Persian, and Turkish languages. Young men of talent were sent to travel at his expense. By the ukase of 1816 he prepared the way for the abolition of slavery in the Baltic provinces; he also declared that no more gifts of peasants would be made on the crown-lands. As early as 1801 he had abolished the secret tribunal which is said to have extorted confession from political offenders by means of hunger and thirst. The practice of slitting the nose and branding, which had been customary in connection with knouting, was also done away with. Laws were enacted to prevent the abuses of power by governors. The privilege of the nobles, that their inherited property could not be confiscated as a punishment, was raised by him to a common right for all subjects; and much was done in composing a code of civil law. He promoted the manufactures and trade of the empire by amending the laws regarding debt and mortgages, and by the institution of an imperial bank, the construction of roads and canals, making Odessa a free port, and above all, by the ukase of 1818, permitting all peasants in the empire to carry on manufactures, which was before only allowed to nobles and to merchants of the first and second guilds.

A.'s far-sighted policy with regard to the foreign commerce of Russia is shown in various expeditions round the world sent out by him; in the embassy to Persia in 1817, in which was the Frenchman Gradanne, who was acquainted with all the plans of Napoleon respecting India and Persia; in the missions to Cochin China and to Khiva; in the treaties with the United States, Brazil, and Spain; in the naval and commercial treaties with the Porte; and in the settlement on the n. w. coast of America.

A.'s foreign policy was characterized at the outset by a desire for peace; in 1801 he concluded a convention, putting an end to hostilities with England, and made peace with France and Spain. He next entered, with France, into negotiations respecting the indemnification of the minor states in Germany and Italy, but soon discovered how little the French ruler intended any real compensation. As Bonaparte encroached more and more, took possession of Hanover, and annihilated Holland, A. broke with France, and joined the coalition of 1805. He was present at the battle of Austerlitz, when the allied armies of Austria and Russia were defeated, and retired with the remains of his forces into Russia, declining to enter into the treaty that followed. Next year he came forward as the ally of Prussia; but after the disastrous battles of Eylau and Friedland, 1807, he was compelled to conclude the peace of Tilsit, in which he managed to prevent the restoration of the kingdom of Poland, and to mitigate the hard fate of the king of Prussia.

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During the war with France, A. had also to carry on hostilities with Persia and with Turkey.

Dazzled by the fortune and genius of Napoleon, A., in pursuance of the stipulations of Tilsit, acceded with his huge empire to the French continental system, thus altering entirely the foreign policy of Russia. He began by declaring war on England in 1808, and attacking her ally Sweden, wrested from that country, by the peace of Friedrichshamm (1809), the province of Finland. On the other hand, the Russian fleet sent to the aid of the French at Lisbon, fell into the hands of the British. In the autumn of 1808, the two great potentates held a meeting at Erfurt, attended with great splendor, at which A. represented, as it were, the empire of the east of Europe, while Napoleon assumed the dominion of the west. In the war of France against Austria in 1809, A. took only a lukewarm part, although at the peace of Vienna he received the circle of Tarnopol as his share of the spoil of Galicia. Against the Porte, which had not observed the armistice of Slobosta, he renewed the war, which was continued till the peace of Bucharest, in 1812.

The alliance, however, of A. with the Corsican conqueror involved such an inconsistency, and was so contrary to the real interests of Russia, that a rupture and a complete change of the Russian policy were inevitable. The pressure of the continental system on the material resources of Russia, the despotic changes made by Napoleon, the augmentation of the duchy of Warsaw, the proffers of alliance by England and Sweden, awoke in A. first discontent and aversion, and soon the thought of a decisive contest against the subjugator of Europe and the disturber of the peace of the world. When this gigantic struggle at last began (1812), Russia brought into the field an army of nearly 900,000 men. During this war (see *RUSO-GERMAN WAR*), A. repeatedly exposed himself to personal danger, in order to fire the courage and patriotism of his troops. His magnanimity towards France after the taking of Paris facilitated the negotiations for peace, and won for him great personal regard, amounting to a kind of enthusiasm. He was received with the same feeling in London, which he visited after the treaty of Paris, June, 1814. When he returned to St. Petersburg, his first care was to provide for the wounded and for the families of the soldiers that had fallen. The senate wished to give him the title of 'Blessed,' which, from Christian humility, he declined. After a short residence in his own capital, he went to the Congress of Vienna, where he laid claim to Poland as essential to the interests of Russia, but promised to confer on it a constitution, and, on the whole, appeared to act for the good of humanity and the freedom of nations.

In the return of Napoleon, A. saw the confusion of Europe begun again, and therefore urged the fulfilment of the treaty of Chaumont and the outlawry of the common enemy. His appearance in the French capital after the battle of Waterloo raised less enthusiasm than previously; yet on this occasion, too, France owed much to his

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generosity. It was about this time that the tendency of A. to pietism, fostered by intercourse with Madame Krüdener (q.v.), was most strongly manifested, and exercised decided influence on his political views. It was under the influence of this reïgiosity that he founded the Holy Alliance (q.v.), the ostensible object of which was to bring the principles of Christianity into recognition in the political arrangements of the world, but which became, in fact, a mere handle for political reaction.

In the end of Oct. 1815, A. returned to his own dominions. His policy, and the march of events, had completely changed the internal condition of Russia and her foreign relations. Her weight in European politics had become powerful; the limits of the empire had extended in all directions; and notwithstanding the war, the earlier legislative reforms had begun to act favorably on the industry and well-being of the nation. After 1805, A. had remodelled the army after the fashion of the western powers, and raised it to a condition that menaced Europe. When peace was attained, he not only sought to heal the wounds inflicted by the war, but to carry forward the work of reform formerly begun. Numerous administrative abuses were done away with, and the condition of the peasants was more and more alleviated. In 1816, the Jesuits, who were causing a great deal of disturbance, were compelled to leave St. Petersburg and Moscow, and in 1820 were sent out of the empire. On the other hand, proselytism was rigidly prohibited, and the Duchoborzes, a sect of the Russo-Greek Church, were allowed the free exercise of worship.

But however good A.'s intentions might be, his internal policy met with obstructions, partly arising from his personal views and character, partly from the nature of his position. Affected with a morbid religiosity, worn out and shaken perhaps in body and mind by the vast events in the vortex of which he had moved for the last ten years, the emperor became possessed by the dread of another European revolution; and the political struggles against reaction in Germany, and the outbreaks against despotism in Italy and Spain, appeared to him as the beginning of a new and terrible catastrophe. The attention now bestowed by A. on foreign relations threw internal improvements into the background; and the liberal reformer and pupil of Laharpe found himself involved in hopeless inconsistency, when he fully concurred in the policy of the Austrian cabinet, and, at the congresses of Troppau, Laybach, and Verona, helped to crush, together with the insurrections, the just requirements and political progress of the nations.

This complete reversal of policy could not fail of great results, especially as Russia peculiarly abounded in fermentable materials. Poland saw itself completely disappointed in its national expectations, and required the actual carrying out of the promised constitution. The contact into which the Russians had come during the war with the civilization and institutions of the western nations had excited in different classes of Russian society wishes and views by no means compatible with their condition at home. On the other

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and, there had long existed in the most influential circles an Old-Russian party, who either found their interests hurt by the enlightened measures of the emperor, or saw in them the downfall of the national church, and of the nation itself. Besides, the army was kept up on the war-footing, and in 1821 numbered about 830,000 regular troops; and this pressed severely on the people, and produced discontent, along with exhaustion and disorder of the finances. To meet this evil, A. began the planting of military colonies, which, however, met with insuperable obstacles, and did not attain the end in view. But to exorcise the spirit of political discontent and the phantom of a Russian revolution, the emperor adopted the same measures generally applied over the rest of Europe, with similar views. The censorship of the press, and a rigid guard over the importation of books, were again introduced; restrictions were put on science, literature, and education; inquiries instituted into all democratic movements; masonic lodges and missionary societies suppressed; and gradually all plans for reform and progress given up. Over all the provinces of the empire a net of police, open and secret, was spread, which interfered with the ordinary intercourse of society.

The experience that, in spite of this system of repression, public opinion could not be stifled, and that parties and individuals only expressed themselves more bitterly; the variance with his former self in which A. found himself involved; and the difficulties of governing the huge empire, which were now becoming more manifest and startling—all this tormented and embittered his morbid mind, and led him to complain of ingratitude and of a want of recognition of his good intentions. Sometimes he sought to forget his position in the dissipations of a splendid court, in which luxury and piety were strangely blended; at other times he plunged into the darkness of religious mysticism. The progress of the revolt in Greece brought the policy of the emperor into complete opposition to public opinion and the most sacred sympathies of the nation. The Russian people, restrained from all participation in political movements, were profoundly affected by the religious element of the Greek struggle; but the emperor condemned the rising as insurrection, disclaimed the favor he had formerly shown to the Greek cause, and confined himself to exhortations to the Porte to act with humanity. The death of his only and much-loved natural daughter, the terrible inundation suffered by St. Petersburg in 1824, in which he exposed himself to personal danger, and the alarm caused by a Russo-Polish conspiracy against all the members of the House of Romanow, contributed not a little to break the heart of the emperor, and completely destroy the composure of his mind. Sick in body, weary of life, and possessed by thoughts of death, he began, 1825, Sep., a journey to the Crimea, with a view to benefit the health of the empress, who was ailing, and that he himself might enjoy retirement. Leaving the empress at Taganrog, he continued his journey, but was suddenly seized by a fever peculiar to the country, and obliged to return to Taganrog. Here, in spite of all

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care, he became worse, and died. The rumor that he had been poisoned is altogether groundless. He is said to have learned, shortly before his death, the details of the conspiracy which his brother and successor, Nicholas I. (q.v.), had to begin his reign by putting down.—See Choiseul-Gouffier's *Mémoires Historiques sur l'Empereur Alexandre et la Cour de Russie* (Par. 1829); and *Alexander I.: His Life and Times*, by C. Joyneville (Lond. 1875).

ALEXANDER II., Emperor of Russia: b. 1818, Apr. 29; d. 1881, March 13; (reigned 1855–81). He was carefully educated by his father, Nicholas, who professed himself delighted with the manifestations of 'true Russian spirit' in his son. At sixteen, he was declared of age, made commandant of the Lancers of the Guard, Hetman of the Cossacks, first aide-de-camp of the emperor, and subjected daily to a life of maneuvering, reviewing, and military parade, which at last seriously injured his health. He then travelled through Germany to recruit his energies, and while there, concluded a marriage with the princess Maria, daughter of the Grand Duke of Darmstadt, 1841. He then vigorously applied himself to his duties as chancellor of the Univ. of Finland. By his dexterous and subtle manners, he insinuated himself into the affections of the Finns, and weakened their love of independence. On his accession to the throne, 1855, March 2, he found himself in a very critical position. He had two parties to conciliate—the old Muscovite party, zealous for war, and the more peaceable portion of the nation, with whom he sympathized. Throughout his reign, he had to hold the balance between conservatives and extreme radicals, but succeeded in guiding and promoting reform. The grand achievement of his reign, which was in great measure his own deed, was the emancipation of the serfs—23,000,000 souls, 1861. Reforms of the tribunals, of civil and criminal procedure, and of municipal institutions followed. In 1865, A. established elective representative assemblies in the provinces. He resisted strenuously all foreign interference with Polish affairs in 1863. There was war in Central Asia repeatedly, and the Russian dominions were much extended in that region. The czar shared the national sympathy with the Slavonic races under Turkish rule, and took the field with the army during the momentous war between Russia and Turkey in 1877–8. Latterly, he showed some tendency to reactionary measures, as in the reorganization of public education. He had been shot at by a Pole in Paris in 1867; but of late years, revolutionary discontent has been much on the increase in Russia, and persistent attempts were made to assassinate the czar, especially by members of the Nihilist Society. See Nihilism. In 1879, he was shot at in his capital; in the same year, the train in which he was supposed to be travelling was blown up by an elaborate mine beneath the railway; in 1880, a violent and destructive explosion was effected by dynamite below the imperial apartments in the palace at St. Petersburg; and 1881, March 13, he was so severely injured by a bomb thrown at him as he was passing in his carriage through the street near his palace, that he died a few hours



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afterward. The empress had d. in 1880.—A. was succeeded by his son.

ALEXANDER III. (ALEXANDROVITCH), Emperor and Autocrat of All the Russias: b. 1845; proclaimed emperor, 1881, March 14 (N.S.), the day after the assassination of his father, Alexander II. His coronation was postponed till 1883, and was then celebrated with extraordinary magnificence. A. married, 1866, Nov. 9, Marie Sophie Frederica Dagmar, daughter of Christian IX., king of Denmark. Without signalizing his reign by large domestic reforms, A. conducted the government on the plan of his father, and suffered as did his father from the threats of Nihilists, though, in virtue of precautions, not to the point of assassination. It is in foreign affairs that the reign of Alexander III. was most significant, particularly in its connection with Bulgaria (q.v.). Even more important has been the march of the power of Russia eastward into Central Asia. The building of a complete line of railway from the Caspian Sea to Merv has been prosecuted, and the Russians have pushed their outposts clear to the Afghan frontier. In fact the question of this frontier has been in dispute between the Russian and British governments since 1882, when the latter declared its understanding of the line to be from the Oxus as far as Khoja-Salee to the w., and from that point s.w. to Sarakhs, on the Persian frontier. In 1885, however, this line not having been either accepted or declined on the part of Russia, a joint commission was appointed by the two governments, which endeavored to rectify the disputed frontier. Slight conflicts occurred between the Russians and Afghans while this commission was supposedly engaged in its work, and no definite conclusion was reached, though an agreement to adhere to the military *status quo* was generally adhered to. In 1884, Sep., a meeting occurred at Skierniewice, in Russian Poland, between the emperors of Austria, Germany, and Russia, when, as has been believed, the old Triple Alliance was renewed. In 1894 the czar, in failing health, went to his palace in the Crimea. There, on Nov. 1, he died, leaving the record of a blameless private life and of a ruler who sought peace.

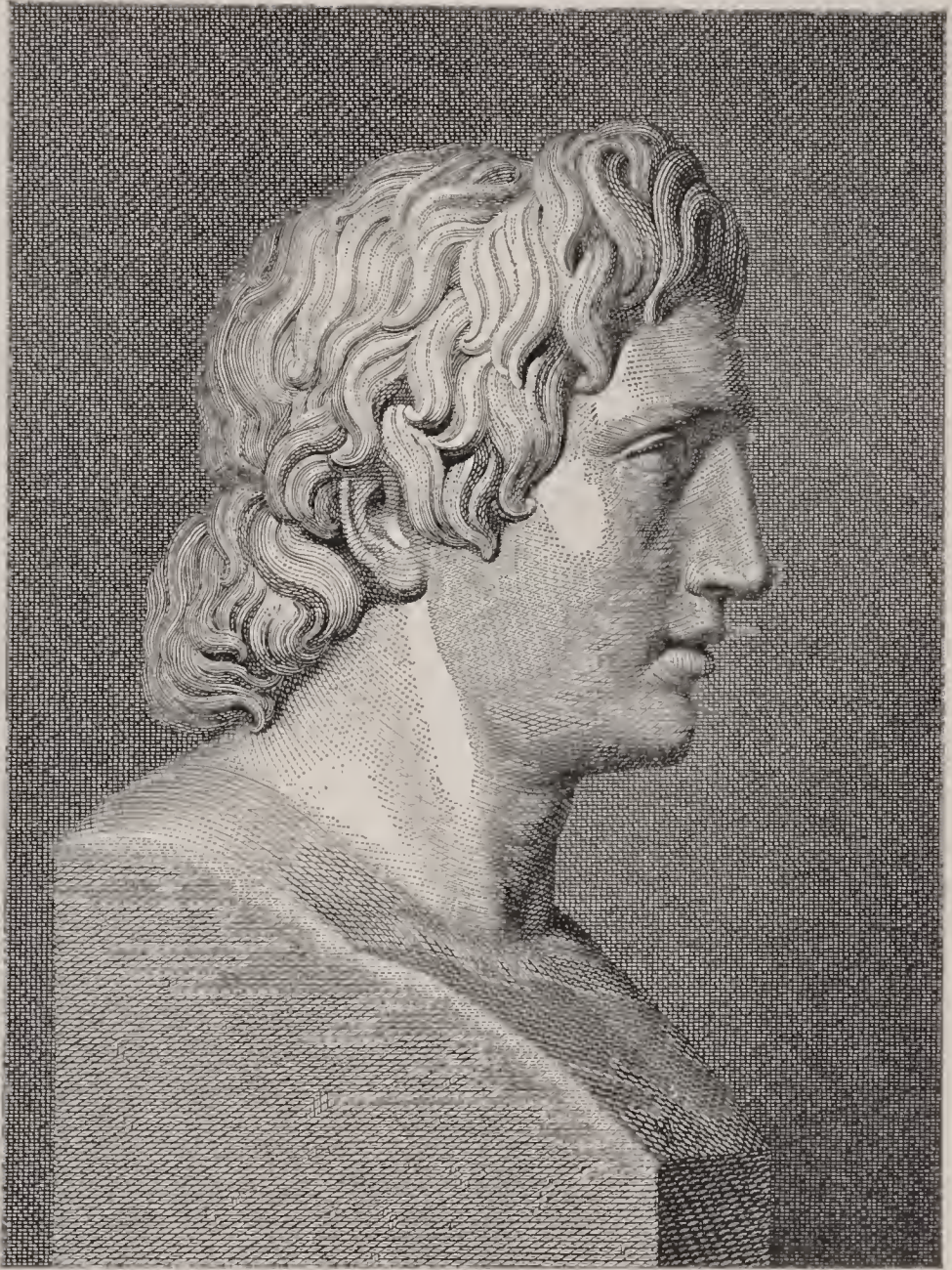
ALEXANDER I., King of Servia: 1876–1903, June 11; son of Milan I., king of Servia, and Nathalie, daughter of Col Keschko of the Russian army. King Milan abdicated the throne, 1889, and proclaimed his son king under a regency; in 1893 Alexander was crowned. In 1900 he married Draga Maschin, lady-in-waiting to his mother. He became unpopular by revoking the constitution of 1888 granting freedom of the press, and by annulling in 1903 the acts of the general assembly under a constitution of his own making; the proposal to make the queen's brother heir to the throne further exasperated the people; the army conspired to put Prince Peter (q.v.) Karageorgevitch, of the Obrenovitch dynasty, on the throne. The king, queen, and several palace officials were assassinated and Peter was proclaimed king. See SERVIA.

ALEXANDER SEVERUS: Roman emperor (reigned 222–235); cousin, adopted son, and successor of Heliogaba-

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lus. The excellent education which he received from his mother, Julia Mammæa, rendered him one of the best princes in an age when virtue was reckoned more dangerous than vice in a monarch. His first expedition, against Artaxerxes, king of Persia, was terminated by a speedy overthrow of the enemy. But during one which he undertook against the Germans on the Rhine, to defend the frontiers of the empire from their incursions, an insurrection broke out among his troops, headed by Maximin, in which A. was murdered, with his mother, not far from Mentz.

ALEXANDER THE GREAT, *äl-ägz-än'dër*: B.C. 356-323; b. Pella; son of Philip of Macedon and Olympias, daughter of Neoptolemus of Epirus. His great natural endowments were early manifested. Philip's triumphs saddened him. On one occasion he exclaimed, 'My father will leave nothing for me to do.' His education was committed first to Leonidas, a maternal relation, then to Lysimachus, and afterwards to Aristotle. The philosopher instructed him in every branch of human learning, especially in what relates to the art of government, while he disciplined and invigorated his body by gymnastic exercises. As Macedon was surrounded by dangerous neighbors, Aristotle was anxious to inspire his pupil with military ardor, and with this view recommended him to study the *Iliad*, a revision of which he himself undertook for his use. A. was 16 years of age when his father marched against Byzantium, and left the government in his hands during his absence. Two years afterwards he displayed singular courage at the battle of Chæronea, B.C. 338, where he overthrew the Sacred Band of the Thebans. Father and son quarrelled when the former repudiated Olympias. A. took part with his mother, and fled, to escape his father's vengeance, to Epirus; but receiving his pardon soon afterwards, he returned, and accompanied him in an expedition against the Triballi, when he saved his life on the field. Philip being appointed generalissimo of the Greeks, was preparing for a war with Persia, when he was assassinated (B.C. 336), and A., not yet 20 years of age, ascended the throne. After punishing his father's murderers, he went into the Peloponnesus, and in a general assembly of the Greeks he caused himself to be appointed to the command of the forces against Persia. On his return to Macedon he found the Illyrians and Triballi up in arms, whereupon he marched against them, forced his way through Thrace, and was everywhere victorious. But now the Thebans had been induced, by a report of his death, to take up arms, and the Athenians, stimulated by the eloquence of Demosthenes, were preparing to join them. To prevent this coalition, A. rapidly marched against Thebes, which, refusing to surrender, was conquered, and razed to the ground; 6,000 of the inhabitants were slain, and 30,000 sold into slavery; house and family of the poet Pindar alone being spared.



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356-323 B. C.

LINE ENGRAVING FROM AN ANTIQUE BUST.

Rome. Joseph Longhi del. Anderloni sculp.



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A., having appointed Antipater his deputy in Europe, now prepared to prosecute the war with Persia. He crossed the Hellespont B.C. 334, in the spring, with 30,000 foot and 5,000 horse; attacked the Persian satraps at the river Granicus, and gained a complete victory, overthrowing the son-in-law of Darius with his own lance. The only real resistance the Macedonians met with was from the Greek auxiliaries of the Persians, who were marshalled in phalanxes, under the command of Memnon of Rhodes; but finally they all were slain, except 2,000 taken prisoners. A. celebrated the obsequies of his fallen warriors in a splendid manner, and bestowed many privileges on their relations. Most of the cities of Asia Minor, Sardis not excepted, opened their gates to the conqueror, nor did Miletus or Halicarnassus offer longer resistance. A. restored democracy in all the Greek cities, cut the Gordian-knot (q.v.) with his sword as he passed through Gordium, and proceeded to the conquest of Lycia, Ionia, Caria, Pamphylia, and Cappadocia. His career was checked for a time by a dangerous illness, brought on by bathing in the Cydnus. On this occasion he showed his magnanimity in the following circumstances. He received a letter from Parmenio, insinuating that Philip, his physician, intended to poison him, having been bribed by Darius. A. handed the letter to Philip, and at the same time swallowed the draught which had been prepared for him. As soon as he recovered, he advanced towards the defiles of Cilicia, in which Darius had stationed himself, with an army of above 500,000 men. He arrived B.C. 333, Nov., in the neighborhood of Issus, where, between the mountains and the sea, a battle was fought. The disorderly masses of the Persians were thrown into confusion by the charge of the Macedonians, and fled in terror. On the left wing, 30,000 Greeks, in the pay of the Persian king, held out longer, but they too were at length compelled to yield. All the treasures as well as the family of Darius fell into the hands of the conqueror, who treated the latter with the greatest magnanimity. The king, who fled towards the Euphrates, twice made overtures of peace, which A. haughtily refused, saying that Darius must regard him as the ruler of Asia, and the lord of all his people. One of the conditions of the second overture was that A. should possess all Asia to the Euphrates. On hearing which his general, Parmenio, exclaimed: 'I would do it, if I were A.' 'So would I,' replied the monarch, 'if I were Parmenio.' The victory at Issus opened the whole country to the Macedonians. A. now turned towards Syria and Phœnicia, to cut off Darius's escape by sea. He occupied Damascus, where he found princely treasures, and secured to himself all the cities along the shores of the Mediterranean. Tyre, confident in its strong position, resisted him, but was conquered and destroyed, after seven months of incredible exertion, B.C. 332. Thence he marched victoriously through Palestine, where all the cities submitted to him except Gaza, which shared the fate of Tyre. Egypt, weary of the Persian yoke, welcomed him as a deliverer; and, to strengthen his dominion here, he restored all the old

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customs and religious institutions of the country, and founded Alexandria in the beginning of B. C. 331, which became one of the first cities of ancient times. Thence he marched through the Libyan Desert, in order to consult the oracle of Jupiter Ammon, whose priest saluted him as a son of Jove; and at the return of spring went against Darius, who had assembled an army in Assyria. A battle ensued, B. C. 331, Oct., on the plains of Arbela, or rather Guagamela, for Arbela, the point to which A. pursued the Persians, is 50 m. from the scene of the fight. See ARBELA. Notwithstanding the immense superiority of his adversary, who had collected a new army of 500,000 men, A. was not for a moment doubtful of victory. Heading the cavalry himself, he rushed on the Persians, and put them to flight; but as soon as he had entirely dispersed them, he hastened to the assistance of his left wing, which, in the meanwhile, had been sorely pressed. He was anxious to make a prisoner of the Persian king himself, but the latter escaped by flight on horseback, leaving his baggage and all his treasures a prey to the conqueror. Babylon and Susa, the storehouses of the treasures of the East, opened their gates to the conqueror, who next marched towards Persepolis, the capital of Persia, which he entered in triumph.

The marvellous successes of A. now began to dazzle his own judgment, and to inflame his passions. He became a slave to debauchery, and his caprices were as cruel as they were ungrateful. In a fit of drunkenness, and at the instigation of Thais, an Athenian courtesan, he set fire to Persepolis, the wonder of the world, and reduced it to a heap of ashes; then, ashamed of the deed, he set out with his cavalry to pursue Darius. Learning that Bessus, the satrap of Bactriana, held the king a prisoner, he hastened his march, in the hope of saving him, but he found him mortally wounded on the frontiers of that country, B. C. 330. He mourned over his unfortunate enemy, and caused his body to be buried with all the usual rites observed in Persia; but he pursued Bessus, who himself aspired to the throne, through Hyrcania, Iran, Bactriana, over the Oxus to Sogdiana (now Bokhara), whose satrap, Spitamenes, surrendered Bessus to him. Having discovered a conspiracy in which the son of Parmenio was implicated, he put both father and son to death, though Parmenio himself was innocent of all knowledge of the affair. This cruel injustice excited universal displeasure. In 329 he penetrated to the furthest known limits of Northern Asia, and overthrew the Scythians on the banks of the Jaxartes. In the following year he subdued the whole of Sogdiana, and married Roxana, whom he had taken prisoner. She was the daughter of Oxyartes, one of the enemy's captains, and was said to be the most beautiful of the virgins of Asia. A new conspiracy broke out against A., at the head of which were Hermolaus and Callisthenes, a pupil of Aristotle, which occasioned the death of many of the culprits; while Callisthenes himself was mutilated, and carried about in an iron cage through the army, till some one put an end to his sufferings by poison.

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In the year B.C. 327, A. proceeded to the conquest of India, then known only by name. He crossed the Indus near the modern Attock, and pursued his way under the guidance of a native prince to the Hydaspes (modern Jelum), where he was opposed by Porus, another native prince, whom he overthrew after a bloody contest. Thence he marched as lord of the country through that part of India which is now called the Punjab, establishing Greek colonies. He then wished to advance to the Ganges, but the general murmuring of his troops obliged him, at the Hyphasis (modern Sutledge), to commence his retreat, which was accomplished under circumstances of extreme danger. When he had again reached the Hydaspes, he built a fleet, and sent one division of his army in it down the river, while the other followed along the banks, fighting its way through successive Indian armies. At length, having reached the ocean, he ordered Nearchus, the commander of the fleet, to sail thence to the Persian Gulf, while he himself struck inland with one division of his army, in order to return home through Gedrosia (now Beloochistan). Here he had to traverse immense deserts, where a great part of his army perished for want of food and water, and were buried in the sand. The other division marched through Arachosia and Drangiana (Afghanistan) under Craterus, but they united again in Carmania. Of all the troops, however, which had set out with A., only about a fourth part arrived with him in Persia, B.C. 325. At Susa he married Stateira, the daughter of Darius, and he bestowed presents on those Macedonians (about 10,000 in number) who had married Persian women, his design being to unite the two nations as closely as possible. He also distributed liberal rewards among his soldiers. At Opis on the Tigris he declared it to be his intention to send home the invalids richly rewarded; and this he accomplished, but not till he had with some difficulty repressed the mutiny which broke out on the occasion. Soon afterwards he was deprived, by death, of his favorite Hephæstion, on which occasion his grief was unbounded, and he interred the deceased with kingly honors. As he was returning from Eebatana to Babylon, it is said that the Magi foretold that the latter city would prove fatal to him; but A. despised their warnings, and, in spite of the advice of his friends, marched to Babylon, before reaching which, however, he was met by ambassadors from all parts of the world—Libya, Italy, Carthage, Greece, the Scythians, Celts, and Iberians. Here he again occupied himself with gigantic plans for the future, both of conquest and civilization, when he was suddenly taken ill after a banquet, and died eleven days afterwards, B.C. 323, May (or June) 11 (or 13), in the 32d year of his age, having reigned twelve years and eight months. His body was deposited in a golden coffin at Alexandria, by Ptolemæus, and divine honors were paid to him, not only in Egypt, but in other countries. A. had appointed no heir to his immense dominions; but to the question of his friends: 'Who should inherit them?' he replied: 'The most worthy.' After many disturbances, his generals recognized as kings the weak.

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minded Aridaeus—a son of Philip by Philinna, the dancer—and A.'s posthumous son by Roxana, while they shared the provinces among themselves, under the name of satraps. Perdicas, to whom A. had, on his death-bed, delivered his ring, became guardian of the kings during their minority.

It is but right to observe that A. did something besides shedding blood during his life. He diffused the language and civilization of Greece wherever victory led him, and planted Greek kingdoms in Asia, which continued to exist for some centuries. At the very time of his death he was engaged in devising plans for the drainage of the unhealthy marshes around Babylon, and a better irrigation of the extensive plains. It is even supposed that the fever which he caught there, rather than his famous drinking-bout, was the real cause of his death. To A., the ancient world owed a vast increase of its knowledge in geography, natural history, etc. He taught Europeans the road to India, and gave them the first glimpses of that magnificence and splendor which has dazzled and captivated their imagination for two thousand years.

ALEXANDER, ARCHIBALD, D.D., LL.D.: 1772, Apr. 17—1851, Oct. 22; b. Rockbridge co., Va.; Presb. theologian. He was educated at Lexington Acad., which afterward grew into Washington and Lee Univ. Religious impressions during the 'Great Revival' led him to study for the Christian ministry. He was licensed to preach 1791, and was for some years itinerant preacher in Charlotte and Prince Edward counties. In 1796 he was chosen pres. of Hampden Sydney Coll., Va., and, with an intermission, served in that office until 1807, when he became pastor of the Pine St. Presb. Church, Philadelphia. When Princeton Theol. Seminary was organized 1812, he was elected to the chair of pastoral and polemic theology, and spent the rest of his life in this service, becoming distinguished both as dialectician and as preacher. He died in Princeton. For 21 years, beginning 1829, he contributed constantly to the *Princeton Review*. His *Outlines of the Evidences of Christianity* (1823) was long used as a textbook in colleges, and was translated into foreign languages. Other works are—*Treatise on the Canon of the Old and New Testaments* (1826); *Lives of the Patriarchs* (1835); *Essays on Religious Experience* (1840); *History of African Colonization* (1846); *History of the Log College* (1846); *History of the Israelitish Nation* (1852). The following were among posthumous publications. *Outlines of Moral Science*; *Patriarchal Theology*; and *Church Polity and Discipline*.

ALEXANDER, JAMES WADDELL, D.D.: 1804, Mar. 13—1859, July 31; b. Louisa co., Va.; son of Archibald A.; pastor and educator. He prepared for college in Philadelphia; graduated at Princeton 1820; and from the theol. seminary. After serving as tutor, he was pastor in Charlotte co., Va., 1825–28; and of the First Presb. Church in Trenton, N. J., 1828–30, after which he edited *The Presbyterian* in Philadelphia until 1833, when he was chosen



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prof. of rhetoric and belles lettres at Princeton College. For eleven years from 1833 he was pastor of the Duane St. Presb. Church, New York city; for 7 years from 1844 prof. of eccles. hist. and church govt. in Princeton Theol. Seminary; and from 1851 until his death he ministered to the Fifth Ave. Presb. Church in New York. Among his published works are *Consolation; Thoughts on Family Worship; The American Mechanic and Workingman; Discourses on Christian Faith and Practice; Sacramental Discourses*; and more than 30 vols. for the Amer. Sunday School Union. He was a frequent contributor to theol. reviews.

ALEXANDER, JOSEPH ADDISON, D.D.: 1809, Apr. 4—1860, Jan. 28; b. Philadelphia; son of Archibald A.: Presb. clergyman, linguist, and Biblical commentator. He graduated at Princeton 1826, the first scholar in his class, and founded Edgehill Seminary, in company with R. B. Patton. After serving as adjunct prof. of languages in the college 1830–33, and passing several years in study abroad, he became prof. of oriental languages in Princeton Theol. Seminary 1838, and continued in the service of the seminary until his death. He became a master of the Semitic and kindred languages, as well as those of modern Europe; and thus laid a foundation for his exegetical works, which still retain an honored place in pastoral libraries. Among these are *The Earlier Prophecies of Isaiah* (1846); *The Later Prophecies of Isaiah* (1851); *The Psalms Translated and Explained* (1850); *Commentary on the Acts* (1857); *Commentary on Mark* (1858); *Essays on the Primitive Church* (1851). His posthumously published works include *Commentary on Matthew; Notes on N. Test. Literature* (co-author with Dr. Charles Hodge); and a volume of sermons. He contributed much to the *Princeton Review*, and was an effective preacher. His biography appeared 1869.

ALEXANDER, MRS.: pen-name of ANNIE F. HECTOR (q.v.).

ALEXANDER OF HALES (in Latin, Alexander Halensis): d. 1245: a famous theologian, known as the 'Irrefragable Doctor.' He was originally an ecclesiastic in Gloucestershire, but had attended the schools of Paris, got the degree of doctor, and had become a noted professor of philosophy and theology there, when (1222) he suddenly entered the order of the Minorite Friars. From that time, he lived the life of a studious recluse. His chief and only authentic work is the *Summa Universa Theologiæ* (best ed., Venice, 1576, 4 vols.), written at the command of Pope Innocent IV., and enjoined by his successor, Alexander IV., to be used by all professors and students of theology in Christendom. A. gave the doctrines of the church a more rigorously syllogistic form than they had previously had, and may thus be considered as the author of the scholastic theology. Instead of appealing to tradition and authority, he deduces with great subtlety, from assumed premises, the most startling doctrines of Catholicism, especially in favor of the prerogatives of the

## ALEXANDER—ALEXANDERS.

papacy. He refuses any toleration to heretics, and would have them deprived of all property; he absolves subjects from all obligation to obey a prince that is not obedient to the church. The spiritual power which blesses and consecrates kings, is by that very fact, above all temporal powers, to say nothing of the essential dignity of its nature. It has the right to appoint and to judge these powers, while the pope has no judge but God. In ecclesiastical affairs, also, he maintains the pope's authority to be absolute, superior to all laws and customs. Some of the points on which A. exercises his dialectics seem ludicrous.

ALEXANDER. WILLIAM (known as LORD STIRLING): American revolutionary general: see STIRLING, Earl of.

ALEXANDER NEVSKI, *nev'ske*: 1219-63; b. Vladimir: Russian hero and saint, son of the Grand Duke Jaroslav, of Novgorod. In order to defend the empire, which was attacked on all sides, but especially by the Mongols, his father quitted Novgorod, leaving the cares of the government to his sons Fedor and Alexander, the former of whom died soon afterwards. The latter vigorously resisted the enemy; yet Russia was forced to submit to the Mongol dominion, 1238. A. now fought to defend the w. frontier against the Danes, the Swedes, and the Teutonic knights. He received the surname of Newski, on account of the splendid victory over the Swedes, which he achieved in 1240, on the Newa (Neva), in the province where St. Petersburg now stands. In 1243, on the ice of Lake Peipus, he defeated the Livonian Knights of the Sword, who had been stimulated by the pope to attack the Russian heretics. At the death of his father in 1247 he became Grand Duke of Vladimir. Pope Innocent IV. now made a diplomatic attempt to reunite the Greek and Roman churches, since his military scheme had failed, and with this view sent an embassy to A., which, however, proved as ineffectual as the former. To the end of his life, however, he remained a vassal of the Tatars or Mongols. Thrice had he to renew his oath of fealty to the Asiatic barbarians, making in each instance a journey to their camp. He d. at Kassimcow, on his return from the last of these journeys; and the gratitude of the nation perpetuated his memory in popular songs, and even canonized him. Peter the Great honored his memory by building a magnificent convent on the spot where A. had fought his great battle, and by founding the knightly order of A. N.

ALEXANDERS, *äl-ëgz-än'dërz* (*Smyrniium olusatrum*); biennial plant of nat. order *Umbelliferae* (q.v.), found in waste ground, near ruins, etc., in Britain and s. Europe. The plant has an aromatic taste, strong and pungent, but becomes rather pleasant when blanched, and was formerly cultivated and used in the same way as celery, though at present little regarded. The fruit is carminative.—*S. perfoliatum*, native of Italy, is used in the same way. The genus *Smyrniium* contains only a few known species, chiefly natives of the temperate parts of the n. hemisphere.—Another umbelliferous genus, *Zizia*, is popularly called Golden A. in N. America.

## ALEXANDRA—ALEXANDRI.

**ALEXANDRA**, *ăl-ĕgz-ăn'dra*, CAROLINE MARIE CHARLOTTE LOUISE JULIE, queen of Great Britain and Ireland and empress of India; b. 1844, Dec. 1, daughter of Christian IX., King of Denmark. She was married 1863, Mar. 10, to Albert Edward (q. v.), Prince of Wales, eldest son of Queen Victoria, and heir to the British throne, who succeeded as Edward VII., 1901, Jan. 22.

**ALEXANDRETTA**: see ISCANDERÛN.

**ALEXANDRI** (or ALEKSANDRI), VASILIO (Basil) b. Jassy, Moldavia, 1821: Rouman poet and littérateur. His family was of Venetian origin. He studied at the Univ. of Paris, taking the degree Bachelor of Letters, and returned to Jassy 1839, where he became the associate of a band of young men educated in France, who, besides being ambitious of literary distinction, were zealous for political equality and for Rouman nationality and independence. In 1842 he began to write the songs and ballads on which his chief claim to literary reputation rests. In 1844 he suddenly attained immense local popularity as a playwright. A. was engaged in the revolutionary movement at Jassy 1848, and on its failure betook himself to Paris. When the Russian war had given Moldavia and Wallachia their virtual emancipation from the yoke of Turkey, the union of the two principalities was carried by the resolution of their inhabitants, with the support of France; and A. inspired the resolution of his countrymen, especially by a song which he wrote at the critical moment in 1856, *The Hour of Union*, a stirring appeal to the feeling of Rouman nationality. A. was prominent in all the political transactions which culminated in this result. Two years earlier he had emancipated the serfs on his estate; and the government found itself compelled to decree general enfranchisement. He was foreign minister under Ghika 1859-60.

A.'s *Popular Ballads of Roumania* appeared at Jassy 1852-3. One of the parts, translated into French by himself, was pub. at Paris as *Ballades et Chantes Populaires de la Roumanie*. His complete works were pub. 1873-76, in 7 vols.; his theatrical pieces, 1875, in 4 vols. D. 1890.

## ALEXANDRIA.

**ALEXANDRIA:** city, cap. of Alexandria co., Va., and a port of entry; beautifully situated on the right bank of the Potomac river, seven m. below Washington. Here the river is a mile in width, forming a fine harbor for the largest vessels, and there is a considerable and growing foreign trade. The city is well laid out, with well paved streets, a horse railway, and a railroad connection with Washington; the Chesapeake and Ohio canal also begins here, and connection is made with the Virginia Central r.r. It is lighted by gas, supplied with water, has a steam fire department, and a handsome public market, a court-house, 15 churches, 4 banks and 29 school rooms. The industries of A. include machine shops, flouring mills, plaster mills, and an extensive cotton factory. There are several important private institutions of learning, and a large library. A considerable coal trade reaches A. from the Cumberland region, and large shipments of coal are made to eastern parts. The number of vessels registered in 1880 was 98, having a tonnage of 4,359. The number of vessels entering the port for 1886 was, foreign 11, coastwise 152; the number clearing—foreign 14, coastwise 139; the value of exports was \$87,930. Pop. (1890) 14,339; (1900) 14,528.

**ALEXANDRIA**, *ál-ěgz-ăn'drĭ-ă*: town of Dumbartonshire, Scotland, on the w. bank of the Leven, opposite to Bonhill, three m. from Dumbarton, on the Glasgow, Dumbarton, and Vale of Leven railway. It is a town of recent growth, of neat and pleasing appearance, in the midst of beautiful scenery. It has extensive cotton-printing works, and other public works. Pop. over 7,000.

**ALEXANDRIA**, *ál-ěgz-ăn'drĭ-ă* (called Skanderi'eh by the Turks and Arabs): founded by Alexander the Great in the autumn B.C. 332. It was situated originally on the low tract of land which separates the lake Mareotis from the Mediterranean, about 14 m. w. of the Canopic mouth of the Nile. Before the city, in the Mediterranean, lay the island of Pharos, upon the n.e. point of which stood the famous light-house (Pharos) and which was connected with the mainland by a mole, called, from its length, the Heptastadium, or 'Seven-Furlong' mole, thus forming the two harbors. The plan of A. was designed by the architect Dinoerates, and its original extent is said to have been about 4 miles in length, with a circumference of 15 m. It was intersected by two straight main streets, crossing each other at right angles in the middle of the city. Colonnades adorned the whole length of these streets, which were in general very regularly built. The most magnificent quarter of the city was that called the Bruchesium, which was situated on the eastern harbor. This quarter of the city contained the palaces of the Ptolemies, with the Museum and the old library; the Soma or mausoleum of Alexander the Great and of the Ptolemies, the Poseidonium, and the great theatre. Further w. was the emporium or exchange. The Serapeion, or temple of Serapis, stood in the western division of the city, which formed the Egyptian quarter, and was called Rhacōtis; a small town of that name had occupied the site

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before the foundation of A. To the w. of the city lay the great Necropolis, and to the e. the race-course, beyond which was the suburb Nicopolis. The greater part of the space under the houses was occupied by vaulted subterranean cisterns, capable of containing a sufficient quantity of water to supply the city for a year. From the time of its foundation, A. was the Greek cap. of Egypt. Its pop. in its prosperity, is said by Diodorus to have amounted to about 300,000 free citizens, which would involve more than an equal number of slaves and strangers. This population consisted mostly of Greeks, Jews, and Egyptians, together with settlers from all nations of the known world. After the death of Alexander the Great, A. became the residence of the Ptolemies. They made it, next to Rome and Antioch, the most magnificent city of antiquity, as well as the chief seat of Grecian learning and literature, which spread hence over the greater part of the ancient world. The situation of the city, at the point of junction between the East and West, rendered it the centre of the commerce of the world, and raised it to the highest prosperity.

A. had reached its greatest splendor when it came into the possession of the Romans, about B.C. 30. From that time its prosperity began to decline—at first almost imperceptibly, afterwards more rapidly, in consequence of the removal of the works of art to Rome, the massacres of Caracalla, the laying waste of the Bruchesium by Aurelian, the siege and pillage of the city by Diocletian, and, lastly, the rising prosperity of the rival city of Constantinople. All these causes combined to destroy A. so speedily, that, in the 4th c. no building of any importance was left in it except the temple of Serapis. The strife between Christianity and heathenism gave rise to bloody contests in A. The Serapeion, the last seat of heathen theology and learning, was stormed by the Christians, A.D. 389, and converted into a Christian church. This put an end to heathenism, and A. became henceforward a chief seat of Christian theology, and continued so till it was taken by the Arabs, under Amru, in June, 638. This siege, and still more, its conquest by the Turks in 868, completed the destruction of the city. It revived, indeed, in some degree under the Egyptian caliphs, and continued during the middle ages to be the most important emporium of trade between the East and West; but the discovery of America, and of the passage to India by the Cape of Good Hope, very much diminished the trade of A.; and the dominion of the Mamelukes, and the conquest of the Osmanli, annihilated even the little which the Arabs had restored. The result was, that in 1778 A. contained no more than 6,000 inhabitants. After the conquest of Egypt by the French in the end of the 18th c., A. began to revive; and under Mehemet Ali, who resided in it a part of every year, it prospered to such a degree that it may now be reckoned one of the most important commercial places on the Mediterranean. The Suez canal diverted part of its trade as the centre of steam communication with India; but this was more than compensated by the general impetus given by the canal to Egyptian prosperity.

## ALEXANDRIAN CODEX.

The present city is not situated exactly on the site of the old one, but is built chiefly on the mole called the Heptastadium, which has been increased by alluvial deposits till it has become a broad neck of land between the harbors, of which the eastern is called the New Port, and the western the Old Port. A. is connected with Cairo by rail (continued to Suez) and by the canal of Mahmoudieh. Originally dirty and ill built, it has some handsome streets and buildings; but the best streets were ruined in 1882. The recent growth of A. has been extraordinary. Pop. (1825), 16,000; (1840), 60,000; (1870), 238,888; (1897) 319,766, of whom 60,000 are Europeans. Value of exports from A. in 1881, £13,684,630 (mostly cotton and cotton seed, two-thirds going to Great Britain); of imports, £7,110,168 (half from Britain). Of the few remaining objects of antiquity the most prominent is Pompey's Pillar (q.v.) as it is erroneously called. Of the so-called Cleopatra's Needles—two obelisks of the time of King Thothmes III., who lived B.C. 16th c.—one was brought to England and erected on the Thames Embankment, 1878; and the other, presented by the Khedive to the United States, was set up in Central Park, New York, 1881. Other antiquities of A. are some catacombs, and underground cisterns almost entirely filled up. In 1882 an English fleet bombarded the forts of A.; the town was thereafter sacked and plundered by the connivance of the native military usurper and his party, and great part of it destroyed by fire. See ALEXANDRIAN LIBRARY.

ALEXANDRIAN CODEX, *kō'dēks*: an important manuscript of the Christian Scriptures in Greek, now in the British Museum. It is written on parchment, in finely formed uncial letters, and is without accents, marks of aspiration, or spaces between the words. Its probable date is the latter half of the 6th c. With the exception of a few gaps, it contains the whole Bible in Greek (the Old Test. being in the translation of the Septuagint), with the epistles of Clemens Romanus. For purposes of biblical criticism, the text of the Epistles of the New Test. is the most valuable part; for with respect to the Gospels, it is clear that the original text which the copyist had before him must have been far inferior. This celebrated manuscript belonged, as early as 1098, to the library of the patriarch of Alexandria. In 1628 it was sent as a present to Charles I. of England by Cyrillus Lucaris, patriarch of Constantinople, who declared that he had got it from Egypt; and that it was written there appears from internal and external evidence. Grabe made this manuscript the foundation of his edition of the Septuagint (4 vols., Oxf. 1717-20). Fac-similes have been published, of the New Test., by Woide (Lond. 1786), and by Cowper (Lond. 1860); of the Old Test., by Baber (Lond. 1816).

ALEXANDRIAN LIBRARY: a remarkable collection of books, the largest of the ancient world, founded by Ptolemy Soter, in the city of Alexandria, Egypt. Even in the time of its first manager, Demetrius Phalereus, a banished Athenian, the number of vols. or rolls already amounted to 50,000; and during its most flourishing period, under the

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direction of Zenodotus, Aristarchus of Byzantium, Apollonius Rhodius, and others, is said to have contained 400,000, or, according to another authority, 700,000. The greater part of this library, which embraced the collected literature of Rome, Greece, India, and Egypt, was contained in the Museum, in the quarter of Alexandria called Brucheium. During the siege of Alexandria by Julius Cæsar, this part of the library was destroyed by fire; but was afterwards replaced by the collection of Pergamos, presented to Queen Cleopatra by Mark Antony, to the great annoyance of the educated Romans. The other part of the library was kept in the Serapcion, the temple of Jupiter Serapis, where it remained till the time of Theodosius the Great. When this emperor permitted all the heathen temples in the Roman empire to be destroyed, the magnificent temple of Jupiter Serapis was not spared. A mob of fanatic Christians, led on by the abp. Theophilus, stormed and destroyed the temple, together, it is most likely, with the greater part of its literary treasures, 391 A.D. It was at this time that the destruction of the library was begun, and not at the taking of Alexandria by the Arabians, under the caliph Omar. The story, at least, is ridiculously exaggerated which relates that the Arabs found a sufficient number of books remaining to heat the baths of the city for six months. The historian Orosius, who visited the place after the destruction of the temple by the Christians, relates that he then saw only the empty shelves of the library. See Petit-Radel, *Recherches* (Paris, 1819); Ritschl, *Die Alexandrinischen Bibliotheken* (Berlin, 1838); and works by Weniger (1875), and others.

ALEXANDRINE, a. *ăl'ĕgz-ăn'ărĭn* [city of *Alexandria*, n. Africa—named after Alexander the Great]: denoting a verse of twelve syllables. AL'EXAN'DRIAN, a. *-drĭ-ăn*, of or pertaining to Alexandria in Egypt, or to a school of philosophy which flourished there in the early Christian centuries.

ALEXAN'DRINE or ALEXANDRIAN AGE: a period of history, when after liberty and intellectual cultivation had declined in Greece, Alexandria in Egypt became the home and centre of science and literature. The A. A. may be divided into two periods: the first including the reigns of the Ptolemies, B.C. 323 to 30; the second, B.C. 30 to A.D. 640, or from the fall of the Ptolemæan dynasty to the irruption of the Arabs.

Ptolemæus Soter, the first ruler who introduced and patronized Greek science and literature in Alexandria, was followed by that yet more munificent patron, Ptolemæus Philadelphus, who regularly established the celebrated Alexandrian Library and Museum, which probably had been begun by his father. This Museum contained porticos, a lecture-room, and a large hall, in which the learned men—the professors and fellows, as they might be called—dined together. The Alexandrine school consisted of Egyptians, Greeks, Jews, and latterly, Romans. The grammarians and poets made the greatest figure. The grammarians were both philologists and *littérateurs*, who

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explained things as well as words, and were thus a kind of encyclopedists. Among these rank Zenodotus of Ephesus, Eratosthenes of Cyrene, Aristophanes of Byzantium, Aristarchus of Samothrace, Crates of Mallus, Dionysius the Thracian, Apollonius, the Sophist, and Zoilus. Their chief service consists in having collected the writings then existing, prepared corrected texts, and preserved them for future generations. The most noted of the poets of the Alexandrine school were Apollonius Rhodius, Lycophron, Aratus, Nicander, Euphorion, Callimachus, Theocritus, Dionysius, and the seven tragedians called the Alexandrine Pleiades.

The Alexandrine school had a spirit and character altogether different from the previous intellectual life of Greece. From the attention paid to the study of language, it was natural that correctness, purity, and elegance of expression should become especially cultivated; and in these respects many of the Alexandrine writers are distinguished. But what no study and no efforts could give—the spirit that animated the earlier Greek poetry was, in most of these works, wanting. In place of it, there was displayed greater art in composition; what had formerly been done by genius, was now to be done by the rules furnished by criticism. Only a few show real genius; the works of the rest, faultless according to rule, are destitute of life and soul. In a school where imitation and rule thus took the place of inspiration, each generation of disciples became more artificial and lifeless than their masters. Criticism degenerated into frivolous fault-finding, and both prose and poetry became labored affectation.

The ALEXANDRINE PHILOSOPHY is characterized by a blending of the philosophies of the East and of the West, and by a general tendency to *eclecticism*, as it is called, or an endeavor to reconcile conflicting systems of speculation, by bringing together what seemed true in each. Not that the Alexandrine philosophers were without their sects; the most famous of which were the Neo-Platonists (q.v.). Uniting the religious notions of the East with Greek dialectics, they represent the struggle of ancient civilization with Christianity; and thus their system was not without influence on the form that Christian dogmas took in Egypt. The amalgamation of eastern ideas with Christian gave rise to the system of the Gnostics (q.v.), which was elaborated chiefly in Alexandria.—The Alexandrine school was no less distinguished for the culture of the mathematical and physical sciences, which here reached a greater height than anywhere else in ancient times. As early as B.C. 3d c., Euclid had here written his great work on geometry. The astronomers of the A. school were distinguished from all their predecessors by their setting aside all metaphysical speculation, and devoting themselves to strict observation. Among the distinguished physicists and mathematicians of the A. school, were Archimedes, Eratosthenes, Aristarchus of Samos, Ptolemæus, etc. For about four centuries, the Alexandrine school was the centre of learning and science in the ancient world. See



## ALEXANDRINES—ALEXEI MICHAILOVITCH.

Vacherot, *Histoire critique de l'école d'Alexandrie* (3 vols., Paris, 1846-51).

**ALEXAN'DRINES:** rhyming verses consisting each of twelve syllables or six measures. The name is most probably derived from an old French poem on Alexander the Great, belonging to the 12th or 13th c., in which this measure was first used; according to others, it was so called from the name of one of the authors of that poem being Alexander. The Alexandrine has become the regular epic or heroic verse of the French, among whom each line is divided into two hemistichs, the sixth syllable always ending a word. In English, this rule is not always observed, as in the following verse from Spenser:

That all the woods shall an|swer, and their echo ring.

The only considerable English poem wholly written in A. is Drayton's *Polyolbion*; but the Spenserian stanza regularly ends in an Alexandrine, and the measure occurs occasionally in heroic verse, as the last line of a couplet:

When both are full, they feed our blest abode,  
Like those that watered ouce|the paradise of God.—*Dryden*.

**ALEXANDROPOL:** see GUMRI.

**ALEXANDROVSK** *á-lěks-án-drovsk'*: town in the s. of Russia, cap. of the dist. of the same name; on the left bank of the Dnieper, below the cataracts. It is 48 m. s. of Ekaterinoslav, is fortified, and has considerable trade. Inland productions are shipped here for the Black Sea. Pop. (1880) 4,507.—There are various other towns and districts of the same name in Russia; the most important of which is that in the government of Vladimir, in the centre of the empire. It was a favorite summer residence of the czar Ivan Vasiliewitch, who introduced there the first printing-press known in Russia. It has a magnificent imperial *stud*, commenced by the empress Elizabeth in 1761, and completed about twenty years after. Pop. over 16,000.

**ALEXEI MICHAILOVITCH**, *á-lěk-sá'e me-kí'lo-vitch*. second Russian czar of the House of Romanow: b. 1629, March 10; d. 1676, Jan. 29: succeeded his father, Michael Fedorovitch, 1645. The young czar A. yielded himself to the control of his chancellor, Plessow, and his tutor, Morosow, and the avarice of these bad advisers caused an insurrection in 1648, in which Plessow lost his life. Popular discontent favored the plans of two pretenders to the throne—Demetrius III. (q. v.) and Ankudinow. The latter, professing to be a son of the czar Wasili Shuiskoi, was put to death at Moscow in 1653. A. possessed good qualities, which appeared in his riper years. In his two campaigns against the Poles, 1654-56 and 1660-67, he took Smolensk, conquered and devastated almost the whole of Lithuania, and even secured for himself the possession of several provinces. He also gained a part of the Ukraine; and though his war with Sweden (1656-58) was unfortunate, he lost nothing by the following peace. A. conferred great benefits on his countrymen by the introduction of various important reforms into the Russian laws; he ordered translations of numerous sci-

## ALEXEI P'ETROWITCH—ALEXIUS COMNENUS.

entific works, chiefly of a military nature, into Russian; and even ventured on some ecclesiastical changes. In his private character, he was amiable, temperate, and pious. His second wife, the beautiful Natalia Narischkin, was the mother of Peter the Great.

**ALEXEI PETROWITCH**, *pā-tro'vitch*: 1690–1718; b. Moscow; eldest son of Peter the Great of Russia. Having shown himself opposed to the reforms and innovations made by the emperor, he was excluded by Peter from the line of succession to the throne. With this decision he appeared to be satisfied, and declared his intention of spending the remainder of his days in a monastery. But when Peter the Great undertook his second tour in Northern Europe, A., under the pretense of following the czar, escaped in 1717 to Vienna, and thence went to Naples. He was induced to return to Russia, where, by the ukase of 1718, Feb. 2, he was disinherited, and an investigation was ordered to detect all parties concerned in his recent flight from Russia. His mother, Eudoxia, with Marie Alexiewna, step-sister to the czar, and several other eminent persons, were made prisoners, and either put to death or otherwise punished. A. was condemned to death, but soon afterward received a pardon. However, the terror and agitation of the trial so affected his health that he died 1718, June 26. The czar, to avoid scandal, ordered the trial to be published. Other accounts assert that A. was beheaded in prison. By his wife, Charlotte Christine Sophie, princess of Brunswick-Wolfenbüttel, A. left a son, who, as Peter II., was elevated to the throne.

**ALEXIPHARMIC**, a. *ă-lěks'î-fâr'mîk* [Gr. *alexo*, I keep off; *pharmakon*, poison]: having the effect of expelling poison or infection by sweat: N. the medicine that expels poison. **ALEXITERIC**, a. *ă-lěks'î-těr'îk* [mid. L. *alexiteria*, a medicine which only mitigates disease: Gr. *alexo*; *deletērion*, poison]: resisting poison: N. the medicine which does so.

**ALEXIS**: see **ALEXEI**.

**ALEXIUS COMNENUS**, *al-eks'î-us com-ne'nus*: one of the ablest rulers of the Byzantine empire; 1048–1118; b. Constantinople; third son of Johannes Comnenus, the bro. of the emperor, Isaac Comnenus. The family came originally from Italy, and settled in Asia Minor. His father having refused the purple on the abdication of Isaac, it was given to one Ducas, the son of a distinguished general. A. in his youth gave brilliant promise of the vigorous military genius which he afterwards manifested; and at length, after a series of anarchic reigns of brief duration, his soldiers succeeded in elevating him to the throne, while the old and feeble Nicephorus Botaniates, his predecessor, was compelled to retire to a monastery. Gibbon graphically paints the position and achievements of A. in the 48th chap. of his *Decline and Fall of the Roman Empire*. Everywhere he was encompassed with foes. The Scythians and Turks were pouring down from the north and northeast; the fierce Normans, who had violently effected a lodgment in Sicily and Italy, were men-

## ALFIERI.

acing his western provinces; and, finally, the myriad warriors of the first crusade had burst into his empire on their way to Palestine, and had encamped around the gates of his capital. Yet he contrived to avoid all perils and disgraces by the wisdom of his policy, the mingled patience and promptitude of his character, his discipline in the camp, and his humanity on the throne. He reigned for 37 years; and if it had been possible to preserve the weak and corrupt Byzantine empire in its integrity, a ruler like A. might have done it. He could only delay its inevitable destruction. Undoubtedly, the great interest which attaches to A. arises from his relation to the crusaders. Historians differ as to the purity and sincerity of his conduct towards them. His daughter Anna, who wrote his life, defends his 'policy' with filial piety: but it seems clear that he entertained a profound dread and suspicion of the half civilized Franks, and, knowing the weakness of his own empire, was compelled to dissimulate. He certainly promised them help, and persuaded them to go off into Asia; it is equally certain that he did not fulfil his promises, and that he simply used them as instruments to reconquer from the Turks the islands and coasts of Asia Minor. Perhaps, however, little apology is needed for a monarch who 'subdued the envy of his equals, restored the laws of public and private order, and caused the arts of wealth and science to be cultivated.

ALFAL'FA: see LUCERN.

ALFIERI, *âl fe-â'rê*: VITTORIO, Count: 1749-1803; b. Asti, Piedmont; modern Italian dramatic poet. He received a very defective education in his father's house, and was then sent to the academy of Turin, which he quitted as ignorant as he had entered it, to join a provincial regiment. After a hurried tour through Europe, he returned to Turin in 1772. He then left the military service, and renouncing idleness and unworthy amours, devoted himself to literary occupation. The applause which his first attempts received encouraged him in his determination to win fame as a dramatic author. But as he clearly saw the deficiencies of his education, he began at a mature age to learn Latin, and also to study the Tuscan dialect, for which purpose he went to Tuscany. On his journey thither, A. made the acquaintance of the Countess of Albany (q. v.), to whom he became deeply attached. To render himself worthy of her esteem, he strove with unremitting earnestness after poetic excellence, and in order to be perfectly free and independent of all other cares, he transferred his whole property to his sister, in exchange for an annuity. A. now lived alternately in Florence and in Rome. Afterwards, when his friend the countess was released from other ties by the death of her husband, they lived together in the closest intimacy in Alsace or in Paris, where A. was incessantly occupied in writing, revising, and publishing his works. There appears to have been a marriage, although it was never made public. On the first outburst of the French Revolution, A. went to England, but soon returned to Paris. In 1792, he was again forced to flee from France, and he then settled with his inseparable com-

## ALFONSINE—ALFONSO.

panion in Florence, where he died. The ashes of A. and those of his friend repose in the church of Santa Croce, in Florence, under a beautiful monument by Canova, between the tombs of Michael Angelo and Macchiavelli. As a dramatic author, A. attempted three different departments. He published 21 tragedies, 6 comedies, and 1 'tramelogedia,' a name invented by himself. His dramatic works show a want of fresh imaginative vigor, and betray the laborious perseverance with which he did violence both to himself and to art. A. was inspired more by politics than by poetry. He wished to breathe a spirit of freedom into the dormant minds of his countrymen, and considered the theatre as a school in which the people might learn to be 'free, strong, and noble.' In order to preserve the purity of his muse, A. had resolved to read no other poet. He wished to produce an effect by the very simplest means, and, renouncing the aid of ornament, to please by manly strength and earnestness alone. His works are on this account cold and stiff, his plots simple even to poverty, his verse hard and unpleasing, and his language destitute of that magic splendor of coloring which stirs the inmost soul. Notwithstanding this, A. did good service to Italian tragedy. He corrected the effeminate taste which had before prevailed, as well as the pedantic imitation of Attic models. Succeeding writers endeavored to imitate his strength and simplicity. A. was more unsuccessful in his comedies than in his tragedies. They manifest the same serious political tendency; the invention is poor, the development of the plot uninteresting, and the characters are only general sketches, without individuality. The most successful of his dramatic works is *Abel*, a mixture of tragedy and opera, invented by himself, which he designated by the singular name 'tramelogedia.' Besides dramatic works, A. left an epic poem, in four cantos, also many lyrical poems, 16 satires; also poetical translations of Terence, Vergil, and portions of Æschylus, Sophocles, Euripides, and Aristophanes. After his death, appeared his *Misogallo*, a memorial of his hatred to the French. The Countess of Albany caused a collected edition of his works to be published (35 vols. 4to, Pisa, 1805-1815), containing his autobiography; Centofanti published a life in 1842, and Teza in 1861.

ALFONSINE, *äl-fön-sē'nā*: town of Italy, province of Ravenna, nearly 4 m. n.w. from Ravenna, in a level, irrigated, and fertile district. Pop. 4,000.

ALFONSINE TABLES: see ALFONSO X.

ALFONSO, *äl-fön'so*, I: earliest King of Portugal: 1110-85; son of Henry of Burgundy, conqueror and Count of Portugal. At his father's death he was only two years of age, and the management of affairs fell into the hands of his ambitious and dissolute mother, Theresa of Castile, from whom he was compelled forcibly to seize it, on attaining his majority. He then entered on a war with Castile, whose supremacy he did not recognize, and leaguings himself with Navarre, made several conquests in Galicia, after which he proceeded to attack the Moors, whose invasions he had

## ALFONSO VI.—ALFONSO III.

already begun to check by building the fortress of Leiria. A battle was fought in the plains of Ourique, 1139, July 25, when victory declared for the Portuguese, after a bloody struggle, in which, it is said, not less than 200,000 Moors perished. From that day A. assumed the title of king, which the pope confirmed. He took Lisbon, by the help of the English fleet of crusaders, 1147, Oct. 25; and in 1158, after a siege of two months, made himself master of Alcazar-de-Sal and Evora. In 1171 he took by assault the fortress of Santarem from the Saracens, and annihilated the garrison; and at the same place he defeated the Almohadian ruler, Jusuf-ben-Jakub, in 1184. He invited to his land the Knights-Templars and Knights of St. John, and established the orders of Avis and of St. Michael. The Portuguese style him *El Conquistador* (the Conqueror). But he was also a legislator, establishing the Cortes of Lamego, and promulgating a code of laws relating to the order of succession, the privileges of the nobility, the administration of justice, etc. He died at Coimbra, Dec. 6, 1185.

ALFONSO VI., King of Portugal (reigned 1662-83): second son of John IV. He was at first expected to enter the service of the church, but the death of his elder brother in 1656 altogether changed his plans. Being then a minor, the government of the kingdom was intrusted to his mother, Louisa de Guzman, a woman of great wisdom and prudence, who felt it her duty to retain the power in her own hands, even after A. had reached his majority, for the sickly and dissolute prince displayed little aptitude for business. But the court minions, who had their own reasons for wishing him to rule, urged him to remove his mother from her office. This was accomplished in 1662. The minister, Count Castel-Melhor, a mere trifler, possessed supreme authority. Nevertheless, Portugal was victorious in the war against Spain, although for this she had to thank her English and French allies. In 1666, A. married Maria-Francisca-Elizabeth of Savoy, who, however, soon conspired with his brother Pedro against him. The plot succeeded. A. was seized and imprisoned at Cintra, where he died 1683, Sep. 12. Pedro then obtained the throne, and married the widow of his brother.

ALFONSO III., surnamed THE GREAT, King of Leon, Asturias, and Galicia: 848-910: succeeded his father, Ordoño I., 866, but had to maintain his rights by force of arms against Count Froila, who had usurped the throne. Having caused the latter to be murdered, he proceeded sternly to reduce to obedience the powerful nobility of the kingdom, who looked with a jealous eye on the monarchy remaining in one family; and then, carrying his arms against other enemies, he fought through more than 30 campaigns, and gained numerous victories over the Moors. He crossed the Douro, broke down the walls of Coimbra, penetrated to the Tagus and Estremadura, enlarged his territories by a portion of Portugal and Old Castile, and re-peopled the conquered and desolated Burgos. But these wars entailed great expense and misery on the nation. In 888, A. had to

## ALFONSO V.—ALFONSO X.

endure the pain of beholding at the head of a rebel army his own son Garcias, who wished to seize the crown, although pretending a simple desire for the prosperity of the commonwealth. A. collected his forces, conquered his son, and threw him into prison. But Garcias' mother, by the help of several of the *grandees*, excited a new conspiracy, which resulted in the abdication of the monarch in favor of his imprisoned son. In order, however, to be still useful to his country, A. became commander of Garcias' forces in an expedition against the Moors. After returning in triumph, he died at Zamora.

ALFONSO V., King of Aragon, Naples, and Sicily: (reigned 1416-58) d. 1458: received the surname of 'the Magnanimous,' because on his accession to the throne he destroyed a document containing the names of all the *grandees* who were hostile to him. His historical importance arises from his having brought Southern Italy under the dominion of Aragon. In 1420 he attacked Corsica, but speedily hastened to Naples at the request of Queen Joanna II., who besought his assistance against Louis of Anjou. For some time he enjoyed the highest favor; but, in 1423, having thrown into prison her minion Caraccioli, who was his enemy, the queen declared for his rival, Louis. At her death, 1435, A. resolved to claim the kingdom; but René of Anjou, whom Joanna had appointed her successor after the death of Louis, opposed him. Rome and Genoa sided with René, and the Genoese fleet attacked and defeated that of A., the monarch himself being taken prisoner. He was sent to Duke Philip of Milan, who, charmed by his manner and talent, set him at liberty, and even formed an alliance with him. After several battles and a long mountain-war in the Abruzzi, A. overthrew his adversary, and entered Naples in triumph. Having once firmly established his power, he proceeded to suppress the disorders which had sprung up during the worthless reign of Joanna, and honorably distinguished himself by his patronage of letters. He died at Naples while his troops were besieging Genoa, 1458, June, 27.

ALFONSO X., surnamed 'the Astronomer,' 'the Philosopher,' or 'the Wise' (*El Sabio*), King of Leon and Castile: 1221-84: succeeded his father, Ferdinand III., 1252. As early as the storming of Seville in 1248, he had given indications of his courageous spirit. But, instead of wisely attempting to expel the Moors and subdue the nobility, he lavished the resources of his kingdom in fruitless efforts to secure his election to the imperial throne of Germany. Rudolf of Hapsburg was chosen in opposition to him. Nor would Pope Gregory X. recognize his claims even to the duchy of Swabia. Soon after, his throne was threatened by the turbulence of the nobility and his wars with the Moors. The latter, however, he defeated in 1263, in a bloody battle, and took from them Xeres, Medina-Sidonia, San-Lucar, and a part of Algarve, uniting at the same time Murcia with Castile. In 1271, an insurrection broke out in his dominions at the head of which was his son Philip. Three years

## ALFORD.

elapsed before it was finally quelled. In the mildness with which he treated the rebels, men saw only indications of his weakness. But afterwards determining to employ more stringent measures, his son Sancho also rebelled, and in 1282 deprived him of his throne. He now sought the help of the Moors; but after fruitless efforts to recover his power, he died at Seville, 1284, April 4. His improved tables, still known under the name of the Alfonsine Tables, were completed in 1252 at the cost of 40,000 ducats—an unprecedented sum to be expended on such a work in those days.

ALFONSO XII., KING OF SPAIN, only son of Queen Isabella II. and King Francis of Assisi; b. 1857, Nov. 28. When the revolution of 1868 broke out he left Spain with his mother, and till 1874 resided partly in France and partly in Austria. In the latter year he came forward as claimant of the throne, and near the end of the year was proclaimed king by Gen. Martinez Campos. On his accession succeeded in putting an end to the Carlist struggle, and thereafter reigned in peace till his death. He first married Princess Maria de las Mercedes, and about a year and a half after her demise celebrated his second nuptials with Archduchess Maria Christina of Austria. D. 1885, Nov. 25.

ALFONSO XIII., KING OF SPAIN, son of Alfonso XII. and Archduchess Maria Christina of Austria; b. 1886, May 17. His education was conducted with exceptional care, owing to the delicate condition of his health. During his minority his mother acted as Queen Regent. He was crowned 1902, May 17, and subsequently manifested a strong will in dealing with public matters.

ALFORD, *awlförd*, HENRY, D.D : 1810-71; b. London: a biblical critic of the highest reputation, and also a poet of considerable genius. Educated first at Ilminster grammar-school in Somersetshire, and finally at Trinity College, Cambridge, where he gained his degree, and took orders in the church. His first volume, published at Cambridge, 1831, was entitled *Poems and Poetical Fragments*. Three years afterwards, the young author was elected a Fellow of Trinity, and in the following year (1835), appeared his most popular work, *The School of the Heart, and other Poems*, frequently re-issued, especially in America. About the same time, A. was appointed vicar of Wymeswold, Leicestershire, where he remained till 1853, gradually enlarging the circle of his studies, and obtaining fresh honors. In 1841, he published *Chapters on the Greek Poets*, which exhibit both purity of taste and breadth of scholarship. In 1844, appeared the first vol. of his *magnum opus*, the Greek Testament with notes and various readings; the second was not published till 1852. In 1853, he was removed to Quebec Street Chapel, London, where he continued to maintain his high reputation as a sound and eloquent preacher, until, 1857, he was appointed Dean of Canterbury by Lord Palmerston. A.'s poetry is characterized not so much by depth or originality as by freedom from affectation, obscurity, or bombast. His Greek Testament, which was completed 1861, occupies the first rank among English editions. Among his latest writings was *A Plea for the Queen's English*, which excited

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considerable discussion. He also published several volumes of sermons. He died 1871, Jan. 12. See *Life, Letters*, etc. (1873).

ALFRED, *äl'fréd*, surnamed THE GREAT: 849-901; b. Wantage, Berkshire. His father was Ethelwolf, son of Egbert, king of the West Saxons; and though the youngest of four sons, he succeeded to the crown, at the age of 23, on the death of his brother Ethelred. He had already given proofs of high ability as a general in repelling the incessant incursions of the Danes, at that time the most terrible warriors in Europe. After he succeeded to the throne, he redoubled his exertions to restore the independence of his country. At first he strove without success, while the Danes continued to pour fresh bands upon the coast, and the Anglo-Saxons either bent to the yoke or forsook their homes. In 878, the invaders had completely overrun the whole kingdom of the West Saxons. A., no longer able to collect an effective army, was obliged to seek security in the hills and forests, and for some time found refuge in a cowherd's hut. He still, however, kept up some communication with his friends; and as soon as the people began once more to arm against the Danes, he built a stronghold on an elevation or island (still known as Athelney, i.e., the 'island of the nobles,' or the 'royal island') amid the marshes of Somersetshire, to which he summoned his faithful followers. From this fortress he made frequent successful sallies against the enemy, and after a comparatively short time, he found himself at the head of a considerable army, with which he totally routed them (878) near Edington, in Wiltshire. After holding out for some time in a stronghold to which they had retreated, the invaders capitulated. A. accepted hostages, and their solemn oath to quit his territory of Wessex, and receive baptism. Their king, Godrun or Guthrun, was baptized, with thirty of his followers, and ever after proved faithful in his allegiance to A.

After this decisive victory, the power of A. steadily increased, both by land and sea—for already he had built England's first fleet—he beat the Danes in numerous battles, and gradually their possessions were confined to the n. and e. coasts. In 886, A., without any formal installation, became recognized as the sovereign of all England, a title to which he had proved his right by the most indisputable of arguments. During the ensuing years of peace, he rebuilt the cities that had suffered most during the war, particularly London; erected new fortresses, and trained the people to the use of arms, while he encouraged husbandry and other useful arts, and founded those wise laws and institutions which contributed so much to the greatness and welfare of England. The grateful reverence of posterity has, as is usual with mankind, become prodigal in its awards, ascribing to A. the entire credit of having established many beneficial institutions, some of which had already existed among the Anglo-Saxons, but were by him revived, remodelled, and improved. Of his political institutions, little is known beyond the fact that he compiled a code of laws, divided England into counties, hundreds and tithings, and thor-





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oughly reformed the administration of justice by making these tithings, hundreds, etc., so far as was practicable, responsible for the offenses committed within their jurisdiction. William of Malmesbury, with enthusiastic exaggeration, declared that 'a purse of money, or a pair of golden bracelets,' might in A.'s day be exposed for weeks in complete safety on the common highways. A. is also said—though erroneously, as is now believed—to have been the author of 'trial by jury.' In an age of ignorance and barbarism, A. was an accomplished scholar and a zealous patron of learning. No prince of his age did so much for the diffusion of knowledge, and few monarchs at any time have shown an equal zeal for the instruction of their people. He caused many manuscripts to be translated into Anglo-Saxon from Latin, and himself translated several works, such as Boëthius on the *Consolation of Philosophy*, the *History* of Orosius, Bede's *Ecclesiastical History*, and *Selections from the Soliloquies of St. Augustine*. Among his original works in the Anglo-Saxon language are *Laws of the West Saxons*, *Institutes*, *Chronicles*, *Meditations*, etc. All his works strikingly indicate the serious, elevated, and yet practical character of the man. In his translations, A. is frequently more than a translator. He adds his own reflections to those of his author; and expands the geographical outline of Orosius by a chart of Germany, an account of the Baltic, and the icy regions towards the north pole, which are reasonably correct, considering the means which then existed for acquiring a knowledge of these places. Several works attributed to A. are believed not to be genuine.

The peaceful labors of A. were, 893, interrupted by a fresh invasion of Northmen under Hæsten or Hastings, more formidable than any that had yet been attempted in his reign. The defection of the East Anglians and Northumbrians added to the difficulties with which he had to contend. A., however, was fully prepared, and though, during their protracted stay in his dominions, the invaders overran a large extent of country, and committed considerable depredations, they were beaten in almost every encounter with the English, and finally quelled. A. d. 901, October 27, aged 52, leaving his country in the enjoyment of comparative peace and prosperity, the fruit of that wise and energetic rule which has made his memory dear to all generations of Englishmen, as that of their best and greatest king. We cannot perhaps realize the resolute patience of A., in his political and military capacity, for we have a very imperfect knowledge of the obstacles in his way; but it must excite both our wonder and reverence to behold a man pursuing solitarily, in the midst of ferocity, barbarism, and ignorance, and in spite of the perpetual pains with which his body was racked, so many various and noble schemes for the civilization and true glory of his country.—The most authentic and interesting of the original sources of information on the history of A., is the life by Asser, bishop of Sherborne, a book distinguished by extreme simplicity and affection. The best edition is that of Wise

## ALFRETON—ALGÆ.

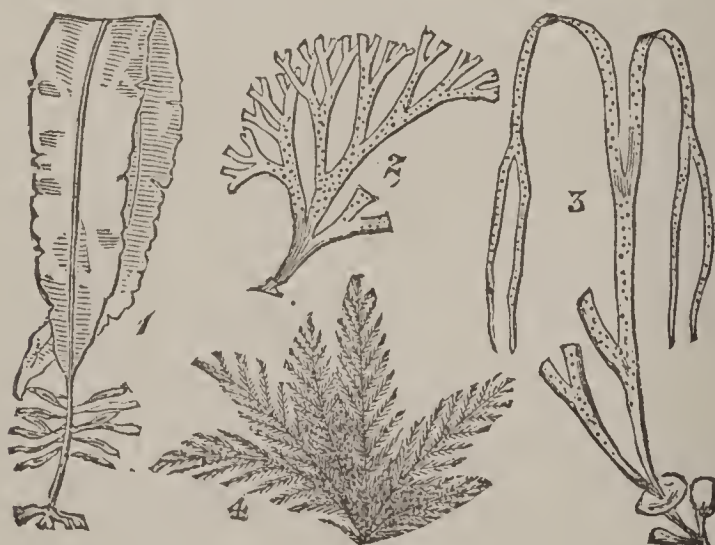
(Oxford, 1782). Of the modern Lives, the most complete and careful are that of Prof. Reinhold Pauli, edited by T. Wright, and that by Mr. T. Hughes (1869).

ALFRETON, *äl'fre-tön*: market-town of Derbyshire, Eng., 12 m. n.e. from Derby; a station on the Erewash branch of the Midland railway. It has manufactures of hats, stockings, and brown earthenware. There are collieries and iron-works in the vicinity. The town is irregularly built, and contains many very old houses, but has of late rapidly increased. It is said to derive its name from Alfred the Great. Pop. (1881) 13,885; (1891) 15,355.

ALFRIC: see ÆLFRIC.

ALGÆ, n. plu. *äl'jē* [L. *alga*, sea-weed]: an order of sea or aquatic plants. ALGA, n. *äl'gä*, an aquatic plant of the Order *Algæ*. ALGŪS, a. *äl'gūs*, pertaining to sea-weed. ALGŪID, a. *äl'goyd* [L. *alga*: Gr. *eidos*, a form]: like sea-weed. ALGOLOGY, n. *äl-göl'ōjī* [Gr. *logos*, discourse]: a treatise on the algæ or sea-plants; the study of sea-plants.

ALGÆ: a natural order of plants, belonging to the class *Cryptogamia* of Linnæus, and to the *Acotyledones* of the natural system. It contains a great number of species, about 2,000 being known and described, and among these there is a great variety of forms. They grow for the most part in water, some in fresh, and some in salt water, but some on moist rocks or ground; while others are frequently found covering the glass and pots of hot-houses. Some species occur even upon diseased animal tissue, as *Achlya prolifer* upon the gills of fish, while *Sarcinula ventriculi* (q.v.) appears to be formed in the human stomach. They are most numerous in still or stagnant water and in warm climates. Their structure is very various; they are found



Algæ.

- |                                |                                  |
|--------------------------------|----------------------------------|
| 1. <i>Alaria esculenta</i> .   | 3. <i>Himanthalia lorea</i> .    |
| 2. <i>Dictyota dichotoma</i> . | 4. <i>Rytiphloea thuyoides</i> . |

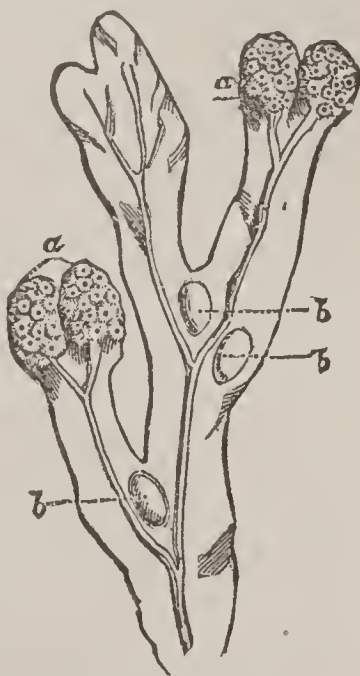
of all grades, from the little microscopic vesicle, to great sea-weeds, which ramify like trees. The diversity in size is as great as in form; some species being visible only through the microscope, and resembling mold or rust; some a few

## ALGÆ.

inches, others several feet in length; while the *Laminariæ*, which float in the South American seas, measure more than 100 feet; and *Macrocystis pyrifera* of the Pacific Ocean reaches the length of 1,500 feet. Yet they are seldom to be found as thick as the finger, or as broad as the hand, although some far exceed these dimensions, the trunk of *Lessonia fuscescens* attaining the thickness of a man's thigh. Some species are firmly fixed at the bottom of the water, some adhere to rocks and stones left dry by the retiring tide; some frequently break loose, and float about upon and beneath the surface. They have in no case proper roots, but merely processes for their attachment to the surfaces on which they are fixed; they seem to derive their nourishment by all parts of their surface from the water or moist air in which they grow. The Gulfweed (*Sargassum*) floats in long pieces in the Atlantic Ocean and all the great seas; a large portion of the sea between the West Indies and the Canary Islands, is specially called the *Mer de Sargasse*. The weed is carried in such quantities by the current into the Gulf of Mexico, that it covers the sea in tracts of many miles in breadth, and gives it the appearance of a meadow. Many fabulous stories were related of this Gulfweed by the mariners of the 15th c. Ships were said to have been stopped in their course, and the crews obliged to cut their way with hatchets. The discoveries of Columbus put an end to these exaggerated reports.

A. are entirely cellular in their structure, however elongated may be their fronds, having no proper vessels, but consisting of an irregular tissue of utricular cells. The fronds of many are articulated. Some of the simplest or lowest organization are propagated by spontaneous separation; in others, the reproductive organs consist of spores (see ACOTYLEDONOUS PLANTS) enclosed in *perispores*, and variously disposed in receptacles of different kinds; sometimes in the interior of the cells. *Antheridia* (q. v.) also occur in some; and *zoospores*, or spores with moving *cilia*, which exhibit phenomena of motion resembling those of animal life. The *Diatomaceæ*, in which the ordinary mode of reproduction is by spontaneous separation, have by some been referred to the animal kingdom. They are entirely microscopic, resemble the animalcules called *Infusoria*, and are generally found in still waters and moist places, but occur in prodigious numbers in some parts of the Antarctic Ocean, where they give a color to the water.

A. differ from Fungi (q. v.) in deriving their nourishment exclusively, as it would seem, from the medium by which



*Fucus vesiculosus*:

showing the receptacles of the fructification *a, a* at the ends of the branching frond; *b, b, b*, large air-cells which help to float the plant.

## ALGA MARINA—ALGAROTTI.

they are surrounded, and not from the substance upon which they grow. The substance of which they are composed is also very different. Yet it has been felt not a little difficult to determine to which of the two orders some of the lowest forms of vegetable life should be referred.

As to their substance, A. consist chiefly of vegetable gelatine, which dissolves in water when they are boiled in it. The harder parts of their fronds are sometimes coriaceous, or horny, or cartilaginous, but never really ligneous. Their color is not always green, but mostly brown or yellow, sometimes purple, or violet, or rose color; and many of them present a very beautiful appearance when examined through a microscope. Many contain an abundance of iodine. Different species of Wrack (*Fucus*), (q.v.), which are cast on shore in vast confused masses by the waves, are gathered and burned in the Orkney Islands, in Normandy, and other parts of the world, the ashes forming an article of commerce under the name of Kelp (q.v.), and containing much of the iodide of sodium. Sea-weeds of all kinds are an excellent manure. None of the species are poisonous, and some of them are used for food, as Carrageen (q.v.) or Irish-moss, Dulse (q.v.), Laver (q.v.), etc. The edible swallows' nests of the Indian Archipelago are composed of a species of sea-weed. Several kinds are eaten as articles of luxury by the Chinese. *Plocaria tenax*, one of the species so used, furnishes them also with an admirable glue, of which great quantities are prepared and brought to the market. *Plocaria helminthocorton*, Corsican moss, a native of the Mediterranean, and found principally around the shores of Corsica, is used as a vermifuge. See PLOCARIA.

One of the latest classifications, showing the place and character of A., is Dr. Goebel's new revision of Sachs; for outline of his system, see BOTANY. The usual division of A. has been into *Chlorospermeæ*, *Rhodosperrmeæ*, and *Melanospermeæ*; see Bessey's Botany. For American A., see Contributions of Smith. Inst.; for other, see Kützing's *Phycologia Generalis* (Leip. 1843), and his *Species Algarum* (Leip. 1845); Greville's *A. Britannica* (Lond. 1830); *British Sea-weeds*, nature-printed (Lond.: Bradbury and Agnew).

ALGA MARINA: see GRASS WRACK.

ALGARDI, *âl-gar'dē*, ALESSANDRO: 1602-54; b. Bologna: an Italian sculptor, ranked next to Lor. Bernini among Italian sculptors of the 17th c., excelling especially in the representation of nude figures. His works, however, suffered from the faults prevalent in his time, especially from a striving after pathos and picturesque effects, opposed to the true character of sculpture. His most important work is a colossal relievo of Attila in St. Peter's, Rome. His statue of the God of Sleep in the Villa Borghese has frequently been mistaken for an antique.

ALGARO'BA: see CAROB.

ALGAROTH, n. *äl-gä-röth* [said to be after discoverer]: the oxychloride or flowers of antimony.

ALGAROTTI, *äl-gä-rot'ē*, FRANCESCO, Count: 1712-64; b. Venice: an Italian author: studied in Rome and Bologna,

## ALGARVE—ALGEBRA.

and when 21 years old, published in Paris (1733), a work entitled *Newtonianismo per le Donne* (The Newtonian Philosophy adapted to the Ladies), which was the basis of his subsequent reputation. Until 1739, he lived in France. On his return from a journey to Russia, A. became acquainted with Frederick II. of Prussia, who elevated him to the rank of count, and made him, in 1747, lord chamberlain. He was also patronized by Augustus III., of Poland and lived alternately in Berlin and Dresden until 1754, when he returned to Italy. He died 1764, March 3, at Pisa, where, in the Campo Santo, Frederick the Great raised a monument to his memory. Though his poetry shows no great genius, his letters rank with the best in Italian; and in his own time he was recognized as a good judge of painting and architecture, and his reputation is confirmed by his work *Saggi sopra le Belle Arti* (Essays on the Fine Arts), and by the paintings that he selected for the Dresden gallery.

**ALGARVE**, *âl-gâr'vā*: smallest and most southerly of the provinces of Portugal, between Andalusia and the Atlantic Ocean: estimated 1,875 sq. m. In ancient times it was much more extensive. It received its name from the Arabs, in whose language A. signifies 'a land lying to the west.' It was a Moorish province till 1253, when Alphonso III. united it to the crown of Portugal as a separate kingdom. The n. part of the province is occupied by a range of mountains of an average height of 4,000 ft., which form the continuation of the Sierra Morena of Spain, and terminate in Cape St. Vincent, the s.w. extremity of Europe. The highest ridges are entirely destitute of vegetation; and the mountainous tract in general admits of but little cultivation. From the main ridge, the country slopes s. in jagged terraces and low hills, leaving a level tract of a few m. along the coast. The soil of this plain is but indifferently suited for the production of grain, or even of pasturage; but it produces abundance of the finest fruits of the south, even plantains and dates. The wine is also of excellent quality. The African heat of the climate is mitigated by the cool sea-breeze. The only river of importance is the Guadiana, on the frontiers of Spain. The inhabitants employ themselves chiefly in fishing, in manufacturing salt, and cultivating fruit. They are considered the best sailors and the truest friends in Portugal. Pop. (1890) 228,551. The chief town is Faro (pop. 8,097).

**ALGEBRA**, n. *âl-jě-brā* [Sp.; It.; mid. L. *al'gebra*—from Ar. *al, gabr*, the putting together of broken things]: arithmetic by signs—commonly the letters of the alphabet—the first letters, *a, b, c, d*, etc., represent known quantities, and the last letters, *w, x, y, z*, unknown quantities. **ALGEBRAIC**, a. *âl-jě-brā'ik*, or **AL'GEBRA'ICAL**, a. *-i-k'âl*, pertaining to algebra. **AL'GEBRA'ICALLY**, ad. *-l'î*. **AL'GEBRA'IST**, n. one who is skilled in algebra.

**ALGEBRA**: a branch of pure mathematics. The name is derived from the Arabs, who call the science *Al gebr wal mokābala*—i. e., supplementing and equalizing—in reference

## ALGEBRA.

to the transposition and reduction of the terms of an equation. Among the Italians in early times it was called *Arte Maggiore*, as having to do with the higher kinds of calculation, and still oftener *Regola de la Cosa*, because the unknown quantity was denominated *cosa*, the 'thing;' hence the name of *Cossike Art*, given to it by early English writers.

The term Algebraical is generally applied vaguely to any expression or calculation in which signs are used to denote the operations, and letters or other symbols are put instead of numbers. But it is perhaps better to restrict the name A. to the doctrine of Equations (q.v.). Literal arithmetic, then, or multiplying, dividing, etc., with letters instead of Arabic ciphers, is properly only a preparation for A.; while Analysis (q.v.), in the widest sense, would embrace A. as its first part. A. itself is divided into two chief branches. The first treats of equations involving unknown quantities having a determinate value; in the other, called the Diophantine or Indeterminate Analysis, the unknown quantities have no exactly fixed values, but depend in some degree upon assumption.

The oldest work in the West on A. is that of Diophantus of Alexandria, 4th c. It consisted originally of 13 books, and contained arithmetical problems: only 6 books are now extant. They are written in Greek, and evince no little acuteness. The modern Europeans got their first acquaintance with A., not directly from the Greeks, but, like most other knowledge, through the Arabs, who derived it, again, from the Hindus. The chief European source was the work of Mohammed Ben Musa, who lived in the time of Caliph Al Mamun (813-833); it has been translated into English by Dr. Rosen (Lond. 1831). An Italian merchant, Leonardo Bonaccio, of Pisa, travelling in the East about 1200, acquired a knowledge of the science, and introduced it among his countrymen on his return; he has left a work on A., not yet printed. The first work on A. after the revival of learning is that of the Minorite friar Paciolo or Luca Borgo (Ven. 1494). Scipio Ferreo in Bologna, discovered, 1505, the solution of one case of cubic equations. Tartaglia of Brescia (d. 1557) carried cubic equations still further, and imparted his discoveries to Cardan of Milan, as a secret. Cardan extended the discovery himself, and published, 1545, the solution known as 'Cardan's Rule.' Ludovico Ferrari and Bombelli (1579) gave the solution of biquadratic equations. A. was first cultivated in Germany by Christian Rudolf, in a work printed 1524; Stifel followed with his *Arithmetica Integra* (Nürnb. 1544). Robert Recorde, in England, and Pelletier, in France, wrote about 1550. Vieta, a Frenchman (d. 1603), first made the grand step of using letters to denote the known quantities as well as the unknown. Harriot, in England (1631), and Girard, in Holland (1633), still further improved on the advances made by Vieta. The *Géométrie* (1637) of Descartes makes an epoch in A.; it is rich in new investigations. Descartes applied A. to Geometry, and was the first to represent the nature of curves by means of equations. Fermat also contributed



## ALGECIRAS—ALGER.

much to the science; and so did the *Arithmetica Universalis* of Newton. To these names may be added Maclaurin, Moivre, Taylor, and Fontaine. Among the chief promoters of A., in more recent times, are Euler, Lagrange, Gauss, Abel, Fourier, Peacock, De Morgan, Sylvester, and Cayley.

ALGECIRAS, or ALGEZIRAS, *äl-jê-zê'ras*: town in Spain, prov. of Cadiz, on the Gulf of Gibraltar. Its harbor is bad, but it has a good dock, and fine aqueducts. The citadel is in a very dilapidated condition, and the trade in corn and brandy is no longer important. The place, however, which is pleasantly situated, has a picturesque appearance. It was the first town in Spain taken by the Moors (713), in whose possession it remained for seven centuries; but in 1344, after a siege of 20 months, it was retaken by the brave Alfonso XI., king of Castile. It is said that crusaders from all parts of Europe were present at this siege, which was *the* siege of the age, and is spoken of as such. Edward III. of England purposed coming in person to the assistance of the Spanish monarch, whom he greatly admired. Alfonso destroyed the old Moorish town; the modern one was built by Charles III. in 1760. Between Algeciras and Tarifa, 1801, June 6, the English admiral Saumarez attacked the combined French and Spanish fleets under Rear-Admiral Luinois. He was defeated, but renewed the engagement a few days afterwards, and gained a complete victory. A. is 5 m. from Gibraltar, across the bay or gulf, and 10 round by land. Pop. 12,465.

ALGEMESI, *äl-hā-mā-sê'*: town of Spain, province of Valencia, 21 m. s.s.w. of Valencia, near the river Jucar. It produces rice and silk, and holds a celebrated annual fair in September.

ALGER. *äl-jêr*, HORATIO, Jr.: author: b. Revere, near Boston, 1834, Jan. 13. He graduated at Harvard College 1852, and began to teach, also giving time to writing, for which he had early shown adaptation. For a time he held editorial positions on two Boston newspapers, then made a tour of a year through Europe, keeping his literary connection by corresponding with the American press. Upon his return to the United States he took his old profession of teaching, but continued to write; and in 1866, when he removed to New York, became deeply interested in the condition of street boys, and was led to give his attention to the writing of works of fiction for youth, having as heroes, or for his illustrations, children of this class. Among his works, which were continued in series, are *Ragged Dick*, *Tattered Tom*, and *Luck and Pluck*. He had written also *Bertha's Christmas Vision* (1855); *Nothing to Do* (1857); *Frank's Campaign, or what a Boy can Do* (1864); *Paul Preston's Charge* (1865); *Helen Ford*, a novel (1866); a volume of poems; lives of Webster, Lincoln, and Garfield; *Luke Walton* and *Young Acrobat of the Great North American Circus* (1889). He died 1899, July 18.

## ALGER.

**ALGER, RUSSELL ALEXANDER:** capitalist and manufacturer; b. Lafayette, Medina co., O., 1836, Feb. 27. He was left an orphan when 13 years old; worked on a farm in summer by the month till he was 20, attending the Richfield (Ohio) Acad. in winters. He taught school in the winters at the age of 19, 20, and 21. He was admitted to the bar by the supreme court of Ohio, 1859; and removed to Grand Rapids, Mich., 1860. At the outbreak of the civil war, he enlisted as a private in the 2d Mich. vols.; 1861, Sep. 2, was commissioned capt. 2d Mich. cav., 1862, Apr. 2, promoted maj.; July 1 was wounded, captured, and escaped at Boonesville, Miss.; Oct. 16 promoted lieutenant. 6th Mich. cav.; 1863, Feb. 28, commissioned col. 5th Mich. cav.; 1864, July 8, wounded at Boonsboro', Md.; July 11, brevetted brig.gen. vols. for gallantry at Trevillian Station; and 1865, June 11, brevetted maj.gen. vols. for services during the war. After the close of the war he engaged in lumbering, and became very wealthy. Gen. A. was a delegate to the national repub. convention in Chicago 1884; was gov. of Mich. 1885-87; was an unsuccessful candidate for the presidential nomination before the repub. national convention at Chicago 1888; was commander-in chief of the Grand Army of the Republic 1889-90; secretary of war 1897-99; and was elected U. S. senator in 1903.

**ALGER, WILLIAM ROUNSEVILLE:** clergyman and author: b. Freetown Mass., 1822, Dec. 28. He graduated at the Cambridge Divinity School, Harvard College, 1847, and was ordained pastor of the Unitarian church, Roxbury, Mass. In 1855, he succeeded Theodore Parker as minister of the Society of Liberal Christians in Boston, meeting in Music Hall, where he continued to preach till 1876, when he became minister of the Unitarian Church of the Messiah, New York. He succeeded in this position Orville Dewey and Samuel Osgood, and was followed after three years by Robert Collyer. For the next three years he preached in different cities in the west, but in 1882 settled in Boston, and gave his attention to general literature. His principal works are: *The Poetry of the Orient* (1856); *Critical History of the Doctrine of a Future Life* (1862); *The Genius of Solitude* (1866); *Friendships of Women* (1868); *Prayers offered in the Massachusetts House of Representatives*, 1868 (1869); *The End of the World and the Day of Judgment, The Sword, the Pen, and the Pulpit*, and *A Tribute to Charles Dickens* (1870); *Life of Elwin Forrest, with a Critical History of the Dramatic Art*, 2 vols. (1876); *The School of Life* (1881); *A Symbolic History of the Cross of Christ* (1881); *The Sources of Consolation in Human Life* (1892).

## ALGERIA.

ALGERIA, *āl-jē'rī-ā* (in French, ALGÉRIE): a country on the n. coast of Africa, a subordinate part of the Turkish Empire till 1830; now a French colony. It lies between 2° 8' w. long., and 8° 50' e. long. It is bounded on the n. by the Mediterranean, on the e. by Tunis, on the s. by Sahara, and on the w. by Morocco. The French have extended their dominions more than 200 m. into the interior, but those of the deys—the former rulers of A.—comprehended territories lying nearly twice as far s. The census of 1901, March 24, gave the area of the three departments of A.—Algiers, Oran, and Constantine—as 184,474 sq. m., the departments ranking in size, Constantine, Algiers, and Oran. Physically, A. forms a part of the n. border of the great plateau of N. Africa, which here rises from the sea in three terraces. The Atlas Mountains run parallel to the coast-line. Behind these, a vast tract of heathy plains, called the *Sebkhas*, interspersed with salt-lakes, stretches southwards, until bounded by a second chain of mountains; beyond which, again, lies the great desert of Sahara. The plains and valleys which open out towards the sea in the n. of A., such as those round Bona, Algiers, Oran, etc., are extremely fertile, abound in wood and water, consist mostly of a calcareous soil, and are well adapted for agriculture. They form the *Tell*, which was once one of the granaries of Italy. In strong contrast to these are the *Sebkhas* or lesser deserts, covered with herbs and brushwood, but almost destitute of fresh water, except where here and there they are interrupted by an oasis. The most s. part of the country beyond the Atlas partakes of the nature of the Sahara, but contains oases covered with palm-trees, and well peopled. This is a part of the 'date-country,' or 'Blad-el-Djerid.' There are no rivers of any importance in the entire colony, nothing beyond mere coast streams, which rise in the neighboring Atlas. The largest is the Shelif, about 230 m. in length. With respect to the climate, the heat in the *Tell* is sometimes very great. On the coast it is mitigated by the sea-breeze; and among the high mountains of the interior, the winters are even cold. The average temperature of Algiers is about 63° F. A. is not unfrequently visited by the *simoom*, or hot wind, called by the Italians *sirocco*, and by the Spaniards *solano*. Its mineral wealth is considerable; iron, lead, copper, and manganese are found. The marble of Numidia was in requisition in ancient times. Extensive forests of oaks, cedars, pines, and pistachio-nut trees cover large portions of the country, and furnish an abundant supply of timber and resin. The cereals and the olive are cultivated in the *Tell*; and the oases of Sahara are famed for their dates. The latter region, by means of numerous artesian wells, has been made exceedingly productive within recent years. The pop. has more than doubled in 10 years, and the former desert tracts have more than 500,000 palm and 90,000 fruit trees. The draining of Lake Hallula, in the plain of Metidja, gave 34,000 acres of land to cultivation.

*Language.*—Four languages are spoken in A., the Berber, the Arabic, the Turkish, and the negro dialects.

## ALGERIA.

The Berber, which is the most ancient of all, has a variety of dialects, and is spoken by all the Kabyle tribes. It possesses no literature in its own alphabet, Arabic characters alone being used. The Arabic is of course an importation from the East, and has borrowed expressions and idioms from the various native languages with which it came into contact; but its differences are comparatively slight. The Koran is the great bond of union. The Turkish, since the French conquest, has become almost extinct. The negro dialects are of little consequence.

*History.*—In the most ancient times the Numidians were settled in the e. part of the regency, and the Moors (or Mauri) in the w. Under the Romans, the former was included in the province of Africa, while the latter was called Mauritania Cæsariensis. Like the rest of N. Africa, it had then reached its highest prosperity. It had numerous cities, which were principally Roman colonies. But its conquest by the Vandals, under the famous Genseric, about 440, threw it back into a state of barbarism, from which it only partly recovered after the Mohammedan immigrants had established their dominion. About 935, the city, Al-Jezira, i.e., the island, and later Al-Gazie, i.e., the warlike, now called Algiers, was built by an Arabian prince, Zeiri, whose successors ruled the land till 1148, after which it was governed by the Almohades (q.v.) till 1269. It was then split up into many small territories. In 1492 the Moors and Jews who had been driven out of Spain settled in A., and began to revenge themselves on their persecutors by piracy. Ferdinand, the Spanish monarch, attacked them on this account, took the city of Algiers in 1509, and erected fortifications on the island which forms its harbor. One of the Algerine princes, the Emir of Metidja, whose territories were threatened by the Spaniards, now invited to his assistance the Greek renegade, Horuk or Harude Barbarossa, who had made himself famous as a Turkish pirate chief. This laid the foundation of the Turkish dominion; for when Barbarossa arrived in 1516, he treacherously turned his corsair bands against the emir, whom he murdered, and then made himself sultan of Algiers. His subsequent successes alarmed the Spaniards, who marched an army against him from Oran. Barbarossa was defeated in many encounters, and, at last, being taken prisoner, was beheaded in 1518. His brother was then chosen sultan. He put himself under the protection of the Ottoman court, by the help of a Turkish army drove the Spaniards out of the country, and established that system of military despotism and piracy which lasted until 1830, when the French captured the city of Algiers and took possession of the country.

Under Moslem rule the Algerines carried on a piratical war against the powers of Christendom: made landings on the Italian and Spanish coasts: were constantly fighting to extend their possessions inland: subdued the whole country to the border of Morocco, except the Spanish possession of Oran; and advanced their expeditions beyond the Straits of Gibraltar. The court at Constantinople gave them the right to choose a dey from among themselves,

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1600; but this divided local authority and led to grave internal strife. The English bombarded Algiers 1669, the Dutch 1670, and the French 1682 and 1687. Dey Ibrahim took possession of Oran 1708; and his successor, Baba-Ali, wrested the country from the dominion of the Porte, conducted a successful war, and concluded peace on his own terms. Then followed a period of supreme rule by deys, few of whom were permitted to die a natural death. Spain sent an expedition against A. 1775, comprising 44 ships of war, 540 transports, and 25,000 soldiers; but like all her previous ones, this was singularly unfortunate, and A. continued to defy the great Christian powers and to enforce tribute from the weak ones. During the French revolution and at the time of the empire, powerful fleets in the Mediterranean temporarily checked the piracies, but they were soon resumed as vigorously as ever. The first signal defeat of the pirates was by an American fleet off Carthage, 1815, June 20, when the dey was forced to acknowledge the inviolability of the American flag. The English secured from the other Barbary states the recognition of an international law respecting the treatment of prisoners; and when A. refused to assent to it, English and Dutch fleets bombarded Algiers and laid half the city in ruins. A treaty was exacted from the dey 1816, in which he agreed to release all Christian slaves without ransom, and promised to put an end forever to both piracy and Christian slavery. Outrages against French officials, French vessels, and Roman vessels flying the French flag, succeeded the termination of piracy, and were continued till the French sent a formidable expedition to A., bombarded and captured Algiers, and took possession of the whole country 1830, July.

Under the French occupation, the first administrative officer was Marshal Bourmont, who was succeeded, after the revolution in France, by Gen. Clausel. He undertook to subdue the country and to give it a permanent govt.; but the people rebelled against the imposition of French laws and customs and the desecration of their sacred places, and Clausel was compelled to send a milit. expedition against the refractory local authorities and the turbulent people. This movement led to the preaching of a holy war, and the gradual loss of power by Clausel. For making a treaty with the bey of Tunis which the home govt. disapproved, Clausel was recalled. He was succeeded by Gen. Berthezène, who, proving a failure, was speedily superseded by Lieut. gen. the Duke of Rovigo 1831, Dec. The duke remained in A. till 1833, Mar.; was a severe and relentless administrator; annihilated the whole Arab tribe El Uffia in a night massacre; treacherously slew two powerful Arab chiefs; and left the country in widespread warfare against the French. In 1834 the French govt. resolved to retain possession of the country. It created an administration with supreme power, civil and milit., invested in a gov. gen., receiving orders direct from the minister of war. For the administration of justice, a variety of tribunals was provided, Frenchmen and foreigners

## ALGERIA.

were made amenable to French laws and the natives to their own. The municipal institutions, educational system, and police arrangements of France were established, and for the first time in many years an era of peace and prosperity seemed about dawning, when the treaty was suddenly broken and the French army was signally defeated at Makta. A change in administrative and military officers was made; Clausel was sent to A. and took vigorous measures to wipe away the disgrace of the Makta defeat; and Abd-el-Kader (q.v.), the emir about whom the people had rallied when the Marabouts began preaching the holy war, became all-powerful. Numerous expeditions were sent against him without material results; and 1837, May 30, the last appointed French commander, Gen. Bugeaud, was compelled to make peace with him. Abd-el-Kader recognized the sovereignty of France over the regency, and received in return the govt. of the provinces of Oran, Titeri, and Algiers, excepting the cities of Oran, Arzeu, Masagran, Mostaganem, Algiers, Blidah and Koleh, Sahel, and the plain of Metidjá, Lieut.-gen. Darrémont succeeded Marshal Clausel 1837, Feb. He chastised the Kabyles of the province of Algiers, and May 13 stormed and captured the city of Constantine, which victory led to the subjugation of the entire province of Constantine, but cost the commander his life. In 1839 Abd-el-Kader again violated the treaty, headed an uprising, regained his former power, and carried on a skilful warfare against the French till 1847, when his fortunes changed, the most of his allies and followers deserted him, the French succeeded in hemming him in on all sides, and he surrendered to Gen. Lamoricière near the end of December.

During the French revolution of 1848, Feb., the Kabyles made a new insurrection, which, however, was soon quelled. The national assembly declared A. a permanent possession of the republic, and proposed to grant it all the political privileges of a French province. While the French were extending the work of conquest, colonization, and civilization, the Kabyles stubbornly resisted every attempt at subjugation or the imposition of civilized discipline, and further military operations were soon found necessary. In 1853-4 and 1856-7 expeditions were organized against the Kabyles, and after a barbarous struggle the French subdued them. In 1860 Marshal Pélissier was appointed gov.gen.; 1863 Emperor Napoleon offered A. a new constitution 1864 troubles arose between the colonists and Arabs, in which the latter were again conquered, and Marshal MacMahon succeeded Pélissier; 1865 Napoleon visited A. and promised to maintain its nationality, while declaring that it must continue united to France; 1867 two expeditions reduced to submission several tribes that had revolted; 1867-8 A. was visited by a famine; and 1870, when the Franco-Prussian war compelled the withdrawal of the greater part of the French troops from A., the natives began to entertain hopes of freeing themselves from the yoke of the invader. In the face of a threatened general uprising, and the growing discontent of the colonists with

## ALGERINE—ALGIERS.

the milit. govt., the new republican govt. in Paris authorized a civil administration, with a gov., prefect for each province, and a council of which the prefects, abp., commander of the army, and other officials, were members.

Since the French occupation, there has been steady increase in the foreign trade of A., three-fourths of the imports coming from France and two-thirds of the exports going thither. The principal imports are manufactured cotton, woolen, linen, and silk goods, sugar, hides, building materials, and metals; and exports, cereals, wool, live animals, fruit, vegetable fibres, cork, and iron, copper, and lead ores. In 1890 the imports aggregated \$52,018,026; exports \$52,019,826; 1891 the revenue was \$9,034,000; expenditure \$8,832,592. Mohammedan schools for instruction in French and Arabic were maintained by the govt., and attended largely by pupils of both sexes; numerous banks have been established; there is adequate submarine and inland telegraph service; and 1891 there were 1,910 m. of railroads.

*Population.*—According to the census of 1901, March 24, the department of Constantine had 1,990,992 pop.; that of Algiers, 1,640,985; and that of Oran, 1,107,354—total 4,739,331. The native pop. was 4,072,080.

ALGERINE, a. *āl'jĕ-rnĕn*, of or belonging to Algiers: N. an inhabitant of; formerly, a pirate.

ALGIERS, *āl-jĕrż'* [Arabic, Al-jezira, the island]: cap. of Algeria: built about 935 by an Arab chief. It rises from the sea-shore up the sides of a precipitous hill in the form of an equilateral triangle. The apex is formed by the Casbah, the ancient fortress of the deys, which is 500 ft. above the sea-level, and commands the whole town. The base is a mile in length. The present city may be regarded as divided into two parts: the old, or high town; and the new, or low town. With the exception of some mosques, the latter consists of wharves, warehouses, government houses, squares, and streets, principally built and inhabited by the French; while the former is almost wholly Moorish both in its edifices and inhabitants. The great centre of bustle and activity in A. is the Place Royale—a large oblong space in the centre of the town, planted with orange and lime trees, and surrounded by houses in the European style. Here may be found as motley a crowd as anywhere in the world, denizens of all nations—Arabs, Moors, Jews, French, Spaniards, Maltese, Germans, Italians, etc. The city is intersected by two large parallel streets, Bab-el-Ouad and Bab-azoun, running n. and s. for more than half a mile. They are flanked by colonnades, but are very narrow, and therefore inconvenient for traffic; as promenades, however, nothing could be more agreeable. In 1833, A. had upwards of 100 mosques and marabouts. The mosques are divided into two classes—the djamas, or principal mosques, and the mesjids, or inferior mosques. The marabouts are the tombs and sanctuaries of saints. Everywhere A. wears the aspect of a rising colonial city. Other towns in the province still retain their

## ALGIN—ALGOLOGY.

oriental character, with the exception of a few military buildings; but the new town of A. might deceive the traveller into the belief that he is still in Europe, were it not for the throng of swarthy faces he meets. The streets are regular, spacious, and elegant; some of them as handsome as the Parisian Boulevards, and adorned with arcades. The shops, too, are occasionally very good. The houses are in some instances five stories high, which, though it gives a massive and imposing appearance to the city, is yet a very perilous innovation in a place which has suffered dreadfully from earthquakes.

But perhaps greater interest attaches to the old Moorish town, which is connected with the new by a steep, narrow, jagged-looking street called the Casbah, leading down from the fortress of the deys. The houses are square, substantial, flat-roofed; rise irregularly one over the other; and have no windows, but only peep-holes, which are intended to exclude impertinent eyes, and are therefore fortified with iron gratings instead of glass, so that the houses have a very prison-like appearance. Although the streets at first contrast unfavorably with those of Europe, on account of their narrowness, the coolness which this secures soon reconciles the traveller to other inconveniences. The inhabitants have recourse to their flat roofs or terraces in the evening to enjoy the delicious sea-breeze. Horse-racing is the great amusement. The Arabs are passionately fond of it. The town has supreme courts of justice, a chamber and tribunal of commerce, a college, and schools, a Rom. Cath. cathedral and churches, a French Prot. church, a synagogue, a bazaar of native industry, theatres, and banks.

A., misgoverned by a long succession of Turkish deys, fell into the hands of the French 1830 (see ALGERIA), who ended the ferocious despotism. The Turks withdrew in great numbers. A. is now known as the chief commercial place in Algeria, and is a winter resort for Europeans suffering with chest diseases. Pop. (1901) 96,542, less than one-half Europeans.

ALGIN, *äl'jĭn* [Lat. *alga*, sea-weed] substance forming in part a jelly-like material on the surface of certain sea-weeds. The thalli of a *Laminaria*, chemically treated, produce a gelatinous mass, about 2 per cent. of which is A. This mass, heated and filtered, leaves a cellulose amounting to 10-15 per cent. of the air-dried plant. The solution contains also mucilage and dextrine. Add sulphuric or hydrochloric acid, and the A. becomes compact. To render this soluble, redissolve in carbonate of soda. A. is used as sizing for textile fabrics, and for culinary purposes. The dry A. resembles horn, and can be turned and polished.

ALGOA BAY, *äl-gō'a*: extensive inlet at the e. extremity of the s. coast of Africa, about 430 m. e. of Cape Town. Its anchorage is mostly good, and it is the harbor of the e. province, by far the most flourishing portion of the colony. See CAPE OF GOOD HOPE.

ALGOLOGY: see under ALGÆ.



## ALGONQUINS--ALHAMA.

**ALGONQUINS**, *äl-gön'kwĩnz*: the most prominent of the three aboriginal races that the French found in the great basin of the St Lawrence. They were then the lords not only of the best part of Canada, but of much adjacent territory to the n and w. In what is now the United States, the Algonquin tribes occupied the coast region from the n.e limit to the James river, in Va., and were found westward as far almost as the Rocky Mts. The Abenakis, Micmacs, Delawares, Mohigans. Shawnees, Pequots, Ojibways, Crees, and perhaps the Blackfeet and Cheyennes, were of Algonquin stock. In a much narrower sense, the name of A. is now applied to the remnant of an aboriginal people in the province of Quebec, Can. See Leland's *Algonquin Legends of New England*.

**ALGOR**, n. *äl'gör* [L.—from *algëo*, I feel cold]: the sense of coldness experienced at the onset of fever. **ALGID**, ù. *äl'jid*, chilled with cold; become cold.

**ALGORITHM**, n. *äl'gō rĩthm* [Sp. *algoritmo*, the science of numbers—Sp. spelling of an Arabic word: Ar. *al*, the; Gr. *arĩthmōs*, number]: the art of computation; notation; algebra

**ALGUAZIL**, or **ALGUACIL**, n. *äl'gwǎ-zēl'* [Sp. *alguacil*, a police-officer—from Ar. *al-wazir*, a vizier, a lieutenant; from *Wasil*, i.e., the 'power' derived from the king]. general name in Spain of the officers intrusted with the execution of justice. There are 'Alguaciles mayores,' who either inherit the office of executing justice in a town as a hereditary right belonging to their families, or are chosen to the office by the municipality; formerly, the name was also given to the officers that executed the sentences or orders of tribunals, such as the tribunal of the Inquisition, and of the various orders of knights. But usually, under the name of A., is understood the 'Alguaciles menores,' or 'ordinarios,' that is to say, the attendants or officers of the courts of justice, gens d'armes, bailiffs—in short, all the inferior officers of justice and police.

**ALGUM**, n. *äl'gũm* [Heb. *almug*, a corrupted form of *algum*: Sans. *valguka*, sandal-wood]: sandal-wood; a tree, indigenous chiefly on the Malabar coast of India, whose wood is used both medicinally and as a perfume; the *Santālum album*, Ord. *Santālācèæ*; the *almug* or *algum* trees of Scripture are also referred to the *Pterocar'pus santalinus*, or red sandal-wood of India, Ord. *Leguminōsæ*.

**ALHA GI**. see **MANNA**.

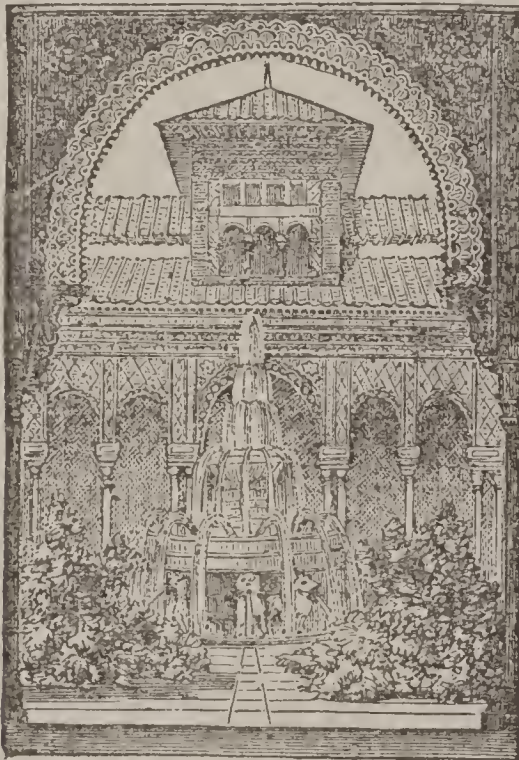
**ALHAMA**, *á-lá'má* [Arab. *The Bath*; the Roman *Astigia Juliensis*] town of Andalusia, Spain, province of Granada, 25 m. s.w. from Granada. Its situation is extremely picturesque, on the edge of a projecting rock overhanging a deep chasm of limestone hills, through which the river Marchan foams, with mountains in the background rising 8,000 ft. Vineyards and gardens mingled with the houses on the steep slopes add to the interest of the scene. A. is a decayed town, although its warm sulphureous baths are still frequented

## ALHAMA—ALHAMBRA.

by visitors in the beginning and end of summer. The Moors derived a large revenue from its baths. It was a famous fortress of the Moors; and its capture, 1482, prepared the way for that of Granada. There are still remains of the Moorish castle and town wall. There are ruins also of a Roman aqueduct: the principal bath still in use is a Moorish edifice; and a smaller one is supposed to be Roman. Pop. 7,758.

**ALHAMA:** town of Murcia, Spain, 17 m. s.w. from Murcia; celebrated for its warm mineral waters, and resorted to for bathing. It has a ruined castle. Pop. 6,300.

**ALHAMBRA,** *âl-hâm'brâ:* the fortress which forms a sort of acropolis or citadel to the city of Granada, Spain, and in



Entrance to the Court of the Lions—Alhambra.

which stood the palace of the ancient Moorish kings of Granada. The name is a corruption of the Arabic *Kal'at al hamra*, 'the red castle.' It is surrounded by a strong wall, more than a mile in circuit, and studded with towers. The towers on the n. wall, defended by nature, were used as residences connected with the palace. One of them contains the famous *Hall of the Ambassadors*. The remains of the Moorish palace are called by the Spaniards the *Casa Real*. It was begun by Ibnu-l-ahmar, and continued by his successors (1248-1348). The portions still standing are ranged round two oblong courts, one called the *Court of the Fish-pond*, the other the *Court of the Lions*. They consist of porticos, pillared halls, cool chambers, small gardens, fountains, mosaic pavements, etc. The lightness and elegance of the columns and arches, and the richness of the ornamentation, are unsurpassed. The coloring is but little



Alder (*Alnus glutinosa*).



Aliped.



Common Alder (*Alnus glutinosa*). Another specimen.



Alhambra.

ALHAURIN EL GRANDE—ALI-BEN-ABI-TALEB.

altered by time. The most characteristic parts of the Casa Real have been reproduced in the 'Alhambra Court' of the Crystal Palace at Sydenham, Eng. A great part of the ancient palace was removed to make way for the palace begun by Charles V., but never finished. It is long since any part of the Moorish palace was inhabited; but it is kept in a state of preservation as a work of art, and as a memorial of the tragic legend of the Abencerrages (q.v.). In 1890, Sep. 15, it was nearly destroyed by fire.

ALHAURIN EL GRANDE, *âl-ow rên' êl grân'dâ*: town of Granada, Spain, prov. of Malaga; 19 m. w. from Malaga, on the n. side of the Sierra de Mijas, and near the Faala, an affluent of the Guadalherce. It is well built, with a number of squares, wide, well-paved streets, and many fountains. There are remains of a Roman aqueduct and of an Arab fortification. Many of the inhabitants are employed in the quarries and mines of the vicinity. Pop. 7,514.

ALIA, *a-lê â*: town of Sicily, prov. of Palermo, 30 m. s.e. from Palermo, picturesquely situated on the crest of a hill, in a mountainous and craggy district, near a torrent called the Fiume Torto. Pop. 6,425.

ALIAS, conj. *â'li-âs* [law L. *âlias*—from L. *aliûs*, another]: otherwise: N. a false or assumed name; in law, formerly a second writ of execution issued when the first has failed.

ALIBAUD, *â-le-bô'*, LOUIS: d. 1836, July 11: notorious for his attempt to murder King Louis-Philippe. He was, at the revolution of July, quarter-master in the 15th regt. of the line. Having been degraded subsequently for an accidental brawl in the streets of Strasburg, he demanded his discharge in 1834, and went to live at Perpignan, and then at Barcelona, where, having become a fanatical republican, he returned to Paris with the determination to murder the king. A weariness of life had also seized him, so great that he thought of suicide. A. fired at the king, 1836, June 25, at the moment when, driving through the gate of the Tuileries, he bowed to the national guard as they presented arms; the ball passed close by the king's head. Being immediately seized, he regretted nothing but the failure of his attempt. After a short trial, he was guillotined.

ALI-BEN-ABI-TALEB, *â'lê-ben-â' bē-tâ'lēb*: the first convert to Mohammedanism, and fourth caliph: d. 660. He was the bravest and most faithful follower of the Prophet whose daughter, Fatima, he married. Being made caliph in the place of the murdered Othman, he was victorious over the rebels in ninety engagements. He took prisoner Ayeshah, the young widow of Mohammed, and his greatest enemy, in the battle of the Camel—so called because Ayeshah appeared in the field riding on a camel. A. was murdered by a fanatic, and was buried near Kufa, where a monument was erected to him, to which his votaries still go on pilgrimage, and which caused the building of the city Medjed Ali. The religious sect formed by the followers of Ali, called Shiites (q.v.), has spread extensively under that

## ALIBI—ALICATA.

name in Persia and Tartary. The descendants of Ali and Fatima, called the Fatimites (q.v.), although much persecuted by the Ommiades, have nevertheless ruled on the banks of the Nile and of the Tagus, in West Africa, and in Syria. The best edition of the Proverbs or Maxims ascribed to Ali has been published by Fleischer (*Ali's Hundred Proverbs, Arabian and Persian*, Leip. 1837); Ali's *Divan*, the most complete collection of his lyrical poems, mostly on religious subjects, appeared, 1840, at Bulak, near Cairo.

ALIBI, n. *āl'ī-bī* [Law L. *alībī*, elsewhere—from L. *ālīūs*, another]: a law term, being elsewhere; being with another person in another place. A. is a defense resorted to in criminal prosecutions, when the party accused, in order to prove that he could not have committed the crime with which he is charged, tenders evidence that he was in a different place at the time. When true, there can be no better proof of innocence; but as offering the readiest and most obvious opportunity for false evidence, it is regarded with suspicion. In the case of crimes the place of committing which is immaterial—as, for example, the act of fabricating the plates, or of throwing off the spurious notes, in a case of forgery—a proof of A. is of no avail.

ALICANTE, *á-lē-kán'tā*: chief town of a prov. of the same name in Spain; one of the most considerable sea-ports of Spain. It is strongly fortified, and is the staple place for the products of Valencia, especially soda, cotton and linen fabrics, ropes, corn, oil, silk, and the wine of the neighboring district, known as A. or *vino tinto*, on account of its dark color. A good deal of this rough, and at the same time sweet, wine is used to 'doctor' thin clarets for the British market. In 1331, the town was besieged by the Moors; and again by the French under Asfeld in 1709. In 1873 it was unsuccessfully bombarded by the Carthaginian insurgents. Pop. 50,142. The PROVINCE of A. is formed of parts of the old kingdoms of Valencia and Murcia. Pop. (1900) 470,149.

ALICATA, *á-lē-ká'tá*, or LICATA: town of Sicily, prov. of Girgenti; 26 m. s.e. from Girgenti. It is most beautifully situated on the sea-coast, at the mouth of the Salsa (anc. *Himera Meridionalis*), one of the largest rivers, if not the largest, in Sicily; its buildings stretch along the shore, and occupy the steep slope of the hill, which is crested by the great old fortress, now indeed of little strength, but of imposing appearance. On the brow of a hill to the w. of the town is the dismantled castle of St. Angelo, said to occupy the site of that in which the tyrant Phalaris kept the brazen bull, his celebrated instrument of torture. A. is generally believed to stand on the spot where the ancient *Phintias* was built, B.C. 280, by Phintias, tyrant of Agrigentum, after he had destroyed Gela, the inhabitants of which he transferred hither. The place and immediate neighborhood were the scene of some memorable battles in the wars between the Carthaginians and Sicilians and between the Carthaginians and Romans. In the

## ALIDADE—ALIEN.

middle ages, A. suffered severely from the depredations of Barbary corsairs. Its port is quite inferior, the sea being so shallow that only vessels of small size can approach the town; larger vessels are compelled to anchor about a mile from the town, and are loaded and unloaded by the aid of small craft. Yet A. has considerable trade, exporting corn, macaroni, fruit, almonds, pistachio-nuts, sulphur, soda, and wines. Pop. 17,338.

**ALIDADE**, n. *āl'ī-dād* [mid. L. *alīdāda*, an optical instrument—from Ar. *al-hadāt*, a sort of rule]: the index or ruler which moves about the centre of an astrolabe or quadrant, carrying the sights.

**ALIEN**, n. *āl'yĕn* [OF. *alien* or *allien*, a stranger—from L. *aliĕnus*, of another country—from *ālīūs*, another]: one born in or belonging to another country; a foreigner; a stranger: **ADJ.** foreign; strange. **ALIENAGE**, n. *āl'yĕn-āj*, state of being an alien. **ALIENATE**, v. *āl'yĕn-āt*, to transfer anything to another without power of recall; to give to another for good; to estrange; to withdraw love or affection from. **AL'IENA'TING**, imp. **AL'IENA'TED**, pp. **ALIENABLE**, a. *āl'yĕn-ā-bl*, that may be transferred or withdrawn. **ALIENABILITY**, n. *āl'yĕn-ā-bīl'ī-tī*, the being able to be given away. **ALIENATION**, n. *āl'yĕn-ā'shūn*, the transfer of anything to another. **ALIENATOR**, n. *āl'yĕn-ā'tēr*, one who transfers anything. **ALIENEE**, n. *āl'yĕn-ē'*, one to whom a thing is transferred. **ALIENISM**, a. *āl'yĕn-izm*, the condition of an alien.—**SYN.** of 'alienation': estrangement; abstraction; madness; derangement; insanity; aberration.

**ALIEN.** The citizen of one country, when resident in another, unless naturalized (see **NATURALIZATION**), is an alien. The condition of an alien does not necessarily result from foreign birth, for the son of a natural-born or naturalized citizen and resident is not an alien, wherever he may be born. The allegiance due by an alien or stranger to the prince in whose dominions he resides is usually called *local* or *temporary allegiance*. It differs from natural allegiance chiefly in this, that whereas natural allegiance is perpetual, and unaffected by change of residence, local allegiance ceases when the stranger transfers himself to another kingdom. See **ALLEGIANCE: NATURALIZATION: CONSPIRACY BILL**.

In the United States, an A. is a person born out of the jurisdiction of the United States and not since naturalized in accordance with the constitution and laws. Exceptions to this are children of U. S. ministers at foreign courts. An A. cannot in general acquire title to real estate by descent or by mere operation of law; and if he purchase land, he may be divested of the fee under certain procedure; some of the states have statutory exceptions to this rule. An A., though afterwards naturalized, is ineligible to the office of president of the United States, and in some states, notably in New York, to that of governor; and he cannot be a member of congress until the expiration of seven years after his naturalization.

## ALIEN AND SEDITION LAWS—ALIMENT.

He cannot, unless naturalized, exercise any political rights whatever. An A. has the right to acquire personal estate and make and enforce contracts in relation to the same; he is protected from injuries and wrongs to his person and property, his relative rights and character; he may sue and be sued. An A. owes a temporary allegiance, and his property is liable to taxation. A. enemies during war are incapable to sue, and may be ordered out of the country.

ALIEN AND SEDITION LAWS, in United States history: acts of congress 1798 to repress the activity of political opponents of Pres. John Adams's administration. There were three 'Alien Laws,' against alien pamphleteers and agitators of French, English, Irish, and Scotch birth, all sympathizers with Thomas Jefferson and the republican party of that day. The second alien law authorized the pres. to expel from the country all aliens whom he might judge dangerous to the public safety: this is the alien law *par excellence*. The first act lengthened the probation for citizenship from 5 to 14 years; the third act empowered the pres., in time of war with any country, to expel all natives of that country. The seditior law declared the people of France enemies, and adherence to them by an American, treason: combining to obstruct the Federal govt. was declared 'high misdemeanor.'

ALIFEROUS, a. *ă-lif'ēr-ūs* [L. *āla*, a wing; *fēro*, I carry]: having wings. ALIFORM, a. *ăl'ī-fāwrm* [L. *forma*, shape]: wing-shaped.

ALIGARH: see ALLYGURH.

ALIGHT, v. *ă-līt'* [AS. *alihtan*, to light on anything, especially on the ground—from *lihtan*, to alight—*lit.*, to remove a burden from]: to get or come down; to settle on, as birds. ALIGHT'ING, imp. ALIGHT'ED, pp.

ALIGN, v. *ă-līn'* [F. *aligner*, to draw out by line—from *ligne*, a line: L. *ad*, *līnĕā*, a line]: in *mil.*, to place two objects, or two bodies of men, in the same straight line. ALIGNMENT, or ALIGNMENT, n. *ă-līn'mĕnt* [F. *alignement*, a row, a level]: the act of adjusting to a line; the position of a body of men in a straight line: a supposed line to preserve a fleet, or part of one, in its just direction; measurement by straight lines as in the ground-plan of a railway.

ALIKE, a. ad. *ă-līk'* [a shortened form of AS. *anlike* or *onlike*: AS. *on*, on; *līc*, like (see LIKE)]: the same in appearance; not different; in the same manner or degree.

ALIMENT, n. *ăl'ī-mĕnt* [F. *aliment*, food—from L. *alimĕntum*—from L. *ālo*, I nourish, Goth. *alan*; Icel. *ala*, to nourish]: that which nourishes; food; nourishment; support: V. to grant means of support; to maintain. AL'IMENT'ING, imp. AL'IMENT'ED, pp. ALIMEN'TAL, a. supplying food that can nourish. AL'IMEN'TALLY, ad. -lĭ. ALIMENTARY, a. *ăl'ī-mĕn'tĕr-ĭ*, having the property of nourishing; in *anat.*, connected with the introduction, the assimilation, and evacuation of food, as the *alimentary canal*. AL'IMEN'TARINESS, n. AL'IMENTA'TION, n. -tā'shŭn, the

## ALIMENT—ALIMENTARY CANAL.

power of affording nourishment; the state of being nourished. ALIMONY, n. *ăl'î-môn-î*, the sum allowed for the support of a wife who is separated from her husband. AL'IMEN'TIVENESS, n. *-tîv-nēs*, in *phren.*, the organ which creates a desire for food and drinks, or which gives the pleasure arising from eating and drinking.

ALIMENT, in Law: a technical term not known in the law of England; but in the law of France, and of Scotland, retaining the meaning which it had in the Roman law (*Dig.* 34, 1, 6); signifying the food, dwelling, clothing, and other things necessary to the support of life, or such money as may be judicially demanded in lieu of them.

ALIMENTARY CANAL: in Mammalia; that portion of the digestive apparatus through which the food passes after mastication. It is lined by a mucous membrane, which extends from the lips to the anus, being modified in each region. See MUCOUS MEMBRANE. The A. C. really begins at the back of the mouth, in the lower part of the bag called the pharynx, which communicates with the nostrils above, and the gullet or œsophagus below, and also with the mouth and the larynx. The pharynx is surrounded by three muscles, the constrictors, which grasp the food, and force it into the next portion of the A. C., the œsophagus. This is a tube composed of an outer layer of longitudinal muscular fibres, and an inner of circular, which extend down to, and spread out upon, the stomach. These fibres, by a series of peristaltic contractions, carry the morsel of food along into the stomach. In vomiting there is a reversal of these actions, which ruminating animals can accomplish at will. The œsophagus passes through an opening in the diaphragm, and joins the stomach, which is a pouch curved with the concavity upwards, expanded into a *cul de sac* on the left side (the cardiac extremity), and gradually narrowed to the right or pyloric end. It consists of muscular fibres continuous with those of the œsophagus, which become thicker towards the pylorus. Its external surfaces are covered by peritoneum, and it is lined by a thick soft mucous membrane, which, when the stomach is empty, lies in folds. Between the muscular and mucous layers is a fibrous layer, in which the blood-vessels lie before they pass into the mucous layer. See STOMACH. At its pyloric or left extremity the stomach communicates with the small intestine, which is about 20 ft. in length, becoming gradually narrower towards its lower end, and arranged in numerous convolutions, which occupy the middle of the abdominal cavity, and are kept in position by the peritoneum, which attaches them to the back of the abdomen.

The small intestine is subdivided into three parts. The first 10 inches from the stomach is the duodenum, into which open the duct of the pancreas and the common bile duct; of the remainder, the *jejunum* includes about two-fifths, and the *ileum*, three-fifths. The differences between these last two are not visible externally, but consist in modifications of their internal structure. The tube consists of



## ALIMONY—ALI PASHA.

peritoneum, longitudinal and circular muscular fibres, a fibrous layer, and the mucous membrane. See **INTESTINES. SMALL.**

The ileum ends at the right iliac region in the large intestine, which is from 5 to 6 ft. in length. It begins at the pouch called the blind'gut (*caput cæcum coli*) or cul de sac (see **CÆCUM**) which has a small worm-like appendage (*appendix vermiformis*); a double valve guards the opening of the small into the large intestine. The colon passes upwards on the right side to below the liver (ascending colon), then crosses from the right hypochondrium across the upper umbilical region to the left hypochondrium (transverse colon), then descends to the left iliac fossa (descending colon), when it bends twice like an S (sigmoid flexure), and then joins the *rectum* at the left margin of the true pelvis. The colon is distinguished by its pouched or sacculated appearance, the sacs being separated by three flat bands of longitudinal muscular fibres. The peritoneum covers it only in parts. See **COLON**. The rectum is not sacculated, but its muscular coat becomes much thicker; at its lower end the longitudinal fibres stop, but the muscular become more numerous, forming the internal sphincter muscle. The rectum is not straight, but takes a curved course.

The A. C. thus consists of a continuous passage lined by mucous membrane, which rests on a fibrous and muscular basement. Its length is generally about five or six times the length of the body, or about 30 ft. It begins below the base of the skull, and passes through the thorax, abdomen, and pelvis, and consists shortly of the mouth, pharynx, œsophagus, stomach, small intestine, and large intestine. The above describes the A. C. in human anatomy; its parts are variously modified in different animals. See articles on its subdivisions: also **PERISTALTIC MOTION**.

**ALIMONY**, *ă'ĩ-mŏn-ĩ* (see **ALIMENT**), in Law: the maintenance or support which a husband is bound to give to his wife after separation from her; or the support which either father or mother is bound to give his or her children, though this is usually called maintenance. The causes for which A. is granted to a wife are desertion, or cruelty on the part of the husband, and divorce. It is granted in proportion to the wants of the person requiring it, and the circumstances of those who are to pay it. A. is allowed to the wife *pendente lite*, almost as a matter of course, whether she be plaintiff or defendant, for the reason that she commonly has no other means of living.

**ALI PASHA**, *ă'lē pá-shá'*: 1741–1822, Feb. 5; b. Tepelen, a small place at the foot of the Klissoura Mts., Albania; one of the most ferocious and unscrupulous men that even the East has produced. He was descended from an Albanian pasha, who perished at the siege of Corfu, 1716. His mother was a vindictive and merciless woman, who never hesitated to employ the most revolting means of accomplishing her purposes. Having lost his father, a comparatively quiet and enlightened man. his education necessarily

## ALI PASHA.

devolved upon her; and she did not fail to inspire him with her remorseless sentiments. His youth was passed in extreme peril and hardship, for the neighboring pashas combining, had robbed his father of nearly all his possessions, in the effort to recover which, young Ali was repeatedly defeated, and at last had to betake himself to the mountains, and even to pledge his sword to save himself from dying of hunger. These calamities only nurtured a natural boldness and cunning, afterwards developed in a variety of qualities, such as sublety, dissimulation, foresight, treachery, vigor, and diabolical cruelty. It is said that the change in his fortune arose from his having accidentally discovered a chest of gold, with which he raised an army of 2,000 men, gained his first victory, and entered Tepelen in triumph. On the very day of his return, he murdered his brother, and then imprisoned his mother in the harem on the charge of poisoning him, where she soon after died. He next reconeiled himself to the Porte by helping to subdue the rebellious vizier of Seutari; and thus acquired not only the lands that had been wrested from his father, but likewise several Greek cities. He also attacked and slew (with the permission of the sultan) Selim, pasha of Delvino, and, as a reward, was appointed lieutenant to the new pasha of Derwend; but instead of attending to the security of the high roads (which was his office), he rendered them more insecure than ever by participating in the plunder which the *klephtis* (robbers) were allowed to make. The result was his deposition by the Porte; but he speedily purchased back its favor, for he was a master-hand at bribery. Shortly after this, he acquired a high reputation as a soldier, and did such good service to the Turks in their Austro-Russian war of 1787, that he was named pasha of Trikala in Thessaly; at the same time he seized Janina or Joannina, of which he got himself appointed pasha by the instrumentality of terror, a forged firman, and bribery. It must be admitted that, as a ruler, he now displayed some good qualities. He swept his old friends, the robbers, from the mountain roads, incorporated them into military troops, quelled the wretched factions that prevailed, and everywhere, by the vigor and vigilance of his administration, introduced order in the place of anarchy.

Soon after this, he entered into an alliance with Napoleon Bonaparte, who sent him engineers. When Bonaparte was defeated in Egypt, Ali, 1798, took the places in Albania possessed by the French. After a three years' war, he subdued the Suliotes, for which the Porte promoted him to be gov. of Roumania. About this time, he revenged upon the inhabitants of Gardiki an injury done to his mother forty years before, by the murder of 739 male descendants of the original offenders, who themselves were all dead.

In the interior of his dominions, Ali maintained strict order and justice. Security and peace reigned, high roads were constructed, and industry flourished, so that the European travellers, with whom he willingly held intercourse, considered him an active and intelligent governor

## ALIPED—ALISMA'CEÆ.

From the year 1807, when he once more entered into an alliance with Napoleon, the dependence of Ali on the Porte was merely nominal. Having failed, however, in his principal object, which was to obtain, at the peace of Tilsit, through the influence of Napoleon, Parga, on the coast of Albania, and the Ionian Islands, he entered into an alliance with the English, to whom he made many concessions. In return for these, they granted Parga, nominally to the sultan, but really to Ali. As he now considered his power to be securely established, he caused the commanders of the Greek *Armatoles* (or Greek militia), who had hitherto given him assistance, to be privately assassinated one by one, while he also put to death the assassins, to save himself from the suspicion of having been their instigator. The Porte at length determined to put an end to the power of this daring rebel; and in 1820, Sultan Mahmoud sentenced him to be deposed. A. resisted for a time several pashas that were sent against him; but at last surrendered, on the security of an oath that his life and property would be granted him. Regardless of this, he was put to death. A. had great natural gifts, but a character of the worst description. He never scrupled to use any means, provided it speedily secured his end. Like many other half-civilized monarchs and chiefs within the sphere of European influence, he was keenly alive to whatever transpired among the powers of Christendom. Though utterly illiterate himself, he had all the foreign journals translated and read to him. He watched every political change, as if aware that the interests of his little region depended for their prosperity on the West, and not on the East; and made friendly advances to both the French and the English, recognizing that the practical dominion of the world had passed from the Crescent to the Cross.

**ALIPED**, n. *ăl'î-pĕd* [L. *āla*, a wing; *pēs* or *pĕdem*, a foot]: an animal, such as the bat, whose feet, connected by a membrane, serve as wings.

**ALIQUANT**, a. *ăl'î-kwănt* [L. *aliquantum*, a little]: that does not divide exactly.

**ALIQUOT**, a. *ăl'î-kwōt* [L. *aliquot*, some—from *alius*, another; *quot*, how many]: that measures or divides exactly. One quantity or number is said to be an *Aliquot Part* of another, when it is contained in this other an exact number of times without remainder: thus 2,  $2\frac{1}{2}$ , 4, and 5 are A. parts of 20, being contained in it 10, 8, 5, and 4 times. The consideration of A. parts occurs chiefly in the rule of *Practice*. Suppose we have to find the price of a number of articles at  $6\frac{3}{4}$  cents; since  $\frac{3}{4}$  cents is the eighth part of 6 cents, to the price at 6 cents, add  $\frac{1}{8}$  of that price.

**ALISMA'CEÆ**: a natural order of monocotyledonous plants, consisting of herbaceous plants either floating in water or growing in swamps. The leaves have parallel veins, even if expanded into a broad blade. The flowers are in umbels, racemes, or panicles; the sepals 3, the petals 3, the number of stamens definite or indefinite. The ovaries are several, superior, one-called, distinct or united; the styles

## ALISON.

and stigmas equal to them in number. The fruit is dry, with one or two seeds in each carpel; the seeds exalbuminous.



Water Plantain (*Alisma plantago*).

There are about fifty known species, excluding the natural order *Juncagineae*, very nearly allied, and included in this by some botanists. The species of both orders are chiefly natives of the northern parts of the world. WATER PLANTAIN (*Alisma plantago*) is a very common plant in stagnant waters in America, and in parts of Europe. Its leaves, which have long footstalks, shoot up above the water, and among them, but far above them, arises the erect scape of leafless stem, divided into slender

whorled branches and branchlets, among which the little flowers appear to lie thinly scattered. The fleshy rhizome, or root-stock, is eaten by the Calmucks, after it has been deprived of its acidity by drying. The corms of the ARROWHEAD (*Sagittaria*) possess somewhat similar properties. See ARROWHEAD.

ALISON, *äl'i-sön*, ARCHIBALD: 1757–1839; b. Edinburgh: studied at the Univ. of Glasgow, afterwards at Oxford. He took orders in the Church of England in 1784, and among other preferments, a prebendal stall in Salisbury, and the perpetual curacy of Kenley, Shropshire. From 1800, he ceased to reside in England, and officiated in the Episcopal chapel in Cowgate, in his native city, where he died. A. is known principally by his *Essays on the Nature and Principles of Taste*, pub. 1790. The second edition, 1811, gave occasion to an article by Jeffrey, in the *Edinburgh Review*. It has since gone through several editions and been translated into German and French. The *Essays* advocate what is called the 'association' theory of the sublime and beautiful, and are distinguished for their pleasing and elegant style. See *ÆSTHETICS*.

ALISON, Sir ARCHIBALD, Bart: 1792–1867; b. Kenley, Shropshire; younger son of Archibald, the author of the *Essays on the Nature and Principles of Taste*. At Edinburgh Univ. he obtained the highest honors in Greek and mathematics. He became a member of the Scottish bar in 1814. He was advocate-depute, 1822–30. His *Principles of the Criminal Law of Scotland*, pub. Edinburgh, 1832, is considered a standard work. In 1833, he pub. a sequel to the work, entitled *The Practice of the Criminal Law*. In

## ALISON—ALKALI.

1834, he was appointed sheriff of Lanarkshire; in 1845, the students of Aberdeen elected him 'Lord Rector' of Marischal Coll.; in 1851, he received the same honor from Glasgow Univ., and subsequently the title of D.C.L. from the Univ. of Oxford. He received a baronetcy in 1852. His great work is *The History of Europe during the French Revolution* (10 vols. 8vo, 1839-42), a narrative of events, 1789-1815; a continuation, under the title of *The History of Europe from the Fall of Napoleon to the Accession of Louis Napoleon* (9 vols.), was finished in 1859. He published also, *Life of the Duke of Marlborough*, *The Principles of Population*, etc., *Free Trade and Protection, England in 1815 and 1845*, besides contributing for many years to *Blackwood's Magazine* a series of tedious articles on tory politics. A.'s chief production, *History, etc.*, is a work of immense industry, of very respectable accuracy, written with great animation and some candor, but its style is excessively wordy, and even when animated is never picturesque. A. shows lack of insight into events or characters. Yet the work had great popularity, has gone through numerous editions, and has been translated into German, French, Arabic, and other languages. See his autobiography, 2 vols. 1882.

ALISON, WILLIAM PULTENEY, M.D.: d. 1859, Sept.; elder bro. of the historian: political economist, physician, and prof. of the practice of medicine, in the Univ. of Edinburgh. A pamphlet published by Dr. A., 1840, to show how the inadequate provision for the poor in Scotland led to desolating epidemics, was the principal means of bringing about an improved poor-law for that country. His other writings are—*Outlines of Physiology*, and *Outlines of Pathology and Practice of Medicine*; also, *Dissertation on the Reclamation of Waste Lands* (Edinb. 1850).

ALISPHENOID, a. *äl'ī-sfē'noyd* [L. *āla*, a wing; *sphēnoidēs*, the sphenoid bone]: a bone of the skull which in man is united to form the great wing of the sphenoid bone.

ALIVE, a. *ä-liv'* [AS. *a*, on; Goth. *liban*, to live: AS. *on-life*, alive]: endued with life; not dead; in existence; sprightly; active; easily impressed.

ALI WAL, *äl-e-wäl'*: village near the s. bank of the Sutlej; not far from the town of Loodianah, lat. 30° 57' n., long. 75° 36' e.; scene of a fierce conflict between the British and Sikh forces, 1846, Jan. 28. The latter having crossed the river for the purpose of foraging, or otherwise obtaining supplies, had threatened Loodianah, when they were attacked by Sir Harry Smith, defeated, and driven back with great slaughter. The victory of A. is said by military critics to have been 'without a fault.'

ALIZARINE, n. *äl-liz'ä-rīn* [*alizari*, anc. name for the plant madder]: a coloring principle in madder. See Madder. also prepared artificially from coal tar (q.v.).

ALKAHEST, n. *äl'kä-hēst*: see ALCAHEST; ALCHEMY.

ALKALI, n. *äl'kä-lī*, or *-lī* plu. ALKALIES, *-līz* or *līz* [Ar. *alqali*, the salt of ashes—from *al*, the; *qali* or *kali*, the glasswort, a species of *Salicornia*, from which soda was first ob-

## ALKALIES--ALKALIMETER.

tained]: a substance, such as soda or potash, which neutralizes the action of an acid, and changes vegetable blues into green, and yellows into brown. ALKALINE, a. *äl'kü-lin*, having the properties of an alkali; the ALKALINE EARTHS, are *lime*, *magnesia*, *baryta*, and *strontia*. AL'KALIN'ITY, n. *-i-ti*, the quality which constitutes an alkali. ALKALIZATION, n. *äl'käl-i-zä'shün*, the making a body to have the properties of an alkali. ALKALIZABLE, a. *äl'kü-liz'ä-bl*, that may be changed into an alkali. ALKALESCENT, a. *äl'kü-lës'ënt*, tending to be, or slightly alkaline. ALKALESCENCE, n. *äl'kü-lës'ëns*, also AL'KALES'ENCY, n. *-si*, the tendency to become possessed of the properties of an alkali. ALKALIFY, v. *äl-käl'if-i*, to convert into an alkali; to become alkaline. ALKALIFYING, imp. ALKALIFIED, pp. *äl-käl'if-id*. AL'KALIFI'ABLE, a. *-f'i'ä-bl*, capable of being converted into an alkali. ALKALIGENOUS, a. *äl'kü-lij'ë-nüs* [*alkali*; Gr. *gennäō*, I generate]: producing alkali. ALKALIMETER, n. *äl'kü-lim'ë-tër* [*alkali*; Gr. *metron*, a measure]: an instrument used in testing the strength of alkalies. AL'KALIM'ETRY, n. *-tri*, the art of finding the strength of alkalies. ALKALOID, n. *äl'kü-loyd* [*alkali*; Gr. *eidos*, form, resemblance]: a substance having alkaline properties in a slight degree; the alkaline principle of a vegetable.

ALKALIES (see ALKALI). The A. proper are three in number—potassium, sodium, and ammonium hydrates. The first two are metallic hydrates. the last, a compound of nitrogen, hydrogen, and oxygen, is a gas, and called the volatile alkali. Potash, being largely present in the ashes of plants, is called the vegetable alkali; and soda, predominating in the mineral kingdom, is designated the mineral alkali. The *alkaline earths*, as they are called—lime, magnesia, baryta, and strontia—are distinguished from the former by their carbonates not being soluble in water. The distinguishing property of A. is that of turning vegetable blues green, and vegetable yellows reddish-brown. Blues reddened by an acid are restored by an alkali. The A. have great affinity for acids, and combine with them, forming salts, in which the peculiar qualities of both alkali and acid are generally destroyed; hence they are said to neutralize one another. In a pure state, alkalies are extremely caustic and act as corrosive poisons. Combined with carbonic acid, especially as bi-carbonates, they are used to correct acidity in the stomach; but injudicious and continued use of them is attended with great evil.

ALKALIMETER, *äl'kü-lim'ë-tër* (see ALKALI). Commercial potash and soda always contain greater or less quantities of foreign substances, such as sulphate of potash, common salt, silicates, oxide of iron, water, etc., which diminish the percentage of real alkali in a given weight. It is important, then, for the manufacturer to have some simple and ready means of determining the proportion of pure carbonate of potash or soda contained in any sample, that he may be able to judge of its value. Ordinary chemical analysis takes too much time. The A. serves this purpose. It consists of a graduated glass tube, filled with di-

## ALKALOIDS.

luted sulphuric acid, and containing as much absolute sulphuric acid as would neutralize a given weight, say 100 grains, of carbonate of potash. One hundred grains of the article to be judged of is then dissolved in water, and as much acid is gradually added to it from the tube as to neutralize the solution, that is, take up all the alkali. The application of colored tests determines when the neutralization is complete. The purer the article, the more of the acid will be required; and if the tube, which is divided into 100 degrees, has been emptied to the 80°, the impure article contains 80 per cent. of pure carbonate of potash.

This method of determining the strength of alkalies is called the *alkalimetry process*; but the instrument is not confined in its use to the estimation of the strength of alkaline substances. It is likewise employed in the determination of the strength of acids, such as sulphuric acid, hydrochloric acid, nitric acid, and acetic acid (vinegar). For this end, the graduated instrument is charged with a solution of an alkali of known strength, such as a given weight of crystallized carbonate of soda (washing soda), dissolved in water, and according to the number of divisions of the liquid poured from the A., the strength of the acid into which the alkaline liquid has been decanted, is calculated. The latter application of this instrument is called *acidimetry*. Again, the same graduated glass tube has been recently employed in many other ways, such as the determination of the strength of a solution of silver, by charging the instrument with a known or standard solution of common salt; and for this purpose it is used largely by the assayers to the Royal Mint, and other metallurgic chemists. This mode of analysis is every day becoming of more and more importance, and in fact, has given rise to a new department of analytical chemistry, which has been designated *volumetric analysis* (q. v.).

ALKALOIDS, *äl'kä-loydz* (see ALKALI): a class of substances discovered by modern chemistry. They are divided into two classes—*natural* and *artificial*. The natural A. are found in plants and animals, and are often designated *organic bases*. Those obtained from plants are likewise called *vegeto-alkalies*. They are composed essentially of carbon, hydrogen, and nitrogen; besides which, the greater number contain oxygen. The A. have generally an energetic action on the animal system, and hence are frequently employed in small doses as medicine; while in comparatively large doses they are powerful poisons. They have, although in low degree, the characteristic alkaline properties on vegetable colors, etc.; have generally a bitter, acrid taste; and form the active principles of the plants in which they are found. Such are morphia, codeine, and narcotine, found in opium; quinine, and cinchonine, in cinchona bark; strychnine, in nux-vomica; hyoscyamine, in henbane; nicotine, in tobacco; piperine, in black pepper; caffeine or theine, in coffee and tea, etc.

The animal A. are few in number, the more important being sarcine, found in the flesh of *vertebrata*; and kreatine and kreatinine, two of the constituents of the juice of

## ALKANET.

flesh. The artificial A. are those organic bases which are not found in any known plant or animal, but of which chemists in later researches have contrived to form a large number. As the artificial A. do not differ essentially from the natural A. in composition, structure, or properties, it is confidently believed that the day is not distant when all of the A. will be prepared artificially; indeed, recently several of the natural A. have been manufactured on the small scale without the intervention of the living plant or animal. For instance, urea can be formed from the simplest form of dead organic nitrogenous matter.

ALKANET, n. *āl'kǎ-nēt* (*Anchusa*), [Ar. *alkanah*, a reed]: a genus of plants belonging to the natural order *Boraginæ*, having a 5-partite calyx, a funnel shaped or salver-shaped corolla, with five scales closing its mouth, five stamens, an obtuse stigma, and ovate achænia, which are surrounded at the base by a plaited tumid ring. The species are herbaceous plants, rough with stiff hairs, and having lanceolate or elongato-ovate leaves, and spike-like, bracteated, lateral and terminal racemes of flowers, which very much resemble those of the species of *Myosotis*, or Forget-me-not.—The COMMON A. (*A. officinalis*) grows in dry and sandy places, and by waysides in the middle and n. of Europe. It is rare and a very doubtful native in Britain. The flowers are of a deep purple color. The roots, leaves, and flowers were formerly used in medicine as an emollient, cooling, and soothing application.—The EVERGREEN A. (*A. sempervirens*) is also a native of Europe, and a doubtful native of



Britain, although not uncommon in situations to which it may have escaped from gardens, being often cultivated for the sake of its beautiful blue flowers, which appear early in the season, and for its leaves, which retain a pleasing verdure all winter. It is a plant of humble growth, rising only a few inches above the ground.—A number of other species are occasionally seen in flower-borders.—*A. tinctoria*, to which the name A. or ALKANNA (Arab. *Al-chenneh*) more strictly belongs, is a native of the Levant and of the s. of Europe, extending as far n. as Hungary. The root is sold under the name of A. or Alkannaroot; it is sometimes cultivated in England; but the greater part is imported from the Levant or the s. of France. It appears in commerce in pieces of the thickness of a quill or of the finger, the rind blackish externally, but internally of a beautiful dark-red color, and adhering rather loosely to the whitish heart. It contains chiefly a resinous red coloring matter, called *Alkanna Red*, *Anchusic Acid*, or *Anchusine*. The color which it yields is very beautiful, although not very durable. It is readily soluble in oils, and is therefore in very



## ALKANNA—ALL.

general use among perfumers for coloring oils, soaps, pomades, lip-salves, etc. It is extensively used for coloring spurious port-wine. It also enters into compositions for rubbing and giving color to furniture. Its solutions in oils and alcohol have almost a carmine red color, although to water it gives only a brownish hue. It combines with alkalis forming blue solutions; with chloride of tin, it becomes of a carmine red; with acetate of lead, blue; with sulphate of iron, dark violet; with alum, purple; and with acetate of alumina, violet.—VIRGINIAN A., the Hoary Puccoon or Alkanet of the U. S., with other species of *Lithospermum*, yields a red dye.

ALKANNA, *äl-kän'nā* (*Al-henna*): name given to a coloring-matter prepared from the leaves of *Lawsonia inermis*, and used by oriental ladies to give a red color to their nails. See HENNA.

ALKARSIN, n. *äl'kâr-sîn* [Ar.]: mixture of cacodyl (q.v.)  $As_2(CH_3)_4$ , with oxidized products, a spontaneously inflammable liquid, obtained by heating white arsenic with acetate of potash, whose fumes are fearfully offensive, and a deadly poison.

ALKERMES, n. *äl-ker'mêz* [Ar. *al, kermes*, reddish grains of certain oaks]: a confection whose principal ingredient is the kermes berries; a compound cordial.

ALKMAAR, *älk-mâr'*: old town in the province of N. Holland, Netherlands; on the Helder canal, 20 m. n.n.w. of Amsterdam. It is well built, has very clean streets, and is intersected by broad canals. The ancient bulwarks have been turned into promenades. It has a Gothic town-house; the church of St. Lawrence dates from the 15th c. A. has manufactures of sail-cloth, sea-salt, soap, vinegar, and leather, and trade in cattle, grain, butter, and especially cheese—of which A. exports enormous quantities. A. held out against the Duke of Alba, who besieged it in 1573. Here, 1799, Oct. 18, the Duke of York signed a not very honorable capitulation, after his Russo-British army had been twice defeated by the French general Brune. Pop. 13,000.

ALKORAN, n.: see ALCORAN—but the spelling with *k* should be preferred. AL'KORAN'IC, a. pertaining to. AL'KORAN'IST, n. one who.

ALL, a. *awl* [AS. *eall*: Goth. *alls*: Icel. *allr*—from *á* or *ei*, aye, ever]: the whole; every one: N. the whole; the entire thing.

ALL, ad.: when used as the first part of a compound, *all* generally denotes *wholly, completely, or perfectly*—as, ALL-ABHORRED, detested by all. ALL-ADMIRING, wholly admiring. ALL-AMOROUS, wholly in love. ALL-BEARING, bearing everything; bearing perfectly. ALL-CHANGING, perpetually changing. ALL CONQUERING, subduing everything. ALL-DISGRACED, completely disgraced. ALL-DREADED, dreaded of all. ALL-ESSENTIAL, altogether essential; without which wholly worthless. ALL-SEEING, seeing everything; wholly seeing. ALL ALONG, continually; regularly. IT IS ALL ONE. OR ALL'S ONE, it makes little or no difference. ALL THAT, collection of similar

## ALLA BREVE—ALLAHABAD.

things or occurrences; et cætera. **ALL IN ALL**, everything. **ALL-FOOLS'-DAY**, the first of April. **ALL-FOURS**, a game at cards; moving on the legs and arms. **ALL-HAIL**, a phrase of salutation expressive of a wish for health. **ALL-HEAL**, name of a plant, so named from its supposed medicinal properties; the *Vale'rian officinâlis*, Ord. *Vale rianacææ*; also the name of the *Stachys palus'tris*, Ord. *Labiâtæ*. **ALL-MERCIFUL**, of perfect mercy. **ALL-HALLOW DAY**, n. [AS. *halgian*, too keep holy]: All-Saints'-day, 1st November. **ALL-HALLOW-TIDE**, n. the time near to 1st November. **ALL-SAINTS'-DAY**, 1st day of November. **ALL SOULS'-DAY**, 2d of November. **ALLSPICE**, n. Jamaica pepper or pimento —which see.

**ALLA BREVE**, *âl'lá brêv* or *âl'lá brâ-vâ*, in Music. In old music, the breve ||O|| as the longest note, was equivalent to our semi-breve, O, the longest note commonly used in modern music. Consequently, the minims anciently used were equivalent to our crotchets. Music written with four minims in a bar is signed *Alla Breve*, which implies that the four minims must be sung as four crotchets. The difference between the two styles of writing is merely formal. Other signs for A. B. time are— $\frac{2}{1}$ , 2, or C, or *Alla Capella*.

**ALLAH**, n. *âl'lâ* [compounded of the article, *al* and *ilâh*—i.e., 'the worthy to be adored']: the Arabic name of the one God, to whose worship Mohammed pledged his followers; and the word has passed into all languages wherever the name of Islam has been heard. The notions of the character of this God given by Mohammed in the Koran bear traces of Jewish and Christian influence, and are much superior to the national superstitions and impassioned fancies of the orientals in general. Above all other things, Mohammed inculcated the unity of God in the strictest sense, in opposition not only to idolatry, but also in some points to the belief of the Jews and Christians, as is seen in the following formula or creed: 'There is no God but *the* God (Allah). This only true, great, and highest God has his existence of himself, is eternal, *not begotten, and begets not*, suffices for himself, fills the universe with his infinity, is the centre in whom all things unite, manifest and concealed, Lord of the corporeal and spiritual worlds, creator and ruler, almighty, all-wise, all-good, merciful, and his decrees are irrevocable.' Mohammed has ventured on very bold illustrations of these attributes for popular representation, as in the passage of the Koran where he says: 'If all the trees on earth were pens, and if there were seven oceans full of ink, they would not suffice to describe the wonders of the Almighty.' The different attributes of God, divided under his 99 names, and connected together in a certain order in a litany, form the rosary of the Mohammedans, which concludes with the name A., as the 100th, including in itself all the former epithets.

**ALLAHABAD**, *âl'lâ hâ-bâd'*: a British dist. in the n.w. Provinces of India, between lat. 24° 49', 25° 44'; long. 81° 14', 82° 26'; 85 m. in length by 50 in breadth; 2,833 sq. m. The surface is in general level. with a slope toward the s.e.

## ALLAHABAD.

The principal rivers are the Ganges (flowing partly within A., and partly dividing it from Oude and Mirzapore), and its great affluent the Jumna, which joins it at the city of A. The district is well watered, and vegetation is luxuriant. The native agriculture at the end of the last century was singularly rude and deficient, but the British residents have done much for its improvement. The principal products are cotton and salt; and there is a brisk transit-trade by the Jumna in cotton, indigo, and sugar. Pop. (1891) 1,549,000, almost wholly Hindus; the Mohammedans being about 200,000. The district is mainly agricultural, very little tillable land being left uncultivated.

The 'Division' of ALLAHABAD comprehends the districts of Cawnpore, Futtehpur, Banda, Humeerpore, Jaunpur, and A. It is bounded n. by Oude and Agra, e. by Behar, s. by Gundwana, and w. by Malwa. Its length is about 270 m. breadth, 120; 13,746 sq. m.; pop. 5,754,855. It comprises one of the most populous and productive territories in India.

ALLAHABAD ['city of God']: seat of the government of the n. w. Provinces of British India, occupies the fork of the Ganges and Jumna, lat.  $25^{\circ} 26'$  n., long.  $81^{\circ} 85'$  e., thus forming the lowest extremity of the extensive region which, as lying between those natural boundaries, is distinguished as the *Doab*, or the country of *Two Rivers*—an analogous term to the *Punjab*, or the country of *Five Rivers*. The situation of A., at the confluence of the holy streams of India, besides giving the city its sacred appellation, has rendered it a much frequented place of pilgrimage for the purposes of ablution, some of the devotees sinking themselves with weights to rise no more. In point of appearance, A. was scarcely worthy of its character and renown. Except a few ancient monuments of costly, elaborate, and tasteful workmanship, the native part of the city consists of mean houses and narrow streets. As in the towns generally of India, the European quarter, on the whole, is vastly superior. Its nucleus appears to have been the native fort, which, on the e. and s., rises directly from the banks of both rivers, while towards the land its artificial defenses, of great strength in themselves, are not commanded from the neighborhood by any higher ground. This citadel, described by Heber as having been at one time 'a very noble castle,' has lost much of its romance by having had its lofty towers pruned down to bastions and cavaliers. The Europeans of the garrison occupy well-constructed barracks. Beyond the fort are the cantonments for the native troops. In connection with these are numerous villas and bungalows, few other spots in India having such handsome buildings of this kind; and these showy retreats are rendered still more attractive by avenues of trees which wind between them and connect them with the fort, the city, and several of the circumjacent localities.

The summer of 1857 brought disaster to A. On June 6 the insurrection, which had begun at Meerut, May 10, extended to A. Though the Europeans continued to hold the fort, yet the mutineers were, for some days, undisputed masters of all beyond; and between the ravages of the

## ALLAMANDA—ALLAN.

marauders and the fire of the garrison, the city soon became little better than a heap of blackened ruins. In the history of this fearful outbreak, A. must be 'a magic word' to every English ear, as the spot where the fiery Neill entered on his brief career of glory. It was here, also, that Lord Canning, after the close of the mutiny, distributed £3,000,000 in presents to the chiefs who had remained loyal. But although situated thus in the heart of the outbreak, and feeling its disastrous effects, the city possesses natural advantages that have allowed it to recover. Its position at the confluence of the holy rivers, which has so long made it a centre of superstitious reverence and worship, now renders it naturally a centre of commerce and civilization, and has been fully appreciated by government. It commands the navigation both of the Ganges and of the Jumna. It is on the direct water-route between Calcutta and the Upper Provinces; and is a main station, not only on the Grand Trunk road, but also on the East Indian railway. New buildings, many of them with great architectural merits, have accordingly sprung up with rapidity since 1857; the most noteworthy buildings being still, however, the Great Mosque and the Sultaun Khossor's Caravanserai—a fine cloistered quadrangle. The fort is of red stone, and is approached by a very handsome gate: it contains the palace or residency, and the Gada pillar or Club of Bhin Sen, in the Chalee Satoom Temple, which is said to communicate with Benares by a subterranean passage, through which flows a third holy river, the Sereswati, visible only to the eye of faith. A. contains a college, hospital, theatres, bazaars, etc. So many poor pilgrims throng the city, especially at the time of the Great Fair, which is held once every twelve years, that instead of Allahabad, the natives call it 'Fakirabad,' or City of Beggars. The cotton, sugar, and indigo produce of the fertile district of A. is brought in large quantities into the city, to be transported thence to Calcutta and elsewhere. Steamers sail to Calcutta and barges to Delhi. A. is distant from Calcutta, by land, 496 m.; by water, 808 m. in the rainy season; by water, 985 m. in the dry season. From Delhi it is distant 386 m.; and from Bombay by the Jubbulpore branch of the East Indian railway, 840 m. Pop. (1891) 175,246; (1901) 172,032.

ALLAMANDA, *äl-lă-măn'dă*: genus of plants of the natural order *Apocynaceæ* (q.v.), distinguished by a 5-parted calyx without glands, a funnel-shaped corolla with its limb campanulate, and the fruit a prickly capsule. *A. cathartica*, a native of the West Indies, is a shrub with whorled or opposite oblong leaves, and large yellow flowers on many-flowered footstalks. It has violently emetic and purgative properties; but in small doses, an infusion of the leaves is esteemed a valuable cathartic medicine, especially in the cure of painter's colic. All the species are natives of the tropical parts of America.

ALLAN, DAVID: 1744–96; b. Alloa: distinguished Scottish painter of domestic subjects, in which he was the forerunner of Wilkie. In 1773, his *Origin of Painting* (en-

## ALLAN.

graved by Cunego) gained the gold medal given by the Academy of St. Luke for the best historical composition. Of his other pictures executed at Rome, the best known are four humorous pieces illustrating the Carnival, engraved by Paul Sandby. His later works were chiefly humorous, and illustrative of Scottish domestic life. His illustrations of Allan Ramsay's *Gentle Shepherd*, though very popular, are of no great merit. A. died at Edinburgh.

ALLAN, Sir WILLIAM: 1782–1850; b. Edinburgh: distinguished Scottish historical painter. Among his fellow-students and friends in the School of Design connected with the Royal Institution were David Wilkie, John Burnet, and others who afterwards rose to eminence. He subsequently studied for some time at the Royal Academy of London. In 1805 he went to Russia, where the influence of his relative, Sir Alexander Crichton, the imperial family physician, soon procured him employment. In the Russian capital, he spent several years, making occasional tours to the south of Russia, the Crimea, Turkey, and Circassia, where he made numerous sketches, some of which supplied the materials of his best known works. In 1814, he returned to Edinburgh, and soon afterwards established his reputation by the exhibition of his *Circassian Captives*, a large picture, distinguished by the picturesqueness of the subject and the elaborate fidelity and spirit of its treatment. The purchase of two of his pictures by the Grand Duke Nicholas, afterwards emperor, when on a visit to Edinburgh, promoted the sale of his works. In 1826, he was elected an Associate of the London Acad.; in 1835, an Academician. In 1838, on the death of Mr. George Watson, the Royal Scottish Acad. elected him its president, and on the death of Sir David Wilkie, in 1841, he was appointed Limner to Her Majesty for Scotland, and was knighted. At intervals, he made excursions into the continent, visiting Spain and Morocco in 1834, St. Petersburg in 1841, and Germany and Belgium in 1847. At St. Petersburg, he received a commission from the emperor to paint a large picture of *Peter the Great Teaching Shipbuilding to his Subjects*, exhibited at London in 1845, and now in the imperial Winter Palace at St. Petersburg. For some time before his death he had been diligently working at a great picture of *Bruce at Bannockburn*. He died in his painting-room, to which his bed had been removed, 1850, Feb. 22. The great merits of A. as a painter are conscientious fidelity, skill in composition, and dramatic force. The impulse contributed by him to historical painting, especially of national subjects, entitles him to a very high place in Scottish art. Among his chief works, many of which are well known through engravings, are—*John Knox Admonishing Queen Mary*, 1823; *Queen Mary Signing Her Abdication*, 1824; *Death of the Regent Moray*, 1825; *Polish Exiles*, 1834; *The Slave-market at Constantinople*, 1837; *Battle of Prestonpans*, 1842; *Waterloo*, two pictures, from the French and English positions, the first of which was bought by the Duke of Wellington.

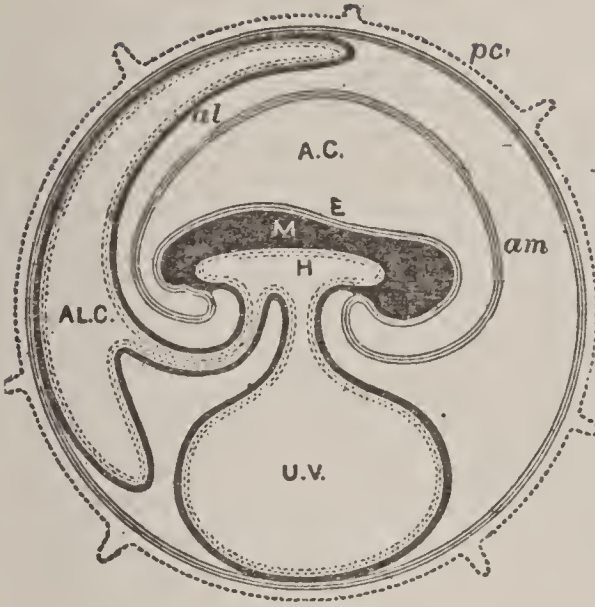
## ALLAN, BRIDGE OF—ALLARD

ALLAN, BRIDGE OF, *-al-lăn*: a beautiful village in Scotland, consisting chiefly of lodging houses; within the shelter of a spur of the Ochils, 3 m. from Stirling, on the road from Stirling to Perth. It is on the banks of the Allan, which, like the heights behind the place, are richly wooded. It owes its prosperity partly to its mineral (saline) wells, and partly to its sheltered situation and mild climate, which render it a favorite resort of invalids, especially in spring and autumn. There are excellent hotels, and abundance of good lodgings. Pop. (1881) 3,005.

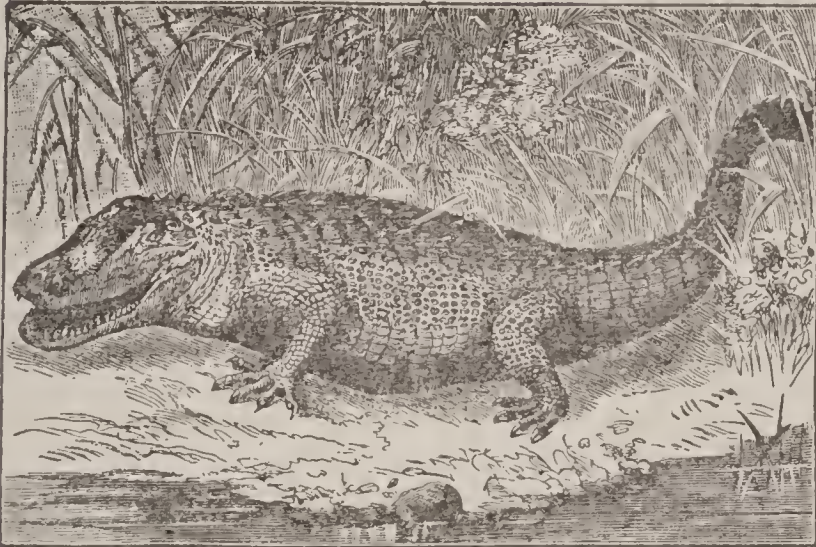
ALLANTOIC, a. *ăl-ăn-tō'ik* [Gr. *allas*, a sausage; *allan'tos*, of a sausage—so named from the shape of the allantois]: name of an acid found in the liquor of the *allantōis*—a membrane enveloping the fœtus. ALLANTOIDEA, n. plu. *ăl-ăn-toy'dē-ă* [Gr. *eidōs*, resemblance]: the group of vertebrata comprising reptiles, birds, and mammals, in which the fœtus has an allantois. ALLANTOIN, n. *ăl-lăn-tō'in*, a substance found in the allantoic liquor of the cow, and obtained artificially by oxidizing uric acid.

ALLANTOIS, *ăl-ăn'toys*: a delicate membranous bag, which makes its appearance in the eggs of birds during incubation, and is a provision chiefly for the aeration of the blood of the embryo or chick. It sprouts from the lower part of the intestine of the chick, and rapidly enlarges so as almost completely to inclose it, lining nearly the whole extent of the *membrana putaminis*—the double membrane which is immediately within the egg-shell. It is covered with a network of arteries and veins, corresponding to the umbilical artery and vein of Mammalia; and the aeration of the blood is accomplished by the air which enters through the pores of the shell; but as the lungs become capable of their function the circulation in the A. diminishes, and its footstalk contracts, and at last divides, leaving only a ligamentous remnant. The A. is never developed in the eggs of Fishes and Amphibians, hence these are called Anallantoid Vertebrates; while Reptiles, Birds, and Mammalia, in which it is present, are called Allantoid. In the Mammalia it is superseded at an early period of fœtal life by other contrivances, but continues to exist in the lower animals for receiving the urinary secretion through the urachus, a purpose which it serves in birds and reptiles likewise. In the human species it disappears very early, only a minute vesicle remaining.

ALLARD, *ă-lăr'*, generalissimo of the army of Lahore, and previously adjutant to Marshal Brune under Napoleon: 1783-1839. After the murder of Marshal Brune (q.v.) A. left France (1815), intending to emigrate to America, but changed his plan, entered into the service of Abbas-Mirza of Persia, and afterwards went to Lahore (1820), where he engaged in the service of Runjeet Singh (q.v.), by whom he was made generalissimo, and whose forces he organized and trained in the European modes of warfare. Having married a native of Lahore, he identified himself with the interests of his adopted country, but could not entirely forget



**Allantois.**—Fetal Membranes of a Mammal: E, Embryo; M, its middle layer or mesoderm; H, Gut-cavity lined by inner layer or endoderm; U.V., Umbilical vesicle; *al*, Allantois, with allantoic cavity. A.L.C.; *am*, Amnion, with amniotic cavity, A.C.; *am*, represents the united inner portion of double folds, the outer limbs of which form the subzonal membrane (not lettered) under *pc*, the zona pellucida. (From Turner.)



Pike-headed Alligator (*Alligator lucius*.)



Almond (*Amygdalus communis*).



Aloë socotrina.

## ALLAY—ALLEGHENY.

France. 'The July revolution brought him back to Paris, where he was received with distinction, and was made French *chargé d'affaires* in Lahore. He presented to the Royal Library of Paris a valuable collection of coins, and returned to Lahore (1836), leaving his wife and children in Paris. In the subsequent battles of Runjeet Singh with the Afghans A. repeatedly distinguished himself. He d. at Peshawur. His remains were, according to his own wish, buried with military honors at Lahore.

**ALLAY**, v. *äl-lā'* [OE. *allegge*; AS. *aleegan*, to lay down, to mitigate: OF. *alléger*; It. *alleggiārē*; L. *alleviārē*, to lighten, to mitigate—*lit.*, to lay or put down]: to set at rest; to make quiet; to make less in pain or grief. **ALLAY'ING**, imp. **ALLAYED**, pp. *äl-lād'*. **ALLAYMENT**, n. *äl-lā'mēnt*, state of rest after disturbance. **ALLAY'ER**, n. one who or that which.—**SYN.** of 'allay': to suppress; tranquillize; alleviate; check; quiet; calm; soothe; subdue; destroy; compose; repress; assuage.

**ALLEGE**, v. *äl-lěj'* [F. *alléguer*, to produce reasons—from L. *allēgārē*, to send one to another with a commission or charge—from L. *ad*, to; *lēgo*, I send, I intrust to]: to adduce reasons in support of an argument; to plead as an excuse; to affirm; to declare. **ALLEG'ING**, imp. **ALLEGED**, pp. *äl-lēj'd'*. **ALLEGEABLE**, a. *äl-lěj'ä-bl*, capable of being alleged. **ALLEG'ER**, n. one who. **ALLEGATION**, n. *äl'lē-gā'shūn*, something offered as a plea or an excuse; an affirmation; an assertion.—**SYN.** of 'allege': to adduce; assign; advance; cite; quote; affirm; assert; declare; produce; maintain.

**ALLEGHANIES**, or **ALLEGHENIES**, or **ALLEGANIES**, *äl-ē-gā'nīz*: name perhaps originally limited to the mountain-cradle of the Allegheny river, but often extended to the whole chain, otherwise called the Appalachians (q.v.).

**ALLEGHENY**: city in Allegheny co., Penn.; at confluence of the Allegheny and the Ohio rivers; on the Pennsylvania, the Pittsburg Fort Wayne and Chicago, and the Pittsburg and Western railroads; directly opposite Pittsburg, with which it is connected by several bridges. It has a frontage of 2½ m. on the right bank of the Allegheny river and of 4 m. on the right bank of the Ohio, and has an average elevation of 776 ft. above sea level. The city is really a suburb of Pittsburg, though it has a separate municipal organization. It is tastefully laid out, has a beautiful public park, is lighted by gas and electricity, owns a water-works plant that cost \$1,000,000, is equipped with adequate street-railways, and has a paid fire dept. Its private buildings include many costly residences of Pittsburg business men, and its public ones, the Carnegie Music Hall and Library (dedicated 1890, Feb. 13), Phipps's Conservatory, Western Theol. Seminary (Presb.), Allegheny Theol. Institute (Ref. Presb.), United Presb. Theol. Seminary, U. S. Arsenal, Home for the Friendless, House of Industry, Orphan Asylum, and the Western State Penitentiary. The city has an exceptional location for trade and shipping purposes, as, in addition to its railroad communications, it has large water-route facilities by means of



## ALLEGHENY COLLEGE.

the Allegheny, Monongahela, Mississippi, Missouri, and the Ohio rivers, thus being in direct touch with a vast section of country. The location and proximity to Pittsburg have made it an important manufacturing city, though it is industrially, as well as residentially, a convenient place for the overflow of the activities of the larger city. In 1900 the various manufacturing industries comprised 893 establishments, \$50,122,503 capital, and 20,804 hands; paid \$10,352,502 for wages, and \$29,478,781 for materials; and received \$54,136,967 for products. The principal manufactures in their order were: malt liquors, planing-mill products, paints, foundry and machine-shop products, carriages and wagons, architectural and ornamental iron-work, leather, soap and candles, and cigars and cigarettes. The net public debt (1902) was \$5,302,621, the assessed valuation of taxable property \$85,513,125, and the city tax rate \$1.35 per \$100. There were 4 national banks (cap. \$900,000), 2 savings-banks (cap. \$200,000, surplus \$70,000), 1 private savings-bank, 1 loan and trust co., and 4 weekly publications, 1 semi-monthly and 1 monthly. Pop. (1880) 78,680; (1900) 129,896.

**ALLEGHENY COLLEGE:** educational institution under Meth. Episc. control at Meadville, Penn.; opened 1815, and chartered 1816, under the care of the Presb. Church. It was built up by the exertions of the first pres., Timothy Alden, D.D., who secured much aid from New England, and acquired for the college the private libraries of Ex-Gov. Winthrop, of Mass., and of Isaiah Thomas, and the large collection of Dr. Bentley, of Salem, Mass. Dr. Alden retired 1831, and the college languished until 1833, when it was transferred to the Meth. Episc. Church. It has developed into a prosperous institution. Women are admitted to the full course. The college library numbers 15,000 vols. In 1894 it had 20 profs. and instructors, 119 students in the preparatory dept., 118 in the collegiate dept., 72 post-graduates; total 309. There were also 455 students (less 21 duplicated in calculations) in affiliated institutions, subdivided as follows: Conservatory of Music 246, Business College 209, aggregating 764. The value of the college grounds and buildings (1889) was \$70,000. In 1897 the productive funds amounted to \$150,000, and the total income, including tuition or incidental charges to \$15,000.

## ALLEGHENY RIVER—ALLEGIANCE.

**ALLEGHENY RIVER:** rising in the n. part of Penn., unites with the Monongahela at Pittsburg to form the Ohio. Though it flows through a hilly country, yet it is navigable for nearly 200 m. above Pittsburg, whence by the Ohio and the Mississippi, the navigation extends to the Gulf of Mexico.

**ALLEGIANCE**, n. *äl-lē'jans* [F. *allégeance*—from mid. L. *allegiān'tiā*, an oath of homage or fealty—from L. *ad*, to; mid. L. *litgāntiā*, the duty of a subject to his lord—from *litus*, a man owing services to his lord (see **LIEGE**):] the obligation of a citizen to his government or of a subject to his sovereign: in the middle ages, an oath of homage or fealty taken by a vassal to the feudatory lord. Violation of A. is the highest legal offense.—*Natural or implied A.* is due from every native or naturalized citizen to the community to which he belongs. Independently of any express promise, every man, by availing himself of the benefits which society affords, comes under an implied obligation both to uphold and to defend it. *Express A.* is that obligation which arises from an expressed promise, or *oath of A.* The old English oath of A. corresponded in the case of the sovereign, as absolute superior of all the lands in England, to the oath of fealty which, by the feudal law, all vassals were required to take to subject superiors through more than 600 years. This oath has been modified to exclude the seeming obligation of non-resistance. From the reign of Queen Elizabeth to the present time, the oath of A. has been required from all public functionaries before entering on their offices, and by all professional persons before being permitted to practice.—See **ABJURE**. By the law of England, and agreeably to the spirit of the constitution, a usurper in undisputed possession of the crown, or king *de facto*, is entitled to A., because he then represents, not the sovereign whom he has dispossessed, but the general will, in which the ultimate sovereignty of England resides.

In the United States, A. is the tie which binds the citizen to the govt. in return for the protection which the govt. affords him, and in recognition of the moral bond involved in the social organism. The A. of a citizen to the national govt. is paramount to his A. to his particular state. A. is either natural, acquired, or local. Natural A. is due from all natives of the United States; acquired A. is due on the part of a naturalized citizen (see **NATURALIZATION**); local A. is due from an alien while resident in the United States, in return for protection by the govt. The question whether a citizen can, by mere expatriation, divest himself absolutely of his American A. has never yet been decided, but it is generally understood that for commercial purposes he may thus acquire the rights of a citizen of another country, and the place of domicile determines the character of a party as to trade. The right of a citizen to change his A., acting under due forms of law, was declared by law of congress (1868) to be a natural right, and indispensable to liberty. European govts. have, in recent years, largely acceded to this principle.

## ALLEGORY.

*Allegiance*, is in its legal sense, the duty to a superior authority—a matter of principle and conduct. *Loyalty* is earnest and faithful devotion under a high obligation—a matter of sentiment as well as of principle and conduct. *Fealty* is fidelity to a bond or obligation assumed.

ALLEGORY, n. *äl'lä-gör'ï* [F. *allegorie*—from Gr. *allē-gōria*, a figure of speech in which the sense is different from the apparent one—from *allos*, another, different; *agōreu'ō*, I harangue]: speech or language which involves a sense different from the apparent one; a continued metaphor; figurative speech; language that has another meaning than the literal one—the Jews compared to a vine in the 80th Psalm is an allegory. ALLEGORIZE, v. *äl'lä-gō-rīz'*, to form into an allegory; to use figurative speech. AL'LEGORIZING, imp. AL'LEGORIZED', *-rīzd'*, pp. ALLEGORIC, a. *äl'lä-gör'ik*, or AL'LEGORICAL, a. *-ī-käl*, figurative; in the manner of an allegory. AL'LEGORICALLY, ad. *-lī*. AL'LEGORICALNESS, n. AL'LEGORIST', n. one who.

ALLEGORY: a figure of rhetoric, signifying properly the embodiment of a train of thought in a visible form, by means of sensible images, having some resemblance or analogy to the thoughts. A., therefore, is one of the Tropes (q.v.), for it involves a transfer of meaning. It differs from metaphor chiefly in extent; metaphor is confined to a single expression, or at most to a sentence; A. is carried through the whole representation. It is not abstract ideas alone that are adapted to allegorical treatment; not only may virtue and vice, for instance, be personified and treated allegorically, but real persons may be represented by allegorical persons.

A. has been in use from the earliest ages. Oriental people are specially fond of it. As examples from antiquity may be cited the comparison of Israel to a vine in Psalm lxxx.; the beautiful passage in Plato's *Phædrus*, where the soul is compared to a charioteer drawn by two horses, one white and one black; the description of Fame in the 4th Book of the *Æneid*. Bunyan's *Pilgrim's Progress* is perhaps the most fully carried out A. of modern times.—A. is not confined to language, but is carried into painting and sculpture, and also into scenic representation—as in the ballet and pantomime; the consideration of it is, therefore, of importance in the fine arts generally.

ALLEGORICAL INTERPRETATION is that kind of interpretation by which the literal significance of a passage is either transcended or set aside, and a more spiritual and profound or at least more recondite meaning elicited than is shown in the form or letter. The common mistake, that it originated with the Alexandrine school, is refuted by the fact that it is found in the writings of the older Hindus. From the scholars of Alexandria, however, it was adopted by the Jews of Palestine, of whom a particular sect, the Essenes, made abundant use of it. The apostle Paul himself allegorizes, or at least spiritually interprets the history of the free-born Isaac and the slave-born Ishmael (Gal. iv., 24). Allegorical interpretation, however, with reference to the Old Testa-

## ALLEGRO—ALLEN.

ment, was most extensively employed by Philo Judæus, a philosophical Jew of Alexandria, and a contemporary of Jesus Christ. His writings stimulated the allegorizing tendencies of the Alexandrine school of Christian theologians, the most famous of whom are Clemens Alexandrinus and Origen. The latter went so far as to say that 'the Scriptures are of little use to those who understand them as they are written.' As a specimen of his method of biblical interpretation, we may adduce the following: he maintained that the Mosaic account of the Garden of Eden was allegorical; that Paradise only symbolized a high primeval spirituality; that the fall consisted in the loss of such through spiritual and not material temptation; and that the expulsion from the Garden lay in the soul's being driven out of its region of original purity. The Neo-platonists were at first averse to allegorizing, but gradually acquired a relish for it from the Jews and Christians, and applied it to the ancient myths.

ALLEGRO, ad. *ăl-lě'grō* [It. *allegro*, brisk—from L. *alācer*, brisk, lively; F. *leger*, light, nimble]: in *music*, a term denoting merrily; cheerfully; the fourth of the five principal degrees of movement, implying that the piece is to be performed in a quick or lively style. A., like all the other degrees of movement, is often modified by other terms; such as *A. non tanto*, *A. ma non troppo*, *A. moderato*, *maestoso*, *giusto*, *commodo*, *vivace*, *assai*, *dī molto*, *con brio*, etc.: N. a brisk movement. As a substantive, A. is used as the name of a whole piece of music, or a movement of a symphony, sonata, or quartet. ALLEGRETTO, ad. *ăl'lě-grět'tō*, a movement not so quick as allegro.

ALLELUIAH, n. *ăl'lě-lō'yă*: see HALLELUIAH.

ALLEMANDE, *ăl-lě-mánd'*: a dance invented by the French in the time of Louis XIV., which again became popular at the Parisian theatres during the reign of the first emperor. It has a slow waltz kind of tempo, and consists of three steps (*pas-marchés*) made in a sliding manner, backwards and forwards, but seldom waltzing or turning round. The whole charm of the dance lies in the graceful manner of entwining and detaching the arms in the different steps. Both the dance and the music are said to have originated in Alsace; and thus the introduction of the A. at the court of Versailles was a sort of artistic way of symbolizing the incorporation of the newly-acquired German provinces.

ALLEN, *ăl'lén*, ALEXANDER VIETS GRISWOLD, D.D.: b. Otis, Mass., 1841, May 4. He graduated at Kenyon Coll. 1862, and at Andover Theol. Seminary 1865, and was ordained a priest in the Prot. Episc. Church in that year. He became rector of St. John's Church, Lawrence, Mass., 1865, and prof. of eccles. hist. in the Episc. Divinity School, Cambridge, Mass., 1867. He published *The Greek Theology*, and *The Renaissance of the Nineteenth Century* (1884); and *The Continuity of Christian Thought, a Study of Modern Theology in the Light of its History* (1884); both interesting in the dept. of theol. criticism.

## ALLEN.

ALLEN, EBENEZER: revolutionary officer: 1743, Oct. 17—1806, Mar. 26; b. Northampton, Mass. He removed to Vermont 1771, settling first in Poultney, afterward in Tinmouth; and was lieut. in a regt. of Green Mountain Boys during the dispute with N. Y. concerning the N. H. grants. He was a delegate to the conventions dealing with this subject 1776-7. He was a capt. in a battalion of rangers 1777, and did good service at the battle of Bennington; took Mt. Defiance by assault the following month, cut off the Brit. retreat from Fort Ticonderoga, making many prisoners; and was promoted major.

ALLEN, ELIZABETH (CHASE) (AKERS): poetical writer; early pen-name, FLORENCE PERCY: b. Strong, Me., 1832, Oct. 9. She began to write when quite young, contributing largely to magazines and weekly papers, and published a volume of poems, *Forest Buds* (1855). Another volume of poems (Boston 1866) contained the familiar song *Rock Me to Sleep, Mother*, whose authorship has been claimed by several other writers. Mrs. A.'s claim, however, was fully demonstrated. She has been twice married—first to the sculptor, Benjamin Paul Akers (d. 1861), afterward (1865) to E. M. Allen, of New York.

ALLEN, ETHAN: 1739-89: b. Salisbury, Conn., but, with his four brothers, removed early to Vermont, where he received his limited education. He became conspicuous in the colonial troubles between New York, New Hampshire, and Vermont concerning the dominion of the latter, and was sent by the settlers to Albany, as an agent, and afterwards commanded a force which successfully resisted the aggressions of the New York colonists. The outbreak of the revolutionary struggle put an end to local troubles, and the occupation of Ticonderoga becoming a military necessity, A. called together about 300 'Green Mountain Boys,' and, 1775, May 10, captured the place by surprise. In Allen's command was the afterwards notorious Benedict Arnold. Arousing the commander at Ticonderoga, Delaplace, from his bed, A. demanded his surrender, 'in the name of the great Jehovah and the Continental Congress.' The place was given up without a struggle, and its fall was followed by that of Crown Point, the entire northern region being thus gained from the English. A. afterwards joined the force under the command of Gen. Schuyler, and was employed in secret missions of importance both by him and by Montgomery. In an attack on Montreal, 1775, Sept., he was captured, and was sent to England, and confined in prisons there, and at Halifax and New York until the spring of 1778, when he was released by exchange. The severity of the treatment which he had received while in the hands of the British had undermined his health, and he returned to Vermont, after visiting Washington at his headquarters, and tendering his services whenever they should be needed. A. was a man of great force of character, an original thinker; and had he been educated, might have made his mark as an author. As it was, he wrote the first work by an American in opposition to the Christian religion, entitled *Theology; or, the Oracles of Reason*. He was twice married, and, dying

## ALLEN.

suddenly at Colchester, Vt., left a widow and seven children.

ALLEN, GRANT: naturalist and author: b. Kingston, Can., 1848, Feb. 24. He was educated at Merton Coll., Oxford Univ., and graduated A. B. 1870, with high honors. He became prof. of logic and philosophy in Queen's Coll., Spanish Town, Jamaica, 1873, and was principal of the institution 1874-77. He subsequently, in England, engaged in literary and scientific work. He was a frequent contributor to reviews and magazines, of graceful essays, chiefly in nat. history, with occasional excursions into history and social and political economy. Among his published works, most of which have been republished in the United States are: *Physiological Æsthetics*; *The Color Sense*; *Anglo-Saxon Britain*; *Vignettes from Nature*; *The Evolutionist at Large*; *Flowers and their Pedigrees*; *Charles Darwin* (biography); and 4 novels: *Philistia*; *For Mamie's Sake*; *Babylon*; and *In All Shades*. He died 1899, Oct. 25.

ALLEN, JOEL ASAPH. naturalist: b. Springfield, Mass., 1838, July 19. He studied at Wilbraham Acad., and Lawrence Scientific School, of Harvard, and was with Prof. Louis Agassiz 1865, on an expedition to Brazil. His dept. was zoölogy, and 1869-73 he was engaged in investigations in this line in Fla., and in the Rocky Mountains. In 1870, he was appointed asst. in ornithology in the Museum of Comp. Zoölogy at Cambridge, and received the Humboldt scholarship, 1871. He was made curator of the dept. of mammals and birds in the Amer. Mus. of Nat. Hist., New York 1885, which position he still holds. He is a member of many scientific societies, and author of numerous monographs and articles on zoölogical subjects.

ALLEN, JAMES LANE: author: b. Fayette Co., Ky., 1848, Mar. 3 —. He was of Scotch-Irish descent. He graduated at Bethany College 1867; was principal of the high school at Waukegan, Ill., 1868-70; studied law at Omaha, and was admitted to the bar 1870, having published his first book while a law student, *Allen's Handbook of the Nebraska Code*. He removed to Chicago 1872, and there practiced law till literature led him to abandon it altogether. His writings are strikingly original, and the delicacy and strength of their style have attracted wide attention. They comprise *The Exodus of the Children of Ham*; *Aunt Viney's Story*; *The Horseshoe Bend*; *Marse Breck and Miss Mury*; *The Blue-grass Region of Kentucky* (1892); *John Gray* (1893); *A Kentucky Cardinal* (1894); its sequel, *Aftermath* (1896); *A Summer in Arcady* (1896); *The Choir Invisible* (1897). In an analysis of American literature, written for *The Bookman*, 1896, Nov., Mr. A. directs attention to the types of literature found in the United States, and thus enumerates them: the only negro literature in the world; a beautiful creole literature; the literature of the Anglo-Saxon mountaineers; the New World literature of the middle-class New England life; the literature of the Western plains.

## ALLEN.

**ALLEN, ROBERT:** about 1815–1886, Aug. 6; b. Ohio. He graduated at West Point 1836, and served in the Seminole war as 2d lieut. He fought through the Mexican war, and was made brevet major. Afterward he was chief quartermaster of depts. in the west; and supt. of supplies and transportation in the Miss. valley, 1861–65. He was made brev. lieut.col. and brig.gen. 1864, July 4. He fitted out Sherman's expedition to Chattanooga; and the expeditions into Ky., Va., and N. C. He was chief quartermaster of the Pacific div. 1866–69, senior asst. in the quartermaster-gen.'s office in Washington, D. C., 1869, and retired 1878.

**ALLEN, SOLOMON:** preacher and revolutionary officer: 1751, Feb. 23—1821, Jan. 28; b. Northampton, Mass.; bro. of the Rev. Thomas A. and of Moses A. He entered the revolutionary army as a private, was lieut. in command of the guard that took Maj. André to West Point, and rose to be maj. He aided in suppressing Shays's rebellion 1786–7. He was converted at the age of 40, and 10 years later began missionary work in western N. Y., which he continued until his death, achieving high reputation for zeal and devotedness in his new calling.

**ALLEN, WILLIAM,** statesman: 1806–1879, July 11: b. Edenton, N. C. His early life was passed in the south, mostly in Lynchburg, Va., whence he travelled on foot to Chillicothe, O., 1822, where he had two years' instruction in the local academy. He studied law, passed at the bar, was successful in his practice, and was elected to the 23d congress as a democrat. In 1836 he was elected to the U. S. senate from Ohio, and re-elected 1843. In 1848, through loyalty to Gen. Cass, to whom he had promised his support, he refused the nomination for the presidency. From that time he was not active in politics till 1873, when he was elected democratic gov. of Ohio. He was an advocate of the 'greenback' theory of finance, and was defeated by Rutherford B. Hayes on that issue for re-election. He was familiarly called in congress the 'Ohio gong,' from his remarkable power of voice.

**ALLEN, WILLIAM, D.D.:** author and Congl. minister: 1784, Jan. 2—1868, July 16; b. Pittsfield, Mass.: son of THOMAS A., of Pittsfield, who was chaplain in the revolutionary war; and nephew of MOSES A., who was pastor at Midway, Ga., 1777, and chaplain to the Georgia brigade. He graduated at Harvard 1802, began to preach 1804; and served in western N. Y. for a time, when he was elected a regent and an asst. librarian of Harvard. In 1810 he succeeded his father as pastor of the First Church, Pittsfield. In 1817 he was made pres. of Dartmouth Coll., and was pres. of Bowdoin Coll. 1820–39. Thereafter he was engaged in literary work. He published the *American Biographical and Historical Dictionary* (1809), which went through several revisions; *Junius Unmasked* (1828); *Psalms and Hymns* (1835); *Memoirs of Dr. Eleazer Wheelock and of Dr. John Codman* (1853); *Poems of Nazareth and the Cross* (1866); *Sacred Songs* (1867); also a supplement to

## ALLEN—ALLENTOWN.

*Webster's Dictionary*, containing 10,000 words not in other dictionaries; and several other works.

ALLEN, WILLIAM HENRY: 1784, Oct. 21—1813, Aug. 15; b. Providence, R. I. He was appointed midshipman in the navy 1800; was 3d lieut. of the *Chesapeake* in her fight with the *Leopard*, 1807; and 1st lieut. of the *United States*, distinguishing himself in her action with the *Macedonian* 1812. He was promoted master commandant 1813, and, with the *Argus*, fought the British brig *Pelican*, 1813, Aug. 14, when he lost his vessel and was mortally wounded. He was one of the officers who charged Capt. James Barron with neglect of duty in regard to the capture of the *Chesapeake*.

ALLEN, WILLIAM HENRY: college pres.: 1808, Mar. 22—1882, Aug. 29; b. Manchester (formerly Readfield), Me. He graduated at Bowdoin Coll. 1833, and for three years taught Latin and Greek in Cazenovia, N. Y. He was principal of the Augusta (Me.) high school 1836; and prof. of nat. philos. and chemistry in Dickinson Coll., Carlisle, Penn., 1836-46. He then took the chair of philos. and English literature; and was acting pres. 1847-8. He was pres. of Girard Coll. 1850-62, pres. of Pennsylvania Coll., Gettysburg. 1865-67, and again pres. of Girard Coll. 1867-82, rendering service of great value. He was made pres. of the Amer. Bible Soc. 1872.

ALLEN, WILLIAM HOWARD: naval officer: 1790, July 8—1822, Nov. 9; b. Hudson, N. Y. He was appointed midshipman in the navy 1808, Jan. 1; promoted lieut. 1813, July 24. He took command of the *Argus*, in her fight with the *Pelican*, after her commander, William H. A., was mortally wounded, and the 1st officer disabled. He was killed in a boat-fight with pirates, off the island of Cuba, while trying to board one of their vessels. He was, at the time, in command of the U.S. sloop of war *Alligator*.

ALLEN, BOG OF, -ă'l'ĕn: general name applied to a congeries of morasses e. of the Shannon, in King's county and Kildare, Ireland, comprising in all about 238,500 Eng. acres. The strips of arable land which intersect this bog are occasionally watered by rivers which have their sources in the contiguous fens, such as the Barrow, Boyne, and Brosna; the Grand canal also passes through it. The average elevation of the morasses is 250 ft. above the sea-level. They approach to within 17 miles of Dublin on the e., and almost to the Shannon on the w. The depth of the peat found in them is about 25 ft.

ALLENTOWN: a city, cap. of Lehigh co., Penn.; on elevated ground, on the w. bank of the Lehigh river, 51 m. from Philadelphia, and 36 from Reading. The Lehigh Valley is rich in iron ore and anthracite, and extensive mining has brought A. to a position of importance. Its settlement was in 1750, when the first house was built by William Allen, on land received by grant from William Penn. It was originally called Northampton, the name being changed in 1858 in honor of its founder and first settler. The city is well laid out, with wide streets, is lighted by gas and elec-



## ALLEVIATE—ALLIACEOUS.

tricity, has many attractive public buildings and several high-grade educational institutions; and is noted for its extensive iron works. A large proportion of the population is 'Pennsylvania Dutch,' so-called, speaking a language of various native dialects with an admixture of English. In 1900 the various manufacturing industries comprised 491 establishments, \$11,996,971 capital, 8,447 hands; paid \$3,150,970 wages, and \$9,846,047 for materials; and received \$16,947,722 for products. The net city debt (1902) was \$347,042; value of city property \$507,178; assessed valuation \$21,941,175; and city tax rate \$3.79 per \$1,000. There were (1892) 2 national banks (cap. \$700,000), and 1 trust and safe deposit co. (cap. \$125,000); and 3 daily, 6 weekly, 1 semi-monthly, 4 monthly, and 1 quarterly publications. Pop. (1890) 25,228; (1900) 35,416.

ALLEVIATE, *v.* *ăl-lē'vī-āt* [mid. L. *alleviātus*, made light, mitigated—from *ad*, *lēvis*, light (see ALLAY)]: to make light; to make easier; to lessen, as pain, sorrow. ALLE'VIA'TING, *imp.* ALLE'VIA'TED, *pp.* ALLE'VIA'TION, *n.* *-shŭn*, the act of lessening or making more endurable. ALLE'VIA'TIVE, *a.* *-ā'tīv*, that lessens or palliates.—*SYN.* of 'alleviate': to appease; allay; relieve; pacify; mitigate; soothe; assuage; lessen; diminish; soften; abate; nullify.

ALLEY, *n.* *ăl'ŭ* [*F.* *allée*, a passage—from *aller*, to go. *OF.* *a'ee*, a gallery]: a narrow walk or passage. BLIND ALLEY, a lane or narrow street that has no exit or through passage; a cul-de sac.

ALLEYN, *ăl'len*, EDWARD: 1566-1626: a distinguished actor, contemporary and friend of Shakespeare; known principally as the munificent and pious founder of Dulwich College (*q.v.*). The building of the college was begun 1613; and in 1619 the institution obtained the royal charter, after some obstruction on the part of Lord Bacon, who wished the king to apply part of the grant to the foundation of two lectureships at Oxford and Cambridge. A. himself took up his quarters in the college as master, living with his wife as a pensioner on equal terms with the sharers of his bounty. He also founded numerous almshouses in London.

ALL HALLOW: see ALL SAINTS' DAY.

ALLIA, *ăl'ŭ-ā*: small stream which fell into the Tiber, 11 m. n. of Rome; the scene of the defeat of the Roman army by the Gauls under Brennus, B.C. 387, or 390. Immediately afterward Rome was taken, plundered, and burned.

ALLIACEOUS, *a.* *ăl'ŭ-ā'shŭs* [*L.* *allium*, Garlic]: pert. to the garlic or onion tribe. A. PLANTS are those of the genus *Allium* (*q.v.*), or others nearly allied to it. The term is generally employed to denote not only the possession of certain botanical characters, but also of a certain smell and taste, of which examples are readily found in the onion, leek, garlic, and other familiar species of *Allium*. These plants contain free phosphoric acid and a sulphuretted oil, which is partly dissipated in boiling or roasting. The A. flavor is, however, found also, although in comparatively rare instances, in plants of entirely different botanical affinities—for example, in *Alliaria officinalis*, of the natural order

## ALLIANCE—ALLIER.

*Cruciferae* (see ALLIARIA), in the young shoots of *Cedrela angustifolia*, a tropical American tree of the natural order *Cedrelaceae*, allied to mahogany; and in certain species of *Dysoxylon* and *Hartighsea*, of the kindred order *Meliaceae*, the fruit of which is used instead of garlic by the mountaineers of Java.

ALLIANCE, n. *äl-lī'āns* [F. *alliance*, union: L. *ad, ligo*, I bind]: union formed by marriage; a treaty or union between nations; a union for any purpose. ALLIED, *äl-līd'*, pp. of ALLY, which see; connected by marriage, interest, or friendship. ALLIES': see ALLY.—SYN. of 'alliance': league; confederacy; connection; affinity; coalition. See TREATY: HOLY ALLIANCE: TRIPLE ALLIANCE.

ALLIANCE: city, in Stark co., O.; on the Mahoning river, and on the Cleveland and Pittsburg, the Pittsburg Youngstown and Ashtabula, the Lake Erie Alliance and Southern, and the Pittsburg Fort Wayne and Chicago railroads; 56 m. s.s.e. of Cleveland. It is in a rich agricultural region; has good public schools, numerous churches, national and other banks; an electric street railway; and 2 daily, 2 weekly, and 4 monthly publications. It is noted for its manufactures, which include engines, boilers, steel castings, pumps, steam hammers, steam cranes, and other heavy machinery. Extensive mines of coal are near the city. Pop. (1890) 7,607; (1900) 8,974.

ALLIARIA, *äl-lī-ār'ī-a*: genus of plants of the natural order *Cruciferae* (q. v.), closely allied to *Sisymbrium* and *Erysimum*, but differing from both in having the stalks of the seeds flat and winged. The best known species is *A. officinalis* (*Erysimum A.* of Linnæus, and ranked by some botanists in the genus *Sisymbrium*), known by the popular names of Sauce-alone and Jack-by-the-Hedge; a biennial, remarkable for its strong alliaceous odor. It is common in Europe and used sometimes as a pot-herb.

ALLIBONE, *äl-lī-bōn*, SAMUEL AUSTIN, LL.D.: bibliographer: 1816, Apr. 17—1889, Sep. 2; b. Philadelphia. He is best known by his *Critical Dictionary of English Literature* (3 vols. 1858-71), *Supp.* 2 vols. edited by J. F. Kirk (1891). The studies for the structure of this important work were made by A. during his leisure, while actively engaged in mercantile business. It is remarkable for erudition and minute investigation. A. edited the publications for the American Sunday-school Union for several years; contributed to the *North American Review* and other periodicals; and published *Poetical Quotations from Chaucer to Tennyson* (1873); *Prose Quotations from Socrates to Macaulay* (1875); and *Great Authors of All Ages* (1879). In 1879 he became head librarian of the Lenox Library, New York, and held the office till his death.

ALLICE, or ALLIS: see SHAD.

ALLIER, *äl'lé-ā*: a river in France, a tributary of the Loire; has its source in the water-shed of the e. of the dept. of Lozère; flows n. through Haute-Loire, Puy-de-Dôme, and Allier; and after a course of more than 200 m.,

## ALLIER—ALLIGATOR.

falls into the Loire below the town of Nevers. It is navigable for a considerable portion of its length.

**ALLIER:** a dept. in the centre of France, 2,810 sq. m. It is a hilly district, especially in the s., sloping down toward the river Loire in the n., and is partly woody, but generally well cultivated, producing the usual kinds of grain, with wine and oil. It is also rich in minerals, especially iron, coal, antimony, manganese, and marble. There is some manufacturing industry in cotton, wool, linen, carpets, pottery, and glass; but the majority of the population is engaged in agriculture. Mineral springs are found at Vichy, Neris, and Bourbon-l'Archambault. The chief town is Moulins. Other important places are Montluçon, La Palisse, Gannat. At Chantelle-le-Chateau are the extensive ruins of King Pepin's castle. Pop. (1891) 424,382.

**ALLIGATION**, n. *äl'li-gā'shŭn* [L. *alligatiōnem*, a binding or tying to—from *alligārē*, to bind together—from *ad*, *ligo*, I bind]: a rule in arithmetic for finding the value or price of any mixture. It is used for solving such questions as the following: 3 lbs. of sugar at 6 cents are mixed with 5 lbs. at 10 cents; what is the price of a pound of the mixture? or: In what proportion must sugar at 6 cents be mixed with sugar at 10 cents, to produce a mixture at  $8\frac{1}{2}$  cents? The solution of the first is  $\frac{3 \times 6 + 5 \times 10}{3 + 5} = 8\frac{1}{2}$  cents.

In the second, the proportional number for one ingredient is the difference between the price of the other and that of the mixture; the number for the cheap sugar is therefore  $1\frac{1}{2}$ , and for the dear,  $2\frac{1}{2}$ , which are as 3:5, so that there must be 3 lbs. at 6 cents for every 5 lbs. at 10 cents. If there are more than two ingredients, the problem becomes indeterminate; that is, it admits of a variety of answers. Thus: Of three metals, whose specific gravities are 10, 15, and 16, it is required to compose an alloy whose specific gravity shall be 14. The conditions will be answered by mixing them in any of the following proportions: 1, 2, 1; 2, 2, 3; 6, 2, 11, etc.

**ALLIGATOR**, n. *äl'li-gā'tēr* [Sp. *el-lagarto*, the lizard: L. *lacerta*: Port. *allagarto*]: a genus of saurian reptiles of the family of the *Crocodylidae*, and still regarded by some naturalists as a mere sub-genus of *Crocodylus*; although it has recently been proposed to constitute a family or sub-family of *Alligatoridae*, and to divide it into the genera *Jacare*, *Alligator*, and *Caiman*. The alligators differ from the true crocodiles in the shorter and flatter head, the existence of cavities or pits in the upper jaw, into which (and not into mere notches between the teeth, as in the crocodiles) the long fourth teeth of the under jaw are received, and the much less webbed feet. In consequence of the different manner in which provision is made in the upper jaw for the reception of the longest teeth of the lower, the head of the alligators is broader and the snout more obtuse than in the crocodiles. Their habits are less perfectly aquatic; they frequent swamps and marshes, and may be seen basking on the dry ground during the day, in the heat of the sun. They are most

## ALLIGATOR APPLE—ALLIGATOR-GAR.

active during the night, and then make a loud bellowing. They have great strength in their tails, with which the larger ones can easily upset a light canoe. They feed chiefly on fish, but do not object to other animal food. The females lay their eggs, 20-60 in number, in the mud, and leave them to be hatched by the heat of the sun, but keep watch over the spot, and show much affection for their young ones, many of which, however, fall a prey to the old males, and to vultures and fishes. There are several species, varying from two to twenty ft. and upwards in length. Perhaps the most fierce and dangerous is that found in the southern parts of the United States, as far up the Mississippi as the Red river, *A. Lucius*. The snout is a little turned up; and its resemblance to that of a pike has led to the specific name *Lucius*. In cold weather these animals bury themselves in the mud, and become so torpid,



Alligator.

that they may be cut to pieces without showing signs of sensibility; but a few hours of bright sunshine are enough to revive them. Like the other species, they are so protected by their mailed plates, that they are not easily killed, except by a shot or blow over the eyes. A very strong kind of leather is prepared from the skin, which is used for making saddles. It is said that a considerable quantity of oil can be extracted from an A., which is transparent and burns well. The alligators of S. Amer. are there very often called *Caymans*, probably an Indian name, and some of them bear the name of *Yacaré*, particularly *A. sclerops*, also distinguished as the Spectacled Cayman, on account of a prominent bony rim surrounding the orbit of each eye. This species appears to be widely distributed over tropical America, and attains a great size. Alligators are not known to exist in any quarter of the world except America, in which, however, true crocodiles are also found. But among the fossils of the s. of England are remains of a true A. (*A. Hantoniensis*) in the Hordle beds. The flesh of alligators is eaten by Indians and negroes. It has a musky flavor.—The name is supposed to be a corruption of the Portuguese *lagarto*, lizard. Cuvier adopted it as a scientific name.

ALLIGATOR APPLE: see CUSTARD APPLE.

ALLIGATOR FISH: Teliost fish, family *Agonidæ*, armed with bony plates; 20 small species, chiefly arctic. One occurs south to Cape Cod.

ALLIGATOR-GAR, -*gâr* (*Lepidosteus tristæchus*): Ganoid fish, 10 feet long; Ill. to Cuba. See GANOID.

## ALLIGATORIDÆ—ALLITERATION.

**ALLIGATORIDÆ**, *äl-lī-ga-tör'ī-dē*: family of Saurians, ord. *Crocodylia*; often classed as a sub-fam. (*Alligatorinæ*) of *Crocodylidae*. The distinction between the two families is drawn as follows by Prof. Huxley: A. have head short and broad; teeth very unequal, the 1st and 4th of the under jaw biting into pits in the upper jaw; premaxillo-maxillary suture straight or convex forward; mandibular symphysis not extending beyond the 5th tooth, the splenial element not entering it; cervical scutes distinct from the tergal. In the *Crocodylidae* the head is longer; teeth unequal; 1st mandibular tooth biting into a fossa, the 4th into a groove, at the side of the upper jaw; premaxillo-maxillary suture straight or convex backward; mandibular symphysis not extending beyond 8th tooth, and not involving the splenial elements. Of living A. all are confined to America. Till lately it was supposed that no *Crocodylidae* were to be found in the new world; but a species of Crocodile, *Crocodylus Americanus*, has been discovered in Fla.

**ALLIGATOR-PEAR**: see **AVOCADO PEAR**.

**ALLIGATOR-TURTLE**: one of the names of the snapping-turtle (*Chelydra serpentina*); also the familiar name of *Macrochelys lacertina*, another fresh-water turtle, an American species found from the Gulf of Mexico n. to Wis.; esteemed for food. Specimens often weigh 60 lbs.

**ALLISION**, n. *äl-līzh'ün* [L. *allisio*—from *allidere*, to dash against]: a striking or dashing against with violence.

**ALLISON**, *äl-lī-son*, **WILLIAM B.**: lawyer and statesman: b. Perry, O., 1829, Mar. 2; of Irish ancestry. He received the ordinary school education, supplemented by tuition at Allegheny College, Meadville, Penn., and then entered Western Reserve College, Hudson, O., and on his graduation studied law. Being admitted to the bar, he entered upon a professional career in his native state, 1852, but in 1857 removed to Dubuque, Iowa. He was elected to the 38th congress as a republican and re-elected to the three following congresses. In 1873 he was elected U. S. senator, and has since held the seat by re-elections. The Bland-Allison Act—Bland Silver Bill—was so called because he introduced it in 1877. He has been noted more for practical, hard work in fulfilling the duties of his position than for oratory, and is highly regarded for his wise service on important committees. His public speeches in his own state have been influential in shaping political action. In 1892 he was a delegate to the Int. Monetary Conference.

**ALLITERATE**, v. *äl-lit'er-ät* [L. *alliteratus*, having the same letter]: to commence two or more consecutive words with the same letter, or with the same or nearly the same sound: said of the speaker or writer as well as of the alliterating words themselves. **ALLITERAL**, a. *äl-lit'er-al*, pertaining to the practice of commencing two or more words in immediate succession with the same letter.

**ALLITERATION**, n. *äl-lit'er-ā'shün* [F. *allitération*—from L. *ad, litēra*, a letter]: the frequent repetition of a letter (usually an initial) or sound in successive words,—generally in poetry. **ALLITERATIVE**, a. *-ā'tiv*, pertaining to. In Old

## ALLITERATION.

German, Anglo-Saxon, and Scandinavian poetry, A. took the place of rhyme. This kind of verse, in its strict form, required that in the two short lines forming a couplet, three words should begin with the same letter, two in the first line or hemistich, and one in the second, as in the following couplet of Anglo-Saxon poetry:

*Firum foldan  
Frea almihtig.—Cædmon.*

A. has not quite disappeared from Icelandic poetry to this day. Alliterative poems continued to be written in English after it had assumed its modern form; the most remarkable is *Pierce Plowman*, a poem of the 14th c., of which the following is a specimen, the two hemistichs being written in one line:

*Mercy hight that maid, | a meek thing withal,  
A full benign burd, | and buxom of speech.*

Even after the introduction of rhyme, A. continued to be largely used as an embellishment of poetry, and is so, though to a less extent, to this day:

*The fair breeze blew, the white foam flew,  
The furrow followed free.—Coleridge.*

Besides the Gothic, there are other nations widely separated from each other, among whom the essential distinction of verse is A.; the Finns, for instance, and the Tamuls in the s. of India.

But A. is not confined to verse; the charm that lies in it exercises great influence on human speech generally, as may be seen in many current phrases and proverbs in all languages: Ex., 'life and limb,' 'house and home,' 'wide wears, tight tears,' etc. It often constitutes part of the point and piquancy of witty writing. This application of A. is felicitously exemplified by Sidney Smith, when, contrasting the conditions of a dignitary of the English Church and of a poor curate, he speaks of them as 'the Right Reverend Dives in the palace, and Lazarus-in-orders at the gate, doctored by dogs and comforted with crumbs.'

In the early part of the 17th c., the fashion of hunting after alliterations was carried to an absurd excess; even from the pulpit, the chosen people of God were addressed as 'the chickens of the church, the sparrows of the spirit, and the sweet swallows of salvation.' *Ane New-year Gift*, or address, presented to Mary Queen of Scots by the poet Alexander Scott, concludes with a stanza running thus:

*Fresh, fulgent, flourist, fragrant flower formose,  
Lantern to love, of ladies lamp and lot,  
Cherry maist chaste, chief carbuncle and chose, etc.*

In the following piece of elaborate trifling, given (but without naming the author) in H. Southgate's *Many Thoughts on Many Things*, Alliteration is combined with Acrosticism:

*A* n Austrian army, awfully arrayed,  
*B* oldly by battery besieged Belgrade;  
*C* ossack commanders cannonading come,  
*D* ealing destruction's devastating doom;  
*E* very endeavor engineers essay  
*F* or fame, for fortune, forming furious fray.  
*G* aunt gunners grapple, giving gashes good;  
*H* eaves high his head heroic hardihood;

## ALLIUM—ALLOA.

**I** braham, Islam, Ismael, imps in ill,  
**J** ostle John Jarovlitz, Jem, Joe, Jack, Jiff;  
**K** ick kindling Kutusoff, king's kinsmen kill  
**L** abor low levels loftiest, longest lines;  
**M** en march 'mid moles, 'mid mounds, 'mid murd'rous mines.  
**N** ow nightfall's near, now needful nature nods,  
**O** pposed, opposing, overcoming odds.  
**P** oor peasants, partly purchased, partly pressed,  
**Q** uite quaking, 'Quarter! quarter!' quickly quest.  
**R** eason returns, recalls redundant rage.  
**S** aves sinking soldiers, softens signiors sage.  
**T** ruce, Turkey, truce! truce, treach'rous Tartar train!  
**U** nwise, unjust, unmerciful Ukraine,  
**V** anish, vile vengeance! vanish, victory vain!  
**W** isdom wails war—wails warring words. **What were**  
**X** erxes, Xantippe, Ximenes, Xavier?  
**Y** et Yassy's youth, ye yield your youthful yest.  
**Z** ealously, zanies, zealously, zeal's zest.

**ALLIUM**, *ă'l'i-ŭm*: genus of plants of the natural order *Liliaceæ* (q.v.), containing a large number of species, perennial—more rarely biennial—herbaceous plants, more or less decidedly bulbous-rooted, natives chiefly of the temperate and colder regions of the northern hemisphere. The flowers are umbellate, inclosed in a spathe, and the umbel often bears also small bulbs with its flowers. The perianth is of six spreading pieces, resembling petals, having the stamens inserted in their base. The fruit is a triangular capsule, and the seeds are angular. The leaves are generally narrow, although in some species, as *A. ursinum*, they are rather broad, and in a considerable number they are rounded and fistulose. **GARLIC** (q.v.), **ONION** (q.v.), **LEEK** (q.v.), **SHALLOT** (q.v.), **CHIVE** (q.v.), and **ROCAMBOLE** (q.v.), are species of this genus in common cultivation. The first four are cultivated in the gardens of India, as well as of Europe, with *A. tuberosum*; and the hill-people of India eat the bulbs of *A. leptophyllum*, and dry the leaves, and preserve them as a condiment. Six native species occur in e. N. America; the Wild Leek (*A. tricoccum*), leaves dying before flowers develop; w. New England, w. and Alleghanies: Wild Onion (*A. cernuum*), scape angular, umbel drooping; w. New York, w. and s.: *A. stellatum*, similar, but scape round, leaves flat; w. and n.w.: Wild Garlic (*A. Canadense*), leaves linear and flattish: *A. striatum*, leaves striate on the back; s. and w.: Chives (*A. Schœnoprassum*), leaves awl-shaped, hollow; Great Lakes and n., also Europe: and Field Garlic (*A. vineale*), round hollow leaves, channelled above, an imported troublesome perennial, to be extirpated only by rooting out the bulbs perseveringly, when the leaves begin to appear in spring.

**ALLOA**, *ă'l'ō-ă*: seaport town in Clackmannanshire, Scotland, is situated on the left bank of the Forth, where the river widens into its estuary, 7 m. (by road) below Stirling. Pop. about 12,000. It is a town of considerable antiquity, and is an active centre of trade and manufactures. The principal articles manufactured are whisky and ale, the latter of which is highly esteemed. There are extensive glass, iron, and brick works, and ship-building yards. Copper utensils, shawls, and blankets, leather, tobacco, and snuff are manufactured, and much coal is

## ALLOCATE—ALLODIUM.

regularly exported from the pits in the immediate neighborhood of the town. Coal is a chief item in the coasting trade, besides which there is a considerable foreign trade, chiefly outwards. The 1,087 vessels that entered the port in 1880 had a tonnage of 140,719 tons. The harbor is good, with 16 ft. of water at neap, and 22 at spring tides; it is furnished with a dry-dock. There is a steam-ferry across the Forth, connecting by a short junction line with the Scottish Central railway. It is also connected with that line, and with the Edinburgh and Northern railway, by the Stirling and Dunfermline branch. There is regular steam-communication by the river with Edinburgh and Stirling. In the neighborhood is Alloa Tower, 89 ft. high, supposed to have been built in the 13th c., once the residence of the Erskines, and at different times of Scottish princes.

**ALLOCATE**, v. *ă'lō-kāt* [mid. L. *allocātus*, placed to, allotted—from L. *ad*, *locūs*, a place]: to place to; to give each one his share or part; to set apart for any purpose; to distribute. **AL'LOCA'TING**, imp. **AL'LOCA'TED**, pp. **ALLOCATION**, n. *ă'lō-kā'shŭn*, the act of setting apart for; the assigning a place for. **ALLOCATUR**, n. *ă'lō-kā'tér* [L. it is allowed]: in *law*, a word indicating the amount allowed, in the taxation of a bill of costs, by the proper officer of court. —**SYN.** of 'allocate': to allot; assign; appoint; distribute; destine; apportion.

**ALLOCHROITE**, n. *ăl-lōk'rō ĭt* [Gr. *allos*, different; *chrōiā*, color]: a fine-grained, massive variety of iron-garnet, exhibiting a variety of colors when melted with phosphate of soda before the blow-pipe.

**ALLOCUTION**, n. *ă'lō-kŭ'shŭn* [L. *allocŭtiōnem*, a speaking to, an address—from *ad*, *locŭtus*; spoken]: a formal address written or spoken: specially the address delivered by the pope at the College of Cardinals on any ecclesiastical or political circumstance. It corresponds in some measure to the official explanations which constitutional ministers give when questions are asked in parliament, or to the political messages of an emperor. The Roman see makes abundant use of this method of address, when it desires to guard a principle which it is compelled to give up in a particular case, or to reserve a claim for the future which has no chance of recognition in the present.

**ALLODIUM**, n. *ăl-lō'dĭ-ŭm* [mid. L. *allōdĭālis*—from *allōdĭum*, land held without a superior; Dan. *odel*, a patrimonial estate; Icel. *odal*, a homestead, goods abandoned]: land held in absolute possession without a feudal superior; unconditional free tenure: **ALLODIAL**, a. *ăl-lō'dĭ-ăl*, free of rent; independent. **ALLODIAL TENURE**, in Law, is the free and absolute right of property in land, independent of any burden of homage or fidelity to a superior. When the principal landholders of England submitted to the yoke of military tenure, and surrendered their lands into the hands of the Conqueror at the council of Sarum, feudality, the previous existence or non existence of which has been a subject of much discussion, was formally recognized, and it



## ALLON—ALLONGE.

henceforth became a fundamental maxim in the law of real property, that 'the king is the universal lord and original proprietor of all the lands in his kingdom, and that no man doth or can possess any part of it, but what has mediately or immediately been derived as a gift from him, to be held upon feudal services' (Blackstone, vol. ii. p. 51, Kerr's edition). This maxim, though, as Blackstone remarks, it was even at first little more than a fiction, was not peculiar to England, but prevailed wherever the feudal system obtained, and still forms what may be called the starting-point in all feudal tenures of land. Even where subinfeudations have prevailed to the greatest extent, every title is traceable, in the last instance, to the paramount and universal superiority of the crown. See FEUDAL SYSTEM. The surrender of lands in England being the result of political measures, was one universal national act, and, consequently, allodial tenures at once ceased to exist; but in many other countries it was accomplished by private arrangements between the allodial proprietors and the prince, the former being anxious to exchange their nominal independence for the greater security enjoyed by the vassals of the sovereign; the latter being willing to receive them as dependents, for the sake either of their personal services in war, or latterly, for the equivalents of these services in money or the produce of the lands. In such countries, feudality, though general, was not universal; and allodial tenures consequently continued together with those originating with the crown. The only examples of allodial tenures extant in Great Britain are the Udal rights in the islands of Orkney and Shetland, formerly Danish. In Scotland all property and superiorities belonging to the crown itself, and all churches, church-yards, manses, and glebes, the right to which does not flow from the crown, are regarded as allodial; and the term in a wider sense, as opposed to *feudal* generally, is sometimes used with reference to movable property.

ALLON, HENRY, D.D.: English Congl. minister: 1818, Oct. 13—1892, Apr. 16; b. Welton, Yorkshire, 1818, Oct. 13; graduated at Chestum Coll. 1843. He became co-pastor of Union Chapel, Islington, London, 1844, and from 1852 was sole pastor. He was chairman of the Congl. Union 1864-5, and again 1881. From 1865 for 22 years he was editor of the *British Quarterly Review*. He also contributed to the *Contemporary* and other reviews; wrote *Memoir of the Rev. J. Sherman* (1863); compiled the *Congregational Psalmist* (extensively used in the churches), and wrote *The Vision of God* (1876), a volume of sermons. He was highly esteemed as a preacher and pastor, and with notable zeal and taste he promoted church music in the Nonconformist churches. A new church was erected for him at Islington 1877, costing nearly \$250,000. He received the degree of D.D. from Yale Coll. 1871, and from the Univ. of St. Andrews 1885.

ALLONGE, *ă-lōnj'*, AUGUSTE: French artist; b. Paris. He was pupil of Cogniet, and has achieved reputation for his excellent charcoal drawings, being known as one of the 'kings of charcoal.' He published *Charcoal Drawing*.

## ALLOPATHY—ALLOTMENT OF LAND

**ALLOPATHY**, n. *äl-löp'ä-thĭ* [Gr. *allos*, another; *pathos*, disease]: that mode of medical practice which consists in the use of drugs to produce in the body a condition opposite to the disease to be cured; the ordinary method of medical practice whose practitioners, however, do not acknowledge the term. It is opposed to **HOMEOPATHY**, *höm'ě-öp'ä-thĭ* (q.v.), which attempts to cure disease by medicine which, in a state of health, would have produced a similar disease. **ALLOPATHIC**, a. *äl'lö-päth'ĭk*, pertaining to allopathy. **AL'LOPATH'ICALLY**, ad. *-lĭ*. **ALLOP'ATHIST**, n. one who practices allopathy.

**ALLOPHANE**, n. *äl'lö-fän* [Gr. *allos*, different; *phaino*, I appear]: a mineral, hydrated aluminium subsilicate; occurs in cavities and veins as a translucent amorphous incrustation, sometimes pulverulent; generally of pale blue color.

**ALLOPHYLIAN**, a. *äl'lö-fĭl'ĭ-än* [Gr. *allophūlos*, of another tribe, foreign—from *allos*, another; *phūlē*, a race, a tribe]: a term employed to designate a primitive race or language existing among other races of the same stock, as the Basque, race and language, in the Spanish and French Pyrenees; the vast mass of living languages which cannot be classified under the Aryan and Semitic families; sporadic or scattered. See **ETHNOLOGY**.

**ALLORI**, *äl-lö'rĕ*, **CRISTOFANO**: painter: 1577, Oct. 17—1621; b. Florence, Italy; son of Alessandro A. He was noted as a colorist, and for delicacy and technical finish. He excelled in portraiture. His finest work is *Judith and Holofernes*, in the Pitti palace.

**ALLOT**, v. *äl-löt'* [L. *ad*; Icel. *hlutr*, lot: OF. *allotr*, to divide or part (see **LOT**)]: to distribute by lot; to assign to; to divide and parcel out; to apportion. **ALLOT'TER**, n. one who. **ALLOT'TING**, imp. **ALLOT'TED**, pp. **ALLOT'MENT**, n. that which has been parcelled out; a share; the part assigned. **ALLOTTERY**, n. *äl-löt'ĕr-ĭ*, in *OE.*, that which has been granted or assigned in a distribution.

**ALLOTMENT OF LAND**: in Great Britain, a legal term signifying the allowance of land too inconsiderable for a formal conveyance, and without prejudice to the title. This system was resorted to after 1830, when the agricultural laborers in many counties—owing to the use of threshing-machines and other improvements which they dreaded would lower their wages—rose in insurrection. Voluntary societies were established to promote the A. of L.; and the system brought a measure of relief. The use of the spade in cultivation is insisted on, and the plow prohibited, and there are other conditions of the occupancy (see **SPADE-HUSBANDRY**). The latest returns (but not recent) showed 242,000 allotments, averaging a quarter of an acre.

## ALLOTROPY.

**ALLOTROPY**, n. *äl-löt' rō-pī*, or **ALLOTROPISM**, n. *-pīzəm* [Gr. *allos*, another; *tropē*, a conversion or change]: in *chem.*, term denoting the quality in certain elements subsisting in various forms, each of which, though containing no extraneous substance, possesses different properties from the others. **ALLOTROPE**, one of the forms in which an element having this quality subsists. **ALLOTROPIC**, a. *äl'lō-tröp'ik*, designating such a condition existing in more than one molecular condition, and with different physical characteristics; as carbon in the three forms of diamond, graphite, and charcoal. *Allotropy* denotes the quality of the various conditions in which a single element can be obtained, known as its allotropic modifications, and though as yet only a few elementary substances have been observed to exhibit such modifications, yet it is generally believed that every element is capable of existing in several allotropic forms. Phosphorus affords an excellent illustration of this doctrine. In ordinary circumstances, and when freshly prepared, phosphorus is a pale, yellow solid, of the consistence and aspect of wax, and to some extent flexible and translucent. It requires to be placed in a vessel with water to keep it from taking fire spontaneously. At any ordinary natural temperature it appears luminous, and evolves an alliaceous odor when exposed to air, owing to a slow process of combustion taking place; and when warmed to 140° F., it bursts into flame, and burns vividly. Common phosphorus is soluble in alcohol, ether, the fixed and volatile oils, and especially in bisulphuret of carbon, 100 parts of which, when warm, dissolve 20 parts of phosphorus. But the same element, when dried and kept for some days, with little or no access of air, at a temperature ranging from 446° to 482° F., passes, weight for weight—without addition or subtraction of matter—into a reddish substance, which is known to chemists as *amorphous phosphorus*. The color of this new variety is scarlet, brownish red, or even blackish red; and it exists as a powder or cake, which does not evolve any odor, or readily take fire, and therefore needs not to be preserved under water. When heated to 140°, and even to a temperature a little short of 482°, it refuses to burn; and, in fact, it is questionable if phosphorus in this condition will take fire at all; though at 482°, and above, the red variety passes back again to the ordinary or yellow phosphorus, and then bursts into flame. Moreover, amorphous phosphorus is insoluble in alcohol, ether, the fixed and volatile oils, and even in bisulphuret of carbon. Probably the most striking difference between these two forms of the same substance is, that ordinary phosphorus is a deadly poison, as is too often evidenced in the death of children from sucking the ends of lucifer-matches; while the red or amorphous phosphorus is not known to be poisonous at all.—Besides the two varieties already mentioned, which are best known, there are *black phosphorus*, *white phosphorus*, and *scaly phosphorus*. The only manner of accounting for the difference of properties

## ALLOW.

evinced by ordinary and red phosphorus, is to refer the to molecular change due to heat during the passage of the ordinary into the red variety. It is an observed fact that such absorption or disappearance of heat does then take place; while, when the red phosphorus is heated till it passes back to the ordinary kind, a very rapid disengagement of heat occurs.

Sulphur furnishes another example of A. In the ordinary condition of roll sulphur, it is a pale yellow, brittle, crystalline solid; insipid to taste, odorless when cold, and evolving a peculiar odor when heated or rubbed. It dissolves in small quantity in turpentine and the fixed oils, and to the extent of 35 per cent. in bisulphuret of carbon. When common sulphur is heated to 232°, it fuses, and forms a thin, yellow, limpid liquid like olive-oil; at 480° it passes into a thick, dark-brown, viscid liquid, resembling in consistence ordinary treacle; and if, at this stage, it be poured into water, the sulphur forms itself into a thread-like mass or net-work, possessing great elasticity, like india-rubber, not at all brittle, and so soft that it can be molded by the fingers into casts and seals. Again, this elastic form of sulphur is not soluble in turpentine and the fixed oils, or even in bisulphuret of carbon. There are also other allotropic forms of sulphur.

Oxygen may be taken as a third illustration of the same doctrine. In the ordinary form in which oxygen exists in the atmosphere and elsewhere, it is a gas with no odor, no bleaching properties, and no disinfectant powers. To a certain extent, it oxidizes metals, etc.; but comparatively, it may be regarded as a feeble oxidizing agent. By several processes—namely, the introduction of a heated glass rod into a jar containing ordinary air and a little ether; or the presence of clean-scraped sticks of phosphorus in a glass vessel with a confined portion of air; or the passage of electric discharges through or round a glass tube or bottle with air—the oxygen of the atmospheric air is transformed into an allotropic form called *ozone*. In the latter condition, oxygen possesses a very strong and peculiar odor, long known as the electrical odor; has great bleaching powers, and is regarded as the agent in the air which bleaches clothes spread out on grass; and possesses such powerful disinfecting properties, that tainted meat introduced into ozonized air has the disagreeable odor destroyed, and smells fresh when taken out. Ozone is doubtless the great natural agent which removes many deleterious gases and vapors, and destroys infectious matter floating in or diffused through the air. See OZONE.

ALLOW, v. *äl-low'* [F. *allower*, to allow, to assign—from L. *ad*, *locārē*, to place or to let, see *note—lit*, to place to]: to admit; to grant; to permit; to own; to deduct. ALLOW'ING, imp. ALLOWED, pp. *äl-low'd'*, in *OE.*, privileged. ALLOWABLE, a. *äl-low'ä-bl*, that may be permitted; not improper or unlawful. ALLOW'ABLY, ad. *-blī*. ALLOWABLENESS, n. *äl-low'ä-bl-nēs*, lawfulness; fitness. ALLOWANCE, n. *äl-low'äns*, the act of allowing; permission; a settled rate; a salary; in *OE.*, approval. *Note.*—*Allow*, v.

## ALLOWANCES—ALLOY.

[OF. *alouer* or *allouer*, to approve: mid. L. *adlaudārē*, to apportion to—from L. *ad*, *laudārē*, to praise]: In *OE.*, means, to praise; to approve of highly: this sense of the word is common in old authors, and is much earlier in use than the former; the senses, however, are not always easily distinguished, and constantly run into each other.—*SYN.* of 'allow': to permit; suffer; tolerate; grant; bestow; afford; concede; in *OE.*, to justify;—of 'allowance': stipend; salary; wages; hire; pay.

**ALLOWANCES, OFFICERS'**: settled rates, or sums, besides the recognized pay, granted in the British army—and to various degrees in the armies of other countries—to military officers, for special duties, or under certain specified circumstances. In the U. S. army and navy, certain additions to the pay of officers are given by law; and these are set forth in the army and navy regulations, and in the U. S. revised statutes. These include fuel, quarters, rations, forage, mileage when travelling under orders, and not furnished with transportation by the quartermaster's department, and other additions to pay, in money or kind, as stipulated. Officers of the army and of volunteers assigned to duty which requires them to be mounted, are, during the time they are employed on such duty, entitled to receive the pay, emoluments and A. of cavalry officers of the same grade respectively. See **PAY: PENSION.**—The daily food served out at the public expense, which is called a *ration* by soldiers, is more usually known to sailors as an *allowance*. See **RATION.**

**ALLOWAY KIRK**, *al'lo wā-*: an old ruined church in the parish of Ayr. near the mouth of the Doon, celebrated in Burns's *Tam o' Shanter*. At very short distances from it are the cottage in which the poet was born, the monument erected to his memory in 1823, and 'the Auld Brig o' Doon,' over which Tam o' Shanter made his escape.

**ALLOXAN**, n. *äl-lök'sän* [made up of syllables in *allantoin* and *oxalic acid*]: an oxidation product of uric acid. **ALLOXANTIN**, n. *äl-lök'sän-tin*, a body formed by the reduction of alloxan.

**ALLOY**, v. *äl-loj'* [F. *aloi*; It. *lēga*, standard, quality: L. *ad*, *lex*, the law or rule: Sp. *ley*, the proportion of silver found in ore]: to mix metals for coin according to rule or law; to mix any metal with another, generally with one less valuable; to reduce or lessen by mixture: N. a baser metal mixed with a finer; a mixture of two or more metals; a mixture of a metal with mercury is called an *amalgam*; evil mixed with good. **ALLOY'ING**, imp. **ALLOYED**, pp. *äl-loyd'*. **ALLOYAGE**, n. *äl-loj'āj*, the act of mixing metals; a mixture of different metals.

**ALLOY**, in Chemistry: a mixture of two or more metals, either natural or produced artificially by melting them together. The A., or mixture, has often different properties from the component metals, and bears a distinct name. Thus, bell metal is an A. of copper and tin; tombak, of copper and zinc; brass, of copper, with a larger proportion of zinc, etc. Alloys are generally harder than the

## ALLOY.

metals that compose them, and this is the motive for alloying the precious metals. Both gold and silver, when pure, are very soft, and easily worn away by use; and therefore a certain proportion of copper is added, to give these metals the requisite hardness. In this case the word 'alloy' signifies the inferior metal added, and not the mixture. For coin, the proportion of copper to be added is fixed by law (see the following article), and differs in different states. It has been found by experiment that  $\frac{1}{12}$  of A. gives the greatest durability. This is exactly the proportion in British gold coin, a pound troy of the metal containing 11 parts gold and 1 part copper. The A. in British silver coin is somewhat less, being 18 dwt. in the pound instead of 20 dwt. For convenience in reckoning, the standard of the coinage in France, and other countries that adopt its monetary system, as well as in the United States, is made  $\frac{9}{10}$  pure metal and  $\frac{1}{10}$  A., usually stated 900 (in 1,000) parts fine. British gold and silver standards similarly stated would be 917 and 925 respectively. Gold is sometimes alloyed with silver, or with a mixture of silver and copper. The color of gold and silver is affected by the nature and amount of the A. A strong A. of copper makes gold red; silver, green; and a still stronger of silver, a bright yellow. A compound of mercury with another metal is an *Amalgam* (q.v.).

Alloys seldom possess the density which theory or calculation from the specific gravity of their constituents would indicate. Thus, many alloys possess a greater density than the mean density of their constituents, while others have a less density. The increase in density of the A. indicates that the metals have contracted; in other words, that the metallic molecules have approached each other more closely; while the decrease in density denotes a separation of the molecules to greater distances from each other.

ALLOYS	ALLOYS
which exhibit a greater density than the mean density of the metals composing them.	which exhibit a less density than the mean density of the metals composing them.
Gold and Zinc.	Gold and Silver.
" " Tin.	" " Iron.
" " Bismuth.	" " Lead.
" " Antimony.	" " Copper.
" " Cobalt.	" " Iridium.
Silver " Zinc.	" " Nickel.
" " Tin.	Silver " Copper.
" " Bismuth.	Iron " Bismuth.
" " Antimony.	" " Antimony.
Copper " Zinc.	" " Lead.
" " Tin.	Tin " Lead.
" " Palladium.	" " Palladium.
" " Bismuth.	" " Antimony.
Lead " Antimony.	Nickel " Silver.
Platinum and Molybdenum.	Zinc " Antimony.
Palladium " Bismuth.	

The strength of cohesion of an A. is generally greater than that of the mean cohesion of the metals contained therein, or even than that of the most cohesive of its constituents.

## ALLOY.

Thus, the breaking weight of a bar of copper or tin (meaning the longitudinal strain that it can bear) is very much lower than the breaking weight of a bar composed of an A. of tin and copper. The following tables represent the

### COHESION OF METALS.

	Bar, one inch square, breaks with lbs.
Barbary Copper.....	22,570
Japan ".....	20,272
English Block Tin.....	6,650
" " ".....	5,322
Banca Tin.....	3,679
Malacca Tin....	3,211
Bismuth.....	3,008
Zinc.....	2,689
Antimony.....	1,060
Lead.....	885

When any two of the above metals combine together, they generally—though not always—yield an A. which is much stronger than we should expect; thus the

### COHESION OF ALLOYS.

	Bar, one inch square, yields with lbs.
10 parts of Copper and 1 part of Tin.....	32,093
8 " " 1 " ".....	36,088
6 " " 1 " ".....	44,071
4 " " 1 " ".....	35,739
2 " " 1 " ".....	1,017
1 " " 1 " ".....	725
4 " English Tin and 1 " Lead.....	10,607
4 " Banca " " 1 " Antimony.....	13,480
4 " " " " 1 " Bismuth.....	16,692
4 " English Tin " 1 " Zinc.....	10,258
4 " " " " 1 " Antimony.....	11,323

The power of conducting electrical currents is not so great in an A. as the mean conducting power of its components.

The composition of the more commonly occurring and commercially important alloys, is as follows: Plumber's solder, 1 tin and 2 lead; soft solder, 2 tin and 1 lead; common pewter, 4 tin and 1 lead; gun-metal, 9 copper and 1 tin; bronze, 9 copper and 1 tin and zinc; cymbals and Chinese gongs, 4 copper and 1 tin; bell-metal, 3 copper and 1 tin; speculum metal, 2 copper and 1 tin; pot-metal or cock-metal, 2 copper and 1 lead; gilding-metal, 16 copper and 1 to 1½ zinc; Mannheim gold—pinchbeck or bath-metal, 16 copper and 4 zinc; Bristol brass, for soldering, 16 copper and 6 zinc; ordinary brass, for casting, 16 copper and 8 zinc; Muntz sheathing-metal, 16 copper and 10⅔ zinc; spelter solder, for copper and iron, 16 copper and 12 zinc; spelter solder, for brass-work, 16 copper and 16 zinc; Mosaic gold, 16 copper and 16½ zinc; hardest silver solder, 4 silver and 1 copper; hard silver solder, 3 silver and 1 copper; soft silver solder, 2 silver and 1 copper; German silver, 100 copper, 60

## ALLOY—ALL-SAINTS'-DAY.

**zinc**, and 40 nickel; type-metal, ordinary, 15 lead, 4 antimony, and 1 tin, or 14 lead, 5 antimony, and 1 tin—small types, 4 lead and 1 antimony—large types, 6 lead and 1 antimony; stereotype metal. 48 lead, 6 antimony, and 1 tin; Britannia metal, 50 tin, 4 antimony, 4 bismuth, and 1 copper; Babbitt-metal, 83 tin, 17 copper and antimony.

**ALLOY**, or **ALLAY**, in Law: the inferior metal mixed with gold and silver in the coinage. The standard for both gold and silver coins of the United States is prescribed by statute to be such that of 1,000 parts by weight, 900 shall be of pure metal and 100 of A. The A. of the silver coins must be copper; that of the gold coins of copper, or of copper and silver, but the silver must in no case exceed one-tenth of the whole A.

In Britain, gold and silver to be converted into sovereigns, half-sovereigns, shillings, and the other current silver coins, must be of the true standard, or of *sterling* quality, as it is called; and by the statute 25 Edward III. c. 13, all the coin of the kingdom must be made of such sterling metal. By the 56 Geo. III. c. 68, gold coin—with certain exceptions recited in the act—is declared to be the only legal tender for payments, and that such gold coin shall be of the weight and fineness prescribed by the indenture with the Master of the Mint; and according to the standard thus indicated, the pound troy of gold, consisting of 22 carats—or twenty-fourth parts—fine, and two of A., is divided into forty-four guineas and a half, of the present value of twenty-one shillings each. In the case of silver, the pound troy is declared by the same act—extended by a recent statute, the 12th and the 13th Vict. c. 41—to consist of eleven ounces two pennyweights of fine silver, and eighteen pennyweights of A., and in weight to be divided into sixty six shillings. The regulation of the coinage forms part of the prerogative of the crown, although parliament also exercises a control over it; indeed, since the Revolution, the coinage has been chiefly regulated by the authority of parliament. See **COINAGE** and **MINT**.

**ALL SAINTS' BAY**: in the province of Bahia, Brazil: 12°—13° s. lat., 38—39° w. long. It forms a superb natural harbor, in which the navies of the whole world might anchor. Its length from n. to s. is 37 m.; its breadth from e. to w. 27. It contains several islands, the largest of which, Itaparica, is 18 m. long, and 3 broad. The entrance to the bay is easy. The town of Bahia (q.v.) lies just within it, on the right hand.

**ALL-SAINTS'-DAY**: in old English, All-Hallows, All-Hallowmas, or simply Hollowmas; a festival of the Rom. Cath. Church, introduced because of the impossibility of keeping a separate day for every saint. As early as the 4th c., on the cessation of the persecution of the Christians, the Sunday after Easter was appointed by the Greek Church for commemorating the martyrs generally; and in the Church of Rome a similar festival was introduced about 610, when the old heathen Pantheon (the present Rotunda, or Santa Maria dei Martiri) was consecrated, March 13, to Mary and all the Martyrs. But the real festival of All



## ALL SOULS' COLLEGE—ALL-SOULS'-DAY.

Saints was first regularly instituted by Gregory IV., in 835 and appointed to be celebrated Nov. 1. It was admitted into England about 870. The choice of the day was doubtless determined by the fact, that Nov. 1, or rather the *eve* or night preceding it, was one of the four great festivals (Feb. 1, May 1, Aug. 1, and Nov. 1) of the heathen nations of the North; for it was the policy of the church to supplant heathen by Christian observances. See BELTANE and HALLOW-EVE.

ALL SOULS' COLLEGE, Oxford: founded 1437 by Henry Chichele, sometime Fellow of New College, and successively Bishop of St. Davids and Abp. of Canterbury, for a warden, 40 fellows, 2 chaplains, and clerks. However, by an ordinance framed by the commissioners appointed under the statute 17 and 18 Vict. c. 81, ten of the fellowships have been suppressed in order to the endowment of two professorships, to be called 'the Chichele Professorship of International Law and Diplomacy,' and 'the Chichele Professorship of Modern History.' The remaining fellowships are open to all, irrespective of birth (date or place), position, or profession, provided only the candidates have passed all the examinations required for B.A., and have obtained either some prize or scholarship open to general competition, or a 'first-class' place in one of the public examinations of the university. The candidates must be examined also in Jurisprudence and Modern History. The patronage includes 19 benefices, in Kent, Oxford, Essex, Gloucester, Berks, Bucks, Herts, Northampton, Salop, Surrey, and Wilts, of an annual value of £7,925. In 1882, this college had 110 members on its books.

ALL SOULS'-DAY: a festival of the Rom. Cath. Church, which falls on Nov. 2. The object of it is, by prayers and almsgiving to alleviate the sufferings of the souls in purgatory. It was instituted in the monastery of Clugny, 993, and the following is the account given of its origin: A pilgrim returning from the Holy Land, was compelled by a storm to land on a rocky island somewhere between Sicily and Thessalonica. Here he found a hermit, who told him that among the cliffs of the islands was situated the opening into the under world, through which huge flames ascended, and the groans and cries of souls tormented by evil angels were audible. The hermit had also frequently heard the complaints and imprecations of the devils, at the number of souls that were torn from them by the prayers and alms of the pious; they were especially enraged, he said, against the abbot and monks of Clugny. The pilgrim on his arrival acquainted Odilo, Abbot of Clugny, with what had come to his knowledge, and the abbot thereupon appointed the day after All Saints to be kept in his monastery as an annual festival for 'All Souls.' The observance was quickly adopted by the whole Roman Catholic world. By another account, the scene of the incident is transferred to Sicily, and the institution to the year 998.

In some parts of the w. of England it is still 'the custom

## ALLSPICE—ALLSTON.

for the village children to go round to all their neighbors *souling*, as they call it—collecting small contributions, and singing the following verses, taken down from two of the children themselves:

Soul! soul! for a soul-cake;  
Pray, good mistress, for a soul-cake.  
One for Peter, two for Paul,  
Three for Them who made us all.

Soul! soul! for an apple or two:  
If you've got no apples, pears will do.  
Up with your kettle, and down with your pan;  
Give me a good big one, and I'll be gone.

The soul-cake referred to in the verses is a sort of bun, which until lately, it was an almost general custom for people to make, and to give to one another on Nov. 2.'—*Notes and Queries*, First Series, vol. 4.

ALLSPICE, n. *awl' spīs* [*all* and *spice*]: name frequently given to the kind of spice called PIMENTA (q.v.) or Jamaica pepper, the fruit of *Eugenia pimenta* and *E. acris*; ord. *Myrtacēæ*. The name originated in its being supposed to combine the flavor of different spices, particularly cinnamon, nutmeg, and cloves.—The name CAROLINA A., or AMERICAN A., is given to the aromatic bark of *Calycanthus floridus* (see CALYCANTHUS), which is employed in the United States rarely instead of cinnamon.—The berries of *Benzoin odoriferum*, natural order *Lauracēæ*, are said to have been used for A. in the same country during the war with Great Britain.

ALLSTON, *awl'stōn*, WASHINGTON: one of the best known of the painters and poets of America, 1779-1843, July 8; b. at Georgetown, S. C.: He at first studied medicine, but through his acquaintance with the painter Malbone, turned to art. Going to London, he became a friend of his countryman West, then pres. of the Academy. In 1804 he went to Rome, where he lived for some years in the closest intimacy with J. Vanderlyn, Thorwaldsen, and Coleridge. After a short stay in America, to which he returned in 1809, he once more visited England in 1811, when he gained the 200-guinea prize of the British Institution. In 1817 he went to Paris with Leslie, and the year after returned to America. In 1819 he was elected an Associate of the Royal Acad. of London. He now permanently fixed his residence at Cambridgeport, near Boston, where he lived, cultivating his art and the muses till his death. His pictures are very numerous. The subjects are mostly taken from Scripture, such as *Jacob's Dream*, *Elijah in the Wilderness*, *Saul and the Witch of Endor*, *The Deliverance of Peter out of Prison*, etc. The style of A. is noble, his ideas are imaginative, and many of his paintings evince a true poetic spirit. In coloring he comes nearer the old masters than most modern painters do. Among his printed works the most remarkable is the poem, *The Sylphs of the Seasons* (Lond., 1813), and the art novel, *Monaldi* (Boston, 1842). His *Lectures on Art* appeared posthumously (1850).

## ALLUDE—ALLYGURH.

**ALLUDE**, v. *āl-lód'* [L. *allūdērē*, to play or sport with; to laugh at—from *ad, lūdo*, I play—*lit.*, to play or sport at]: to refer to something not particularly mentioned; to hint at. **ALLU'DING**, imp. **ALLU'DED**, pp. **ALLUSION**, n. *āl-ló'zhūn*, a reference to something not mentioned particularly; a hint. **ALLUSIVE**, a. *āl-ló'siv* [L. *allu'sus*, played or sported with]: having reference to something but vaguely noticed before. **ALLU'SIVELY**, ad. *-lě*.—**SYN.** of 'allude': to refer; hint; suggest; intimate.

**ALLURE**, v. *āl-lór'* [L. *ad*, to; F. *leurre*, a bait: Ger. *ludern*, to entice (see **LURE**)]: to entice by a bait; to tempt by the offer of something good; to entice, in a good or bad sense. **ALLU'RING**, imp.: **ADJ.** enticing. **ALLURED**, pp. *āl-lórd'*. **ALLUREMENT**, n. *āl-lór'měnt*, some real or supposed good that attracts; temptation; enticement to pleasure. **ALLU'RER**, n. one who. **ALLU'RINGLY**, ad. *-lě*.—**SYN.** of 'allure': to entice; tempt; seduce; decoy; attract.

**ALLUSION, ALLUSIVE**: see under **ALLUDE**.

**ALLUVION**, *āl-ló'vī-on*: a legal term, signifying land gained from the sea by the washing up of sand and earth so as to make it *terra firma*. The right of property thus arising is regulated as follows. It is a part of the legal definition of A. that the addition should be so gradual that no one can detect the exact amount added at each moment of time. The owner of the bank thus increased by A. is entitled to the addition. But in case of sudden increase, as by a freshet, or other immediate exercise of power by a river or stream, if soil is taken from one man's estate and carried to that of another, the property belongs to the first owner. Such a movement of land is termed *avulsion*.

**ALLUVIUM**, n. *āl-ló'vī-ŭm*, **ALLUVIA**, plu. *āl-ló'vī-ă* [L. *alluvium*—from *ad lavo* or *lūō*, I wash: F. *alluvion*]: term originally applied to deposits supposed to have been formed subsequently to the Flood, while *Diluvium* (q.v.) included its products. In modern geological classification, these two terms, in this sense, have been abolished, as their connection with the Deluge is denied. The diluvial and alluvial deposits are included under the Pleistocene formation (q.v.). The name is now given to those deposits of mud, soil, sand, gravel, etc., which are brought down by streams and rivers and spread over lower lands; also **ALLUVION**. **ALLUVIAL**, a. *āl-ló'vī-ăl*, deposited or laid down by means of water. See **DELTA: DENUDATION**.

**ALLY**, v. *āl-lī'* [F. *allier*, to mix: OF. *alier*, to bind to—from *a*, to; *lier*, to bind—from L. *alligārē*, to bind to—from *ad, ligo*, I bind]: to bind to something; to unite, *as families by marriage*; to bind together in friendship, *as states with states*: N. one that is allied; a confederate. **ALLIES**, n. plu. *āl-līz'*, countries or persons united by treaty or agreement; confederates. **ALLY'ING**, imp. **ALLIED**, pp. *āl-līd'*. **ALLIANCE**, n. *āl-lī'āns*, union; confederacy; association.

**ALLYGURH**, *āl-ī-gūr'*: a fort in the dist. of the same name in India; lat. 27° 56' n., long. 78° 8' e., on the route between Agra and Delhi, being 55 m. from the former, and

## ALLYL—ALMADEN.

74 from the latter. Partly to this commanding situation, and partly to the strength derived from its surrounding marshes, it owes any importance that it possesses. It was stormed by the British in 1803, being then the principal *dépôt* of the French party in the Doab—an exploit of sufficient consequence to be commemorated by a medal in 1851. But within six years after 1851, A. became the arena of a still more desperate struggle. Ten days after the outbreak at Meerut, the native troops in garrison mutinied. Fortunately, the Europeans escaped with comparatively little sacrifice of life. But the temporary loss of the place almost cut off the communications between the s.e. and the n.w.

The dist. of ALLYGURH (or *Aligarh*), in the n.w. Provinces, has 1,955 sq. m.; pop. (1891) 1,043,202.

ALLYL, n. *ăl'îl* [L. *allium*, garlic]: an alcohol radical,  $C_3H_5$ , obtained principally as sulphide from garlic. Its combinations have very offensive odor. Allyl sulphide is the oil of garlic. The first compound discovered, was iodide of A., which was obtained by Berthelot discovered was iodide of A., which was obtained by Berthelot and De Luca in 1854; two years later, they isolated A.; and shortly afterwards, Wertheim demonstrated its existence in the oils of mustard and garlic. See GARLIC, OIL OF.

ALMA, *ăl'mâ*: a river in the Crimea, rising at the foot of the Tchadir Dag, and flowing westward into the Bay of Kalamita, about half way between Eupatoria and Sebastopol. On the steep banks of this stream, through the channel of which the British troops waded amid a shower of bullets, a brilliant victory was won on the 20th of Sept., 1854, by the allied armies of Britain and France, under Lord Raglan and Marshal St. Arnaud, over the Russian army commanded by Prince Menschikoff.

AL'MACKS: a suite of assembly-rooms in King street, St. James's, London; built in 1765 by Almack, a tavern-keeper, who, it is said, was originally a poor Scottish Highlander, named M'Call. As a preparatory step to rising into importance in London, he inverted the syllables of his name. They are now generally called Willis's Rooms, from the name of the present proprietor. The name of A. is chiefly associated with the balls that have, since the opening of the rooms, been held there under the management of a committee of ladies of high rank; and has become synonymous with aristocratic exclusiveness. The rooms are also much used for dinners and concerts.

ALMADA, *ăl-mă'dă*: town of Portugal, province of Estremadura, on the s. bank of the Tagus, opposite Lisbon, and distant from it less than 2 m. There is frequent steam communication with Lisbon. A. is built upon a height, from the summit of which, above the town, there is a magnificent view of Lisbon and the Tagus. A. has a strong castle on a rock. The surrounding country is well cultivated. A. has long been celebrated for its figs. Near it is the gold mine of Adissa. Pop. 5,500.

ALMADEN, or ALMADEN DEL AZOGUE, *ăl-mă-děn' dël ă-tho'gă*: town in Spain, 50 m. s.w. of Ciudad Real; the *Cisapona Cetobrix* of the Romans. It is situated in the chain

## ALMAGEST—ALMAGRO.

of the Sierra Morena. Pop. 8,000. It is famous for its exceedingly rich quicksilver mines, producing annually about 2,000,000 lbs. These mines were worked by the ancient Iberians; afterwards by the Romans. They were rented by the Fuggers of Augsburg in the 16th c., but were taken under the care of the Spanish government in 1645. Some years since, the firm of Rothschild undertook the working of these mines. There is a school of mines in the place.

ALMAGEST, *äl'mă-jěst*: name given by the Arabs to the great work of Ptolemy the astronomer (q.v.).

ALMAGRO, *äl-má'grō*: town of New Castile, Spain, province of Ciudad Real, 13 m. e.s.e. from Ciudad Real. It is on a high arid plain, but is very well built, with wide paved streets, a fine square, and a public walk lined with trees. Its most noteworthy building is an old church of beautiful architecture. It is a place of greater activity than most Spanish towns, and its whole appearance indicates prosperity. Brandy, soap, and earthenware are manufactured, and lace-making gives employment to about 8,000 women in A. and the neighboring villages. The surrounding country is celebrated for its mules. There are two great annual fairs, at which mules and lace are sold. Pop. about 14,000.

ALMAGRO, *äl-má'gro*, DIEGO D': 1475-1538: a Spanish *conquistador*—i.e., adventurer—in the conquest of South America, a foundling, who derived his name from the town near which he was found. With many other adventurers, he went, as was common in those days, to seek his fortune in the new world which Columbus had opened. There he amassed wealth by plunder, and became one of the most prominent persons in the new colony of Darien, when he was persuaded to join Pizarro in his attack on Peru. The undertaking had astonishing success. He was now appointed, in the absence of Pizarro, who had returned to Spain with rich presents, governor of the conquered country, and received permission from the Spanish court to conquer for himself a special province s. of the territory subdued by Pizarro. In 1534, therefore, he marched on Chili, penetrated deeply into the land, and returned in 1536, just when the Peruvians had flown to arms under their young Inca, Mungo Capa, and shut up the Spaniards in Cuzco and Lima. As these towns lay s. of Pizarro's district, they were claimed by A. He dispersed the Peruvian army before Cuzco, and advanced with his forces against Lima, hoping to make himself sole master of the country. But the crafty Pizarro contrived, by means of a truce, to gain time for collecting his forces. In a desperate engagement near Cuzco, 1538, April 6, A. was defeated and taken prisoner. He was condemned to death; and on the 26th of the same month, he was strangled in prison, and his corpse beheaded in the market-place of Cuzco. His son, Diego d'A., gathering together several hundred of his father's followers, stormed the palace of Pizarro, whom he assassinated (1541); he then proclaimed himself captain-general of Peru; but the friends of the murdered governor resisting his claims, Baca de Castro was sent out from Spain, as supreme arbiter, to quell all

## ALMALEE—AL-MAMUN.

disturbances. Diego was now requested to submit; and on his refusing, was attacked by the troops of Baca, when the bloodiest battle took place that had ever been known in America (1542). Diego, having been defeated and taken prisoner, was put to death with forty of his companions.

ALMALEE, or ALMALI, *âl-mâ-lê'*: large town of Asiatic Turkey, in the vilayet of Konia. It is situated on the river Myra, about 25 m. from the sea, and is frequented by European merchants from Smyrna, etc., who purchase the various products of the place. A. has numerous mills propelled by water, tan yards, dye-works, and factories. The inhabitants are very industrious, and everywhere may be seen indications of their prosperity—in the clean and comfortable houses, neat apparel, excellent roads, fences, bridges, etc. A. is built in a picturesque valley at the edge of a large plateau, 5,000 ft. above the sea, and is embosomed in gardens, which, with the minarets and lofty poplars interspersed through the town, give it a striking appearance. Pop. said to be 12,000.

ALMA-MATER, *äl'mă-mă'tér* [L. fostering mother]: a name applied by one to the university or college at which he has studied. The word *Alma* (nourishing, sustaining, or kind) was applied by the Latin authors to such of the deities as were friendly to men—Ceres, Venus, etc., and also to the earth, the light, the day, wine, and the soil.

AL-MAMUN, or AL-MAMOUN, *âl-mâ-môn*, ABUL-ABBAS-ABDALLAH: 786–833; a renowned caliph of the Abbasides (q.v.), son of Harun Al-Raschid. Harun was succeeded by his son Amin as caliph of Bagdad. Al-Mamun was dissatisfied with his treatment, and a struggle arose between the brothers which lasted for five years. Amin was slain, and was succeeded by Al-Mamun, 813, Oct. 4. The early years of his reign were disturbed by factions and revolts, but by his energetic and prudent measures, he succeeded in bringing about a period of peace. He now devoted himself to the cultivation of science and literature throughout his empire, and made Bagdad the centre of learning and intelligence. He founded a college at Khorassan, and built observatories at Bagdad and Kassiun (now Damascus), and he succeeded in determining the inclination of the ecliptic, had a degree of the meridian measured on the plain of Shinar, and constructed accurate astronomical tables. He had many books translated into Arabic, from the Greek, Persian, and other languages, and drew about him learned men of all creeds. His liberalism ended in his conversion to the faith of the Motasali, who recognized the free-will of man, and denied the eternity of the Koran. In the latter years of his reign he was involved in hostilities with the Greek emperor Theophilus, and in revolts in various parts of the Arabian empire. He died near Tarsus, and was succeeded by his brother Motassem. He was the author of *Inquiries into the Koran*, and other books.

## ALMANAC.

**ALMANAC**, n. *ál'mă-năk* [a supposed corrupted form of **AS.** *all-moon-heed*, or *allmonaght*, a rude tracing or representation, of the course of the moon: **Sp.**—from **Ar.** *almanac*, a calendar: **prov. Ar.** *al-manākh*, climate or temperature: *Note.*—Brachet says, **mid. L.** *almanāchus*—from **Gr.** *almēnācha*, was used in the fourth century by Eusebius for an almanac. The text gives the most probable origin]: A book or table containing a calendar of the civil divisions of the year, the times of the various astronomical phenomena, the time of sun-rising and setting, the changes of the moon, the tides, and other useful or entertaining information, Till a comparatively modern date, this additional matter consisted of astrological predictions and analogous absurdities; it now embraces, in the best almanacs, a wide variety of useful notes and information, chronological, statistical, political, agricultural, etc.—The Alexandrian Greeks had almanacs. The time at which they first appeared in Europe is not precisely known. The oldest of which copies (in manuscript) still exist, are of the 14th c.; there are specimens in the libraries of the British Museum and of Corpus Christi College, Cambridge. The earliest European A. worthy of notice was compiled by the celebrated astronomer Purbach, and appeared between the years 1450 and 1461; but the first *printed* A. was that composed by his pupil, Regiomontanus, for the thirty years 1475–1506, for which he received a munificent donation from Mathias Corvinus, king of Hungary. Bernard de Granolachs, of Barcelona, commenced the publication of an A. in 1487; the printer Engel, of Vienna, in 1491; and Stöffler, of Tübingen, in 1524. Copies of these are now very rare. In 1533 Rabelais published, at Lyons, his A. for that year, and renewed the publication in 1535, 48, and 50. The fame and popularity of the celebrated astrologer, Nostradamus, who prophesied minutely the death of Henry II. of France, the execution of Charles I. of England, the great fire of London, the Restoration, etc., gave such an impulse to the publication of predictions, that, in 1579, Henry III. of France prohibited the insertion of any political prophecies in almanacs—a prohibition renewed by Louis XIII. in 1628. Before this, in the reign of Charles IX., a royal *ordonnance* required every A. to be stamped with the approval of the diocesan bishop

Prophetic almanacs still circulate to an incredible extent in France in the rural districts, and among the uneducated. The most popular of all these is the *Almanach Liégeois*, a venerable remnant of superstition. It was first published at Liege—according to the invariable title-page which takes no note of time—in 1636, by one Matthieu Laensbergh, whose existence, however, at any time seems very problematical. The *Almanach Liégeois* is a most convenient one for those who are unable to read, for by certain symbols attached to certain dates, the most unlettered persons can follow its instructions: thus the rude representation of a phial announces the proper phase of the moon under which a draught of medicine should be taken; a pill box designates the planet most propitious for pills; a pair of scissors points out the proper period for cutting hair, a lancet for letting

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blood. Of course, amid innumerable predictions, some may naturally be expected to come to pass. So in 1774, this A. predicted that in the April of that year a royal favorite would play her last part. Mme. Dubarry took the prediction to herself, and repeatedly exclaimed: 'I wish this villainous month of April were over.' In May Louis XV. died, and Mme. Dubarry's last part was really played; the credit of old Matthieu was established more firmly than ever. In 1852, a number of commissioners, appointed by the minister of police, having examined between 7,000 and 8,000 of the national chapbooks, which included a great number of almanacs, pronounced them deleterious, and their circulation was forcibly checked.

In England, so far was any restraint from being put upon the publication of prophetic almanacs or 'Prognostications,' as they were usually called, that the royal letters-patent gave a monopoly of the trade to the two universities and the Stationers' Company, under whose patronage, and with the *imprimatur* of the Abp. of Canterbury, such productions as *Moore's A.* and *Poor Robin's A.* flourished vigorously; although 'it would be difficult to find, in so small a compass, an equal quantity of ignorance, profligacy, and imposture, as was condensed in these publications.' The memory of Partridge, long employed as the prophet of the Stationers' Company, is preserved in the lively diatribe of Swift, writing under the name of Bickerstaff. In 1775 a decision of the Court of Common Pleas abolished the monopoly of the Stationers' Company; however, it was not until the publication (1828) of the *British A.* by the Soc. for the Diffusion of Useful Knowledge, that the eyes of the English public became opened to the deleterious nature of the almanacs in vogue. The *British A.* is itself now published by the Stationers' Company. *Whitaker's Almanack* is a valuable compendium.

In Scotland, the earliest almanacs seem to have been produced about the beginning of the 16th c. About 1677 the Almanacs, or 'Prognostications' published at Aberdeen had an annual circulation of 50,000 copies. In 1683, appeared *Edinburgh's True Almanack, or a New Prognostication.* The *Edinburgh A.* made gradual improvement; and since 1837 it has been published as *Oliver and Boyd's New Edinburgh A.*, and now contains more than 1,000 pages; giving complete an amount of information on all public matters, especially for N. Britain. Of equal value for Ireland is *Thom's Irish Almanack.*

Of important national almanacs are the French *Almanach Impérial*, begun 1679; the *Belgian Royal A.*; and the *Prussian Royal A.* The *Almanach de Gotha*, begun 1763, has a cosmopolitan character: see GOTH, ALMANAC DE.

The most important astronomical A. in Britain is the *Nautical A.*, first published with the authority of govt. 1767; and appearing in a new series 1834. The French *Connoissance des Temps*, begun 1679 by Picard, and now published under the authority of the *Bureau des Longitudes*, is in plan similar to the *Nautical A.*, but with a larger number of original memoirs, many of great value.



## ALMANDINE—ALMAS.

Equally celebrated is the Berlin *Ephemeris*, long under the superintendence of Prof. Encke. Another kind of A., very numerous in Germany, France, and Britain, belongs rather to the class of *Annuals*, in the interest of parties, political or religious, or for advertising purposes.

Bradford's press, Philadelphia, is believed to have issued the first common A. in the United States, 1687. Franklin's *Poor Richard's A.*, begun 1732, and continued by him about 25 years, had wide reputation for wise and witty sayings. The *American A.; and Repository of Useful Knowledge* (Boston, 1828-61) was continued two years, 1863-4, as *The National A.* Vol. 1. of the *American Nautical A.*, begun by Charles Henry Davis, U. S. navy, appeared 1853. A very valuable work was begun 1878 by A. R. Spofford, librarian of congress, with the title *American A. and Treasury of Facts, Statistical, Financial, and Political.* *The Whig* began the series of political almanacs, now continued in the *Tribune A.* Several great journals, most religious denominations, and many trades and professions, issue almanacs (or year-books) of great utility for general information or in their special departments. The almanacs of patent-medicine dealers are numerous and conspicuous.

ALMANAC is also the term applied by antiquaries to calendars found carved, usually on staves, but also on tablets of wood, scabbards of swords, handles of hatchets, etc. The inscribed characters are sometimes the Runic—hence the name of *runstaf's*, *Scipiones Runici*—and sometimes the Gothic. The saints' days are denoted by symbols, as a pair of shoes for St. Crispin's Day. These primitive almanacs were in use among the Scandinavian people.

ALMANDINE, n. *äl'män-dīn'* [*Alabanda*, a city of Caria]: a lapidary's term for the violet or violet-red varieties of spinel, ruby, etc.; the precious or oriental garnet.

ALMANSA, *äl-mán'sá'*: town of Murcia, Spain, prov. of Albacete; 43 m. e. by s. from Albacete; on the Madrid and Alicante railway. It is on a wide plain, which is irrigated, and very fertile. A. has manufactures. Pop. 8,736.—Near A. the French, under the Duke of Berwick, gained a victory, 1707, in the war of the Spanish succession.

ALMANSUR, *äl-mân-sūr'*, or, with his full name, Abu-Jafer-Abdallah - ben - Mohammed - el - Mansur [*al-mansur* 'helped by God']: the second caliph of the house of the Abbasides (q.v.): reigned 754-775. Warfare, treachery, and murder were his steps to the throne, and his whole rule was cruel; nevertheless he was a liberal patron of learning. He especially persecuted the Christians in Syria and Egypt. In war against external foes, he had but little success. He removed the seat of the caliphate from Kufa to Bagdad, which he built at immense cost, raising the money by oppressive taxation. He introduced the pernicious custom of making his freed slaves, mostly foreigners, rulers of provinces. A died in his 63d year.

ALMAS, *äl-mâsh'*: town of the Austrian empire, in Hungary, 16 m. w. from Maria Theresiopol. The inhabitants

ALMA-TADEMA—ALMEIDA.

are almost all Roman Catholics. Pop. (1893) 8,193.—Almas is the name of many small towns and villages in Hungary.

ALMA-TADEMA, *âl-mâ-tâ-dâ'mâ*, LAWRENCE: Dutch and English artist; b. Dronryp, Netherlands, 1836, Jan. 8. Looking first to the profession of medicine, he turned to fine art 1852, studying at the Antwerp Acad. and afterward under Baron Henry Leys. In 1873 he made England his residence, and was naturalized as a British subject. His works are mostly classical in theme; and his early study of the art and archæology of Rome, Greece, and Egypt, prepared him for faithful treatment of his subjects, which he elaborates with great care in composition and drawing, as well as with high finish and chaste beauty of coloring. Among his paintings are—*Entrance to a Roman Theatre* (1866); *Tarquinius Superbus* (1867); *A Roman Amateur* (1868); *Pyrrhic Dance* (1869); *The Vintage* (1870); *A Roman Emperor* (1871); *The Mummy* (1872); *A Picture Gallery* (1874); *After the Dance* (1876); *The Seasons* (1877); *A Sculptor's Model* (1879); *The Way to the Temple* (1883); *The Emperor Hadrian Visiting a British Pottery* (1884); *The Women of Amphissa* (1887). In 1876 he produced a notable trio of pictures, *Architecture*, *Sculpture*, and *Painting*. An exhibition of his works was given 1883. In portraits he has excelled, though giving less time to this branch of art. He was elected associate Royal Artist 1876, and to full membership 1879; and he has received decorations from the principal European governments. Some of his best works are owned in the United States, belonging to private or public collections, and examples are seen occasionally in the art stores of the principal cities. They are quiet in character, and this, together with the fine drawing, drapery, and modelling, is in the spirit of sculpture. Their repose, truth, and harmony are a desirable offset to the frantic force or void impressionism of many recent artists. Knighted 1899.

ALMAZORA, *âl-mâ-tho'rá*: town of Valencia, Spain, prov. of Castellon, 4 m. s. by e. from Castellon de la Plana, in a plain on the left bank of the Mijares, 3 m. from its mouth. It has some wide and well-paved streets and squares. Linen and woolen fabrics and paper are manufactured. The surrounding country is fertile, producing wheat, barley, maize, oil, oranges, etc. Pop. 5,850.

ALMEIDA, *âl-mã'ê-dâ*: one of the strongest fortified places in Portugal; on the river Coa, on the Spanish frontier, prov. of Beira. In 1762 it was captured by the Spaniards, who soon afterward surrendered it. In 1810 it capitulated to the French under Massena. Pop. 10,125.

ALMEIDA, DON FRANCESCO D': a famous Portuguese warrior, in the latter part of the 15th and the beginning of the 16th c.; seventh son of the Count of Abrantes. At an early period he distinguished himself in the wars with the Moors, but especially at the conquest of Granada, 1492. In 1505, his sovereign, Emmanuel I, in consideration of his great abilities, appointed him viceroy of the Portuguese possessions in the East Indies. March 25 he set sail

## ALMERIA.

from Lisbon with a fleet of 36 vessels, containing 1,500 men, many of whom were noblemen, and all of good family. July 22, he reached Quiloa, on the Mozambique coast, where he was soon involved in a quarrel with the king of that city, the result of which was that A. deprived him of his crown, built a fortress to overawe the inhabitants, and, proceeding to Zanzibar, destroyed the town of Mombaza. He then sailed for the Indies, asserting everywhere the superiority of the Portuguese flag. At Cananor, Cochin, Coulan, Ceylon, and Sumatra, he either built fortresses, to protect the factories and commercial interests of his nation, or established new factories. With the king of Malacca, a commercial treaty was formed about the same time. His son, Lorenzo, carried on several expeditions as his father's lieutenant, visited Ceylon, and discovered the Maldivé Islands and Madagascar. The chief design of A. was to make the Portuguese sole masters of the Indian seas, and by blockading the Persian and Arabian gulfs, to exclude the Egyptians and Venetians from commerce with the East. To frustrate his endeavors, the Egyptian sultan fitted out, by the help of the Venetians, a large fleet, which, under the command of the Persian, Mir-Hakim (or Hossein, according to others), was sent to the assistance of the king of Calicut. In the port of Chaul, young Lorenzo was attacked in very disadvantageous circumstances by Mir-Hakim. He fought with astonishing bravery; his ships had nearly made their escape out to the open sea, when his own ship was separated from the others, and struck upon a rock; one chance shot carried off one of his legs, and another, tearing away a part of his side, killed him. His father speedily took measures to revenge the death of his son upon the hated Mussulmans, when Alfonso d'Albuquerque appeared on the scene (1507), having been sent out by the Portuguese government to supersede A., whom it had begun to distrust, on account of his brilliant successes. The latter refused to recognize Albuquerque as viceroy, and for some months kept him prisoner at Cochin. He now sailed along the coasts, burning and plundering various seaports, amongst others Goa, and at length utterly destroyed the Egyptian fleet at Diu. From this fierce and avenging expedition, he returned to Cochin, resigned his office into the hands of his successor, and set out on his homeward voyage, 1508, Nov. 13, but was slain in an obscure affray with the savages at Cape Saldanha, in the s. of Africa, where his men had landed. He was a man of stern, vigorous, and yet impulsive character, capable of severe retaliation of injuries, but not destitute of clemency and generosity.

ALMERIA, *âl-mâ-rê'â* [Arab. *Al-Meryah*, 'the conspicuous']: anciently Murgis, or *Portus Magnus*: chief town in the Spanish prov. of the same name, at the mouth of the river Almeria. It has a well-defended harbor, a cathedral, besides 26 churches and monasteries, and a grammar-school. In the time of the Moors, it was, next to Granada, the richest and most important town in the kingdom, and flourished alike in arts, industry, and commerce, being the 'great port'

## ALMIGHTY—ALMOKANNA.

of traffic with Italy and the East. At one time it was as terrible a nest of pirates as Algiers itself, under the Moorish chief Ibn Mayman, when even Granada, according to the proverb, was merely its 'farm.' Now it has only a few unimportant manufactures, though it still keeps up considerable trade in cochineal, red silk, lead, grapes, and especially wine. The cotton-tree has been planted in the environs of A. by English merchants. Pop. (1900) 47,326.

**ALMIGHTY**, a. *awl-mīt'ī* [*all* and *mighty*: AS. *eal-mihtig*]: possessing all power; omnipotent: N. the omnipotent God. **ALMIGHT'ILY**, ad. *-ī-lī*. **ALMIGHT'INESS**, n

**ALMODOVAR DEL CAMPO**, *āl-mō-dō'vār dēl kām'pō*: town of New Castile, Spain, province of Ciudad Real, 22 m. s. w. from Ciudad Real. It stands on the summit of a ridge, near the Vega, a branch of the Guadiana. The streets are passably clean, but ill paved. There are ruins of an ancient castle. The inhabitants are chiefly employed in agriculture, and the only manufactures are domestic. Pop. 10,360.

**ALMOHADES**, *āl'mo-hūdz*: name of a dynasty that ruled in Africa and Spain during the 12th and 13th c. The word is Arabic, and signifies Unitarians. It was taken as a term of distinction; for the A. considered themselves the only Mohammedans who worshipped God properly. The founder of this sect, which at first was religious rather than political, was called Mohammed Ibn-Toumert, a native of the Atlas region. He was a man of a bold and subtle intellect and extremely ambitious. He had travelled much, and acquired manifold knowledge and experience. His first measures were extremely prudent. He commenced preaching with great zeal the reformation of all abuses, affecting himself an austere and unselfish life. He went about covered with rags, prohibiting wine, music, and all pleasures. At first, his denunciations were generally held in contempt; but at length his partisans became so numerous that Ali, king of Morocco, was compelled to take measures against him. It was, however, too late. The Arabs and Berbers flocked to his standard; and at the end of a few years he was master of the provinces of Fez, Morocco, Tlemzen, Oran, and Tunis. Mohammed imposed on his disciples new ceremonies, and composed for their benefit a special treatise, entitled *On the Unity of God*. The A. extended their conquests into Spain, subjugating Andalusia, Granada, Valencia, and a part of Aragon, and Portugal as far as the Ebro and Tagus. Mohammed was succeeded in his authority by Abdelmoumen, who had formerly been his lieutenant. Under him and his descendants, Jussuf and Jacob, the dynasty of the A. continued to flourish in great splendor. But in 1212 they were completely defeated by the Spaniards in the famous battle of Tolosa, the result of which was a general revolt of the Christian provinces under their sway. The power of the A. was destroyed in Spain in 1257, and in Africa in 1269.

**ALMOKANNA**, or **MOKENNA**; see **MOHAMMEDAN SECTS**: **HAKIM-BEN-ALLAH**.

## ALMOND.

ALMOND, n. *â'mănd* [F. *amande*; Sp. *almendra*, an almond—from Gr. *amugdălon*: L. *amygdăla*]: a genus of the natural order *Rosaceæ* (q.v.), sub-order *Amygdaleæ* or *Drupaceæ*, consisting of trees or shrubs, distinguished by the coarsely-furrowed and wrinkled shell (*endocarp* or *putamen*) of the drupe, and by the young leaves being conduplicate, or having their sides folded together. According to the greater number of botanists, it includes the PEACH (q.v.), constituted by some into a distinct genus, *Persica*, in which the drupe has a fleshy covering (*sarcocarp*), whereas, in the species to which the name A. is commonly given, this



Almond (*Amygdalus communis*).

part is a dry fibrous husk, which shrivels as the fruit ripens, and finally opens of its own accord. The common A. tree (*Amygdalus communis*) is very similar to the peach-tree, and is distinguished from it principally, besides the difference of the fruit, by the fine glandulous serratures of the leaves, the stalk of which equals, or even exceeds, in length the breadth of the blade. It is a tree about 20-30 ft. high, a native of the East, and of Africa, but has now become completely wild in the whole south of Europe. Even in the more northern parts of Germany and of Britain it is planted for the sake of its beautiful flowers, which are produced in great abundance, and resemble those of the peach in form and often in color, although generally paler and sometimes white. The blossoms appear before the leaves, and are very ornamental in shrubberies in March and April; and even

## ALMOND.

when frost destroys the germ of the fruit, the brilliancy of the flower is not impaired. The wood is used by cabinet-makers; but the A. is valued principally for the kernel of its fruit, known as ALMONDS, forming an important article of



Almond.

commerce and largely cultivated in s. Europe and similar climates. It has been cultivated from early times. In the first half of the 16th c. it was introduced into England, but, except in the s. part, is not valuable for fruit. In the U. S. more than 600,000 A. trees, in addition to those producing fruit for home use, were in bearing 1890. The hard-shell A. is hardy well n., but the thin shell, which is the A. of commerce, though very successful in Cal., seldom thrives e. of the Rocky

Mountains. The A. is propagated best by budding (q. v.) upon seedling A. stocks, but peach, and even apricot, stocks are sometimes used. SWEET ALMONDS contain a large quantity of a very bland, fixed oil, emulsion, gum, and mucilage sugar, are of a very agreeable taste, and very nutritious, and are used in the dessert, in confectionery, and medicinally in an emulsion, which forms a pleasant, cooling, diluent drink. BITTER ALMONDS contain the same substances, and, in addition, a substance called *amygdalin*, from which is obtained a peculiar volatile oil. (For the oils derived from almonds, see the following articles.)—The muddy water of the Nile is clarified by rubbing bitter almonds on the sides of the water-vessels, in the same way in which the nuts of the *Strychnos potatorum* (see CLEARING NUT) are used in India. The principal varieties of A. in cultivation are—the common *sweet A.*, with thick, hard shell; the *brittle-shelled*, with a very thin, almost leathery brittle shell, and sweet kernels; the *bitter A.*, with thick, hard shell (sometimes also with a brittle shell), and bitter kernels; the *large-fruited*, with large flowers of a whitish rose-color, and very large, sweet fruit; the *small-fruited*, with very small, sweet fruit; and the *peach A.*, with a slightly succulent blackish *sarcocarp* (see above), yellow shell, and sweet kernels. The *sarcocarp* is, in the different varieties, more or less dry, or somewhat fleshy and juicy, so that some authors have disputed even the specific distinction between the A. and the peach. In commerce, the long almonds of Malaga, known as Jordan almonds, and the broad almonds of Valencia, are most valued. Large quantities of almonds are annually imported into Britain and America from France, Spain, Italy, and the Levant. Bitter almonds are brought chiefly from Mogadore.—The DWARF A. (*A. nana*) is very similar to the common A., except that it is a low shrub, seldom more than 2 or 3 ft. in

## ALMONDS.

height. Its fruit is also similar, but much smaller. It is common in the plains of the s. of Russia, and is frequently planted as an ornamental shrub in the U.S., flowering freely in March and April, but not producing fruit. It is very beautiful when covered with its pink flowers in spring, and deserves to be more frequently planted than it is. A sheltered but sunny situation is favorable to it.— Other species, little known, but very similar to these, are found in the East, and one on arid hills in Mexico.

ALMONDS, n. plu., two glands situated on each side of the mouth near the base of the tongue; the tonsils.

ALMONDS, FIXED OIL OF: a fixed greasy oil exuding from almonds under pressure. Either bitter or sweet almonds may be employed; but the former are generally used, as they are cheaper than the sweet almonds, and the expressed cake is valuable in the preparation of the *essential oil*. One cwt. of the almonds generally yields 48 to 52 lbs. of the fixed oil. When first obtained it possesses a turbid or milky appearance; but when allowed to stand at rest the impurities settle, and a clear, light, yellow oil remains above. It has the specific gravity of 920, and solidifies when reduced to  $-13^{\circ}$  F. It has no odor, and to the taste is truly oleaginous and bland. The fixed oil of A. is used in medicine, and possesses a mild laxative property when administered in large doses. It is often given to newly-born infants, mixed with syrup of violets or syrup of roses. It is beneficial, also, in allaying troublesome coughs, when administered with confection of roses and syrup of poppies.

ALMONDS, VOLATILE OIL, OR ESSENTIAL OIL OF: product from the cake which is left after the expression of the fixed oil from bitter A. The cake contains, among other matters, a portion of two substances, called, respectively, amygdalin, and emulsin or synaptase. When the cake is bruised and made into a paste with water, the synaptase acts as a ferment upon the amygdalin, and 1 atom of the latter resolves itself into 2 atoms of volatile oil of bitter A., 1 atom hydrocyanic (prussic) acid, 1 atom of grape-sugar, 2 atoms formic acid, and 7 atoms of water. This paste is placed in a retort and allowed to stand for 24 hours, when heat is cautiously applied, and distillation carried on. The volatile oil rises in vapor, and passes over into the receiver, accompanied by much water, and contaminated with a considerable amount of prussic acid. The oil is not originally present in the bitter A.; in fact, the latter do not contain a trace of the oil ready formed, so that the oil is purely the product of the fermentation of amygdalin, 100 parts of which yield 47 of crude oil. Commercial oil of bitter A. has a golden yellow color, but may be purified so as to be almost colorless. The crude oil is very poisonous, owing to the prussic acid dissolved therein, and many fatal cases have occurred from the wilful, accidental, and careless use of the oil. It is unfortunate that the manufacturers of the volatile oil should not subject the crude oil to the action of lime and an iron salt, and then re-distil,

## ALMONER—ALMORA.

when the prussic acid would be left fixed by the lime and iron, and the pure volatile oil be alone obtained in the receiver. As so procured, the pure oil is not a dangerous poison. The oil has an agreeable odor, an acrid, bitter taste, and burns with a smoky white flame. It is heavier than water, being of the density of 1083; is soluble in water to the extent of 1 part in 30 parts of water, and is very soluble in alcohol and ether. Heated to 356° F., it boils, and distils over unaltered; and, exposed to the air, it is gradually oxidized into benzoic acid. The oil is called by the chemist benzoic aldehyde,  $C_7H_6O$ . In medicine the volatile oil is used in place of prussic acid, but is very variable in strength, being sometimes four times the strength of medicinal prussic acid. The dose is a quarter of a drop to a drop and a half in an emulsion. The cook and confectioner employ the oil for flavoring custards, etc., and the perfumer uses it for scenting toilet-soap, etc.

ALMONER, n. *ăl mŏn-ér* [mid. L. *almonārīūs*, an almoner: Ger. *almosen*, alms: F. *aumônier*—from OF. *almosnier*, the officer for dispensing alms—from Gr. *elēmŏs'unē*, pity, alms]: a person appointed by a king or queen, or a monastery, to dispense their alms or charity to the poor. ALMONRY, n. *ăl mŏn-rĭ*, the residence of the almoner; the house where alms are given. An A. originally was that member of a religious order who had the distribution of the money and other things set apart for alms, which, by canonical law, was to amount to at least a tenth of the revenues of the establishment. Afterwards those ecclesiastics also received this name who were appointed by princes to the same office in their households. The Grand A. of France was one of the principal officers of the court and of the kingdom, usually a cardinal, and, in right of his office, commander of all the orders, and also chief director of the great hospital for the blind. Queens, princes, and princesses had also their almoners, and bishops were usually appointed to this office. In England the office of *Hereditary Grand A.* is now a sinecure, his only duty being to distribute the coronation medals among the assembled spectators. The *Lord High A.*, usually a bishop, distributes twice a year the queen's bounty, which consists in giving a silver penny each to as many poor persons as the queen is years of age.

ALMORA, *ăl-mŏ'râ*: principal town of the British dist. of Kumaon (q. v.), India; 87 m. n. from Bareilly, on the crest of a mountain ridge, 5,337 ft. above the sea, on the head waters of the Kosila, a branch of the Ramgunga. It consists chiefly of one street, three-quarters of a mile long. The houses have a ground story of stone; the upper stories are of wood, covered with a sloping roof of heavy gray slate, on which small stacks of hay are sometimes erected. The ground story is generally whitewashed and tricked out with grotesque paintings. Detached houses, both of Europeans and Brahmans, are scattered along the face of the mountain below the town. A. is a British military station, the lines of the regular troops and Fort Moira being close to



ALMORAVIDES.—ALMUÑECAR.

the town. Since it came under British sway it has been rapidly increasing in prosperity. Pop. 8,000.

ALMORAVIDES, *äl-mō'ră-vīdz* ['The *Moravides*'], or MORABETHUN: an Arab dynasty that ruled in Africa and Spain in the 11th and 12th centuries. The name A., commonly given to this dynasty by Western writers, is a corruption of the Arabic word *Al-morabeth*, 'the champion of religion.' This sect took its rise about 1050 among the Arab and Berber tribes which dwelt on the slopes of the Atlas range facing the Atlantic, and was founded by a Moslem teacher called Abdalla-ben-Yasim, who instructed the ignorant tribes in the Mohammedan faith. The new proselytes soon exhibited the fruits of this teaching by descending from their hills, under the leadership of a chief named Abu-bekr, and conquering the kingdom of Fez. The adjoining kingdom of Morocco shared the same fate; and the victorious enthusiasts, under the famous Yussuf-ben-Taxfin, the cousin of Abu-bekr, next crossed the Strait of Gibraltar, and subdued Spain to the Tagus on one side, and to the Ebro on the other. But this extensive dominion was of too rapid growth for stability; and during the reign of Ali, the son of Yussuf, arose the sect of the Almohades (q.v.), which after a time expelled the A. from Africa, and in 1144 subdued their power in Spain. The Almoravide princes introduced the *Maravedi* (q.v.) into Spain, and in that and the word *Marabuts* (q.v.) their name is still preserved.

ALMOST, ad. *awl'mōst* [AS. *ealmaest*, nearly all: *all* and *most*]: nearly; for the greatest part.

ALMS, n. *āmz* [AS. *ælmesse*, alms (see ALMONER)]: anything given to the poor in charity to relieve their wants. ALMS'-HOUSES, houses for the reception and relief of the poor. ALMS'-DEED, an act of charity

ALMUCANTAR, n. *al-mū-kăn'târ*, or ALMUCANTER, *-têr* [Ar. *al-mugantarât*, the sun-dial]: in astron., small circle of the sphere parallel to the horizon: also an instrument for determining time and latitude, and the right ascensions and declination of stars, with less instrumental error than with a meridian circle. Its parts are, a telescope provided with horizontal wires and mounted on a box floating on mercury. The float being turned round and the telescope pointed e. of the meridian, the time of a star's rising over the wires is noted; then similarly the time of its descending; thus the positions of the stars being known, we are enabled to correct a timepiece and to determine the latitude. But if the time and latitude are known, we can determine either the right ascensions or the declinations of stars.

ALMUG, n. *äl'müg* [Heb. *almug*]: a tree mentioned in the Old Test., formerly supposed a species of Acacia, or a coniferous tree like the cypress; now thought to be a kind of sandal-wood (q.v.), the *Santalum Album*. See ALGUM.

ALMUÑECAR, *äl-mōn-yā-kär'* [Arab. *Al Munnecab*, the gorge]: seaport of Andalusia, Spain, prov. of Granada, 31 m. s. of Granada, important in Moorish times.—Pop. 8,794.

## ALNUS—ALOE

ALNUS: see ALDER.

ALNWICK, *ăn' nîk* (town on the Alne): county town of Northumberland Eng.; about 38 m. n. by w. from Newcastle by rail. The streets are spacious, and the houses modern. A. was early a fortified town, and fragments of the ancient walls remain. An ancient gate, built by Hotspur, still forms one of the entrances to the city. A. Castle, residence of the dukes of Northumberland, at the n. entrance of the town, was sumptuously restored since 1854, and is considered one of the most magnificent baronial structures in England. During the middle ages it was a bulwark against the invasion of the Scots, who thrice besieged it.—Pop. about 8,000.

ALOE, n. *ăl'ō* [Gr. and L. *alōē*, a bitter herb]: name of a bitter plant used in medicine; applied to various species of the genus *Alōē*, Ord. *Liliacēæ*. ALOES, *ăl'ōz*, the inspissated juice of the aloe. ALOETIC, a. *ăl'ō-ět'îk*, or AL'OET'ICAL, a. *-î-kâl*, of or containing aloes.

ALOE (*Alōē*): genus of plants, natural order *Liliacēæ* (q.v.) sub-order *Aloineæ*; distinguished by a regular cylindrical perianth in six pieces, expanded at the mouth, and nectariferous at the base, the stamens hypogynous, or springing from beneath the germen, the ovules indefinite in number, the fruit a membranous three-celled capsule. The species are numerous, natives of warm countries, especially of the southern parts of Africa. About 50 m. from Cape Town is a mountainous tract completely covered with aloes, and the hills on the w. side of Socotra exhibit them in similar profusion. The species all have stems, but vary in height from a few inches to thirty feet. They have permanent succulent leaves. The negroes of the w. coast of Africa make cords and nets of the fibres of their leaves, and stockings are woven from the fibres of a species found in Jamaica. But aloes are valuable chiefly for their medicinal properties. The well-known drug called ALOES (q.v.) is the inspissated juice of the leaves of several almost tree-like species, and particularly of *A. Socotrîna*, a native of the island of Socotra; *A. purpurascens*; *A. spicata*, and *A. fruticosa*, which principally yield the Cape aloes; *A. Indica*; *A. rubescens*; *A. Arabica*; *A. linguæformis*; *A. Commelini*, and *A. vulgaris*, which is found in the East and West Indies, in Italy, and in some of the islands of the Mediterranean, being the only species which can be reckoned European, although it also is probably an introduced plant. The extract prepared from its leaves is known as Hepatic aloes, or as Barbadoes aloes. The bitter principle of aloes has been called Aloesin. It forms with oxygen several compounds, which possess the properties of acids.—The juice of aloes was anciently used in embalming, to preserve dead bodies from putrefaction. In the East Indies it is employed as a varnish to prevent the attacks of insects, and has even been applied to bottoms of ships to protect them from marine worms. A beautiful violet color is obtained from the leaves of the Socotrine A., which does not require any mordant to fix it. It also affords a fine transparent

## ALOES.

color for miniature painting.—Mohammedan pilgrims suspend an A. over their doors on their return from Mecca, to signify that they have performed the pilgrimage.

The AMERICAN A. is a totally different plant. See AGAVE.

ALOES: a drug of great antiquity, for Dioscorides (A.D. 50) mentions *Aloë* as a substance obtained from a plant, with cathartic properties. The great demand for A. has led to importation from many sources, including Bombay, Arabia, Socotra, Madagascar, the Cape of Good Hope, the Levant, and the West Indies. The drug is the inspissated juice of various species of *Aloe* (q. v.). All these are characterized more or less by producing large, thick, fleshy leaves, stiff and brittle, pointed, and generally terminating in a strong spine, filled with a mucilaginous pulp internally, and containing in the proper vessels of their exterior portion an intensely bitter juice, which yields the medicinal substance A. It is obtained, sometimes in the form of tears, by incision, spontaneous exudation, and inspissation upon the plant; sometimes by spontaneous evaporation of the juice which drops or exudes by pressure from the leaves when cut away near the base; sometimes by evaporating the same juice with the aid of heat; and lastly, by evaporating together the juice and a decoction of the leaves.



*Aloë fruticosa*:  
b, the flower.

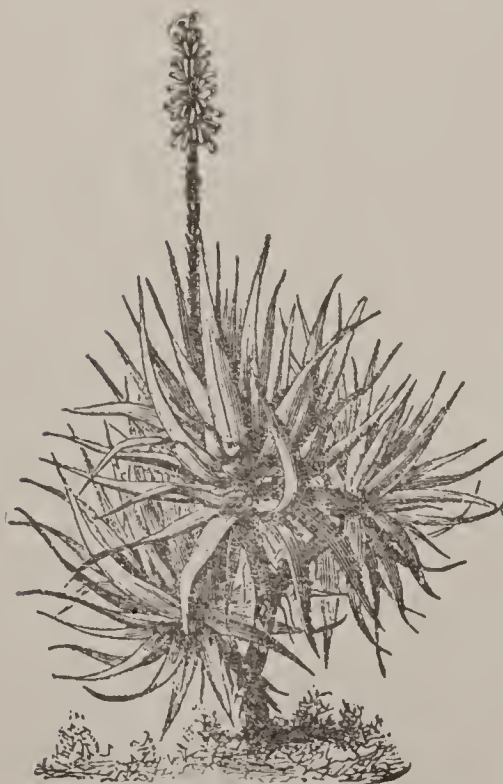
Owing to the great difficulty of determining the true botanical source of any given sample, the following names are made use of in commerce to denote the various kinds of A. found in the market—namely, Socotrine, Clear, Cape, East Indian, Barbadoes, and Caballine Aloes. The most important are:

1. Socotrine A. (*Aloë Socotrina*), so called from its supposed source, the island of Socotra, near the mouth of the Arabian Gulf. This is the most esteemed of all the varieties used in medical practice. Many hold that this is only a fine variety of East Indian A., but the characters given in the *Edinburgh Pharmacopœia*—a garnet-red translucency in thin pieces, and almost complete solubility in spirit of the strength of sherry—define a particular species, the true Socotrine A. of pharmacologists.

2. East Indian A. (*Aloë Indica*), called also Hepatic A., from its liver brown color, is imported into Bombay from Arabia and Africa, and is known in India by the name of Bombay A. A considerable portion is probably obtained from the same sources as the Socotrine A., which it resembles in color; and according to Dr. Pereira, 'the two



American Aloe (*Agave Americana*).



Aloë socotrina.

## ALOES WOOD.

are sometimes brought over intermixed, the Socotrine occasionally forming a vein in a cask of Hepatic Aloes.'

3. Barbadoes A. (*Aloë Barbadosis*) is prepared in the West Indies from *A. Socotrina*, and from a variety of *A. vulgaris*. Browne's *Natural History of Jamaica* states that the largest and most succulent leaves are placed upright in tubs, that the juice may dribble out. This evaporated forms what is sold as Socotrine A.; but the common A. is obtained by expressing the juice out of the leaves, boiling it with water, evaporating and pouring it into gourds: whence this kind is often called gourd Aloes. It is much used for veterinary medicine, and thus brings a high price.

Caballine A. (*Aloë caballina*) is a very coarse kind, and is so called because it is considered fit only for horses. It contains many impurities, such as wood, sand, and charcoal, and evidently constitutes the lowest stratum in the vessels in which the better sorts are allowed to cool. It is now in a great measure superseded in veterinary practice by Barbadoes Aloes.

All kinds of A. are remarkable for their disagreeable taste. The odor is peculiar, and is more perceptible when the drug is breathed upon. A. is in a great measure soluble in water, more so in hot than cold water. A. was formerly considered a gum-resin; but the portion which was thought to be of the nature of gum is now regarded as a variety of *extractive*, and to it the name of Aloesin has been given.

*Action.*—When employed in small doses, A. exerts a tonic, and in larger doses, a cathartic action. It is considered by some authorities to stimulate the liver, and also to supply the place of deficient bile in torpidity of the intestinal canal, and more especially towards its lower part. As taken singly, and in combination with other cathartics, A. is perhaps the most important and the most extensively used of vegetable remedies of its class; but, owing to its action on the lower bowel, should not be used in cases of piles.

ALOES WOOD (called also Agila Wood, Eagle Wood, or Agallochum): the inner part of the trunk of *Aquilaria ovata* and *A. Agallochum*, trees of the natural order *Aquilariaceæ* (q.v.), natives of the tropical parts of Asia, and supposed to be the aloes or lign aloes of the Bible. They are large spreading trees with simple alternate leaves. Aloes-wood contains a dark-colored, fragrant, resinous substance, and is much prized in the East as a medicine, and for the pleasant odor which it diffuses in burning. It has been prescribed in Europe in cases of gout and rheumatism. The resinous substance is found only in the inner part of the trunk and branches; the younger wood is white, and almost scentless. A similar substance, still more esteemed, is obtained in the s. e. of Asia and the adjacent islands, from the central part of the trunk of *Aloexylon Agallochum*, an upright-growing tree with simple alternate leaves, and terminal panicles of small flowers, of the natural order *Leguminosæ*, sub-order *Cæsalpinieæ*. This tree abounds particularly on the highest mountains of Cochin-China and the Moluccas; a character of sacredness is attached to it, and it is cut with religious ceremonies. The A. W. which it

## ALOFT—ALOSE.

yields is not only much prized in the east as a perfume, but many medicinal virtues are ascribed to it. The ancients ascribed to it similar virtues, and so valued it for these and its fragrance, that Herodotus says it sold at one period for more than its weight in gold. It was regarded almost as a universal medicine. Its very fragrance was supposed to have a beneficial influence, and it was therefore worn about the person. As it admits of a high polish, and exhibits a beautiful graining, precious gems were set in it; and it was cut into fantastic forms and worn in head-dresses, etc. *Lign Aloes* is a corruption of *Lignum Aloes* (Aloes Wood).

**ALOFT**, ad. *ǎ-lǒft'* [Icel. *á lopt*, on high: Icel. *lopt*; AS. *lyft*; Ger. *luft*, the air (see **LIFT**)]: on high; in the air; among *seamen*, up among the rigging. **ALOW**, ad. *ǎ-lǒ'*, in a low place; not aloft.

**ALOGI**, *ǎl'o-jǐ*, or **ALOGIANS**, *a-lǒ'jǐ-anz*: a branch of the Monarchians; named from their denial of the existence of the Logos, and their rejection of the Gospel of John which teaches the Logos doctrine. They were found chiefly in Asia Minor. Epiphanius treats of them.

**ALONE**, ad. *ǎ-lǒn'* [*all* and *one*: OE. *al-one*]: by itself; quite by one's self; singly: **ADJ.** single; without company. **TO LET ALONE**, to suffer to rest or remain.

**ALONG**, prep. *ǎ-lǒng'*, or **ALONGST**, prep. *ǎ-lǒngst* [AS. *andlang*: Ger. *entlang*: It. *lungo*]: by the length; lengthwise; forward; in *OE.*, owing to: **AD.** forward; (used also for *together*). **ALONG'SIDE**, by the side of, *as a ship*. **ALONG OF**, in *OE.*, owing to.

**ALONG-SHORE**: near to, and parallel with, the shore. 'Along-shore-men,' or 'long-shoremen,' is a peculiar designation given to some of the humbler and rougher workmen employed about docks and shipping.

**ALOOF**, ad. *ǎ-lǒf'* [AS. *a*, on; *lyft*, the air; *loof*, the windward side of a ship; *aloof*, on loof—viz., out of danger: Dut. *loef*, an oar-pin]: keeping away from; at a distance from. To 'keep the loof,' or 'keep the luff,' is a command given to the man at the helm. **ALOOF'NESS**, n. the state of keeping or being aloof.

**ALOPECU'RUS**: see **FOXTAIL**.

**ALOPECY**, n. *ǎl'ǒ'pě-sǐ*, or **AL'OPÉ'CIA**, n. *-shǐ-ǎ* [Gr. *alopez*, a fox]: the fox-evil or scurf; any kind of baldness.

**ALORA**, *ǎ-lǒ'rá*: town of Andalusia, Spain, prov. of Malaga, 18 m. n.w. of Malaga, on an elevated site near the right bank of the Guadalherce. Some of the streets are well built, and well paved; some are very steep and irregular. There are ruins of an ancient Gothic castle. The inhabitants are mostly employed in agriculture. Soap and sulphate of soda are manufactured. The neighborhood produces much oil and excellent wine. Pop. 10,543.

**ALOSA**: see **CLUPEIDÆ** and **SHAD**.

**ALOSE**, n. *ǎ-lǒz'* [F. *alose*—from L. *alōsa*]: the shad; a species of herring.

## ALOST—ALP.

**ALOST**, *á'lōst*, or **AALST**, *álst* [the name signifies 'to the east,' and was probably given to the town because it lay near the e. frontier of the province]: town in Belgium, old cap. of the prov. of East Flanders, is situated on a tributary of the Scheldt, called the Dender, here converted into a canal. It is a walled city with five gates, has considerable trade in hops, corn, etc., and large manufactures, besides numerous breweries, distilleries, bleach-fields, print-works, copper and iron-foundries, flax and cotton mills, etc. The finest building in A. is the church of St. Martin, unfinished, but one of the grandest edifices in Belgium, and containing a famous painting by Rubens—*St. Roch beseeching our Saviour to stay the Plague of A.*, and also the mausoleum of Thierry Martens, who was born here, and who introduced the art of printing into Belgium, 1475. A. has a town-hall (founded, 1200), a college, a hospital, chamber of commerce, academy of design, etc. Pop. (1901) 29,723.

**ALLOUD**, ad. *ǎ-lowd'* [AS. *a*, on, and *loud*: Icel. *hljóð*; Dan. *lyd*; Ger. *laut*, with sound]: a high tone of voice; with much noise.

**ALLOW**, ad.: see under **ALOFT**.

**ALOYSIA**, *ǎ-loy'si-a*: genus of plants of the natural order *Verbenaceæ* (q v.), to which belongs a shrub, *A citriodora*, cultivated in greenhouses and apartments for the grateful fragrance which its leaves emit when lightly bruised. It is frequently named *Verbena*. It was formerly known to botanists as *Verbena triphylla*, and has also been referred to the allied genus *Lippia*. The leaves are in whorls of three. It is a native of Chili. In the Channel Islands and the s. of Ireland, it becomes a luxuriant shrub in the open air, reaching a height of 10–25 ft., with osier-like shoots.

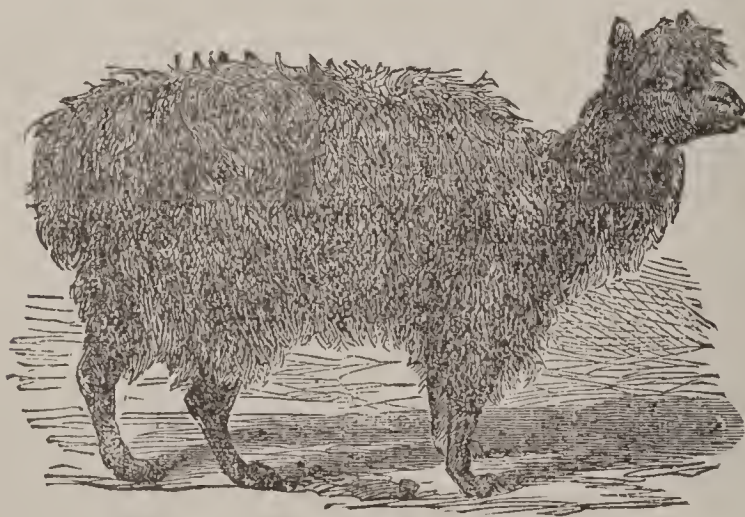
**ALP**: see under **ALPINE**.

**ALP**, or **ALB**, also called the Rauhe or Swabian Alp: a chain of mountains above 60 m. in length, and from 12 to 15 in breadth, between the Neckar and the Danube. It forms the water-shed between these two rivers and the basin of the Rhine, and lies almost entirely within the kingdom of Würtemberg. It is also in the vicinity of the Black Forest, but presents a totally different appearance, on account of its being clothed with forests of hard wood instead of pine. It forms a table-land intersected by a few narrow deep valleys. The average height of the system is rather more than 2,000 feet. On the n., it descends to the Neckar in ridges of rocky cliffs, and abrupt pointed headlands; but on the s., it gradually slopes away to the level of the valley of the Danube. The scenery is often very picturesque, for the sharp, precipitous crags are frequently crowned with the strongholds, generally ruins, of the famous old German families, such as the Hohenzollerns, Hohenstaufens, etc. The geological formation of the Alp is calcareous, and presents a regular stratification. Caverns of a very remarkable character abound among the rocks. The valleys at the base of the hills are fertile, and produce abundance of wine and fruit, but the high table-land has an extremely poor and barren soil.

## ALPACA.

ALPACA, n. *äl-päk'ä*, or PACO, *päk'ō* [Sp. *alpaca*—from a Peruvian word]: (*Auchenia Paco*; see AUCHENIA): a ruminating animal of the mountainous districts of S. Amer., allied to the camel, but of much smaller size, and having long woolly hair; a variety of the llama; a fabric or cloth made from its hair. The A. is of the same genus with the Llama (q.v.), and so closely allied to it, that many naturalists regard it as a variety rather than a distinct species. It is remarkable for the length and fineness of the wool, which is of a silken texture, and of an uncommonly lustrous, almost metallic appearance. The A. is smaller than the llama; the legs and breast are destitute of callosities. In form, it somewhat resembles the sheep, but with a longer neck and more elegant head. It carries its long neck erect; its motions are free and active, its ordinary pace a rapid bounding canter. The eyes are very large and beautiful. The wool, if regularly shorn, is supposed to grow about 6 or 8 inches in a year; but if allowed to remain upon the animal for several years, attains a much greater length, sometimes even 30 inches, and frequently 20. Its color varies; it is often yellowish brown, sometimes gray, or approaching to white; sometimes almost black.

The A. is a native of the Andes, from the equator to Tierra del Fuego, but most frequent on the highest mount-



Alpaca.

ains of Peru and Chili, almost on the borders of perpetual snow; congregating in flocks of one or two hundred. In a wild state, it is very shy and vigilant. A sentinel on some elevated station gives notice of the approach of danger by snorting to alarm the flock. Alpacas seem instinctively to know when a storm is coming on, and seek the most sheltered situation within their reach. Flocks, the property of the Peruvian Indians, are allowed to graze throughout the whole year on the elevated pastures, and are driven to the huts only at shearing-time. When one is separated from the rest, it throws itself on the ground, and neither kindness nor severity will induce it to rise and advance alone. It is only when brought to the Indian huts very young, that they can be domesticated so as to live without the companion-



## ALP-ARSLAN.

ship of the flock; but then they become very bold and familiar. Their habits are remarkably cleanly.

The Indians have from time immemorial made blankets and ponchos or cloaks of A. wool. It is not quite fifty years since it became an article of commerce, but its use for the manufacture of shawls, coat-linings, cloth for warm climates, umbrellas, etc., has gradually increased, and more than 2,000,000 lbs. are now annually imported into Britain. The credit of introducing and raising to its present magnitude the Alpaca wool-manufacture in Britain is due to Sir Titus Salt. The importation to America also is extensive.

Attempts have been made to introduce the A. into Europe; but not yet with very satisfactory results. The only considerable flock known to exist is in the Pyrenees. There seems no reason, however, to doubt that the mountains of Wales and Scotland are suitable for it. An attempt was made in 1821 to introduce the A. into the United States; a fund was raised, and, in 1857, a cargo of them was shipped to Baltimore, but the effort to acclimatize them did not succeed.

A. wool is straighter than that of the sheep, very strong in proportion to its thickness, and breaks little in combing. The fibre is small and very soft, pliable, and elastic.—The flesh of the animal is said to be very wholesome and pleasant food.

ALP-ARSLAN, *âlp-ar-slân'*: a Persian Sultan, the second of the Seljukide dynasty: 1028 (or 30)–72; b. Turkestan: ascended the throne of Khorassan 1053. after the death of his father Daoud, and in 1063 he also succeeded his uncle. His first act was to unite the whole of his dominions in one vast monarchy. He next embraced Islamism, and it was on this occasion that he took the surname of Alp-Arslan (the Lion-heart), his real name being Mohammed-Lhaz ed-Dyn Abou-Choudja. The caliph of Bagdad gave him the title of Adhad-eddin (Defender of the Faith), with this extreme honor—that prayer should be made in his name. He had an excellent vizier, Nisam-al-Mulk, one of those lettered ornaments of early Mohammedanism. This vizier was the founder of all the colleges and academies in the kingdom. While he directed the internal administration of affairs, A. made war successfully. He suppressed revolts, and extended the northern boundaries of his dominions. In 1067–68, he pursued the course of his conquests, carrying off the gates of the church of St. Basil at Cæsarea, which were enriched with gold and pearls, and overthrowing the Greeks under Nicephorus Botoniates. In 1069, he invaded Armenia and Georgia, at that time Christian kingdoms. The most remarkable incident in this expedition was the blockade of the convent of Mariam-Nishin, situated on an island in the middle of a lake, and considered impregnable. An earthquake overthrew the walls during the siege, when it immediately surrendered. He next proceeded against the Greeks, who, under their brave emperor, Romanus IV., had thrice driven back the Turks beyond the Euphrates. In August, 1071, a bloody battle was fought near the fortress of Malas-kerd, between the towns of Van and Erzeroum. A. gained the victory. The Greek emperor was taken prisoner, and

## ALPENA—ALPES.

only obtained his liberty by a ransom of £1,000,000, and an annual tribute of £160,000. Rather more than a year after this (1072, Dec. 15), A. perished at Berzem in Turkestan by the poniard of Jussuf Cothuol, whom he had insulted. He was buried at Mervé, in the tomb of his ancestors.

ALPENA, *äl-pē'na*: town, cap. of Alpena co., Mich.; in the n.e. part of the state, on Thunder Bay (Lake Huron), at the mouth of Thunder Bay river; and on the Detroit Bay City and A. railroad; 250 m. n.w. of Detroit. It is near an important lumbering and farming region, and having a fine harbor, does large business in lumber products. It has excellent graded schools; eight churches; 3 weekly newspapers; one paper printed every evening except Sunday (established 1890), and one monthly organ of the Y. M. C. A.; 10 saw, 3 shingle, and 2 planing mills; 2 foundries; hemlock extract works; and sulphate, paper, and spool factories; one national bank (cap. \$50,000), and one private bank. A. has mineral spring resources which have been somewhat exploited.—Pop. (1880) 6,153; (1890) 11,283; (1900) 11,802.

ALPES, *álp*: name of two departments in France, the *Basses-Alpes* (or Lower Alps), and the *Hautes-Alpes* (or Upper Alps).

The dept. of the BASSES-ALPES occupies the n.e. of Provence. It is, for the most part, mountainous, consisting of spurs or offshoots from the Maritime Alps, which run in numerous chains towards the Rhone. In the n., the climate is cold, the soil poor, and the cultivation bad; in the s., the climate is much better—almonds, apricots, peaches, and various other choice fruits are grown, among which the plums of Bignolles form a well-known article of commerce. The wines of this region are reckoned excellent. On the sides of the Alps, oxen and sheep find admirable pasturage. The mines produce lead, green marble, etc. At Digne and Gréoulx are hot mineral springs. The trade carried on is insignificant. The department is watered by the Durance. Area, 2,697 sq. m.; pop. (1901) 115,021. The chief town is Digne; pop. 5,252.

The HAUTES-ALPES, lying n. of the Basses-A., and forming part of the old prov. of Dauphiné, is traversed by the chief range of the Cottian Alps, which here rise, in Mount Pelvoux, 14,000 ft., and Mount Olan, 13,120 feet. The scenery, especially along the course of the impetuous Durance, is singularly picturesque. The *Hautes-A.* is the highest department in France; the fierce north wind and the perpetual snow on the lofty peaks make the climate severe and the winter long, so that the barren soil will yield little else than potatoes, a little rye, oats, and barley. Here and there, in the most southerly valleys, nut-trees, chestnuts, vines, and other choice fruits, thrive. Only horned cattle, asses, and mules are bred profitably. The most important roads through this department are: 1st, The road from Grenoble to Briançon; 2d, The road from Briançon to Susa, in Piedmont, over the Col-de-Genèvre, which, 1859, was used to transport masses of French soldiery into Italy; 3d, The road from Gap to Marseilles. The inhabitants are employed

## ALPES MARITIMES—ALPHA

in the manufacture of leather, linen, and woollens; and some are engaged in the mines of lead, copper, iron, and anthracite, area, 2,150 sq. m.; pop. (1901) 109,510. Chief town, Gap; pop. 8,718.

ALPES MARITIMES, *álp má-rê-tēm'*: a dept. of France, in the extreme s.e., on the shores of the Mediterranean and confines of Italy; formed in 1860, of the ancient county of Nice, then ceded to France, formerly belonging to the kingdom of Sardinia, and of the arrondissement of Grasse, detached from the department of Var. The chain of the A. M. forms the n. boundary of the department, and from it numerous spurs run seaward, among which are lovely and fertile valleys. The chief rivers of the department are the Loup, the Var, and the Paillon, at the mouth of which Nice is situated. The climate is mild and pleasant in the vicinity of the sea, and in the lower valleys, although the higher mountains reach altitudes where winter always reigns. The vine and olive are much cultivated in the more favored localities; oranges, lemons, and figs are produced in abundance and of excellent quality; considerable land is devoted to tobacco, and not a little to the cultivation of herbs and flowers for the preparation of essences and perfumes. Grasse is particularly famous for the manufacture of perfumery. In many parts of the department are noble forests. In the more elevated parts, much land is used for the pasture of sheep, and also of goats, of which these regions possess a highly-esteemed breed. The silk-worm is reared to a considerable extent, and the keeping of bees is a source of wealth, honey being largely produced and exported. The mineral riches are not great. There are some quarries of white marble, and some mineral springs. Among the chief branches of industry, besides those strictly rural, are brass-founding and the making of bijouterie. The tunny, anchovy, and sardine fisheries employ many people on the shores of the Mediterranean, and great quantities of anchovies and sardines are exported from the port of Cannes. The dept. is divided into three arrondissements—Nice, Puget-Théniers, and Grasse. The capital is Nice (q v), and the other principal towns are Antibes, Villefranche, Cannes, Grasse, and Menton or Mentone. Pop. (1901) 293,213.

ALPHA, n. *ălfă* [Gr.]: the first letter of the Greek alphabet; the first or beginning. ALPHABET, n. *ălfă-bêt* [Gr. *alpha*, a; *bêta*, b; mid. L. *alphăbêtŭm*]: the letters of any language arranged in a fixed order. ALPHABETIC, a. *ălfă-bêt'ik*, or AL'PHABET'ICAL, a. *-ĭ-kăl*, arranged in the order of the alphabet. AL'PHABET'ICALLY, ad. *-lĭ*.

## ALPHABET.

**ALPHABET:** the series of letters, arranged in a fixed order, with which a language is written. Picture-writing was doubtless the earliest method invented of conveying thought through the eye. The idea of an ox was readily expressed by a rude sketch of the animal, or, for shortness, by an outline of his head and horns. Or the picture was used symbolically; as the figure of an eye, to express the action of seeing, or the attribute of wisdom. In process of time, some of those pictures came to be used phonetically—i.e., to represent, not ideas, but sounds. But the sounds so represented would at first be whole words, or, at all events, syllables; and the important step was yet to be taken of analyzing syllables into their elementary sounds, and of agreeing upon some one unvarying picture or sign (a letter) to represent each. This constituted the invention of the A.

Taylor, in his great work on *The Alphabet* (2 vols., 1883), affirms and proves Rongé's theory that the Phœnician, the oldest true A. known, is derived from an old hieratic series of alphabetic symbols, compiled by the Egyptians out of their multitudinous hieroglyphs. See **HIEROGLYPHICS:** also **CHINESE LANGUAGE, CUNEIFORM, and WRITING.** This series, however, was not used by the Egyptians simply as an A.; such, simple, was the discovery or invention of the Phœnicians. From Phœnician and cognate Shemitic alphabets have originated, directly or indirectly, almost all the modes of writing now in use. Hence came Greek, Latin, Hebrew, Arabic, and the Indian alphabets; (Chinese, and apparently ancient Hittite, Lycian, and Cypriote syllabaries were distinct). Some hundreds of alphabets, ancient and modern, have been enumerated; but of those now in use, setting aside slight variations of form, the number does not exceed 50. Those here to be considered are more immediately connected with the history of the English A.

In modern alphabets, the *order* of the letters appears at first sight to be quite arbitrary; but there are traces of a natural system according to which the series grew, best seen in the Hebrew A., which was almost identical with the Phœnician. The Hebrew *characters* given below are the square Hebrew, borrowed from Aramæa (q.v.). The oldest Hebrew A. had characters identical with those of Phœnicia (q.v.).

The following table shows the Hebrew letters, with their names, and sounds or powers; also the names of the letters composing the early Greek A., as borrowed from the Phœnician:

HEBREW.		GREEK.	
Name.	Sound or Power.		
1	א	Aleph, a vowel or breathing.	Alpha.
	ב	Beth, B.	Beta.
	ג	Gimel, G (in gun).	Gamma.
	ד	Daleth, D.	Delta.
2	ה	He, a vowel or breathing.	E(epsilon).
	ו	Vau, V or F.	Ϝ = V (digamma.)
	ז	Zayn, Z.]	Zeta.
	ח	Kheth, KH or CH.	Eta.
	ט	Theth, TH.	Theta.

## ALPHABET.

HEBREW.

GREEK.

	Name.	Sound or Power.	
3	י Yod,	J.	Iota.
	[כ Kaph,	K, variety of.]	Kappa.
	ל Lamed.	L.	Lambda
	מ Mem,	M.	Mu.
	נ Nun,	N.	Nu.
	[ס Samekh,	S. variety of.]	Sigma.
	ע Ayn,	a vowel.	O(mikron)
4	פ Pe,	P.	Pi.
	[צ Tsadi,	TS.]	
	ק Koph,	K or Q.	Koppa.
	[ר Resh,	R.]	Rho.
	[ש Sin,	S.]	San.
	ת Tau,	T.	Tau.

Leaving out of account the letters inclosed in brackets, which are not easily accounted for, and are possibly later interpolations, the whole fall into four groups, the law of which will appear in the following scheme:

Vowels.	Labials.	Palatals.	Dentals.	
<i>a</i>	<i>b</i>	<i>g</i>	<i>d</i>	Flats or medials.
<i>e</i>	<i>v</i>	<i>ch</i>	<i>th</i>	Aspirates.
<i>o</i>	<i>p</i>	<i>k</i>	<i>t</i>	Sharps.
<i>i</i>	<i>l</i>	<i>m</i>	<i>n</i>	Liquids.

Without entering at present into the nature of the relation between the letters in the several rows, horizontal and vertical, of the scheme (for which see LETTERS), it will be seen that group (1) in the Hebrew A. consists of a vowel followed by three mute letters, all having one character (flats or medials); that group (2) consists of a vowel followed by three mutes, also having one character (aspirates); and that group (4) consists in like manner of a vowel followed by three mutes, all of the same character (sharps). The order, moreover, according to the organ of utterance, in which the mutes follow in each group, is invariable: the labial (lip-sound) coming first; the palatal (palate-sound), second; and the dental (tooth-sound), last. This principle of arrangement is characterized by Dr. Latham as a *circulating order*. Group (3) likewise consists of a vowel and four consonants of one character (liquids); but in this case the order of the vocal organs is not observed—at least in the form in which the Hebrew A. is now known; in order to be symmetrical with the other groups, the sequence would require to be *m. l. n*

## ALPHABET.

The nucleus of the original A. thus seems to have consisted of sixteen letters, grouped in four tetrads or quaternions, on an organic principle of arrangement. This principle is obscured in English and other modern alphabets, by some of the letters having gradually come to represent quite other sounds than their original. There is sufficient evidence, for example, that in the earliest Latin alphabet, from which the English is derived, the third letter, C, had the power of G (in *gun*). There was a subsequent period in the development of that language when the distinction between the sharp and flat palatal sounds seems to have been lost, and when two syllables like *kam* and *gam* would have been pronounced both alike (*kam*). C thus acquired the power of K, and the letter K itself went almost out of use. But about the time of the First Punic War (B.C. 264-241), the distinction between the sharp and the flat sounds revived; and while the original C continued ever after to have the power of K (*Cicero*, for instance, was pronounced *Kikero*), a new character (G) was formed from it, by a very slight alteration, to express the flat sound. Again, the modern H, which has in most cases become a mere evanescent breathing, can be traced back until it becomes a strong guttural, like CH in the Scotch word *loch*. The place of the third consonant in the cycle of aspirates is a complete blank in the alphabets derived from the Latin; because that language being originally destitute of the sound dropped the sign of it, from the first. The Latins were, in fact, completely destitute of the genuine aspirate sounds; for even the letter F had not the sound now given it. Therefore, when they had to represent the aspirate consonants of the Greek language,  $\phi$ ,  $\chi$ ,  $\theta$ , they had recourse to the combinations *ph*, *ch*, *th*—a clumsy expedient still followed in modern alphabets derived from the Roman, and constituting one of their most serious defects. The cycle of the sharps is nearly perfect in the English alphabet, for Q is only a variety of K.

It is easy to conceive a language represented by sixteen characters of the nature above described. The most serious deficiency would seem to be the want of *r* and *s*. But the sound of *th* is very nearly allied to that of *s* (witness 'loves or loveth;,' also the pronunciation of a person who lithp $\theta$ ), and one character might be made to stand for both, as easily as an English *c* is made to represent two sounds so different as those exemplified in *cat* and *city*. Some nations, again, are said to make no distinction between *r* and *l*, so that one character might stand for both these sounds.

But whether or not the Phœnician A. had originally only sixteen letters, it is evident that when transplanted into Greece, it had twenty-one letters, if not twenty-two. In accommodating itself to the necessities of the Greek tongue, it gradually underwent a series of changes. Some of the letters were modified: *He* became *e*; *Cheth*, *ee*; *Sigma* became  $\xi = x$ , and the name *Sigma* was transferred to *San*. Other letters were altogether dropped, as *Digamma* (=  $\nu$ ) and *Koppa*. On the other hand, for such simple sounds as had no repre-

## ALPHABET.

sentatives in the Phœnician, new characters were invented, and annexed to the end (*v, φ, χ, ψ, ω*).

Another important change was in the *direction* of the writing. In the Phœnician and other Semitic languages, the writing proceeded from right to left. The Greeks, on borrowing the Phœnician A., also wrote for some time from right to left. The mode called *bustrophedon* (turning like an ox in plowing), of writing alternately from right to left and from left to right, was then introduced; and finally the direction from left to right prevailed throughout the west, to the exclusion of the other modes.

In the classical period of the Greek language, the A. had come to consist of twenty-four letters, as in columns 2, 3, 4 of the following table. Column 1 (copied from Ballhorn's *Alphabete*) gives some of the earlier forms of the Greek letters, found on coins and other inscriptions, of the period when writing still proceeded from right to left; column 2 is from the Alexandrian Codex (q. v.), as given in Key's *Alphabet*; and Nos. 3 and 4 are the modern printed forms of capitals and small letters. The small characters are merely cursive forms or variations of the capitals; and it would not be difficult to show how, in each case, the endeavor to trace the capital on soft material rapidly and without lifting the hand would give rise to the form now used as the small letter.

### GREEK ALPHABET.

1	2	3	4	Name.	Power.
Α	Α	Α	α	Alpha	a
Β	Β	Β	β	Beta	b
Γ	Γ	Γ	γ	Gamma	g
Δ	Δ	Δ	δ	Delta	d
Ε	Ε	Ε	ε	Epsilon	e (short)
Ζ	Ζ	Ζ	ζ	Zeta	ds
Η	Η	Η	η	Eta	e (long)
Θ	Θ	Θ	θ	Theta	th
Ι	Ι	Ι	ι	Iota	i
Κ	Κ	Κ	κ	Kappa	k

## ALPHABET.

1	2	3	4	Name.	Power.
λ	Λ	Δ	λ	Lambda	l
Μ	Μ	Μ	μ	My	m
Ν	Ν	Ν	ν	Ny	n
Ξ	Ξ	Ξ	ξ	Xi	x
Ο	Ο	Ο	ο	Omikron	o (short)
Π	Π	Π	π	Pi	p
Ρ					
ρ	Ρ	Ρ	ρ	Rho	r
Σ	Σ	Σ	σ	Sigma	s
Τ	Τ	Τ	τ	Tau	t
	Υ	Υ	υ	Ypsilon	ū
	Φ	Φ	φ	Phi	f ph
	Χ	Χ	χ	Chi	ch
	Ψ	Ψ	ψ	Psi	ps
	Ω	Ω	ω	Omëga	o (long)

With regard to the *figures* or shapes of the letters, it is believed that they all arose out of pictures or hieroglyphic characters. The names of the Hebrew letters are the names also of material objects; and the letters themselves were at first, in all probability, rude outlines of the objects. Aleph, for example, means an 'ox,' and the letter was in its origin an outline of an ox's head. The history of Gimel, which means 'camel,' is probably similar. The Hebrew characters now known are believed to be comparatively modern, and much corrupted from their original forms, and the likenesses are more difficult to trace in them than in the Samaritan and the early Greek, or even in the Latin. Mem, again, is the Hebrew word for 'water,' and some of the earliest forms of the letter M are zigzag lines, similar to the sign of *Aquarius* (♋) in the zodiac, intended, no doubt, to represent the undulations of water. Ayn, the name of the Hebrew letter equivalent to O, also means an 'eye,' and the picture of an eye would naturally degenerate into a circle, first with a dot in the centre (which some ancient O's actually have), and then without a dot.

The A. came into Italy not directly from Phœnicia, but from Greece, and that at a time when the Greek A. had undergone some of the changes described above, although not all of them; *v*, *φ*, *χ* had been added, but not *ψ* and *ω*. Moreover, there must have been distinct and independent importations into more than one part of Italy, and that,



## ALPHABET.

probably, from different parts of Greece, or, at all events, at different periods. The Etrurian A. is evidently an earlier importation than the more southerly Latin, as it departs less from the Phœnician. There are differences even in different parts of Etruria itself. The alphabets of Etruria n. of the Apennines (for numerous inscriptions recently discovered show that this remarkable race must have extended at one time as far north as the Alpine valleys of Provence, Tyrol, Graubünden, and Styria) differ slightly from the alphabets of the inscriptions in Etruria proper, which are demonstrably taken from the A. of the Greek colony of Cære.

The Latin A., which became that of Rome, and thus of the whole western world, was borrowed from a newer form of the Greek—namely, that imported by the Dorian Greeks of Cumæ and Sicily. The writing in the oldest Latin inscriptions is never from right to left, as mostly in Etrurian. On the other hand, the Kaph and the Koph (K and Q) of the Phœnician, which disappear in Etrurian, are retained in Latin. The Greek A. of Cumæ had not yet received the addition of  $\psi$  and  $\omega$ ; but it still retained the representative of the Phœnician *Vau*, the Digamma, and also *Koppa*, and thus consisted of twenty-four letters. The Latin tongue, being destitute of aspirate sounds, dropped the three letters  $\theta$ ,  $\phi$ ,  $\chi$ , so that the original Latin A. consisted of twenty-one letters, the forms of which, as seen on the oldest inscriptions, were as in the following table. See Corssen's *Aussprache, Vocalismus und Betonung der Lateinischen Sprache* (Leip. 1858.)

1. a	A, Λ, Λ, Λ.	12. m	M, W, W, III.
2. b	β, B.	13. n	N, 'N.
3. c	ϸ, C, C.	14. o	Ϸ, Ϸ, O, o,
4. d	Ϸ.	15. p	Ϸ, P.
5. e	E, II,	16. q	Q.
6. f	Ϸ, F.	17. r	R, R.
7. z	Z.	18. s	Ϸ, Ϸ, S, S.
8. h	H.	19. t	T, T.
9. i	I.	20. v	(v). V.
10. k	K. (K)	21. x	X.
11. l	l, Λ, L.		

Z was early dropped, and the new letter G (see above) substituted for it; and thus the Latin A. continued to the last to consist of twenty-one letters, until it was applied to the modern tongues of w. Europe. The distinction made between *u* and *v*, and between *i* and *j*, in printing Latin books, is a modern innovation; and no Latin word contains either *y* or *z*. The five additional letters that make up the twenty-six of the English A. arose from the addition of *z*, and the development of *i* into *j*, and of *u* into *w*, *v*, and *y*.

The Anglo Saxon A. had two useful letters, which have disappeared from modern English—namely, one for the

## ALPHEIUS.

sound of *th* in *thin*, and one (or rather two) for that of *th* in *thins*. These were derived, in all probability, from the Mæso-Gothic A., which (as well as the Russian and other Slavonic alphabets) was founded on the Greek rather than the Latin. The loss of these letters is owing to the influence of the Norman-French, the alphabet of which is exclusively Latin. The forms of the Anglo-Saxon letters are as under:

A	a	(A)	N	n
Æ	æ	(Æ)	O	o
B	b		P	p
C	c	(C)	R	r (r)
D	d	(D)	S	s (s)
E	e	(E)	T	t (t)
F	f	(F)	U	u
G	g	(G)	W	w (V PP)
H	h	(H)	X	x
I	i		Y	y
L	l		Þ	þ th ( <i>thin</i> )
M	m	(M)	ƿ	ƿ th ( <i>thine</i> )

‘The characters between brackets were written by the Anglo-Saxons, but being for the most part mere corruptions of the Roman forms, are now seldom printed.’—Vernon’s *Anglo-Saxon Grammar*.

See Isaac Taylor’s *The Alphabet* (2 vols., 1883).

For the peculiarities of the different letters see each Letter: for their classification, and the defects and redundancies of the English A., see LETTERS AND ARTICULATE SOUNDS: as also BLACK-LETTER: ORTHOGRAPHY: PHONETIC WRITING.

ALPHEIUS, *al-fē'yūs* (now *Ruféa*, *Rufiá*, or *Rofiá*): the chief river of Peloponnesus (Morea); rising in the s.e. of Arcadia, and flowing w. through Elis, and past the famous Olympia, into the Ionic Sea. This river is one of the most celebrated in ancient song, and is connected with a beautiful and characteristic Greek legend. The nature of the upper course of the A. was such as to affect strongly the imagination of the Greeks. In its passage through Arcadia, a country consisting of cavernous limestone, and abounding in shut-in basins and valleys, it repeatedly disappears under ground and rises again. After these feats, it was deemed capable of anything—even of flowing under the sea—and the Greek colonists of Sicily thought they recognized it in their new country. Close on the margin of the sea in the island of Ortygia (the site of Syracuse), there was a beautiful and copious fountain; and just where the water of this fountain joined the sea, another strong spring bubbled up under the

## ALPINE—ALPINE CLUB.

salt water. This could only be another freak of the A.; and it was popularly believed that the sweepings of the temple of Olympia, after the great festival, when thrown into the river, reappeared in the springs at Ortygia. Strabo asserts as a fact that a cup did so.

This wonderful phenomenon found its explanation, as usual, in a myth, connecting it with the history of the gods. The river-god Alphieus became enamoured of the nymph Arethusa while bathing in his stream. To escape him, she prayed to Diana, who changed her into a fountain, and opened up an underground passage for her to Ortygia. The river still pursued her, passing from Greece to Sicily below the sea, without mingling his waters with it, and appearing in the spring that bubbles up by the shore.

ALPINE, n. *al'pĭn* [L. *Alpēs*, the Alps, of a Celtic origin: Gael. *alp*, a height, a mountain; said to be connected with old L. *alpus*; L. *albus*, white]: from or like the Alps; very elevated; belonging at elevated regions, as alpine flora. AL'PENSTOCK [Ger.]: staff used for ascending the Alps or any other mountain. ALP, n. in *OE.*, a high mountain; a mountain similar to the Alps or one of them.

ALPINE CLUB: a society in England for promoting exploration of the Alps; definitely constituted in 1858. The first president, Mr. Ball, had crossed the main chain of the Alps forty-eight times, by thirty-two different passes, besides traversing nearly one hundred of the lateral passes. The club has a winter and a summer dinner every year. In 1859, it published a volume, *Peaks, Passes, and Glaciers*; in 1863, the first number of the *Alpine Journal*, a valuable and flourishing periodical; between 1863 and 1868, guides to the Western, Central, and Eastern Alps. In 1884, there were about 450 members, including the most distinguished climbers of the foreign clubs. Of the daughter societies, the German Club has more than 9,000 members, the Swiss Club 2,500; there are also French, Austrian, and Italian clubs.

The first known ascent of Mont Blanc is comparatively recent; the Taupinière Blanche, the highest summit of Mont Blanc, was reached 1786, Aug. 8, by Jacques Balmat and Dr. Paccard. See MONT BLANC, SAUSSURE. At the beginning of this century only four heights were found on maps of this great Monte Rosa district; and in the sixth edition of Murray's *Handbook of Switzerland*, we read that the ascent of Mont Blanc was 'attempted by few,' and those for the most part 'of unsound mind.' Now most of the peaks of the Alps and Pyrenees have been scaled, and their configuration, geology, plants, and animals explored and recorded. The ascent of the monarch of the Alps is now regarded as comparatively easy. In 1881, forty-two parties ascended, including sixty-seven persons, of whom nineteen were French and seventeen English. In 1883, eighty-one persons ascended, in twenty-five parties. On nine occasions ladies were of the party. Of the total number, thirty-five were French. Reckless ascents of difficult peaks have led to melancholy loss of valuable lives; and occasionally sad

## ALPINE HUSBANDRY—ALPINE PLANTS.

accidents occur to well-planned expeditions. Of late, members of the English Alpine Club have attacked the Himalayas; and in 1883, another member, accompanied by Swiss guides, ascended Mount Cook in New Zealand.

**ALPINE HUSBANDRY:** characterized by the fact that the preparation of fodder is the chief object, and the cultivation of grain only secondary. In the less elevated regions bordering on the flat country, it is the practice to break up the grass from time to time, and take a succession of grain crops. In more elevated districts, the moisture of the climate and the shortness of the season of vegetation prevent crops requiring tillage from coming to perfection, and there the whole attention is devoted to pasturage and the preparation of meadow-hay. The top-dressing of the plots devoted to hay-growing, with the solid and liquid manure of the cattle, the cutting and making of the hay, and transporting it to the farm-offices, occupy a great part of the labor of the population of the Alps. They turn to account for hay-making those shelves and crevices among the mountains, inaccessible to cattle, and even goats; the herbage, which often grows luxuriantly in such situations, is cut, bound up in cloths or nets, and carried down difficult paths on the head, or is flung over the precipices.

The grass lands in the lower regions near the dwellings being mostly reserved for hay, the cattle are pastured in summer in those regions that lie too high or too remote to be inhabited in winter. These pastures consist of plateaus and slopes, which immediately on the disappearance of the snow become clothed with a rich carpet of herbage and flowers. Each separate locality or pasture is called an *Alp*. Some of these 'alps' belong to individuals; others to the commune or parish. The more rocky and steep places are pastured by sheep and goats. There are three zones or stages in the A. pastures. The cattle are driven to the first and lowest stage about the end of May; about a month later, they ascend to the 'middle Alps'; and by the end of July, they reach the Upper Alps. As the days shorten, they descend in the same gradual way, so that the whole 'Alp-time' lasts about 20 weeks. The pastures are provided with huts for those who have charge of the cattle, who also convert the milk into cheese. Little butter is made. The departure for the 'Alps' in spring, and the return in autumn, are made the occasion of popular festivals.

**ALPINE PLANTS:** appellation given not only to those plants found at elevations approaching the limit of perpetual snow in the Alps of central Europe, but also to plants belonging to other mountainous regions in any part of the world, whose natural place of growth is near snows never melted even by the summer's sun. As the elevation of the snow line, however, varies very much in different countries, according to the latitude, and also from peculiar local circumstances, the term A. P. is significant not so much of the actual elevation of the habitat, as of the average temperature which prevails there. On the Andes, near the equator, at an elevation of 12,000–15,000 ft. above the

## ALPINE PLANTS.

sea, many kinds of plants are found, of humble growth, resembling in their general appearance those which occur in Germany and Switzerland at an elevation of 6,000 ft.; and these, again, either resemble, or are even identical with, the species which in Lapland grow upon hills of very little elevation, or which, in the northern parts of Siberia, are found at the level of the sea. Similar plants occur also in the Himalaya Mountains, at elevations varying remarkably within very narrow geographical limits from local causes, which also create great differences in the general dryness or humidity of the atmosphere. The laws of this natural distribution of plants have been in our own day for the first time investigated and elucidated by Humboldt, Wahlenberg, Schouw, DeCandolle, and others, and form the most essential part of a branch of science still in its infancy, and requiring further study—phytogeography, or the science of the geographical distribution of plants. When the A. P. of central Europe are spoken of, those are meant which grow at an average height of 6,000 ft., marking what, in the language of phytogeographical science, is called a *zone*. This, on its northern limit, the Riesengebirge, or Giants' Mountains, falls as low as 4,000 ft., and rises in the southern Alps and Pyrenees to an elevation of 9,000 ft., and sometimes even higher. Although very rich in forms peculiarly its own, this zone contains many plants which are likewise found on much lower hills, and even in the plains. The number of these, however, diminishes as the elevation increases. Hence the small spaces clear of snow in the highest regions possess a very characteristic flora, the plants of which are distinguished by a very low diminutive habit, and an inclination to form a thick turf; frequently, also, by a covering of woolly hairs, while their stems are very often either partly or altogether woody, and their flowers are in proportion remarkably large, of brilliant colors, and in many instances very odoriferous, upon which accounts they remarkably attract and please the occasional visitors from the plains. In the Alps of central Europe, the eye is at once caught by gentians, saxifrages, rhododendrons, and various species of primrose. With these and other phanerogamous plants are associated a number of delicate ferns and exceedingly beautiful mosses. The highest mountains in Scotland exhibit a somewhat similar flora, and beautiful plants, both phanerogamous and cryptogamous, are found on them, which never appear in lower situations, as the Alpine Speedwell (*Veronica Alpina*), the small Alpine Gentian (*Gentiana nivalis*), the Rock Scorpion Grass, or Alpine Forget-me-not (*Myosotis Alpestris*), *Azulea procumbens*, *Woodsia Ilvensis* and *hyperborea*, etc. Many A. P. are limited to a very small district. Thus, the flora of Switzerland differs considerably from that of Germany, the latter being now known to contain 3,400 phanerogamous plants, of which the former contains 2,200, and with them also 126 species which have hitherto been found only in the Swiss Alps.—There are, moreover, particular species of plants found only in single localities, as *Hypericum coris* upon the mountain of Wiggis, in the canton of Glarus; *Wulfenia Carinthiaca*, upon the Küweger Alp, in

## ALPINI--ALPNACH.

Upper Carinthia.—In N. America, many A. P. on the higher mountains of the United States are species on lowlands far north, and agreeing much with the A. P. of Europe. The White Mts. of N. H. have Labrador species, both plants and animals, e.g., the *Semidea* butterfly, found nowhere else in the United States.—For explanation see Darwin's *Origin of Species*, chap. XI., and the recent works on distribution, such as Wallace's. In brief, the Arctic region was more circumscribed in the warmer pre-glacial times than now, and its species more circumpolar. In the glacial period there was migration south, and at the end of the period many species were left islanded on mountains.—See GEOGRAPHICAL DISTRIBUTION OF PLANTS AND ANIMALS: SPECIES.

ALPINI, *ál-pē'nē*, PROSPERO: 1553-1617; b. Marostica, in the republic of Venice: celebrated physician and botanist. For a time he served in the Milanese army, but left it to study medicine. He gave particular attention to the science of botany, and during a three years' stay in Egypt, where he went as physician to the Venetian consul, devoted himself to this study, acquiring a wide botanical knowledge. He was perhaps the first to notice the sexual differences of plants, and in his treatise *De Medicini Egyptiorum* first called the attention of Europeans to the coffee-plant. He resided at Genoa for some years, and held rank as the foremost physician of the day; afterwards he was appointed professor of botany in the Univ. of Padua, where he continued until failing health compelled him to give up his work. The genus *Alpini* is named in honor of him. He was the author of several Latin books.

ALPINIA: see GALANGALE.

ALPNACH, *álp'nák*, or ALPNACHT, *álp'nákt*: Swiss village, in the canton of Unterwalden, at the foot of Mount Pilatus,  $1\frac{1}{2}$  m. from that part of Lake Lucerne called Lake A. It is known principally on account of its celebrated 'slide,' a sort of wooden trough by which the felled timber of Mount Pilatus was conveyed with amazing velocity from a height of 2,500 ft. down to the lake. To prevent friction, the trough was perpetually lubricated by a slender rill of water. It is no longer used, the wood being now drawn down by horses and oxen. Population of A., 1,700.

## ALPS.

**ALPS**, *ālps*: the most extensive system of lofty mountains in Europe, raising their giant masses on a basis of 90,000 sq. m., between 6° 40' and 18° e. long., and extending in some places from the 44th to the 48th parallel of latitude. The word *Alp* or *Alb*, signifying in the Celtic language 'white,' was the name given to these mountains on account of their tops being perpetually covered with snow. The Alpine system is bounded on the n. by the hilly ground of Switzerland and the upper plain of the Danube; on the e., by the low plains of Hungary; on the s., by the Adriatic Sea, the plains of Lombardy, and the Gulf of Genoa; and on the w., by the plains of Provence and the valley of the Rhone. A string of lakes encircles both the n. and s. bases of these mountains, the former at an elevation of 1,200–2,000 ft.: the latter, 600–700 ft. The varied natural scenery of France, Italy, Germany, and Hungary has a common centre of union in this lofty region. Valleys open out in all directions, sending their melted snows on one side into the North Sea, on another into the Black Sea, and on another into the Mediterranean.

The *water-system* of the A. may be thus briefly sketched: 1. In the basin of the Rhine, there is the Rhine itself, which partly forms the Lake of Constance, at the n.e. extremity of Switzerland, and receives on the left the important tributaries of the Thur and the Aar; the latter of which flows through lakes Brienz and Thun, and is itself augmented by various affluents, the largest of which are the Reuss and the Limmat. 2. In the basin of the Danube there flow from the s. the Iller, Lech, Isar, and the Inn. Still further e. the Danube has for its tributaries the Traun, the Ens, the Raab, the Drave, and the Save, the last three of which have their sources in the extreme eastern A. 3. In the basin of the Po are numerous streams which rise in the southern A.; the principal are the Dora Baltea, the Sesia, the Ticino from Lake Maggiore, the Mincio from Lake Garda, and the Adige. 4. In the basin of the Rhone, are the Rhone (flowing through the Lake of Geneva), and various Alpine tributaries; most important are the Arve, the Isère, and the Durance. 5. The Var is the principal Ligurian coast-stream; the Piave and the Tagliamento the largest of those which fall into the Adriatic from the southern A.

*Divisions* —In order to give a clear view of the manifold ranges of this mountain land, a distinction is generally made between the East, the West, and the Middle A.; the last of which is again divided into a northern, central, and southern chain; while a natural separation by river valleys into groups is also made. I. WEST A.—The principal ranges of these are: 1. The Maritime A., from the middle Durance s. to the Mediterranean; rising in the Rocca dell' Argentera to 10,795 ft. 2. The Cottian A., n. of these, whose highest summit, Monte Viso, is 13,599 ft. 3. The Graian A., forming the boundary between Savoy and Piedmont, and attaining in Mont Iséran an elevation of 13,272 ft., and in Mont Cenis, of 11 457 ft. II. MIDDLE A. *Central Chain*.—1. The Pennine A., between the plains of Lombardy and the valley of the Rhone. Highest summits:

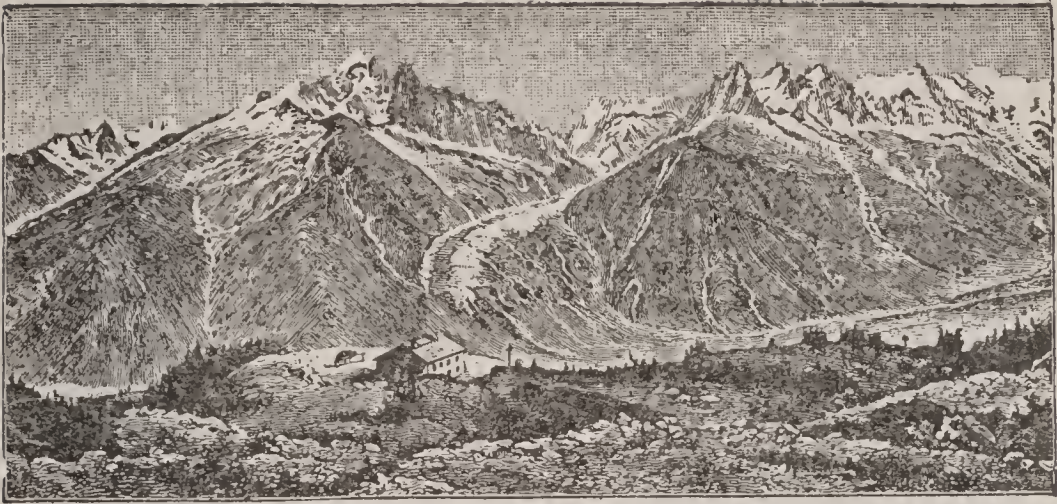
## ALPS.

Mont Blanc, 15,744 ft.; Monte Rosa, 15,151 ft.; Mont Cervin, 14,836 ft. 2. The Lepontian or Helvetian A., from the depression of the Simplon, along the plateau and masses of St. Gothard (12,000 ft.), to the pass of Mont Splügen. 3. The Rhætian A., between the Inn, the Adda, and the Upper Adige. *Northern Chain.*—1. The Bernese A., between the Rhone and the Aar: highest summits; Finsteraarhorn, 14,026 ft.; Jungfrau, 13,716 ft.; Schreckhorn, 13,397 ft. 2. The A. of the Four 'Forest Cantons,' the Schwytz A., etc. *The Southern Chain.*—1. The Oertler A., between the Adda and the Adige; highest summit, Oertlerspitz, 12,822 ft. 2. The Trientine A., between the Adige and the Piave; highest summit, La Marmolata, 9,802 ft. III. EAST A.—The principal chains are: 1. The Noric A., between the plains of the Drave and the Danube; highest summit, Gross-Glockner, 12,431 ft. 2. The Carnic A., between the Drave and the Save. 3. The Julian A., between the Save and the Adriatic Sea; highest summit, Mont Terglu, 9,366 ft.

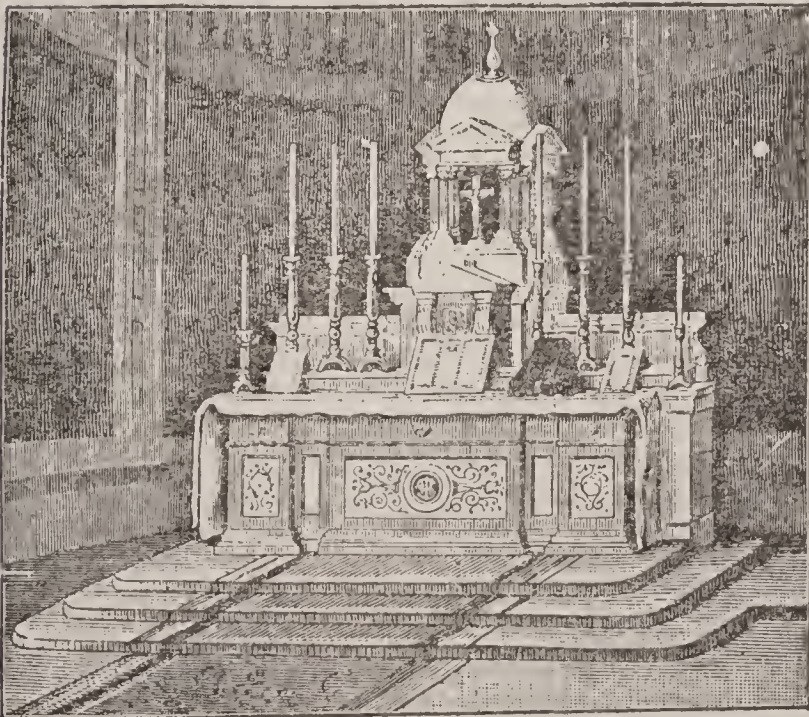
*Elevation.*—As a general rule the A. are lowest where the system is broadest, that is, in the e.; and highest where the system is narrowest, that is, towards the w. Making a threefold distinction of crests, summits, and passes, the principal ranges may be characterized as follows. The crest-line (1) of West A., 6,000–11,000 ft.; (2) of Middle A., 9,000–13,000 ft.; (3) of East A., 3,600–9,000 ft. The summits; (1) of West A., 9,000–14,000 ft.; (2) of Middle A., 9,000–15,800 ft.; (3) of East A., 6,000–12,000 ft. Height of the passes: (1) of West A., 4,000–8,000 ft.; (2) of Middle A., 6,500–11,000 ft.; (3) of East A., 3,500–6,000 ft.

A comprehensive classification leads to a division of the elevations into three regions: 1. The lower range forming the buttresses of the main masses, and reaching a height of 2,500–6,000 ft.; that is, to the extreme limit of the growth of wood. 2. The middle zone between the former limit and the snow line at the elevation of 8,000–9,000 ft. 3. The high A., rising to 15,744 ft. The middle zone forms the region of mountain-pasturages, where the characteristic Alpine dairy-farming is carried on. These pastures consist of a rich carpet of grass and flowers. This threefold division of heights, however, does not everywhere coincide with the same phenomena of vegetation: the line of perpetual snow descends lower on the n. side, and the boundaries of the zones above described vary accordingly. 1. The line of demarcation between the region of mosses and Alpine plants and that of perpetual snow, is from 8,000–9,000 ft. on the n. declivities; but on the s., it approaches 10,000 ft. 2. The highest limit to which wood attains on the n. is about 6,000 ft., while on the s. it is nearly 7,000 ft. 3. Grain, beech, and oak, on the n., disappear at the elevation of 4,000 ft.; on the s., they exist, some hundreds of feet higher. 4. The region of the vine, as well as of maize and chestnuts, extends to an elevation of 1,900 ft. on the n. declivity; and on the s. declivity, to 2,500 ft. The ranges of outlying lower mountains which flank the high central Alps on the n., e., and w., are mostly wanting on the s., especially where the Middle A. descend into the plains of Lombardy. Thus





Alps.—The Chain of Mont Blanc across the Valley of Chamouni.



High Altar.—Church of the Sacred Heart, Edinburgh.

## ALPS.

the A. rise in steep rocky precipices from the level of the flat plains of the Po, while they sink more gradually into the plains on the n.; hence their mighty masses closely piled together present an aspect from the s. more grand and awful; from the n., more extended and various.

*Valleys.*—The variety in the valleys as to form and arrangement is not less striking than in the elevations. Most worthy of notice is the characteristic form of the wide longitudinal valleys at the foot of the high central chains. On the e. they open directly into the plain; on the n., they are connected with the plain through transverse valleys which often end in lakes. The transverse valleys on the s. are mostly in the shape of steep rocky ravines, forming in some parts long-stretching lakes. Beside the deep-sunk principal valleys, there are extensive series of basin-shaped secondary valleys, the scenes of Alpine life properly so called. Many Alpine valleys have names distinct from the rivers flowing through them. Thus, the valley of the Rhone is styled the Upper and Lower Valais; that of the Adda, the Valteline; of the Arve, Chamounix.

*Communications—Passes.*—The valleys of the high A. form the natural means of communication. Some are more accessible than others. The entrance into a longitudinal valley is almost always smooth and easy; art has often had to force an entrance into a transverse valley. On many of the high roads which link the principal with the secondary valleys, it has been found necessary to blow up long ridges of rock, to build terraces, to make stone-bridges and long galleries of rock as a protection against avalanches, as well as to erect places of shelter (*hospices*) from storms. The construction of these roads may be reckoned among the boldest and most skilful works of man. In crossing the A., several defiles (usually seven) have to be traversed; for in addition to the pass of the main crest, there are other defiles on both sides at the entrances of the different valleys. In the e., the number of these narrow passes or defiles is considerably increased. The names applied to the Alpine passes vary according to their natural features or the local dialect; as Pass, Sattel (Saddle), Joch (Yoke) Scheideck, Klause, Col, Chiusa. The traveller, in the course of a day's journey, experiences a succession of climatic changes, with an equal variety in the manners of the people.

No lofty mountains in the world are so easily crossed as the A. Hence we can understand how the plains of Upper Italy, accessible from the French, German, and Hungarian sides, have been the theatre of bloody strife for ages. The passage of the WEST A. is made by five principal roads: 1. The military road, La Corniche, a coast-road at the foot of the A. from Nice to Genoa, parallel to which a railway now runs. 2. The causeway over the Col-di-Tenda, between Nice and Coni, made in 1778; highest point, 5,890 ft. 3. The high-road over Mt. Genève, connecting Provence and Dauphiné with Turin; highest point, 6,550 feet. 4. The carriage-road made by Napoleon in 1805, over Mt. Cenis, connecting Savoy with Piedmont; highest point, 6,770 ft. Near this the chain is pierced by

## ALPS.

the railway tunnel. See TUNNEL, and CENIS. 5. The pass of the Little St. Bernard, connecting Geneva, Savoy, and Piedmont; highest point, 7,190 ft. By this pass Hannibal crossed into Italy. It is not much used now. Besides these great roads there are many smaller ones branching from them, which form a network of communication. The passage of the MIDDLE A. is made by eight principal roads: 1. That of the Great St. Bernard, connecting the valley of the Rhone with Piedmont; highest point, 8,170 ft. It was crossed by Napoleon in 1800. 2. The magnificent road over the Simplon, constructed by Napoleon, 1801-06. connecting the Valais with the confines of Piedmont and Lombardy; highest point, 6,570 ft. 3. Between the Great St. Bernard and Monte Rosa is the Col of Mont Cervin, the loftiest pass in Europe, nearly 11,200 ft., connecting Piedmont with the Valais. 4. The pass of St. Gothard, connecting Lucerne with Lago Maggiore; highest point, 6,800 ft. The borings of the railway tunnel met in 1880. 5. The Bernardin Pass, made 1819-23 by the Swiss Grisons and Sardinia; highest point, 6,800 ft. 6. The Splügen Pass, repaired in 1822; connecting the sources of the Rhine with the Adda. This pass was the one used by the Romans in their intercourse with the countries bordering on the Danube and the Rhine, and also by the German armies on their marches into Italy in the middle ages. 7. The Wormser Joch, also called the Orteles Pass, or Road, opened by Austria in 1824. It is the loftiest carriage-road in Europe, and connects the Tyrol with Lombardy. 8. The Brenner Pass, known to the Romans. It also connects the Tyrol with Lombardy; highest point, 4,650 ft. It is now crossed by a railway. Besides these great roads leading s. into Italy, there are two which lead n. from the valley of the Rhone, and cross the Bernese A., over the Grimsel Pass, 6,500 ft high, and the Gemmi Pass, 7,400 ft. high. The roads over the EAST A. are much lower, and also much more numerous than those in the MIDDLE or WEST A. The principal are—1. The road from Venice to Salzburg, crossing the Noric A. at an elevation of rather more than 5,100 ft. 2. The road over the Carnic A., which divides into three branches—the first leading to Laybach; the second to the valley of the Isonzo, and the third to the valley of the Tagliamento. 3. The roads from the Danube at Linz to Laybach.

*Geology.*—The A. offer a rich field for geological investigations, the results of which hitherto may be thus summed up: The highest central mass—the Primary A., as they are called—that rises from the plain to the s.w. of Turin, and stretches in a mighty curve to the Neusiedlersee, in Hungary, consists chiefly of the crystalline rocks, gneiss and mica-slate, with a much smaller proportion of granite. Inclosed among the Central A. appear representatives of the carboniferous and jurassic formations, but so altered and become so crystalline that their age can only be guessed from a few remaining petrifications, which are accompanied here and there by garnets. In the Graian, Pennine, and Rætian A. occur great masses of serpentine; in the n. of

## ALPS.

Piedmont, and in the upper valley of the Adige, quartz-porphry. In the e. there are, on the n. and s. sides of the chief range, vast deposits of clay-slate and grauwacke mixed with transition limestone.

Beginning on the Mediterranean coast, and following in general the direction of the central chains, a belt of sedimentary rocks runs along the w. and n. sides to the neighborhood of Vienna. On the s. side a similar belt runs from Lake Maggiore to Agram. The undulating curves and colossal dislocations presented by these regions show that the form of their mountains must have been the result of a mighty force acting northward and southward from the Central A. In respect of age, these sedimentary or calcareous A. include all the members of the series of formations from magnesian limestone up to the lowest strata of the tertiary group. The s.e. portion of these calcareous mountains, forming the Julian A., consist mostly of cavernous rocks of the Jurassic and chalk groups, and are continued with this character into Dalmatia.

*Minerals.*—Precious stones are found in abundance in the trap and primary mountains, especially in the region of the St. Gothard. The rock-crystal of St. Gothard has a world-wide reputation. Mining and smelting become more and more productive to the eastward. Switzerland itself is poor in useful ores. Gold and silver are found in Tyrol, Salzburg, and Carinthia; there are silver mines also in Styria and Illyria, and one near Grenoble, in France. Copper is found in the French A., in Tyrol, and Styria. The lead-mines near Villach, in Carinthia, yield yearly about 35,000 cwt. The yield of iron in Switzerland, Savoy, and Salzburg is small; Carinthia, on the other hand, produces 260,000 cwt., and Styria 450,000 cwt. Quicksilver is extracted at Idria, in Carniola, to the amount of 1,000–1,500 cwt. The Alpine region is rich in salt, especially at Hall in Tyrol, and Hallein in Salzburg. Coal is found in Switzerland, in Savoy, and in the French A., but in no great quantity; the Austrian A. are richer in this important mineral. The mineral springs, hot and cold, in the region of the A. are innumerable. See AIX; ISCHL; LEUK; BADEN, etc.

*Animals.*—The mountains present many peculiarities worthy of notice in the animal as well as in the vegetable kingdom. See ALPINE PLANTS. On the sunny heights the number of insects is very great; the butterflies are especially numerous. There are few fishes, although trout are sometimes caught in ponds even 6,000 ft. above the level of the sea. Although the lofty mountains are inhabited by eagles, hawks, and various species of owls, yet the birds are few in comparison with the numbers in the plains, and those few are mostly confined to the larger valleys. Among the quadrupeds, the wild goat is sometimes, though rarely, met with; the chamois is more frequently seen, chiefly in the e. districts. The marmot inhabits the upper Alpine regions. Wolves are seen more frequently in the w. than in the e.; in the e. bears, lynxes, and wildcats are found, although constantly diminishing in number. Of the domestic animals, goats and oxen are scattered everywhere in large

## ALPS.

herds. There are fewer sheep and horses, and these not of good breeds. Mules and asses are used more frequently in the s. than in the n., especially as beasts of burden. Swine and dogs are not common; the latter are used almost solely by the herdsmen, or are kept in the hospices, to assist in searching for the unfortunate wanderers who may be lost in the snow.

The Alpine mountains are rich in singularly beautiful natural scenery, of which the inhabitants of flat countries can scarcely form an idea. Nature in the A. has an infinite variety of aspects. Here the hardened masses of the icy glacier cover the naked rock, avalanches are hurled into immeasurable abysses, the fall of rocks or mountain-slips overwhelm the dwellings, and cover the fields in the valleys; and in the e., the *bora*, with its hurricane strength, hurls before it the upraised masses of snow. There the sun glances upon the scattered silver threads of a water-fall, or mirrors himself in a glassy lake, while his rising and his setting are announced to the expectant traveller by the ruddy glow on the snowy mountain-tops. The inhabitant of the A., surrounded on every side by mountains, is unconsciously subdued by their presence, and receives from them a peculiar stamp of character; their dangers fascinate him as well as their charms. The most ceaseless variety of occupation demands all his time and his thoughts; in the mountains he acknowledges his only despots, who seize his soul, and lead it unresistingly. In his constant struggle with the elements, the Alpine dweller strengthens both his mind and his body; he opens his heart to the impressions of nature, he gives utterance to his childlike gladness in simple songs, and at the same time defends with self-sacrificing devotion his mountain-fortresses against foreign aggression. But the manners and spirit of the neighboring plains have penetrated into the larger valleys with the dust of the highway. There the true Alpine life has more and more passed away. The simplicity and characteristic industry of the Alpine farms are now preserved only in the higher secondary valleys.

Six states share the A. The w. portion is shared by France and Italy. Switzerland claims the Middle A. almost exclusively. Bavaria has only a small share. Austria has the largest share of the A.—in the provinces of Tyrol, Illyria, Styria, and the archduchy. The wide valleys opening to the e. allow the civilization of the plains to enter easily among the mountains. The value of the minerals, and the fertility of the soil, have permitted mining, manufactures, and agriculture to take firm root, and a flourishing trade has caused large towns to take the place of mere Alpine villages. In the Tyrol, the pastoral life of the mountains has long been mixed up with the working of mines of salt or other minerals. The inhabitants of whole valleys are occupied in various branches of industry to a greater extent than in any other district of the A., and their sons travel far and near as artisans. See H. and A. Schlagintweit, *Researches into the Physical Geography of the A.* (*Untersuchungen über die Physikalische Geographie der Alpen*), Leip. 1850.

## ALPUJARRAS—ALSACE.

ALPUJARRAS, *âl-pô-har'râs* [a corruption of an Arabic word which signifies 'grass'—an allusion to the excellent pasturage]: name applied to all the valleys s. of the chief chain of the Sierra Nevada in s. Spain: it has been applied also to a range of mountains in Spain parallel to the Sierra Nevada, and approaching the Mediterranean Sea. Their s. side is precipitous, but the n. slopes away into broad valleys. They begin in the w. at Motril, where they are separated by the Guadalfeo, from the lower Sierra de Holucar, and stretch as far e. as the river Almeria. The range is divided into two parts by the Adra, each of which bears a particular name. The highest peaks reach an elevation of 7,000 ft. On the n. side, owing to the copious rains, there is the richest pasturage, both in the deep valleys and on the uplands. The s. slope, however is almost destitute of trees or shrubs, with the exception of the fertile valleys near the sea, which are abundantly watered by numerous little streams. Here flourish, under an almost tropical climate, all the products of the s., even the date-palm and the sugar cane. The inhabitants are chiefly employed in rearing sheep, and in cultivating the vine and other fruits. A little mining also goes on. Lead, antimony, and silver are got. The Moorish element is still quite discernible in the population of this mountain region.

ALQUIFOU, n. *ăl'kî-fô* [Sp. *alquifol*, potters'-ore]: an ore of lead called potters'-ore, giving a green varnish to pottery.

ALREADY, ad. *awl-rĕd'ĭ* [OE. *al-redy*: *all* and *ready*]: now; at this time; at some time past.

ALRED, or ALREDUS: see ALURED.

ALSACE, *âl-sâs'*: a German dist., forming, with Lorraine, an imperial territory (Reichsland), reunited (all but the small district of Belfort) to that country in 1871, after two centuries' possession by France. It lies between the Rhine on the e. and the Vosges Mountains on the w., extending s. to Switzerland, and n. to Rhenish Bavaria, 3,360 Eng. sq. m. It is exceedingly fertile; rich also in mines and manufactures; and contains the important cities of Strasburg, Colmar, and Mühlhausen. In Cæsar's time, A. was occupied by Celtic tribes; but during the decline of the empire, the Alemanni and other tribes from beyond the Rhine occupied and completely Germanized it. It afterwards formed part of the German empire, under various sovereign dukes and princes, latterly of the House of Hapsburg; till a part of it was ceded to France at the peace of Westphalia, and the rest fell a prey to the aggressions of Louis XIV., who seized Strasburg (1681) by surprise in time of peace. By the peace of Ryswick (1697), the cession of the whole was ratified. Thus—as the Germans used to complain—was this fine land, and one of the noblest branches of the race, alienated from the German people, and the command of the German Rhine disgracefully surrendered to the enemy in the time of misfortune, and, more disgraceful still, not demanded back when fortune favored. German never ceased to be the language of the

## ALSEN—ALSTRÆMERIA.

people, and all newspapers were, during the whole period of the French possession, printed in both languages. Pop. of Alsace-Lorraine (1890) 1,603,506; (1900) 1,719,470.

ALSEN, *ál'sěn* (Dan. *Als*): island in the Baltic, in the Prussian province of Slesvig-Holstein, and extending from the Apenrade to the Flensburg Fiord; separated from the mainland by the Sound of A., in part very narrow and deep. Its greatest length is nearly 20 m.; its greatest breadth about 12; lat. 54° 46' n., long. 9° 52' e. The island, one of the finest in the Baltic, has a picturesque appearance, is very fertile, with rich woods, and numerous lakes abounding in fish. Its fruit-trees are celebrated over all Slesvig. The Gravenstein apple, in particular, is an important article of commerce. The chief towns are Sonderborg or Südborg (South Town), and Norborg or Nordborg (North Town). The former has an excellent harbor. Pop. about 24,000. Close to the harbor are the ruins of an old and famous castle belonging to the Augustenborg family. Here Christian II. of Denmark and Norway was confined, 1532-49. In the war of 1864, A. was taken by the Prussians from the Danes.

ALSO, ad. *awól'sō* [AS. *ealles swa*, all so]: likewise; in like manner. ALS, in *OE.*, also; likewise.—SYN.: too; likewise; besides.

ALSTER, *ál'stēr*: river in Holstein, formed by the confluence of three streams, and, in the neighborhood of Hamburg, spreading itself out, and forming a lake, called the Great or Outer A., and within the town, the Inner A. It flows by several canals into the Elbe.

ALSTON: see ALDSTONE.

ALSTONITE, n. *ál'stōn-īt*: mineral, same as Bromlite, a barium and calcium carbonate; color, white, gray, cream, or pink; found in galena mines in England.

ALSTRÆMERIA, or ALSTRÆMER'S LILY: genus of plants of the natural order *Amaryllidææ* (q.v.), and, according to Lindley, of the tribe *Alstræmeriææ*; distinguished by fibrous—not bulbous—roots, and by having the outer segments of the perianth different in form from the inner. In this genus, the two lower segments are somewhat tubular at the base, the capsules do not gape when ripe, are 3-valved or pulpy within, and the seeds globose. The leaves are twisted, so that what should be the upper surface, becomes the lower. The species are numerous, natives of the warmer parts of America. Many of them have tuberous roots. Some are sufficiently hardy to endure the open air in Britain, and are admired ornaments of flower-gardens. Some have climbing or twining stems; among these is the salsilla (*A. salsilla*), a plant of great beauty, with lanceolate leaves, a native of Peru, which is cultivated in the West Indies, and its tubers eaten like those of the potato. *A. ovata*, also a beautiful plant, with a slender twining stem, and ovate leaves, is cultivated in Chili for its tubers, which are used as food. The tubers weigh from 3 to 6 ounces. A kind of arrow-root is also prepared in Chili from the succulent roots of *A. pallida* and other species.

## ALT—ALTAR.

**ALT** or **ALTO**, n. *ält*, *ältō* [It.—from L. *altus*, high]: the highest note that can be sung with the natural voice by men; the part sung by the lowest female voices; a voice intermediate between tenor and soprano. **IN ALT**, said of the sounds of the treble stave, from G up to F.

**ALTAI**, *äl-ti'*, **THE**, or **ALTAI MOUNTAINS**: one of the four parallel chains which constitute the skeleton of Eastern High Asia, covering the great table-land. The A. forms an alpine girdle, intersected by wide valleys traversed by many streams, among which are the Tez River, flowing w. to the Ubsa Nor (lake), and the Kobdo, flowing s. to the Tke Aral Lake. The general direction of the range is from w. to e., about the parallel of 50° n. It extends between the meridians of 84° and 100° e. On the e., the A. is separated from the Daurian mountain-system by lakes Kosgol and Baikal; on the w. it terminates in the Katunsk Mountains, a small isolated group, in which Mount Beluka rises to 12,790 ft., far above the line of perennial snow, with extensive glaciers on its w. flanks. The climate of the A. is not so severe as might be inferred from its position. The winters are frequently mild, and comparatively little snow falls. The mountain slopes are covered with rich grass, and their flanks are in many parts adorned by magnificent cedar forests. Stags, hares, and wolves abound in the lower, and bears in the higher portions of the range. The A. is celebrated for its gold, silver and lead mines. Barnaul, on the n. slope of the range, is the chief mining town; and the village of Zeminogorski, s. of Barnaul, is in the centre of the richest silver mines in the Russian empire. Jasper is found near the summits, red porphyry lower down, and granite still lower. Around Lake Baikal are numerous granitic masses, interspersed with newer igneous formations. N. of the Ubsa Nor (lake), the Tangnu Ula Mountains, connected with the A. on the n., rise to upwards of 11,000 feet. They furnish abundance of excellent white marble.

**ALTAMURA**, *äl-tâ-mó'rá*: town of s. Italy, 28 m. s.w. of Bari; at the e. base of the Apennines. It has a magnificent cathedral. The surrounding country is fertile, produces much oil and wine, and abounds in rich pastures. Pop. 20,000.

**ALTAR**, n. *avól'tér* [OF. *auter* and *alter*—from L. *altārē*, an altar for sacrifice—from L. *altus*, high: perhaps connected with Icel. *eldr*, fire; *arn*, a hearth; or AS. *ern*, a place]: a small square or round erection of turf, wood, or stone, varying in height, on which animals were burnt—these were called sacrifices; a name sometimes given to the communion-table. **ALTARAGE**, n. *avól'tér-āj*, profits arising to priests from oblations. **ALTAR PIECE**, a painting or decoration placed over an altar. **ALTAR-CLOTH**, in a church, the cloth laid over an altar. **LED TO THE ALTAR**, brought there for the rites of marriage, said of a woman; married.

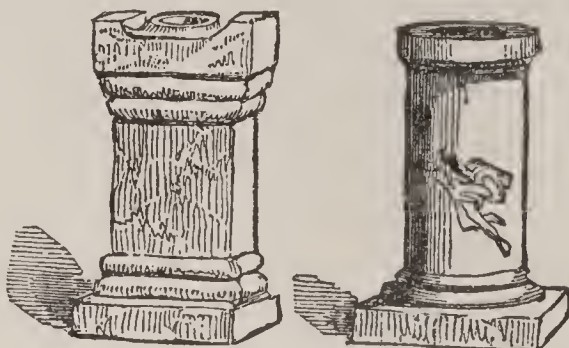
**ALTAR**: a small erection of stone, wood, or turf, whereon offerings were laid in the religious worship of ancient Israel, and of heathen nations. The first on record is that



## ALTAR.

which Noah built on leaving the ark. The Israelites, after the giving of the Law, were commanded to make an A. It appears from the Old Testament (1 Kings, iii. 3; 1 Kings, xi. 7; 2 Kings. xxiii. 15), that altars were often erected on high places—sometimes, also, on the roofs of houses. In the Jewish tabernacle and temple, each, there were two altars, one for sacrifices, and another for incense. For minute description of these, see Exodus, Leviticus, and Numbers. The Jewish and oriental altars were generally either square, oblong, or approximating to those shapes; those of Greece and Rome were often round. Heathen sacrifices were offered to the infernal gods, not on altars, but in cavities dug in the ground.

The word has been transferred into the Christian system. For upwards of five centuries, altars in the Christian churches were, for the most part, made of wood; but in 509, it was decreed by the council at Epone, in France, that none should be



Roman Altars.

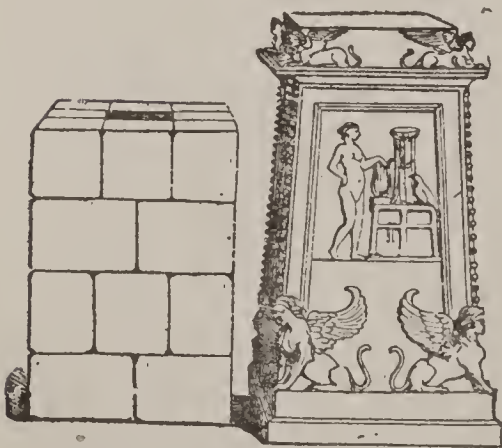
consecrated with chrism except those built of stone. In the first ages of Christianity, there was not more than one A. in a church; but, from a very early time, the Latins have used more than one. In the 12th c., the adorning of churches with images and numerous altars was carried to a great extent, and they were embellished with gold, silver, and precious stones. The Greek Church use but one A. Altars were frequently placed at the w. end of the ancient churches, instead of the e., but in England almost uniformly in the e. The only perfect A. of the old times in England is the high A. of Arundel Church, Sussex. The slab is 12 ft. 6 in. long, by 4 ft. wide, and 2½ in. thick. The support is of solid stone, quite plain, and plastered over. Tertullian (latter half of 2d c.) uses the word A. to denote the Lord's Table, and this was the usage probably from much before his time for nearly 300 years; subsequently 'table' and 'altar' were used indifferently. In the first Prayer-book of king Edward, 1549, the word A. was used in the Rubric, and the Lord's Supper was still called the Mass; but in 1550, an order was issued for the setting up of tables instead of altars, and in the second Prayer-book of 1552 the word *altar* was everywhere replaced by *table*. The table was further ordered to be wood and movable. In Mary's reign the altars were re-erected; but in Queen Elizabeth's, some were riotously pulled down, and injunctions were then issued directing that this should not be done, except under the oversight of the curate and at least one churchwarden. It was charged against Archbishop Laud that he had converted communion-tables into altars. What he really did was to remove the tables out of the body of the church, and place them 'altarwise,' i.e., n. and s.. at the upper end of



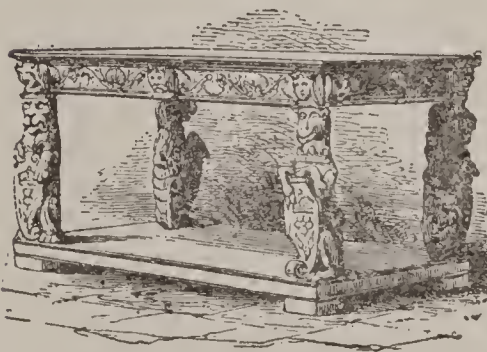
Altar.—Tomb of the Black Prince,  
Canterbury Cathedral.



Alternate Leaves.



Ancient Heathen Altars.



Wooden Altar-table. Time of  
James I., St. Clement's Church, Town-  
stall, Devonshire.



Gothic Altar.—Church of St. Wau-  
dru, Mons.

## ALTAZIMUTH—ALTDORFER.

the chancels, where the altars formerly stood; and a dog having on one occasion run away with a piece of the consecrated bread, he directed that rails should be erected to prevent such desecration in future. The old stone altars used frequently to be made in the shape of tombs, and they inclosed relics; this was from the early Christians having often celebrated the eucharist at the tombs of the martyrs, or, as others say, they were thus made with the design of representing Christ's humanity as having been real, and vouched for by the fact of his body lying in the tomb. The Credence Table and Piscina are adjuncts of an A. In England, by the judgment in the Arches Court, 1845, in the case of *Faulkner v. Litchfield*, it was decided that altars may not be erected in churches. This case arose out of the erection, by the Cambridge Camden Society, of a stone A. in the Church of the Holy Sepulchre in that town.

The old English divines, and, indeed, all Protestant ecclesiastical writers of any importance, are unanimous in the opinion that among Christians the word cannot mean what the Jews and heathens expressed by it. The later fathers used various phrases to denote the solemnity which should attach to the communion-table, such as 'the Mystical and Tremendous Table,' 'the Mystical Table,' 'the Holy Table,' etc. And they termed it an A., because, first, the holy eucharist was regarded as a kind of commemorative sacrifice, or, more properly, a consecrated memorial before God of the great sacrifice on Calvary; and, second, the prayers of the communicants were held to be in themselves sacrifices or oblations—sacrifices of thanksgiving, as it were. This is the view of those who hold high-church opinions, but does not exclude the other view. Again, they termed it a *table* when the eucharist was considered exclusively in the light of a sacrament, to be partaken of by believers as spiritual food. In the former case the sacrifice was commemorated; in the latter it was applied: in the former it expressed more directly the gratitude; in the latter, more directly the faith of the Christian.

ALTAZIMUTH, n. *ält-üz'ï-müth* [L. *altus*, high; and *azimuth*]: an instr. for taking azimuths and altitudes simultaneously—the form most generally used being that called the *theodolite*. See AZIMUTH.

ALTDORFER, *ält'dor-fër*, ALBRECHT: 1488–1538; b. Altdorf, Bavaria; d. Ratisbon: painter and engraver. He is said to have been a pupil of Albert Dürer; but this is not certain. He belongs, however, to that religious school of artists of which Dürer was the head. His pictures are also animated by a glowing and romantic spirit of poetry, delightful to one who appreciates the conditions of old German life. The landscape is delineated with the same truth and tenderness as the figures; a rich manifold life pervades the scenes, and everything is handled with the utmost delicacy. His masterpiece, now in Munich, is *The Victory of Alexander over Darius*, a painting which, it is said, affects the beholder like a heroic poem. As an engraver, A. is reckoned among the lesser masters.

## ALTEA—ALTEN-ÖTTING.

**ALTEA**, *âl-tā'á*: seaport of Valencia, Spain; 25 m. n.e. from Alicante. Pop. 6,000.

**ALTEN**, *âl'tén*, **KARL AUGUST**, Count of: 1764, Oct. 20—1840, April 20: one of the chief Hanoverian generals in the French and German war. He entered the army in 1781, and gained distinction at the siege of Valenciennes, and in the decisive engagement at Hondschooten. He was first lieutenant in 1800, but, on account of the unhappy capitulation at Lauenburg, found it advisable to leave Hanover, and came to England. Here he was made commander of the first light battalion in the German Legion (1803); and was in many battles, notably in the siege of Badajoz and the battle of Albuera, and in almost all the engagements of the Spanish war of liberation—at Salamanca, Vittoria, the Pyrenees, Nivelle, Nive, Orthez, Toulouse, etc. A. had the command of a corps of 30,000 men, stationed near Madrid, in 1812. He fought with great distinction at Quatre-Bras and at Waterloo, where he was severely wounded, after greatly contributing to the decision of the battle. Returning to Hanover, he was made minister of war, and in this capacity died.

**ALTENA**, *âl'té-ná*: town of Westphalia, Prussia, 40 m. n.e. of Cologne, in a deep and picturesque valley. It manufactures needles, pins, and hardware. Pop. (1890) 10,488.

**ALTENBURG**, *âl'tén-boorg'*: cap. of the duchy of Saxe-Altenburg; in a fertile country, about 24 m. from Leipzig. On an almost perpendicular rock of porphyry, the old castle of A. is a striking feature in the landscape. Its foundations are probably as old as the 11th c. A. has several excellent educational institutions, a museum, and a theatre. Brushes, gloves, and cigars are among the chief manufactures carried on in A., and the book-trade is considerable. A railway connects it with Leipzig and Bavaria. Pop. (1900) 37,110.

**ALTENGAARD**, *âl'tén-gord'*, or **ALTEN**: seaport town, prov. of Finmarken, Norway; at the mouth of the river Alten; lat. 69° 55' n., long. 23° 4' e. Northward from this point, no cultivation is attempted; and even here, potatoes and barley alone are produced. A. has a harbor and considerable trade. It is visited principally by Russian and Norwegian vessels. Pop. about 1,000.

**ALTEN-ÖTTING**, or **ALTÖTTING**, *-ét'ting*: a place of pilgrimage not far from the Inn; in one of the most beautiful and fertile plains of upper Bavaria. It may be called the Loretto of Germany, being frequented by thousands of Rom. Catholics from Austria, Bavaria, and Swabia, on account of a famous image of the Virgin Mary (the '*Black Virgin*') which it possesses; it has also an extraordinarily rich treasure of gold, silver, and precious stones. A. was the headquarters for Germany of the Redemptorist fathers from 1838 till their expulsion in 1873. There is also a Capuchin monastery here. A. was originally a *villa regia*. Several German emperors, such as Henry III. and Henry IV., held their court here. The emperor Leopold I., and other princes of the house of Hapsburg, made pilgrimages to it. A chapel, called Tilly's or Peter's Chapel, contains the tomb of Count

## ALTER—ALTERCATE.

Tilly, who was buried here at his own request. Maximilian I. and numerous other princes and princesses of the Bavarian family have had their hearts interred in it. Pop. 3,168.

**ALTER**, v. *awl'tér* [L. *alter*, another; *altéro*, I change: F. *altérer*, to alter—*lit.*, to make a thing other than what it is]: to change; to vary; to make different in some way. **AL'TERING**, imp. **ALTERED**, pp. *awl'térd*. **ALTERABLE**, a. *awl'tér-ă-bl'*, capable of being changed; that may be varied. **AL'TERABLY**, ad. *-bl'î*. **ALTERABLENESS**, n. *awl'tér-ă-bl'nēs*, or **ALTERABILITY**, n. *awl'tér-ă-bl'î-tî*, the capacity for being changed. **ALTERATION**, n. *awl'tér-ă'shŭn*, a varying in some way; a change. **ALTERATIVE**, a. *awl'tér-ă'tiv*, having the power to change or alter: N. a medicine supposed to have the power of producing changes in the constitution or habit of body.

**ALTERATIVES**, *awl'tér-ă'tivz*, in Medicine: remedies that have the power of changing the state of the living solids of the body, and consequently of altering their functions. The term is generally applied, however, to medicines which in full doses are irritant, but which almost imperceptibly alter disordered actions or secretions, by acting specially on certain glands, or upon absorption in general, when they are given in comparatively small doses through a considerable time. For example, mercury is an irritant in some of its preparations; but when small doses of blue-pill, Plummer's pill, or corrosive sublimate are given at intervals for some time, they 'produce *alteration in disordered actions*, so as to cause an improvement in the nutrient and digestive functions, the disappearance of eruptions, and the removal of thickening of the skin or of other tissues' (Royle); and they will effect these changes without otherwise affecting the constitution or inducing salivation. So iodine, also an irritant in concentrated doses, and poisonous in some forms, is most useful when given in small doses in effecting the reduction of enlarged glandular organs, and need not cause iodism if carefully given.

The preparations of gold are likewise stimulants of the absorbents, and are used in cases of scrofula. Some preparations of arsenic are powerful A. in cases of skin-disease. So also are the decoctions of the *woods* and their substitutes, such as decoction of sarsaparilla, and the like, which, when taken in large quantities of water, must operate partly by their diluting and solvent properties, and partly by the stimulant effect of the active principles of the several ingredients in these diet-drinks, conveyed into the capillaries.

Thus the term A. rather implies the method in which some drugs are administered than any special alterative action inherent in them. The most useful are also the most dangerous in unskilled hands.

**ALTERCATE**, v. *ăl'tér-kăt'* [L. *altercātus*, contended, disputed—from *alter*, another—*lit.*, to have a debate with another]: to contend in words; to wrangle. **AL'TERCA'TING**, imp. **AL'TERCA'TED**, pp. **ALTERCATION**, n. *ăl'tér-kă'shŭn* [F.]: a contention in words; a wrangling.—**SYN.** of 'alter

## ALTERNATE—ALTO.

ation': quarrel; difference; dispute; affray or fray; broil, feud; contest; wrangle.

**ALTERNATE**, v. *äl-tér'nāt* [L. *alternātus*, anything done by turns—from *alter*, another]: to do by turns; to happen by turns; to change in succession: **ADJ.** that succeeds or follows by turns; first on one side, then on another. **ALTER'NATING**, imp. **ALTER'NATED**, pp. **ALTER'NATELY**, ad. *-lī*. **ALTER'NANT**, a. in *geol.*, in alternating layers. **ALTERNATION**, n. *äl'tér-nā'shūn*, the act of doing by turns; the act of taking one and leaving one in succession. **ALTER-NATIVE**, a. *äl-tér'nā-tīv*, offering a choice of two things. **N.** of two things, an offer to take the one and leave the other; often used, but incorrectly, of more than two. **ALTER'NATIVELY**, ad. *-lī*. **ALTER'NATIVENESS**, n. **ALTERNATE ANGLES**, in *geom.*, two similar angles not adjacent, but on opposite sides of an intersecting line. **ALTERNATE GENERATION**, a mode of reproduction among the lowest animal types, in which the young do not resemble the parent, but the grand-parent. See **GENERATIONS**, **ALTERNATION OF**.

**ALTERNATE**, in Botany: see **LEAVES**.

**ALTHÆ'A**: see **MARSH MALLOWS** and **HOLLYHOCK**.

**ALTHORP, LORD**: see **SPENCER, JOHN CHARLES, Earl**.

**ALTHOUGH**, conj. *awl-thō'* [*all* and *though*]: notwithstanding; though.

**ALTIMETER**, n. *äl-tīm'ě-tér* [L. *altus*, high: Gr. *metron*, a measure]: an instrument for taking heights. **ALTIM'ETRY**, n. *-ě-trī*, art of measuring heights.

**ALTITUDE**, n. *äl'ti-tūd* [L. *altitūdo*, height, altitude—from *altus*, high.: It. *alto*]: height, as of a mountain; extension upwards; highest point. In astronomy, **A.** is the height of a heavenly body above the horizon. It is measured, not by linear distance, but by the angle which a line drawn from the eye to the heavenly body makes with the horizontal line, or by the arc of a vertical circle intercepted between the body and the horizon. Altitudes are taken in observatories by means of a telescope attached to a graduated circle (see **CIRCLE**), fixed vertically. The telescope being directed toward the body to be observed, the angle which it makes with the horizon is read on the graduated circle. The **A.** thus observed must receive various corrections—the chief being for parallax (q.v.) and refraction (q.v.)—in order to get the true **A.** At sea, the **A.** is taken by means of a sextant (q.v.), and then it has further to be corrected for the dip of the visible horizon below the true horizon. See **HORIZON**. The correct determination of altitudes is of great importance in most of the problems of astronomy and navigation. See **LONGITUDE**.

An **ALTITUDE** and **AZIMUTH INSTRUMENT** consists essentially of a vertical circle with its telescope so arranged as to be capable of being turned round horizontally to any point of the compass. It thus differs from a transit circle (q.v.), which is fixed in the meridian. See **AZIMUTH**.

**ALTO**, *äl'tō* (*contralto deciso*): the deepest or lowest species of musical voice in boys, in eunuchs, and best of all

## ALT-OFEN—ALTON.

in females, where its beauty of tone gives it the preference. Its powers of expression are quite peculiar, and cannot be supplied by any other kind of voice. Its tone-character (timbre) is serious, spiritual, tender, and romantic. The low A. in particular has a fulness of tone combined with power in the lower range, and is admirably fitted to express religious resignation. The high A. has generally the same range of compass as the mezzo-soprano, but differs from it in the position of the cantabile and in its character of tone. A. voices generally consist of two registers, the lower beginning at F or G below middle C, and reaching as high as the A or B above the octave C. The higher notes up to the next F or G partake more of the character of the soprano. See ALT: VOICE.

ALT-OFEN, *ált-ō'fēn*: town of Hungary, practically a suburb of Ofen or Buda (q. v.), now incorporated with Pesth as *Budapest*.

ALTOGETHER, ad. *awl'too-geth'ēr* [*all and together*]: wholly; entirely.

ALTON, *awl'tōn*: city, Madison co., Ill.; on the left bank of the Mississippi river, eight m. above its confluence with the Missouri, 24 m. n. of St. Louis. It has railroad connections with Chicago and other important centres *via* the Chicago & Alton; Illinois & St. Louis; and St. Louis, Rock Island & Chicago railroads. With a fine river front of nearly 2 m., A. rises irregularly to a height of 225 ft. in its highest portion; it is drained by Piasa Creek, which flows from springs in the highlands above the city. It is very handsomely laid out, the business streets being parallel with the river, in the lower part of the city, while fine residences have been built on the slopes of the hill and on the bluff overlooking the river. The principal trade is in the farming products of the rich surrounding country, in the coal mines in the neighborhood, and in the lime and building stone which are plentiful beneath and about the city. Ferries connect the two sides of the river, and steamboats ply between A. and other towns on the Mississippi. There are four large flour mills in A., a tobacco factory, glass works, saw and planing-mills, an iron foundry, organ factory, manufactory of agricultural implements, and other industries. There are 5 public schools; Shurtleff College (Bapt.) in Upper A., chartered 1835; Rom. Cath. cathedral; 2 daily and 4 weekly newspapers; public library; state penitentiary; and 1 national bank (cap. \$100,000). The total valuation 1891 was \$1,707,475; debt \$60,500. Pop. (1880) 8,978; (1890) 10,294; (1900) 14,210.

ALTON: town of Hampshire, Eng., near the Wey, 16 m. n.e. of Winchester. The church was erected in the reign of Henry VII., and is in the perpendicular style. Bombazines were formerly manufactured here. Good hops are grown in the neighborhood, and there are large breweries in the town, the ale of which is much esteemed. Pop. (1871) 4,092; (1881) 4,510; (1891) 4,671.

ALTON, *ál'ton*, JOS. WILHELM EDUARD D': 1772-1840;

## ALTONA—ALTOONA.

b. Aquileia: Prof. Archæology and the History of Art at Bonn. In early years his attention was directed to natural history, especially that of the horse, on which he published a splendid illustrated work (*Naturgeschichte des Pferdes*, Bonn, 1810), completed in 1817. In concert with his friend Pander, he projected an extensive work on comparative osteology, of which the first division was published at Bonn 1821-28. His etchings of animals, etc., are highly esteemed. Albert, the late Prince Consort of Queen Victoria, was a pupil of A. in the history of art.

ALTONA, *âl-tõ-nâ*: largest and richest city in the Prussian prov. of Slesvig-Holstein; on the Elbe, so near Hamburg that the two cities are divided by only the state-boundaries. A. lies higher than Hamburg, and is much healthier; but is without the numerous canals necessary for the transport of goods, with which Hamburg is well provided. Commercially, it forms one city with Hamburg. Its trade extends to England, France, the Mediterranean Sea, and the Indies. In 1882, 537 sea-going vessels entered the port. There are many important industrial establishments in A.; tobacco is largely manufactured, one factory working up 600,000 lbs. yearly. A. is a free port, and enjoys many privileges in respect of trade, and also of civil freedom; all sects are allowed free exercise of their religion. The city is connected by a railway with Kiel, Rendsburg, and Glückstadt. The observatory is a private institution, which gained a great reputation under the direction of Schumacher, who died in 1851. The rise of A. to its present importance has been recent and rapid, for a continental town. Pop. (1891) 143,249; (1900) 161,501.

ALTOONA, *âl-tõ-nă*: city in Blair co., Penn., on the Pennsylvania railroad, at the e. base of the Alleghany Mts., here crossed by the railroad: 117 m. from Pittsburgh, 131 from Harrisburg, and abt. 235 from Philadelphia. It has importance as a great railroad centre, here being located the principal offices and the extensive machine shops of the Pennsylvania railroad company, in which locomotives and cars are manufactured, and in which over 2,000 men are employed. Besides these works, there are also extensive planing-mills and a large rolling-mill. The city was laid out in 1849, and contains 75 m. of streets, planted with shade-trees. There are water-works, owned by the city, supplying water by gravitation, and the city is lighted by gas. There is one place of amusement, and modest municipal buildings. A. is chiefly notable for the fine scenery about it, and for the many and varied natural attractions afforded to the traveller by the Pennsylvania railroad. Its elevation is 1,208 ft. above the level of the sea. The journey by rail to the summit discloses some of the most wonderful engineering achievements of the country. The 'horseshoe' curve is familiar to tourists as presenting an extraordinary railroad feature. At the top of the mountain is a tunnel more than 3,500 ft. long, through which the railroad passes. There are about 20 churches, a public library, a Rom. Cath. convent, public schools, and

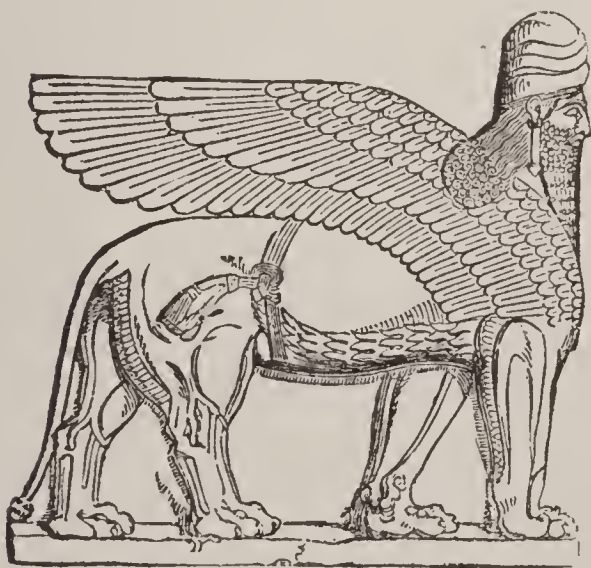


## ALTORF—ALTO-RILIEVO.

11 newspapers of which four are daily; there are four banks. Pop. (1890) 30,269; (1900) 38,973.

**ALTORF**, *ál'torf*: chief town in the Swiss canton Uri; a sheltered spot at the base of the Grunberg, about 2 m. from the head of the Lake of the Four Cantons. It is well built, having several open places, a church, a nunnery, and the oldest Capuchin monastery in Switzerland. The little tower on which the exploits of William Tell are painted in rude frescoes is known to be older than the legend of Tell. The lime-tree under which the scene of the shooting of the apple was laid was removed in 1567, and a stone fountain erected in its stead. Situated on the St. Gothard road, A. has some transit trade, but little or no industry of its own. Pop. abt. 3,000.

**ALTO-RILIEVO**, n. *ál'tō-rĭ-lē-vō* [L. *altus*; It. *riliévo*, raised or embossed work]: term used in sculpture to designate that mode of representing objects by which they are made to project strongly and boldly from the background, without being entirely detached. In alto-rilievo, some portions of the figures usually stand quite free, and in this respect it differs from *basso-rilievo* [It. *basso*, low], or *bass-relief*, or low-relief, and from the intermediate kind of relief known as *mezzo-rilievo*, in which the figures are fully rounded, but where there are no detached portions. In order to be in high-relief, objects ought actually to project somewhat more than half their thickness, no conventional means being employed in this style to give them apparent prominence. In bass-relief, on the other hand, the figures are usually flattened; but means are adopted to prevent the projection from appearing to the eye to be less than half; because if an object be seen to project less than half, i.e. to be more than half buried in the background, it will be obvious that its true outline or profile cannot be represented. This rule, that in all reliefs



Winged Bull.

there shall be either a real or an apparent projection of at least half the thickness of round objects, was strictly observed in the best period of Greek art, but has been often neglected in the execution of reliefs in later times, and hence some attempts at foreshortening and perspective have partially failed.

Relief forms an intermediate stage between plastic art and painting, the mode of representation being borrowed from the former, while the mode of arrangement is to some extent from

## ALTO-RILIEVO.

the latter. The plastic principle occupies the most prominent place in the simple and tranquil reliefs of the earlier art of Greece, whereas the pictorial principle preponderates in the crowded and often excited scenes represented in the later Roman reliefs. In reliefs produced in modern times, the one element or the other has prevailed, according as the one model or the other has been followed. The works recovered from the ruins of Persepolis, Nineveh, and Babylon still attest the extensive employment of relief in Persian and Assyrian art. Of the latter, which usually belongs to the class of *mezzo-rilievo*, some of the finest specimens in existence are now to be seen in the British Museum. Though never exhibiting the life and freedom of classical or modern European art, the elaborately executed and majestic reliefs of these semi-oriental nations are greatly in advance not only of the whimsical distortions of nature exhibited by the Hindus, but of the inanimate and motionless representations of the Egyptians.

The earliest Greek reliefs possessed a hard and severe character, somewhat approaching to the art of those earlier nations of which we have just spoken, and were very slightly raised. Of this an instance is in the two lions over the gate at Mycenæ—probably the oldest Greek relief in existence. It was Phidias who gave to relief its true character, and finally brought it to a degree of perfection which it has never since attained. The *alti rilievi* which adorned the metopes of the Parthenon at Athens, and the Temple of Apollo at Phigalia in Arcadia, now preserved in the British Museum, are still not only unsurpassed, but unapproached as examples of the style. In none of these do we see any attempt at perspective, and even foreshortening for the most part is avoided.

Under the Romans, sculpture was employed to an enormous extent in the decoration of tombs and sarcophagi, whole streets of such monuments being constructed, as, for example, on the Appian Way. The result of the demand thus created was, that sculpture became a manufacture rather than an art, and attempts were made to supply by technical execution and mere mass what had been lost in thought and spirit. Relief was applied, often by Greek artists resident in Italy, to purposes for which the Greeks, in their own land and in their better times, had rightly deemed it unsuited. Behind figures standing nearly free, a second rank was introduced, and those numerous examples of a false style, still to be found in every gallery in Europe, were produced, the imitation of which afterwards led to such a lavish expenditure of artistic talent in Italy. The attempt which the Romans had made to invade the province of painting, by means of sculpture, was carried still further by the Florentine artists of the 16th and 17th c. Not only were several rows of figures represented in perspective, but even landscape was introduced with a success which, in the hands of such artists as Ghiberti, was positively marvellous. If the highest perfection in the true plastic style of relief was attained by Phidias in the metopes of the Parthenon at Athens, a corresponding merit may be

## ALTRINGHAM—ALUDEL.

claimed as regards the degenerate pictorial style by Ghiberti in the celebrated bronze doors of the Baptistery of San Giovanni at Florence. Even Canova's reliefs partook to far too great an extent of the character of paintings in stone; and to Flaxman, and above all, to Thorwaldsen, must be assigned the merit of restoring this style of art to its genuine and original principles. It is to be remembered, in



Panathenaic Frieze.—From the Parthenon.

studying the reliefs of classical times, that, studiously as the Greeks avoided a pictorial conception of their subject, they did not eschew the use of color where it could be employed to heighten the effect of their reliefs. There is reason to believe that in many excellent examples the background was painted blue, and that the hems of the garments of the figures, and the like, were often colored or gilded.

**ALTRINGHAM**, *ăl'trĭng-am*: market town of Cheshire, England, on Bowden Downs, 8 m. s.w. from Manchester, on the Cheshire Midland railway, and near the Duke of Bridgewater's canal, which has contributed greatly to its prosperity. It is an attractive and healthful town. Pop. (1891) 12,424.

**ALTRUISM**, n. *ăl'trô-ĭzm* [It. *altrúi*, other persons, other; L. *alter*, another, the other]: the state of being regardful of the interests and good of others; the carrying out the principles of the golden rule; the opposite of egoism; benevolence. **AL'TRUIS'TIC**, a. *ĭs'tĭk*, regardful of the interests and good of others; the opposite of egoistic; beneficent; benevolent.

**ALUDEL**, n. *ăl'ŭ-dĕl* [OF. and Sp.—from Ar. *al-uthal*, prob. utensil]: pear-shaped glass or earthen pot open at both ends so that several could be fitted in series. It resembled an alembic, and was used in subliming metals by the old chemists.

## ALUM.

**ALUM**, n. *āl-ūm* [L. *alūmen*, alum; Gr. (*h*)*als*, salt]: a white saline substance used in medicine and dyeing; a double sulphate of potash and alumina; in *chem.*, several other salts of similar constitution are also called *alums*. **ALUMED**, a. *āl'ūmd*, imbued or mixed with alum. **ALUMINA**, n. *āl-lō'mī-nā*, or **AL'UMINE**, n. *-mīn*, the clay, loam, or other substance from which alum is obtained; *pure alumina* consists of oxygen and the new metal now called *aluminum*. **ALUMINIFORM**, a. *āl'ō-mīn'ī-fawrm* [L. *alūmen*, *forma*, shape]: formed like alumina. **ALUMINIFEROUS**, a. *āl-lō'mīn-īf'ēr-ūs* [L. *alūmen*, *fēro*, I produce]: containing alum. **ALU'MINOUS**, a of or relating to alum. **ALUMINITE**, n. *āl-lō'mī nīt*, a mineral of a silver or yellowish white color. **ALUMINUM**, n. *āl-lō'mī-nūm*, or **ALUMINIUM**, n. *āl'ō-mīn'ī-ūm*, the metallic base of alumina—as a metal, now manufactured to a considerable extent. **ALUM-ROOT**, two different species of American plants possessing astringent properties. **ALUM-STONE**, a mineral of a white, grayish, or reddish color, from which much of the best alum is procured.

**ALUM**: white saline substance, with a sweetish astringent taste; properly a double salt, composed of sulphate of potash and sulphate of alumina, which, with a certain proportion of water, crystallize together in octahedrons or in cubes; formula  $K_2SO_4Al_2(SO_4)_3 \cdot 24H_2O$ . A. is soluble in 18 times its weight of cold water, and in its own weight of hot water. The solution thus obtained is strongly acid to colored test-papers. When heated, the crystals melt in their water of crystallization and when the water is completely driven off by heat, there is left a spongy white mass, called burnt A. or anhydrous A. A. is much used as a mordant in dyeing: this property it owes to the alumina in it, which has a strong attraction for textile tissues, and also for coloring matters. The manufacturer of the colors or paints called lakes depends on this latter property of alumina. Thus, if a solution of A. is colored with cochineal or madder, and ammonia, or carbonate of soda is added, the alumina of the A. is precipitated with the color attached to it, and the liquid is left colorless. Alumina, the basis of pure clay—which is a silicate of alumina—derives its name from being first extracted from A. A is used also in preparation of leather from skins, and in medicine as a powerful astringent for arresting bleeding and mucous discharges. Its use in the making of bread, to give a white appearance and more pleasing consistence to bread made from indifferent flour, is highly objectionable, as injurious to health. A. rarely occurs in a nature, except in a few springs and in some extinct volcanoes, where it appears to be formed from the action of sulphurous acid vapors on felspathic rocks. In Britain it is prepared artificially from A.-shale, obtained from coal mines at Hurlett and Campsie, near Glasgow; and A.-slate, which occurs at Whitby, in Yorkshire, forming precipitous cliffs which extend about 30 m. along the coast of England. The alum-slate, shale, or schist, consists mainly of clay (silicate of alumina), iron pyrites (bisulphuret of iron), and coaly or bituminous matter. When the

## ALUM—ALUM BAGH.

shale is exposed to the air—as it is in the old *coal-wastes* of mines from which the coal has been extracted—the oxygen of the air, assisted by moisture, effects a decided change upon it. The original hard stony substance begins to split up into thin leaves, and becomes studded over and interspersed with crystals. The latter are the result of the oxidation of the sulphur of the pyrites into sulphuric acid, and the iron into oxide of iron, both of which in part combine to form sulphate of iron, while the excess of the sulphuric acid unites with the alumina of the clay, and produces sulphate of alumina. When the alum-shale thus weathered is digested in water, there dissolve out the sulphate of alumina,  $\text{Al}_2\text{3SO}_4$ , and sulphate of iron,  $\text{FeSO}_4$ ; this solution is treated with chloride of potassium ( $\text{KCl}$ ), which decomposes the sulphate of iron, forming sulphate of potash ( $\text{K}_2\text{SO}_4$ ), and protochloride of iron ( $\text{FeCl}_2$ ). When this liquid is evaporated to concentration, and allowed to cool, crystals of A., leaving the composition above described, separate out, and the protochloride of iron is left in the solution or *mother-liquor*. The crystals of A. obtained from the first crystallization are not free from iron, and hence require to be redissolved in water, re-concentrated, and recrystallized. This operation is usually repeated a third time before the A. is obtained pure.—As the preliminary weathering of the shale requires some years, a more expeditious method is now largely resorted to. The shale is broken in fragments, and piled up over brushwood in long ridges, shaped like huge potato-pits, and the brushwood being set fire to, the coaly matter of the shale begins to burn, and the whole ridge undergoes the process of roasting; the results of which are the same as those of the weathering operation—namely, the oxidation of the sulphur and iron, and the formation of sulphate of alumina and sulphate of iron. This material is afterward worked up as previously described. The roasting operation reduces the weathering process from years to months. The A. made at Tolfa, near Civita Vecchia, Italy, is extracted from alum-stone, a mineral containing sulphate of potash and sulphate of alumina, but united in such form as to render them insoluble. When the mineral is calcined the sulphates become soluble, and are extracted by lixiviation. The A. thus manufactured crystallizes in opaque cubes, having a reddish tint due to the presence of iron, and goes by the name of *Roman A.* The potash in A. can be replaced partly or altogether by soda or ammonia; the alumina by oxide of chromium or sesquioxide of manganese; or the sulphuric acid by chromic acid or peroxide of iron, without altering the form of the crystals. There are thus soda, ammonia, chrome, etc., alums, forming a genus of salts of which common A. is only one of the species. The more important members of the class, expressed in symbols are:

$\text{K}_2\text{SO}_4.\text{Al}_2\text{3SO}_4.24\text{H}_2\text{O}$ , potash A.

$\text{Na}_2\text{SO}_4.\text{Al}_2\text{3SO}_4.24\text{H}_2\text{O}$ , soda A.

$\text{K}_2\text{SO}_4.\text{Cr}_2\text{3SO}_4.24\text{H}_2\text{O}$ , chrome potash A.

$\text{FeSO}_4.\text{Al}_2\text{3SO}_4.24\text{H}_2\text{O}$ , iron A.

ALUM BAGH, *-bâg* ['Garden of the Lady Alum, or Beauty of the Soul']: a domain about 4 m. from city of

## ALUMINA.

Lucknow, India, near the Cawnpore road. It comprised several buildings, including a palace, a mosque, and an em-barra or private temple, bounded by a beautiful garden, in the middle of a park, and the park enclosed by a wall with corner towers. In 1857, it was converted by the rebels into a fort. In Sept., Outram, Havelock, and Neill crossed the Ganges from Cawnpore, marched rapidly towards Lucknow, and captured the A. B. on the way. About 300 soldiers were left at the place, with four guns, a number of sick, wounded, and 4,000 native camp-followers, under Col. M'Intyre; while the three generals proceeded with their main force to Lucknow, where for two months they were shut in by the rebel hordes. At the end of Nov., Sir Colin Campbell relieved both Lucknow and the A. B., leaving Sir James Outram, with 3,500 men, to hold the A. B., then the only spot in the whole province of Oude in the hands of the British. Sir James was attacked, 1858, Jan. 12, by an armed rabble of 30,000 men. These he completely defeated. They attacked him again with 20,000 men, Feb. 21, when his small force was weakened by the absence of a detachment; and were again effectually repulsed. In the next month, Sir Colin Campbell reconquered Lucknow, and relieved the garrison at the A. B.

ALUMINA, *ă-ló'mă-nă*: the most abundant of the earths (q.v.); the oxide of the metal Aluminium (q.v.), the formula being  $Al_2O_3$ . It occurs in nature abundantly in combination with silica, associated with other bases. The most familiar of its native compounds is felspar, a silicate of A. and potash,  $K_2O.Al_2O_3.6SiO_2$ . This is one of the constituents of granite, and of several other igneous rocks. Certain varieties of these, by exposure to the atmosphere, become completely disintegrated, passing from the state of hard, solid rock, such as we are accustomed to see in building granite, into soft, crumbling, earthy masses. It is the felspar which undergoes the change; and it appears to be owing to the action of rain water charged with carbonic acid, which dissolves the potash and some of the silica of the felspar, leaving the excess of silica and the A. still united. It is not known, however, why certain specimens of granite are rapidly corroded and crumbled down, while others have for ages resisted the same causes of decay. By such disintegration the clays of arable soils are produced. Clay consists of silica and A. in a state of chemical combination. It never is pure A., but the quantity of silica united to the latter is variable. When it is pure, clay is quite white, as we see in the porcelain clay of Devonshire and Cornwall, derived from colorless felspar. More frequently clay is red, owing to the presence of oxide of iron; or black, from the diffusion through it of vegetable matter.

From alum, A. is prepared by adding to a solution of the former water of ammonia, as long as it occasions a precipitate. The A. appears as a voluminous, white, gelatinous substance, consisting of the oxide of the metal combined with water. When A. is precipitated from a solution containing coloring matter, such as logwood, etc., it carries down the color chemically united to the flocculent precipi-

## ALUMINUM.

tate; in this way are formed the colored earths, called *lakes* (q.v.). A. in the state of precipitate, after being gently dried, is readily soluble in acids and alkalies: but if strongly heated at a certain temperature it presents an appearance of sudden incandescence, loses the associated water, contracts greatly in bulk, and forms a white, soft powder, not at all gritty, and with difficulty soluble in alkalies and acids. A., as generally prepared, whether hydrated or anhydrous, is insoluble in water, possesses no taste, and does not alter coloring matters; but it has also been obtained in an allotropic hydrated form, which, in the presence of a very small proportion of acetic acid, is largely soluble in water, from which a minute trace of sulphuric acid precipitates it. It is quite different, therefore, in properties from the alkaline earths, and is a much weaker base. In the anhydrous state it absorbs water with great readiness, without combining with it, so that it adheres to the tongue, and is felt to parch it. Clay retains this property; and the ends of tobacco-pipes are glazed, to prevent adhesion to the lips or tongue. A. is not fusible by a forge or furnace heat, but it melts before the oxyhydrogen blow-pipe into a clear globule, possessing great hardness. It occurs in nature in a similar state. The more coarsely crystallized specimens form the emery which is used for polishing; the transparent crystals, when of a blue color, owing to a trace of metallic oxide, constitute the precious gem, the sapphire, and when red, the ruby. A., in common with other sesquioxides, is a feeble base. Almost all the salts which it forms with the acids have a sour taste, and an acid action on coloring matter.

ALUMINUM, *ă-lô'mĭ-nŭm*, or ALUMINIUM (sym Al, at. wt. 27.4): one of the metals in clay, felspar, slate, and many other minerals. It was discovered by Wöhler 1828, and re-examined by him 1846, when he obtained the metal in minute globules or beads, by heating a mixture of chloride of A. and sodium. In 1855, the French chemist Deville showed, as the result of a series of experiments, that A. could be prepared on a large scale and in a compact form without much difficulty. The mineral cryolite found in Greenland, a double fluoride of A. and sodium, was the ore first used for its manufacture; but bauxite, a mineral found in France, and consisting chiefly of alumina, or oxide of A. and oxide of iron, has more recently been employed as a convenient source of the metal. An aluminate of soda is first obtained by heating the bauxite with soda ash in a furnace, and separating it (the alluminate) from the insoluble portions by lixiviation. When carbonic acid is passed through the solution, pure alumina is thrown down. The alumina is then formed into balls with common salt and charcoal, which are heated in an earthenware retort through which chlorine gas is passed. In this part of the process the charcoal combines with the oxygen, and the chlorine with the A.; the latter sublimes over with the common salt (chloride of sodium), and is collected as a double chloride of A. and sodium. When this double chloride is heated in a reverberatory furnace with fluxes and metallic sodium, the latter seizes the chlorine combined with the A., which is

## ALUMNUS--ALUM ROOT.

then set free, and falls to the bottom ready to be cast into ingots for use. Several processes for its production have been patented, and large works have been started in several places in the United States, notably at Cleveland, O., Lockport, N. Y., and Pittsburg. Penn., for its electrical reduction from aluminium minerals.

The properties of A. are, that it is a white metal, somewhat resembling silver, but possessing a bluish hue, which reminds one of zinc. It is very malleable and ductile, in tenacity it approaches iron, and it takes a high polish. It fuses at about  $1292^{\circ}$ , and can then be cast in molds into ingots. Exposed to dry or moist air, it is unalterable, and does not oxidize as lead and zinc do. Neither cold nor hot water has any action upon it. Sulphuretted hydrogen, the gas which so readily tarnishes the silver in households, does not act on A., which is found to preserve its appearance under all ordinary circumstances as perfectly as gold. When cast into molds, it is a soft metal like pure silver, and has a density of 2.56; but when hammered or rolled, it becomes as hard as iron, and its density increases to 2.67. It is therefore a very light metal, being lighter than glass, and only one-fourth as heavy as silver. A. is very sonorous, and when a rod or small bell made of it is struck, it gives out a very sweet, clear ringing sound.

A. forms, with copper, several light, very hard, white alloys; also a yellow alloy, which, though much lighter than gold, is very similar to it in color. This gold-like alloy, ordinary A. bronze, contains 5 to 10 per cent. of A., is of great strength, and has hitherto been much more used for manufacturing purposes than A. alone. It is much used for watch chains, pencil-cases, and other ornamental articles. More lately it has been made into such articles as table-plate, and carriage mountings, which have an attractive appearance. It can be made with a tensile strength equal to that of steel, and has certain advantages for field-guns. The addition of a few parts per cent. of A. to common brass greatly increases the tenacity of the latter and its resistance to corrosion. An alloy of A. and tin is used for optical instruments, and from another of A. and silver, called 'Tiers Argent,' excellent spoons and forks are made.

The Cowles process reduces the metal by the heat of an immense voltaic arc or series of arcs in an electric furnace. This process is in operation in Cleveland, O., and Lockport, N. Y. The Pittsburg (Penn.) company reduce it by electrolysis from a fused haloid compound. New processes are promised; and the metal is rapidly falling in price and in a few years will doubtless have very extensive applications. In England the Castner process, a modification of Deville's, has been extensively operated.

**ALUMNUS**, n. *a-lŭm'nŭs* [L. *alumnus*, a pupil—from *alĕrĕ*, to nourish]: pupil of a school, univ., etc.; specifically a graduate. Fem. **ALUMNA**. Plu. **ALUMNI**, fem. **Æ**.

**ALUM ROOT**: name of two plants, natives of the United States, very different from each other, but agreeing in the remarkable astringency of their roots, which are medicinally used. One of these plants is *Geranium maculatum*. See



## ALUNITE—ALURED.

**GERANIUM.** The root contains more tannin than kino (q. v.) does. The tincture is of use in sore-throat and ulcerations of the mouth, and is also administered in various diseases.—The property of astringency belongs, in an inferior degree, to some other species of *Geranium*, and of the kindred genera, *Erodium* and *Pelargonium*.—The other American plant to which the name A. R. is given is *Heuchera Americana*, a plant of the natural order *Saxifrageæ* (q. v.), an order in which also astringency is a prevalent property. The genus *Heuchera* has the calyx 5-cleft, the petals undivided, five stamens, and the styles remarkably long. *H. Americana* is everywhere covered with a clammy down; the leaves are roundish, lobed, and toothed; the peduncles dichotomous and straggling. The root is a powerful styptic, and is used to form a wash for wounds and obstinate ulcers.

**ALUNITE**, *ăl'ôn-īt* [F. *alun*, alum]: alum-stone; a mineral, hydrated potassium aluminium sulphate; found as crystals and massive, forming seams in volcanic rocks. **ALUNOGENE**, n. *ăl-loon' ô jên* [F. *alun*; Gr. *gennăō*, I produce]: an ore of alumina, known as *hair-salt* or *feather-alum*—is a frequent efflorescence on the walls of quarries or mines.

**ALUNNO**, *â-lôn'no*, **NICCOLO**, or Niccolo of Fuligno: b. about 1430, Fuligno: one of the earliest of the old Umbrian painters. Some of his pictures were carried off by the French; one, *The Agony in the Garden*, remains in the Louvre. There is also a *Madonna between Two Angels* (1499), to be seen in the parish church of the village of Bastia. Fragments are in existence of an altar-piece for the cathedral of Assisi. The picture represented a Pieta, with two angels bearing torches, and, according to Vasari, weeping so naturally, that 'no one could have painted them better.' A. is not so remarkable for the originality or fertility of his invention, as for his selection of details, warmth of feeling, purity, and devout faith. His earnestness, however, leads him at times into exaggeration.

**ALURED**, i. e., *Al'vred*, or **ALRED**, of Beverley, Yorkshire: d. 1128 or 29: old English historian of the time of Henry I. Little is known regarding him; but he is said to have been educated at Cambridge, and to have greatly distinguished himself by the variety of his learning. It is also stated that he had enriched his mind by travel, both in France and Italy, and that at Rome he became domestic chaplain to cardinal Othoboni. His permanent office, however, appears to have been that of canon and treasurer of the church of St. John in his native town of Beverley, where he wrote his *Annals*. This work commences with a fabulous period of British history, and extends down to the 29th year of Henry I. It was published at Oxford, 1716, by Thomas Hearne, and is remarkable for various reasons. Its Latin is extremely good, and even elegant, while its accuracy, especially in dates, is unusual for the age in which its author lived. He is said, though it is very doubtful, to have written, besides the *Annals*, a work on the liberties or privileges of the church of St. John of Beverley. The work, whoever wrote it, is a translation of old Saxon docu-

## ALVA—ALVARADO.

ments, charters, etc., relative to that edifice, and is still in manuscript. A. died in 1128 or 1129.

ALVA, *ál'va*: village of Stirlingshire, Scotland, 7 m. n.e. from Stirling. The part of Stirlingshire in which A. is situated is detached from the rest of the county, and enclosed between the counties of Clackmannan and Perth. A. is a place of great industrial activity, having extensive woollen factories, in which the manufacture of shawls and tweeds has superseded the old trade in blankets. The number of looms employed is about 1,100. To the e. of the village is a glen named the Silver Glen, where two pits are still to be seen, marking the site of old silver-mines. The communion cups still in use in the parish church are made of silver derived from these mines. Immediately behind the village is Alva Glen, noted for its picturesque beauty and magnificent waterfall. About a mile to the w. of the village is Balquharn Glen, also a very romantic spot. Pop. (1897) est. 6,500.

ALVA, DUKE OF: see ALBA.

ALVARADO, *ál-vá-rá'dō*: t. of Mexico, dept. of Vera Cruz, on the Gulf of Mexico, at the mouth of the river Alvarado, 50 m. s.e. from Vera Cruz. The situation close to a lagoon is unhealthy. A bar at the mouth of the river prevents the entrance of vessels of more than 12 or 13 ft. draught, but within the bar the harbor is sheltered from every wind. Great part of the town consists of cane-built cottages, roofed with palm-leaves. The river has a course of not much more than 100 m., but collects the waters of an extensive swampy district. Much rice and cacao are produced in the country around Alvarado. Pop. 6,000.

ALVARADO, *ál-vá-rá'dō*, PEDRO DE, a famous companion of Cortes; b. Badajoz in Spanish Estremadura, towards the close of the 15th c.; d. 1541. In 1517 or 18, he sailed for the new world, and in the same year was despatched from Cuba, by Velasquez, the governor of that island, to explore, under the command of Grijalva, the shores of the American continent. The expedition touched at Acozamil (the Isle of Swallows), and at various places in Yucatan. Ascending also the rivers Tabasco and Banderos, Grijalva was so enchanted with the beauty of the country, its fine cultivation, and the numerous traces of advanced civilization, that he named it *New Spain*. Now, for the first time, the Spaniards heard of the riches of Montezuma, and of his vast empire. A. was ordered to return to Cuba and inform Velasquez of the result of the expedition. The sight of the gold which A. brought with him stimulated the covetousness and ambition of Velasquez, who became greatly incensed against Grijalva, because the latter had not penetrated further into the new region, and on his return to Cuba deprived him of his command. In 1519, Feb., Cortes sailed from Havana, solely for the purpose of conquest, with 11 ships, containing 508 soldiers, and 109 seamen. A. commanded one of these ships; but a storm separating the fleet, he arrived at the rendezvous, Isle of Swallows, three days earlier than the others. Here the con-

## ALVAREZ.

quest of Mexico was planned by these intrepid adventurers. A. figured in every conspicuous incident; he was, indeed, hardly less distinguished than the sagacious Cortes himself, who knew his worth, and whom he served with unfaltering zeal and fidelity. While he held the city of Mexico, during the absence of his chief, he massacred in the midst of a fête a great number of Aztec nobles, which act is said to have excited the indignation of Cortes; but, on the other hand, it is asserted that the Mexicans had plotted the destruction of the Spaniards, and that A. had become cognizant of the scheme. In the famous night retreat of 1520, July 1, A. commanded the rear-guard. After the conquest of Mexico, he was sent, 1523, at the head of 300 foot, 160 horse, with 4 pieces of cannon, and a troop of Mexican auxiliaries, to subdue the tribes on the coast of the Pacific in the direction of Guatemala. He was completely successful, receiving everywhere the submission of the native chiefs, while the people brought him presents, in token of friendship. He now returned to Spain, where the emperor Charles V. gave him a splendid reception, and appointed him governor of Guatemala. On departing again for the new world he was accompanied by numerous friends and cavaliers desirous of making their fortune. His adventurous spirit soon launched him into new enterprises. Pizarro and Almagro were prosecuting a brilliant career of conquest in S. Amer. A. resolved not to intrude upon their territories. He considered the province of Quito to be without the limits of these, and so, embarking with a force of 500 soldiers, 227 of whom were cavaliers, he landed at Bahia de los Caraques, near Cape San Francisco, whence he penetrated into the heart of the country, crossing the Andes by as bold and hazardous a march as it is possible to conceive. In the plain of Rio Bamba he was met by some of the troops of Pizarro, headed by Almagro; but instead of disputing by force of arms his right to the possession of the country in which he found himself, he agreed to retire, on receiving an indemnity for his arduous undertaking. He therefore retired to Honduras, and aided the colonists in establishing new settlements, among others, Gracias-a-Dios and San Juan de Puerto de Caballos. Meanwhile, Pizarro, loaded with wealth, went back to Spain in 1534, and misrepresented the conduct of A. to the emperor; but the latter following, vindicated himself so successfully, that he received the government of Honduras in addition to Guatemala. Again he embarked for the new world, and pursued his course of discovery and conquest; but in an affray with the Indians upon the coast of Michoacan, 1541, he was accidentally killed by his horse falling upon him and crushing him. In the same year, an inundation, accompanied by a frightful tempest, overthrew the walls of the town of San Jago, when his wife and children all perished.

ALVAREZ, *ál'vá rěz*, DON JOSE:1768, Apr. 23—1827, Nov. 26; b. Priego, prov. of Cordova, Spain: Spanish sculptor. During youth he labored with his father, a stone-mason, and when 20 years old began to study drawing and sculpture in the academy at Granada. His early essays in sculpture

## ALVEARY—ALWUR.

secured for him the patronage of the bishop of Cordova, and in 1794 he was received into the acad. of San Fernando, where, 1799, he gained the first prize in the first class. Subsequently, he gained the second prize for sculpture in the Institute of Paris, and in 1804 increased his celebrity by a plaster-model of Ganymede, which proved him a rival of Canova in gracefulness of style. He then attempted greater works in the more severe style, and prepared a model for a wounded Achilles, which was accidentally broken. Having removed to Rome he was employed by Napoleon to design bass-reliefs for the Quirinal Palace on Monte Cavallo; but, on account of political changes, his works were not allowed to occupy the places for which they had been destined. In Rome, where he lived on terms of friendship with Canova and Thorwaldsen, he executed, among other works, his *Grupo Colosal de Zaragoza*, now in the Royal Museum of Madrid, representing a scene in the defence of Saragossa. This work alone is sufficient to establish A.'s fame. Clearness of design, dignified simplicity in execution, trueness to nature, and deep sentiment, mark the sculptures of A., who, next to nature and classical antiquity, studied the works of Michael Angelo. He d. Madrid.

ALVEARY, n. *äl've-ér'î* [L. *alvēārĭum*, a beehive—from *alvus*, the belly]: in *anat.*, the hollow of the external ear. ALVEOLAR, a. *äl-vē'ō-lēr*, or ALVE'OLAR'Y, a. *lēr'î*, containing sockets. ALVE'OLATE, a. *-lāt*, divided into cells or pits; honeycombed. ALVEOLÆ, n. plu. *äl-vē'ō-lē*, sockets or cells. ALVEOLE, n. *äl've-ō'*, the socket of a tooth. ALVEOLUS, n. *äl-vē'ō-lūs* [L. *alvēōlus*, a small hollow or cavity—from *alvus*, the belly]: in *nat. hist.*, a little trough or hollow channel. ALVE'OLI, n. plu. *-ō-lî*, the cavities of jawbones in which the teeth are fixed. ALVEOLITES, n. plu. *äl-vē'ō līts* [Gr. *lithos*, a stone]: a genus of corals composed of concentrically-arranged tables of short tubes, angular without, and rounded within. ALVEUS, n. *äl've-ūs* [L. *alvēus*, a hollow, a river bed]: the bed or channel of a stream; in *anat.*, a tube or canal for a fluid of the body—e.g., alveolar process. ALVINE, a. *äl'vĭn*, of or from the bowels.

ALWAYS, ad. *awl'wāz* [AS. *ealle wæga*, the whole way]: continually; forever; also ALWAY, ad. *awl'wā*, chiefly used in poetry.

ALWUR, *al'wur*, or MACHERY, *ma-she'r'vî*: a Rajpoot state of India, under the control of the governor-general's agent for the states of Rajpootana, but having a considerable measure of independence: between n. lat. 27° 14'—28° 13', and e. long. 76° 14'—77° 15': about 3,000 sq. m. The cap., Alwur, is a small ill-built town, surrounded by a wretched mud wall, at the base of a rocky range of quartz and slate, 1,200 ft. above the adjacent country, and at least 2,100 ft. above the sea, 94 m. w.n.w. from Agra. The palace of the Rao Rajah is a curious square building, having its walls pierced with a great number of small windows, and covered with glaring and grotesque paintings. The revenue of the Rao Rajah is estimated at about £180,000. The military force

## AM—AMADIS.

**of** the state amounts to about 3,000 infantry and 4,000 cavalry. The inhabitants, who are called Mewattis, are a rude and savage race. In former times the Mewattis were a predatory tribe, and from the 13th to the 15th c. carried their raids even to the gates of Delhi. Pop. (1901) 828,487.

AM, v. *ām* [Mæso-Gothic *im*: Icel. *em*: AS. *eom*: Gr. *eimi*]: 1st sing. present tense of the verb *be*. I AM, one of God's titles.

AMADEUS, *am-a-dē'us* [i.e., Love-God]: a common name in the house of Savoy. The first who bore it was Count A., eldest son of Count Humbert, about the commencement of the 11th c. His successors gradually enlarged their paternal dominions; but the first to make an important figure in history was A. V., 1249–1323, who succeeded his uncle Filippo in 1285. He acquired the dignity of a prince of the empire. He had a brother who resided long in England, and while there, built the Savoy Palace in London.

A. VI., the 'Green Count,' son of A. V., 1334–83; succeeded his father in 1343. He was a sagacious, moderate, and vigorous ruler, won various places from the Dauphin of France, became lord paramount of Piedmont, and through the favor of the emperor Charles IV. obtained the viceregency over a great part of Upper Italy. His influence among the Italian states was very great.

A. VIII., 1383—1451, was at first under the guardianship of his grandmother, a woman of superior talents; but in 1398 he assumed the reins of government, ruling with moderation, and yet with love of order. The zeal with which he aided the policy of the emperor Sigismund secured him the imperial favor, and the elevation of Savoy into a duchy (1416). On the extinction of its native dynasty, in 1418, Piedmont chose him for its ruler, as he was next of kin. But a religious melancholy took possession of his mind, and, 1434, Nov. 7, he laid down his authority, and with six of his knights betook himself to a monastic hermitage which he had built on the shores of the Lake of Geneva. He was elected pope in 1439, and assumed the name of Felix V.; but he resigned the papal chair in 1448, and died three years afterward at Geneva.

A. IX. (died 1472), after governing for four years, handed over his authority to his wife Jolanthe, on account of ill-health; but she used it very imprudently. While he lived, A. was a mere tool in the hands of grasping factions.

AMADEUS I. (AMADEO FERDINANDO MARIA), King of Spain, Duke of Aosta: 1845, May 30—1890, Jan. 18; second son of Victor Emmanuel, King of Italy. He was elected king of Spain 1870, Dec. 4, abdicated the throne 1873, Feb. 11, and lived quietly in Rome till his death.

AMADIS, *ām'a-dīs*: a much-used heroic name in chivalric poetry. At the head of those heroes of romance, stands A. of Gaul, called the Lion Knight, from the device on his shield, and also Beltenebros, or the Darkly Beautiful. The other Amadisés that figure in romance are represented as descendants more or less remote of A. of Gaul. He him-

## AMADIS.

self was what the Germans call a love-child of the fabulous King Perion of France and of Elisena, a princess of Bretagne. The relationship of several of the other Amadis to the princes and princesses of Colchis, Trebisond, Greece, and Cathay, that figure as their parents, is of the same un-sanctioned kind. The romance which narrates the adventures of A. of Gaul is both the most ancient and the best of all the A. romances. It found favor even in the sight of Cervantes, who won immortal honor by overthrowing the long usurped dominion of this 'evil sect.' This one, however, has maintained its reputation even to the present day, not only because it was regarded by him as a literary curiosity, but also from its own merits, as the original production of a creative fancy.

The question which was early raised, and cannot yet be demonstratively settled, as to whether this romance was originally a Portuguese, a Spanish, or a French production, proves at least the absence in it of all national peculiarities, and the lack of all national traditions connected with it, and hence the want also of a living historical background, which, in the case of all really national legends, is discernible through the purely epic structure. It may be asserted with certainty, both from internal and external evidence, that this romance is the pure subjective creation of the fancy of a single individual; and that it was composed at a time when the genuine epic style of chivalric writing was near its decline, consequently not earlier than the 14th c. It is also apparent that this romance must have been originally written in prose, and intended to be read, and not to be recited. Lastly, it is not to be doubted that the author was well acquainted with the earlier legendary poetry, and has imitated it in many things, but has nevertheless struck out for himself an entirely new path, in an opposite direction, which naturally tended to lead his less gifted imitators into a bottomless abyss, and at last brought about the extinction of the whole class. For these chivalric romances—doubtless, unintentionally—became by degrees more and more of an ironical cast; and only a genius like Cervantes was wanting in order to complete their extinction, by making the comic element the fundamental tone, and exaggerating the incongruity inherent in such compositions.

The Spanish A. romances consist of fourteen books, of which the first four contain the history of A. of Gaul. Yet, according to the researches of the learned Clemencin, stated in his *Commentary on Don Quixote* (Madrid, 1833), it can scarcely be doubted that this most ancient part was originally written in the Portuguese language, by the knight Vasco de Lobeira of Oporto (d. 1403); and that it must have been composed between 1342 and 1367. The original manuscript is said to have been in the possession first of the Infant Alfonso of Portugal, son of John I., the founder of the house of Braganza (d. 1461); and last in that of the Duke of Aveiro, and to have been destroyed during the earthquake in Lisbon, 1755. At least, these first four books have been preserved only in the Spanish translation which was made by Garcia Ordoñez de

## AMADOU.

Montalvo, about 1460, and was first printed between 1492 and 1505. The same Montalvo added to it the fifth book, *Las Sergas* [ergas, i.e., actions or deeds] *de Esplundian, Hijo de Amadis de Gáula*. He began this book in 1485, but did not complete it till 1492. The books from the 6th to the 14th contain the Exploits and Adventures of Florisando, by Paez de Ribera; of Lisuarte of Greece, and of Perion of Gaul, by Juan Diaz; of A. of Greece, of Florisel of Nicea, and of Anaxarte, by Feliciano de Silva; of Rogel of Greece, and of Silves de la Selva, by the same; of Lepolemo, and of Leandro the Fair, by Pedro de Lujan; and lastly, of Penelva, by an anonymous Portuguese. The French translators and continuators, beginning with Nicholas de Herberay, Sieur des Essarts, who published the first eight books, 1540-48, have increased this series of romances to twenty-four books. Gilbert Saunier, Sieur de Duverdier, has written a conclusion, in seven large volumes, to all the adventures begun in the whole series of legends, which he has called *Le Roman des Romans*.

How popular and widely circulated these romances were in their day may be proved by the many editions of single legends, by the translations of most of them into Italian, English, German, and even into Dutch, and also by the numerous chivalric romances written in imitation of them. As, nevertheless, a change came over the public taste, they almost all fell into oblivion, and indeed justly so, because of their want of intrinsic merit. They were transferred from the Temple of the Muses to the literary lumber-room, where now at best they only serve to feast the eyes of bibliomaniacs. A. of Gaul has been deservedly excepted from this fate, and has not only found readers in the present day, but has been in modern times translated, revised, and imitated. The Portuguese Gil Vicente, and the Spaniard Andrés Rei de Artieda, extracted from it the materials for two Spanish comedies. De Lubert and Count Tressan revived this romance in tasteful extracts; and as Bernardo Tasso formerly did in his *Amadigi*, so now Creuzé de Lesser and William Stewart Rose have extracted from it the materials for epic poems: *A. de Gaule, Poème faisant suite aux Chevaliers de la Table ronde* (Paris, 1813), and *A. of Gaul*, a poem in three books (Lond. 1803). On the other hand, Wieland's *Neuer A.* has nothing in common with the more ancient Amadis, except the title. See Baret, *De l'Amadis de Gaule* (Par. 1873).

AMADOU, n. *ăm'ă-dô* [F. *amadou*, by metaphor from *amadouer* to coax, to cajole—from *madouer*, a word of Ger. origin—from Icel. *mata*, to bait, to allure]: name given to *Polyporus igniarius* and *P. fomentarius*, fungi of the tribe or division *Hymenomyces*; formerly included in the genus *Boletus*. They grow upon old trees in Britain and on the continent of Europe. The pileus is completely blended with the hymenium, which is pierced with thin-sided, rather angular, tubular, vertical passages—the whole fungus thus appearing as a leathery or fleshy mass; the under side of which is pierced by deep pores. *P. igniarius* is called Hard A., or Touchwood. *P. fomentarius* is called Soft A., or German

## AMAIN—AMALEKITES.

**Tinder.** They are used as styptics for stanching slight wounds; and when steel and flint were in general use for striking fire, were much employed as tinder, being prepared for this purpose by boiling in a solution of nitre. The Soft A. is used for making small surgical pads, for which its elasticity peculiarly fits it. *P. fomentarius*, or a very similar species, is found in India, and used there as in Europe. It is also employed by the Laplanders and others for moxa (q.v.). It is sometimes made into razor-straps, and this use is likewise made of *P. betulinus*. — *P. officinalis*, the *Agaricon* of Dioscorides, which grows upon larch-trees in the s. of Europe, is a drastic purgative, now rarely employed. *P. suaveolens*, which grows upon the stems of willows, and is easily recognized by its anise-like smell, was formerly employed in medicine, in cases of consumption, under the name of *Fungus salicis*. All these species are very similar in appearance.



*Polyporus suaveolens*.

Another species of the same genus, *P. destructor*, is one of the fungi known by the name of Dry Rot (q.v.). — The remarkably light wood of *Hernandia Guianensis*, a shrub of the natural order *Thymelæaceæ* (q.v.), is readily kindled by flint and steel. See AGARIC.

**AMAIN**, ad. *ă-mân'* [AS. *a*, on; *mægen*, might, power; Goth. *magan*; AS. *mega*, to be able]: with energy or force; suddenly; at once: applied by sailors in such orders or directions as 'lower amain,' 'strike amain,' etc.

**AMALEKITES**, *ăm'a-lek-īts*: one of the most fierce and warlike of the Canaanitish nations. They dwelt 'in the land of the south' (Numbers xiii. 29), that is, in the land s. of Palestine, or between Idumea and Egypt. From the very first they manifested an uncompromising hostility to the Israelites, whose rear-guard they smote after the passage through the Red Sea. In consequence of this they received no mercy at the hands of the Israelites when the latter had established themselves in Palestine. Saul (1 Sam. xv. 2) nearly annihilated them. Twenty years later, David, while dwelling amongst the Philistines, penetrated into their land and made dreadful slaughter of them. After this they made a last desperate reprisal, but were overtaken by David in the midst of their drinking and dancing; and 'from twilight even unto the evening of the next day' he smote them, 'and there escaped not a man of them, save 400 young men who rode upon camels and fled.' The descendants of these were



## AMALFI—AMALGAM.

finally extirpated in the days of Hezekiah, king of Judah, by the Simeonites.

AMALFI, *â-mâl'fê*: seaport on the Gulf of Salerno, on the w. coast of southern Italy; has a very ancient cathedral, and is the seat of a bishop. It is said to have been founded under Constantine the Great, and was long a powerful and independent state, having at one time a population of 50,000; and about the close of the 11th c., fell under the power of the Normans. The maritime laws of A. (*Tabula Amalphitana*) once prevailed throughout Italy. The unique manuscript of the pandects (q. v.) was discovered at A.; and Flavio Gioja, the inventor of the compass, and Masaniello, were born there. Pop. upward of 5,000.

AMALGAM, n. *ă-măl'găm* [F. *amalgame*—from Gr. *ama*, together; *gamêō*, I marry; or *ama*, *malagma*, that which softens—from *malasso*, I soften]: a mixture of mercury with another metal; an alloy of which mercury forms a constituent part. AMALGAMATE, v. *ă-măl'gă-măt*, to compound or mix mercury with another metal; to blend; to incorporate. AMAL'GAMA'TING, imp. AMAL'GAMA'TED, pp. AMALGAMATION, n. *ă-măl'gă-mă'shŭn*, a mixing together different bodies; a union of two or more bodies into one, *as of railway companies*.—SYN. of 'amalgamate': to coalesce; unite; cohere; join.

AMALGAM: term applied to that class of alloys (q. v.) in which one of the combining metals is mercury. On the nature of the union, it has been observed that 'on adding successive small quantities of silver to mercury, a great variety of fluid amalgams are apparently produced; but in reality, the chief, if not the sole compound, is a solid A., which is merely diffused throughout the fluid mass.' The fluidity of an A. thus seems to depend on there being an excess of mercury above what is necessary to form a definite compound. Mercury unites readily with gold and silver at the usual temperature. It has no disposition to unite with iron even when hot. A solid A. of tin is used to silver looking-glasses.

Amalgamation is employed on a small scale in some processes of gilding, the silver or other metal being overlaid with a film of gold A., and the mercury being then driven off by heat. But its most extensive use is in separating gold, and especially silver, from certain of their ores. The mercury dissolves the particles of the metal, and leaves the earthy particles; it is then easily separated from the gold or silver. This process, discovered in Mexico in 1557 by Bartolomé de Medina, is very extensively used in Mexico at the present time, and has been introduced with great success into the Californian and Australian gold-fields. The mode of application is to crush the quartz rock which serves as the matrix in which the small particles of gold are embedded; place the fragments in a barrel or revolving drum with mercury, and agitate for some time. The mercury attaches all the gold particles to itself; and in the apparatus, when fully agitated, there is found a semi-fluid mass, which is the mercury, appearing half congealed, and containing

## AMALIE.

all the gold. It is only necessary to place this A. in a retort and apply heat, when the mercury sublimes over—and can be re-employed for further amalgamation—and leaves the gold in the body of the retort. This process is the only known method of separating the finer particles of gold from a mass of rock, and is always used by the gold-crushing companies. Indeed, it is now believed that this truly commercial mode of gold-seeking is the only one which, in a few years, will be in use.

Several amalgams may be regarded as definite chemical compounds. Thus, when gold-leaf is placed in mercury, and the A. so produced filtered by being squeezed in a chamois-leather bag, the uncombined mercury oozes through the skin, but a definite A. of 2 of gold and 1 of mercury remains behind in the leather filter. Tin A. is employed in silvering looking-glasses, and is formed by laying a sheet of tin-foil on a table, covering it with mercury, and then placing, by a sliding movement, the sheet of glass over it. This A. contains 3 of mercury and 1 of tin; glass balls are silvered with an A. of 16 mercury, 1 tin, 1 lead, and 2 bismuth. A silver A. highly crystalline—and, from the clusters of crystals somewhat resembling a tree, called *Arbor Dianæ*, or Tree of Diana—is prepared from 3 parts of the strongest solution of nitrate of silver, 2 parts of solution of proto-nitrate of mercury added to an A. of 7 mercury and 1 silver. In a day or two, the arborescent appearance presents itself, and the crystals contain 65 per cent mercury, and 35 silver. The A. used for frictional electric machines is made from 1 tin, 1 zinc, and 3 mercury, to which sand is afterwards added.

AMALIE, *â-mâ'le-éh*, ANNA, Duchess of Saxe-Weimar: 1739–1807: an amiable and generous patron of literature; during the latter part of the 18th c., the centre of the court of Weimar. Left a widow in the second year of her marriage (1758), her judicious rule, as guardian of her infant son, enabled the country to recover from the effects of the Seven Years' War, and promoted the education of the people. She appointed Wieland tutor to her son, afterwards duke, and attracted to Weimar such men as Herder, Goethe, Knebel, Böttiger, Musæus, Schiller; forming a galaxy of genius such as, perhaps, has graced no other court. Even after resigning the government into the hands of her son in 1775, she continued to be surrounded by the same society. She has the high distinction of having honored and encouraged the greatest writers that Germany has produced. The battle of Jena is said to have broken her heart; she died six months after that event.

AMALIE, MARIE: wife of Louis Philippe, king of the French; daughter of King Ferdinand I. (IV.) of the Two Sicilies; 1782—Apr. 26—1866. When she married Louis Philippe (then Duke of Orleans), he was a political exile, without a hope of ever rising to the throne of France. It was a marriage of personal choice on both sides, consequently happy. After Louis Philippe's elevation to the throne, the queen avoided interference in political affairs, and devoted her attention to beneficence. In her domestic

## AMANDE DE TERRE—AMARANTÉ.

relations, her conduct was highly exemplary, and won the esteem of all parties; indeed, the only charge ever preferred against her was her supposed excess of piety. She shared the fortune of her exiled husband, and was very respectfully received in England. Louis Philippe, shortly before his death (at Claremont, 1850), gave expression to the love and esteem with which he regarded his faithful wife. She died at Claremont in 1866.

AMANDE DE TERRE: see CYPERUS.

AMANITA, *ăm-ăn-î'tă*: genus of Fungi, nearly allied to *Agaricus*, but bursting from a *volva*. *A. muscaria*, common in woods, especially of fir and beech, is one of the most poisonous fungi. It is sometimes called *FLY AGARIC*, being used in Sweden and other countries to kill flies and bugs,



*Amanita Muscaria*,  
in a young state.



*Amanita Muscaria*,  
full-grown, more reduced.

for which purpose it is steeped milk. The pileus or cap is of an orange-red color, with white warts, the gills white, and the stem bulbous. It grows to a considerable size. Notwithstanding its very poisonous nature, it is used by the Kamchatkades to produce intoxication, and it imparts an intoxicating property to the urine of those who swallow it.

AMANUENSIS, n. *ămăn'ũ-ăn'sis* [L.—from *ab*, and *mănus*, the hand]: one who writes down the words of another; a writer to dictation. AMAN'UEN'SES, n. plu.

AMARANTÉ, *â-mâ-rân'ta* (anc. *Ante Moranam*): town of Portugal, prov. of Minho, on the Tamega, a branch of the Douro; 32 m. n.e. from Oporto. The Tamega is crossed by a handsome stone bridge. The town is well built, but dull and decayed. A church, erected in the 16th c., is an interesting specimen of the Flamboyant style. A. was the scene of a fierce conflict between the French and the Portuguese in 1809, when the bridge was defended by the Portuguese for several days, and the French committed great barbarities. Pop. 2,500.

## AMARANTH.

AMARANTH, n. *ăm'ă-rănth*, or AM'ARAN'THUS [F. *amaranthe*—from L. *amaran'tus*; Gr. *amaran'tos*, un fading]: a flower inclined to a purple color; in *poetry*, a flower which never fades; *Amaran'thus hypochondri'acus*, is Prince's Feather, and *A. caudatus*, is Love-lies-bleeding, Ord. *Amaranthaceæ*. AM'ARAN'THINE, a. *-thîn*, pertaining to.

AMARANTH (*Amaranthus*): genus of plants of the natural order *Amaranthaceæ*. This order contains nearly 300 known species, natives of tropical and temperate countries, but abounding chiefly within the tropics. They are herbs or shrubs, with simple exstipulate leaves, and flowers in heads or spikes; the perianth usually colored, 3-5-partite, hypogynous, scarious, persistent, generally surrounded with small bracteæ; the stamens hypogynous, either 5, and opposite the segments of the perianth, or some multiple of 5, distinct or united into a tube, sometimes partly abortive; the anthers either 2-celled or 1-celled; the ovary single, superior, 1-celled, with 1 or few ovules, which hang from a free central cord; style single or absent; stigma simple or compound; fruit, a small membranous bag or utricle, or a caryopsis (q.v.), rarely baccate; seeds lense-shaped, externally crustaceous, embryo curved round the circumference; albumen farinaceous.—The genus *Amaranthus* has mostly monœcious flowers (although the order is generally hermaphrodite), with two or three stigmas, and a 1-celled, 1-seeded utricle, bursting all round transversley.

Some of the species are naturally of singular form, and others assume singular but monstrous forms through cultivation. *A. caudatus* (Love lies-bleeding), *A. cruentus*, *A. hypochondriacus* (Prince's Feather) and other species, are common annuals in flower-gardens. The spikes of *A. caudatus* are sometimes several ft. in length. The dry red bracts which surround the flower retain their freshness for a long time after being gathered; for which reason the plant has been employed by poets as an emblem of immortality.—The Globe A. (*Gomphrena globosa*) and the Cockscomb (q.v.), well-known tender annuals, belong to the same natural order. The Globe A. is much cultivated in Portugal and other Rom. Cath. countries for adorning churches in winter. Its flowers, of a shining purple, retain their beauty and freshness for several years. Our species of



Love-lies-bleeding.  
(*Amaranthus caudatus*).

## AMARAPURA—AMARI.

the order are mostly from tropical Amer., both the garden kinds and weeds. The pig-weeds (q.v.) are green-flowered Amaranths. In some countries *A. Blitum*, *A. oleraceus* (Chusan Han-tsi), and other species, are used as pot-herbs. Wholesome mucilaginous qualities are very generally found in the leaves throughout the order. The seeds of *Amaranthus frumentaceus* (called Kiery) and of *A. anardhana* are gathered as corn-crops in India.—Medicinal properties are ascribed to some species of the order, particularly to *Gomphrena officinalis* and *macrocephala*, which have a high and probably exaggerated reputation in Brazil as cures for many diseases.

AMARAPURA, *ám-â-ră-pó'rá*, or UMMERAPOORA: a city of the past, was, before 1853, the cap. of Burmah; on the left bank of the Irrawady, 9 m. n.e. from Ava, in lat. 21° 57', long. 96° 7'. It was founded in 1783. In 1810 it was totally destroyed by fire, and in 1839 almost totally by an earthquake. In 1852, 3, by order of the king, A. was finally deserted, and the capital of the empire fixed at Mandalay. The pop. in 1810 was estimated at 170,000. Nothing remains of the old city but some rows of beautiful trees and a few ruined pagodas. In a temple between A. and Mandalay is a famous colossal bronze image of Gautama (Buddha).

AMARA-SINHA, *ám'â-ră-* or *ám'úr-â-sing'ha*: a celebrated Hindu grammarian probably of great antiquity; generally supposed to have been one of the 'nine gems' who adorned the throne of King Vikramaditya I., B.C. 56. But Mr. Bentley (*Asiatic Researches*) places him as late as A.D. 11th c., while Mr. Colebrooke assigns the close of the 5th as the most probable; who wrote a variety of works, only one of which has come down to us, the *Amara-Kosha*, or Thesaurus of Amara; sometimes called the *Trikanda*, i.e., the Tripartite. Regarding the author's life, little is known. He is known to have been a Buddhist; and it is almost universally believed that his writings perished during the fierce persecution to which that sect was subjected by the orthodox Brahmins, in the 3d, 4th, and 5th centuries. This tradition harmonizes with the earliest of the three ages in which he is said to have lived.

The *Amara-Kosha* is a Sanskrit vocabulary, divided into three books and 18 chapters, and containing in all about 10,000 words. The words are classed according to the nature of the things signified by them. Almost all the grammarians of Hindustan imitate, translate, or comment upon the work of A.

An excellent addition of the *Amara-Kosha*, with notes in English and an index, was published by Colebrooke, 1808 (reprinted 1829); the Sanskrit text at Calcutta in 1813; and in 1839, a French translation.

AMARI, *â-mâ'rê*, MICHELE: 1806, July 7—1870, Sep. 20; b. Palermo: Italian historian and orientalist. In youth he was in straitened circumstances, and even meditated becoming a bandit, but was aroused from his morbidness by falling passionately in love with an English lady. Although he

## AMARYLLIDEÆ.

did not win her hand, he won a knowledge of the English language, the first result of which was a translation of Sir Walter Scott's *Marmion* (Palermo, 1832). A. soon became a political 'suspect,' though he had conducted himself during the tumult of 1837 with exemplary moderation. He remained four years in Naples, where he was diligent in historical investigations. In 1842, appeared his *La Guerra del Vespro Siciliano* (The War of the Sicilian Vespers), his masterpiece, often republished. Its great merit is its successful disproving of the common notion, that the terrible massacre so named was the result of a deep and ramified conspiracy of the nobles. A. proves from a letter of Charles of Anjou himself, as well as from numerous other sources, that it was a popular or national outbreak, occasioned by the tyranny of the foreign rulers, and that it really brought about the deliverance of Sicily. The book was quickly prohibited, and, as a consequence, widely read. It was translated into German by Dr. Schroöder of Hildesheim, and into English by Lord Ellesmere. A. fled to France, where he studied Arabic and modern Greek, and prepared his *History of the Mussulmans in Sicily*. At the revolution of 1848, he returned to Palermo, where he had been appointed prof. of public law, but shortly after his arrival was elected vice-pres. of the committee of war. He was next sent on a diplomatic mission by the provisional government to France and England. In 1849 he published at Paris *La Sicile et les Bourbons*, to show up the pretensions of the Neapolitan sovereign. After the Sicilian insurrection had been quelled, A. resided in Paris, engaged in literary pursuits till 1860, when he returned to Italy. He was made senator next year, and in 1863,4, was Minister of Instruction. Other writings of A. are upon the language and history of the Arabs, in the *Revue Archéologique*, the *Journal Asiatique*, etc. He d. at Palermo.

AMARYLLI'DEÆ, or AMARYLLIDACEÆ, *ăm-ă-rîl'li. dă'sē-ē*: natural order of monocotyledonous plants, including many species distinguished by the beauty of their flowers. They are herbaceous plants, or when, as in the genera *Agave* and *Fourcroya*, they form woody stems, they have still the character of gigantic herbaceous plants rather than of shrubs. The greater part are bulbous-rooted. The leaves are sword-shaped, with parallel veins; the flowers have spathaceous bracts. The perianth is regular, 6-cleft, sometimes with a corona. The stamens are 6, arising from the perianth, sometimes cohering by their dilated bases; the anthers bursting inwardly. The ovary is inferior, 3-celled, with 1, 2, or many anatropal ovules; the style is single; the stigma, 3-lobed. The fruit is a 3-celled, 3-valved capsule, or a 1-3-seeded berry. The seed is albuminous, with the embryo nearly straight.—There are about 400 known species of this order, natives of tropical, or sub-tropical, and more sparingly, of temperate regions—particularly abundant at the Cape of Good Hope. A few species only are European. Many of them are much prized ornaments of gardens and hot-houses. Among these are different species of NARCISSUS (q.v.), AMARYLLIS (q.v.), CRINUM (q.v.), ALSTRŒMERIA (q.v.), NERINE,

## AMARYLLIS—AMASIS.

COBURGIA, BRUNSVIGIA, PANCRATIUM, FOURCROYA, etc. To this order belong the SNOWDROP (q.v.) and SNOWFLAKE (q.v.); it includes also the AMERICAN ALOE (*Agave*, q.v.).

AMARYLLIS, n. *ăm'ă-ril'lis* [name of a country girl in Vergil]: genus of bulbous-rooted plants of the natural order



*Amaryllis formosissima.*

*Amaryllideæ* (q.v.), having a simple 6-partite perianth, and containing a large number of species, natives of the warmer regions of the globe. Many of them have flowers of very great beauty. A species of this genus, *A. formosissima*, was brought to Europe from S. Amer. in the end of the 17th c., and has since been in common cultivation as a garden-flower. Its flowers are of a beautiful red color, exhibiting a play of golden gleams in the sunshine. They are scentless. *A. amabilis*, *A. Josephinae*, and *A. vittata* are amongst the most admired bulbous-rooted plants. *A. Sarniensis* is the Guernsey Lily, probably from Japan. The Zephyr or Fairy Flower (*A. Atamasco*), native from Penn. southward, has large pink and white flowers on a short stalk.

It is a garden favorite, as is also the Rose Zephyr Flower of florists (*A. rosea*).

AMASIA, *â-mă'sē'ă*, or AMASIEH, or AMASIYAH (anc. *Amasia*); t. of Asia Minor, the principal town of the vilayet of Sivas, on the right bank of the Yeshil-Irmak, about 80 m. from the mouth of the river, and 200 m. s. w. from Trebizond. It stands in a deep and narrow valley, and the river flows through a narrow channel, between precipitous rocky banks. The streets are narrow and crooked; the houses mostly of wood, although some are of stone, all roofed with tiles. The river is crossed by three stone bridges, and one wooden bridge. One of the stone bridges is supposed to be Roman. The ancient town, the birthplace of Strabo, occupied both banks of the river, and the remains of the Acropolis crown a lofty rock on the side of the river opposite to the present town. There are numerous other interesting remains of antiquity, particularly the tombs of the kings of Pontus, whose capital A. was, excavated in the face of a steep rock, and some Saracenic buildings. Water is raised from the river by means of wheels driven by the river itself, for irrigation of the gardens and mulberry plantations. Much silk is produced in and around A.; also wine, cotton, corn, and madder. Silver, copper, and salt mines are wrought in the neighborhood. Silk and salt are the chief articles of export. A. is the seat of an Armenian bishop. Pop. 30,000, about one-third being Christians.

AMASIS, *a-mă'sis*, King of Egypt: reigned B.C. 569-525. Of humble origin, he rose to be general under Apries, the

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last king of the line of Psammetichus. Being sent to put down an insurrection, he joined the rebels, and was proclaimed king. He cultivated the friendship of the Greeks, opened to them the commerce of Egypt, previously confined to Naucratis, married a Greek wife, and took a body-guard of Greeks into pay. Pythagoras and Solon are said to have visited him. For his alliance with Polycrates, and the singular reason for which Herodotus makes him break it off, see POLYCRATES. During his reign of 44 years, he greatly promoted the prosperity and adornment of Egypt. Immediately after his death, the country was conquered by Cambyses of Persia.

AMASS, v. *ă-măs'* [F. *amasser*, to heap up: L. *massa*, a mass]: to gather into a heap; to collect many things together. AMAS'SING, imp. AMASSED, pp. *ă-măst'*. AMASS'MENT, n. a large quantity collected. SYN. of 'amass': to heap; accumulate; pile; collect.

AMASTHENIC, a. *ăm'ăs-thĕn'ĭk* [Gr. *ama*, together; *sthenos*, force]: uniting the chemical rays of light into one focus, as a certain kind of lens.

AMATE, v. *ă-măt'* [AS. *a*, on, and *mate*: Icel. *matí*, an equal, a comrade]: in *OE.*, to accompany; to associate with, as a companion.

AMATE, v. *ă-măt'* [OF. *amater*, to mortify, to abate: It. *matto*, mad, foolish: Sp. *matar*, to kill, to quench]: in *OE.*, to perplex; to confound; to terrify.

AMATEUR, n. *ăm'ă-ter* [F.—from L. *amātor*, a lover]: one who loves and cultivates any art or science, but does not follow it as a profession.

AMATITLAN, *ă-mă-tĕ-tlân'*: dist. of Central America, near Guatemala city, embosomed in abrupt mountains of volcanic origin. It produces cochineal. In the dist. is the city of A. (pop. 6,000), and a lake.

AMATIVENESS, n. *ăm'ă-tĭv-nĕs* [L. *amo*, I love; *amātus*, loved]: a propensity to love. AMATIVE, a. *ăm'ă-tĭv*, full of love; amatory. AMATORY, a. *ăm'ă-ter'ĭ*, relating to love; causing love; also AMATORIAL, a. *ăm'ă-tō'rĭ-ăl*. AM'ATO'RĪALLY, ad. *-ăl-lĭ*.

AMATRICE, *ă-mă-trĕ'chā*: t. of s. Italy, province of Aquila or Abruzzo Ulteriore II., on the right bank of the Tronto, 21 m. n. by w. from Aquila: formerly a place of much greater importance than at present. It has five churches. The inhabitants are chiefly employed in agriculture and the manufacture of blankets. Pop. 2,240.

AMAUROSIS, n. *ăm'aw-rō'sĭs* [Gr. *amaurosĭs*, the act of rendering obscure—from *amauros*, obscure]. imperfect vision or total blindness without any obvious imperfection of the eye. The terms A. and Amblyopia (q.v.—dullness of vision) have in recent years been greatly limited in their application through discoveries by use of the ophthalmoscope (q.v.). See EYE, etc. AMAUROTIC, a. *ăm'aw-rōt'ĭk*, pertaining to partial blindness or loss of sight.

AMAXICHI, *ă-măks-ĕ'kĕ*: cap. of the Ionian island of Santa Maura or Leucadia; built on the edge of the shallow



## AMAZE--AMAZON.

lagoons that separate the n.e. part of the island from the mainland. The harbor constructed by the Anglo-Ionian government is protected by a mole, at the end of which is a lighthouse. It is fit only for small craft. A. derives its name from the Greek *amaxai*, 'cars,' which the Venetian garrison employed in bringing down the oil and wine from the inland districts to the point nearest the fort of Santa Maura, where subsequently houses began to be erected. The town has a very mean appearance; the buildings are partly of wood, on account of the frequent earthquakes. Slight shocks occur about once a month. Behind A. there is an old olive wood, extending to the base of the neighboring hills, and checkered with cypresses and gardens. The town is the residence of a Greek archbishop, and has 15 churches. Pop. 5,000. A. is now frequently called *Leukas*.

AMAZE, v. *ă-māz'* [It. *smagare*; Sp. *desmayar*, to discourage, to dispirit; Norm. F. *s'esmaier*, to be sad; OE. *esmay*, thought, care]: to confound with terror or wonder; to strike with astonishment or fear. AMAZ'ING, imp: ADJ. very wonderful; exciting fear, surprise, or wonder. AMAZED, pp. *ă-māzd'*. AMAZE'MENT, n. astonishment; sudden fear. AMA'ZINGLY, ad. *-lī*, to a degree that excites astonishment. AMAZEDNESS, n. *ă-mā'zēd-nēs*, the state of being amazed.—SYN. of 'amaze': to confound; perplex; astonish.

*Note.*—In *OE.*, AMAY, v. *ă-mā'*, or MAY, v. was used in the sense of its modern derivations, *amaze* and *dismay*, meaning 'to dismay; to dispirit; to confound; to alarm'—and had its origin from same root-words.

AMAZON, n. *ăm'ă-zōn* [L. and Gr. *Amāzon*, an Amazon—from Gr. *a*, without; *māzos*, a breast]: one of a race of female warriors; a river in S. Amer., properly the river of the Amazons. AMAZONIAN, a. *ăm'ă-zō'nī-ăn*, pertaining to; of bold, masculine manners. AM'AZON-STONE, a bluish-green ornamental variety of felspar from the river Amazon.

AMAZON, *ăm'ă-zōn*, or MARAÑON, *má-rân-yōn'*, or OREL-LANA, *o-rēl-yá'ná*: a river which, after traversing nearly the entire breadth of S. Amer., enters the Atlantic between Brazil and Guiana, by a mouth about 150 m. in width—a mouth which, though it admits the tide for nearly 500 m., is yet so far from meeting the ordinary notion of an estuary that it repels, or at least overlays, the ocean to a distance of more than 50 leagues. With its various tributaries—the Napo, the Putumayo, the Japura, and the Rio Negro from the n., and the Huallaga, the Javari, the Jutahy, the Jurua, the Coary, the Purus, the Madeira, the Tapajos, and the Xingo from the s.—the A. drains 2,330,000 sq. m., an area equal to two-thirds of Europe, and is estimated to afford an inland navigation of 50,000 m., a line double the circumference of the globe. In every respect, then, the A. may well claim to be the largest of rivers, excepting only that, in volume of contents as distinguished from volume of discharge, the St. Lawrence, with its computed mass of 11,000 cubic m., has been estimated to be equal to all the other bodies of fresh water on the earth's surface, from the A. downwards. With this exception, which—as the St. Lawrence is really a

## AMAZON.

series of lakes—is rather apparent than real, the A. stands forth as the king of rivers, whether trunk be compared with trunk, or branches with branches, alike in essential features and in the area of basin. Viewed as one grand system, the A., from its sources, from which the Pacific may be seen within a distance of 60 m., to its embouchure, comprises a course of about 4,000 m.; while, gathering its tribute from both sides of the equator along more than 20° of latitude, it presents, perhaps, between s. and n., a longer line of natural communication than even between w. and e. Reckoning from the western range of the Andes, the A. is but little more than a mountain torrent till it has burst through the gorges of the eastern range of the chain, where it is overhung by peaks that tower thousands of feet above it. But within 300 m. from the Pacific—a journey of about 20 days for loaded mules—the branch called the Huallaga is practicable for steamers, while, after a run of 325 m., the A. is navigable for vessels drawing 5 ft., growing deeper and more available as it rolls its steadily swelling flood towards the ocean. Nor is this the remotest point of clear navigation from the sea, for the Marañon itself is estimated by Herndon to carry the clear navigation about one-fifth higher up, amounting in all to 3,360 m. What an idea do these single threads afford of this matchless net-work of inland navigation! But it is not to its own basin alone, vast as that basin is, that the value of the A. is confined. The Rio Tapajos has its navigation separated only by a portage of 18 m. from that of an affluent of the Plata; the Rio Branco, the main tributary of the Rio Negro, has a water communication which is only two hours distant from that of the Essequibo; while the Rio Negro itself is doubly connected with the Orinoco, receiving from it the navigable Cassiquiare (q.v.), and wanting only a canal over a portage of six hours to complete a still more useful bond of union, whose superior advantages will certainly one day lead to the necessary improvement. In addition to all this, the outlet of this mighty river, besides washing Cayenne, is itself, under nature's guidance, a feeder, as it were, of that highway of nations, the Gulf Stream. Thus does the A., to say nothing more of its maritime relations, bring its inland navigation mediately or immediately to bear on every country, except Chili, in South America—including Venezuela, Ecuador, New Granada, Bolivia, Peru, Brazil, the Guianas, and the several Argentine Republics. This is not mere prospect; not only has the basin proper of the A. been more or less frequently traversed, but also the various joints that knit it to other basins have been tested by experience. The grandest and most singular of them all, besides being explored by Humboldt, has been placed beyond a doubt by the denizens of the country. The barge builders of San Carlos, at the entrance of the Cassiquiare into the Rio Negro, have long sent vessels not only down the Rio Negro to Para, on the Lower A., but likewise up the Cassiquiare to Angostura, on the Lower Orinoco; thus solving, in their own way, the problem which systematic geographers were elsewhere deriding as worse than a fable—as a sheer impossibility. It was not till



Alto-rilievo. — Battle of Centaurs and Lapithæ.



Love-lies-bleeding (*Amaranthus caudatus*).



Amazons.—1, From Hope's *Costume of the Ancients*; 2, from Museo Borbonico.

## AMAZONS.

1867 that the navigation of the A. was thrown open, but now regular lines of steamers ply between its mouth and Yurimaguas on the Huallaga. The most important exports sent down the A. are india-rubber, cocoa, cotton, nuts, copaiba, palm-fibre, hides, sarsaparilla, farina, tonka beans, arnotto, and tobacco. Other productions of the countries watered by the A., countries well fitted to become the garden of the world, are coffee, sugar, maize, rice, indigo, grapes, bananas, cabinet woods, building timber, game, fish, and precious metals. Steamboat navigation began on the A. in 1853. In that year the Amazon Navigation company, a Brazilian commercial association fostered by the government, sent its first steamer from Pará, the maritime emporium of the A., to Nauta, in Peru. Since then the income of the formerly dull town of Pará has risen from \$250,000 to about \$2,500,000. The company had in 1883 thirty-three steamers. The Peruvian government has also a line of steamers on its reach of the A. The name A. is said to be from an Indian word meaning 'boat-destroyer' (from the dangerous bore in the stream). Marañon was an explorer who visited the river in 1503; and Orellana sailed on it in 1540.

The wonderful discoveries made by the late Professor Agassiz (1865.6) in the *fauna* of the waters of the A. have proved what he himself calls 'a true revelation for science.' Their importance will be seen by contrast. The number of species of fish on the whole globe known to Linnæus about a century ago was 300; in 1840, Captain Wilkes collected only 600 species in a voyage round the world with three ships, in an expedition lasting four years; but Agassiz saw in five months on the A. alone 1,300 species of fish, nearly 1,000 of them new, and about 20 new genera. The *Vacca marina*, the largest fish inhabiting fresh waters, and the Acarà, which carries its young in its mouth, especially when there is danger, are denizens of the Amazon.— See *A Journey in Brazil*, by Agassiz (1868); *The River Amazon*, by W. H. Edwards; *Fifteen Thousand Miles on the A.*, by C. B. Brown; *Brazil, the Amazons, and the Coast*, by H. H. Smith (1880); *Between the A. and the Andes*, by Mrs. Mulhall (1882).

AMAZONS, or AMAZONES: according to a very ancient tradition, a nation of women, who suffered no men to remain among them, but marched to battle under the command of their queen, and formed for a long time a formidable state. They held occasional intercourse with the men of the neighboring states. If boys were born to them, they either sent them to their fathers, or killed them. But they brought up the girls for war, and burned off their right breasts, that they might not be prevented from bending the bow. From this custom they received the name of A., that is, 'breastless.' Such is the ordinary tale; the origin of which is perhaps to be accounted for by supposing that vague reports, exaggerated and poetically embellished, had reached the Greeks of the peculiar way in which the women of various Caucasian districts lived, performing military duties which elsewhere devolved on husbands. Ebers and others insist that Greek imagination made the

## AMB—AMBASSADOR.

institution of armed priestesses, as found amongst various races, into nations of women warriors. In later times, however, the word Amazon has been supposed to have some connection with the Circassian word 'Maza,' signifying the moon, as if the myth of the A. had taken its origin in the worship of the moon, which prevailed on the borders of Asia. Three nations of A. have been mentioned by the ancients. 1. The Asiatic A., from whom the others branched off. These dwelt on the shores of the Black Sea, and among the mountains of the Caucasus, especially in the neighborhood of the modern Trebisond, on the river Thermodon (now Termeh). They are said to have at one time subdued the whole of Asia, and to have built Smyrna, Ephesus, Cumæ, and other cities. Their queen, Hippolyte, or, according to others, Antiope, was killed by Hercules, as the ninth of the labors imposed on him by Eurystheus consisted in taking from her the shoulder belt bestowed on her by Mars. On one of their expeditions, the A. came to Attica, in the time of Theseus. They also marched under the command of their queen, Penthesilea, to assist Priam against the Greeks. They even appear upon the scene in the time of Alexander the Great, when their queen, Thalestris, paid him a visit, in order to become a mother by the conqueror of Asia. 2. The Scythian A., who, in after-times, married among the neighboring Scythians, and withdrew further into Sarmatia. 3. The African A., who, under the command of their queen, Myrina, subdued the Gorgons and Atlantes, marched through Egypt and Arabia, and founded their capital on the Lake Tritonis, but were then annihilated by Hercules. See Stricker, *Die Amazonen in Sage und Geschichte* (Berl. 1873).

AMB or AMBI, *ămb* or *ăm'bi* [L. or Gr.]: a prefix, signifying, both; about.

AMBAGES, n. *ăm-bă'jĕs* [L.—from *ambi*, around; *ago*, I go]: in *OE.*, a circuit of words; a circumlocution.

AMBASSADE, n. *ăm'băs-săd*, or AM'BASSAGE, n. *-săj*, in *OE.*, an embassy (q.v.—see also AMBASSADOR).

AMBASSADOR, n. *ăm-băs' sa-dĕr* [F. *ambassadeur*; mid. L. *ambas'ciă*; It. *ambasciata*; old H. Ger. *ambaht*, a minister: Goth. *andbahts*, a servant]: person sent by a sovereign to represent him in a foreign country. AMBAS'SADRESS, n. *-drĕs*, a woman thus sent; wife of an ambassador. AMBAS'SADO'RIAL, a. *a-dŏ'rĭ-ăl*, pertaining to.—SYN. of 'ambassador': envoy; plenipotentiary; deputy; minister; legate; nuncio.—*Ambassador* denotes properly a diplomatic minister of the highest order, an officer sent by one sovereign power or government to another to treat on affairs of state. In a less restricted sense, writers on public law apply the term to every kind of diplomatic minister or agent. The credentials of an A. are addressed directly by his own sovereign or govt. to the sovereign (or head of the govt. to whom he is sent, and with whom he has privilege of personal communication. In all his diplomatic duties, an A. is understood to represent, not only the affairs, but the dignity and power of his sovereign or

## AMBATO—AMBER.

governmental head; and by the law of nations, he has many important rights and privileges, the chief of which is exemption from the municipal laws of the nation in which he is to exercise his functions, an exemption extended to all his suite, including persons employed by him in diplomatic services, also his wife, chaplain, and household. It has been disputed among legal writers whether this exemption extends to *all crimes*, including *mala in se*, e.g., murder; or whether it is limited to offenses *mala prohibita*, e.g., coining. But now, in the general practice, at least of Europe, it is considered that the security of an A. in conducting the intercourse of nations is more important than the punishment of a particular crime.

But though an A. is not amenable to any tribunal of the country in which he resides officially, he cannot misconduct himself with impunity. He must respect the laws and customs of the country; and if he violates these, he may be complained of to the court or govt. which he represents; or if the offense is very serious, his recall may be demanded, or the governmental head to whom he has given such offense may dismiss him peremptorily, and further require that he be brought to trial in his own country. But if an A. is guilty of an offense which threatens the safety of the state, he loses his privileges of diplomatic exemption. Some other privileges are generally allowed to ambassadors: they are permitted free exercise of their religion; they are, in general, exempted from direct taxation; they have special letter-bags, and they are usually allowed to import their goods without paying custom-house duties—a privilege, however, which, being liable to abuse, has sometimes been limited.

Ambassadors are of two kinds: first, those who reside regularly at the court to which they are accredited—a class originating in modern times; secondly, those sent on special occasions, receiving the designation **AMBASSADORS EXTRAORDINARY**.—The British diplomatic corps includes only five ambassadors in the restricted sense; accredited to the courts of Vienna, Paris, St. Petersburg, Constantinople, and Berlin. Inferior diplomatic agents receive the titles **CHARGÉ D’AFFAIRES** (q.v.); **MINISTER PLENIPOTENTIARY** (see **MINISTER**, in **Diplomacy**: **PLENIPOTENTIARY**); or **ENVOY** (q.v.). See also **DIPLOMACY**: **EMBASSY**.

The U. S. congress 1893 authorized the pres. to raise our foreign ministers to the rank of ambassadors, under certain conditions (see **MINISTER**, in **Diplomacy**).

**AMBATO**, *ám-bá' tō*, or **ASIENTO D’AMBATO**: t. of Ecuador, on the n.e. slope of Chimborazo, 66 m. s. from Quito, 8,859 ft. above the sea. It has active trade in grain, sugar, and cochineal, products of the region. Pop. 12,000.

**AMBER**, n. *ám'bér* [F. *ambre*; It. *ambra*; Sp. *ambar*; Arab. *anbar* or *anbarum*, ambergris or gray amber]: a fossil resin, with a tinge of yellow, semi-transparent (see below): **ADJ.** made of amber. **AM’BER-SEED**, musk-seed. **AM’BER-PINE**, the tree producing amber. **AMBERGRIS**, n. *ám'bér-grēs* [F. *ambre*; and *gris*, gray—gray amber]: ash-colored waxy substance found floating on seas frequented by sperm

## AMBER.

whales (see below). **AMBREIN**, n. *ăm'brě-în*, a crystalline substance soluble in alcohol, found in ambergris. **AMBREIC**, *ăm'brě-ik*, denoting an acid formed by digesting *ambrein* a. in nitric acid. *Note.*—*Amber*, and Ar. *anbar* seem to have been applied first to the *gray amber* or odoriferous secretion of certain fish, and then transferred to the yellow or fossil amber.

**AMBER**: a substance analogous to the vegetable resins, and, in all probability, derived from an extinct coniferous tree, although now appearing, like coal, in connection with beds of which it is usually found, as a product of the mineral kingdom. It is usually of a pale-yellow color, sometimes reddish or brownish, is sometimes transparent, sometimes almost opaque. It occurs in round irregular lumps, grains, or drops; has a perfectly conchoidal fracture, is slightly brittle, emits an agreeable odor when rubbed, melts at 550° F., and burns with a bright flame and pleasant smell. It becomes negatively electric by friction, and possesses this property in a high degree—which, indeed, was first observed in it, and the term electricity is derived from *elektron*, the Greek name of A. The specific gravity of A. is 1.0-1.1. It is ultimately composed of carbon 79, hydrogen 10.5, and oxygen 10.5. An acid called succinic acid (named from the Lat. *succinum*, amber) is obtained from it. A. had formerly a high reputation as a medicine, but the virtues ascribed to it were almost entirely imaginary. An antispasmodic volatile oil is obtained from it by distillation. A. is employed in the arts, for the manufacture of many ornamental articles, and for the preparation of a kind of varnish. Great quantities are consumed in Mohammedan worship at Mecca, and it is in great demand throughout the East. It was obtained



Amber, with enclosed insects

by the ancients from the coasts of the Baltic Sea, where it is still found, especially between Königsberg and Memel, in greater abundance than anywhere else in the world. It is there partly cast up by the sea, partly obtained by means of nets, and partly dug out of a bed of bituminous wood. It is found elsewhere also in coal, and occasionally in diluvial deposits, as in the gravel near London; but it is very rare in Britain. It is obtained in small quantities from the coasts of Sicily and the Adriatic, and is found in different parts of Europe, in Siberia, Greenland, etc. It sometimes encloses insects of species which no longer exist. Leaves also have been found enclosed in it. Specimens which contain insects or leaves being much valued, fictitious ones are often manufactured and imposed upon collectors. According to an ancient fable, A. is the tears of the sisters of Phaëthon, who, after his death, were changed into poplars. The ancients set an immense value

## AMBER—AMBIDEXTER.

upon it. Pieces of A. have occasionally been found of 12 or 13 lbs. weight, but such pieces are extremely rare.

**AMBER:** a decayed city in the Rajpoot state of Jeypoor, India, 4 m. n. by e. from Jeypoor;  $26^{\circ} 59'$  n. lat.,  $75^{\circ} 58'$  e. long. It is on the margin of a small lake, in a deep hollow among hills; and its temples, houses, and streets are scattered among numerous ravines opening on the lake. Comparatively few of its houses are now inhabited; but on every side are to be seen ghastly Hindu ascetics, sitting amid the tombs and ruined houses. On the slope of an adjacent hill is the vast and gorgeous palace of Amber, a building remarkable for its massiveness and solidity.

**AMBERG, *ám'bërg*:** old cap. of the Upper Palatinate in Bavaria, 35 m. e. of Nürnberg, and 32 n. of Ratisbon; on both sides of the Vilz. The ancient walls are now transformed into shady avenues. A. is the seat of the court of appeal for the district; has a library of 34,000 vols., a lyceum, an agricultural and industrial school, a house of correction, an arsenal, etc. The principal products are firearms, earthenware, woolen cloths, ironmongery, and beer. A. has 14 breweries, a large cattle and swine market, a market for hops, and an important salt-trade. Many of the inhabitants are employed as miners in the neighboring mountains. A. is well built, and the suburbs are adorned with beautiful gardens and shaded alleys. Pop. (1890) 19,098; (1900) 22,039.

**AMBERGRIS, *ám'bër-grës*** [i. e., gray amber]: a fatty substance, of an ash-gray color, with yellow or reddish striæ, like those of marble, which is found in lumps of from half an ounce in weight to 100 lbs. and upwards, floating on the sea, or cast upon the seashore in different parts of the world, and is also taken by whale-fishers from the bowels of the spermaceti whale (*Physeter macrocephalus*). Much A. is obtained from the coasts of the Bahama Islands; it is also brought from different parts of the East Indies, and the coasts of Africa and Brazil. It is probable that all of it is produced by the spermaceti whale, and that it is a morbid secretion in the intestinal canal of that animal, derived from the bile. It is highly valued upon account of its agreeable smell, and is much used in perfumery. The price is about 20s. an ounce. It has been strongly recommended for medicinal uses, but is scarcely employed in Europe; although in some parts of Asia and Africa it is much used as a medicine, and also in cookery as a condiment. The specific gravity of A. is scarcely more than 0.9. It almost always contains black spots, which appear to be caused by the presence of beaks of the *Sepia octopodia*, the principal food of the spermaceti whale. It consists in great part (85 per cent.) of a peculiar brilliant white crystalline substance called *Ambreïn*, which is obtained from it by treating it with alcohol.

**AMBIDEXTER, n. *ám'bî-dëks'tër*** [L. *ambo*, both; *dexter*, the right hand]: one who uses both hands alike; a double-dealer. **AM'BIDEX'TROUS, a. -trūs**, able to use either hand; double-dealing; deccitful. **AM'BIDEX'TROUSLY, ad. -trūs-lī**



## AMBIENT—AMBO.

**AMBIENT**, a. *ăm'bĩ-ěnt* [L. *ambĩen'tem*, going about—from *ambĩ*, around, *ěō*, I go] surrounding on all sides.

**AMBIGUITY**, n. *ăm'bĩ-gũ'ĩ-tĩ* [F. *ambiguĩtė*—from L. *ambiguĩtatem*, ambiguity—from L. *ambiguĩs*, doubtful—from *ambi*, around, *ago*, I go. It. *ambiguĩtā*—*lit.*, the going round about the thing] a thing which may be understood more than one way, uncertainty as to meaning; doubtfulness, state of doubt. **AMBIGUOUS**, a. *ăm-bĩg'ũ-ūs* [F. *ambigu*: It. *ambiguo*]. indefinite, doubtful, having more meanings than one. **AMBIGUOUSLY**, ad. *-lĩ*. **AMBIGUOUSNESS**, n. *-ūs nės*, the state of being ambiguous.—**SYN.** of 'ambiguous'. equivocal, uncertain, doubtful; indistinct; unsettled; indefinite, indeterminate.

**AMBIT**, n. *ăm'bĩt* [L. *ambĩō*, I go round—from *ambi*, around; *ěō*, I go]: in *OE.*, a compass or circuit.

**AMBITION**, n. *ăm-bĩsh'ũn* [F. *ambition*—from L. *ambĩtĩōnem*, seeking eagerly for a favor—from *ambĩō*, I go round—from *ambi*, around, and *ěō*, I go—*lit.*, the going about hunting for favor or votes]: the eager desire for the possession of power, fame, excellence, or superiority. **AMBITIONLESS**, a. **AMBITIOUS**, a. *ăm-bĩsh'ūs*, aspiring; desirous of fame or superiority; eager to attain something. **AMBITIOUSLY**, ad. *-lĩ*.

**AMBLE**, v. *ăm'bl* [F. *ambler*, to amble; *amble*, an amble: L. *ambũlo*, I go up and down—*lit.*, to move up and down, or backwards and forwards]: to move at an easy pace, as a horse: N. the pace of a horse between a walk and a trot. **AMBLING**, imp: **ADJ.** going at an easy pace, faster than walking. **AMBLLED**, pp. *ăm'bld*. **AMBLER**, n. he or that which.

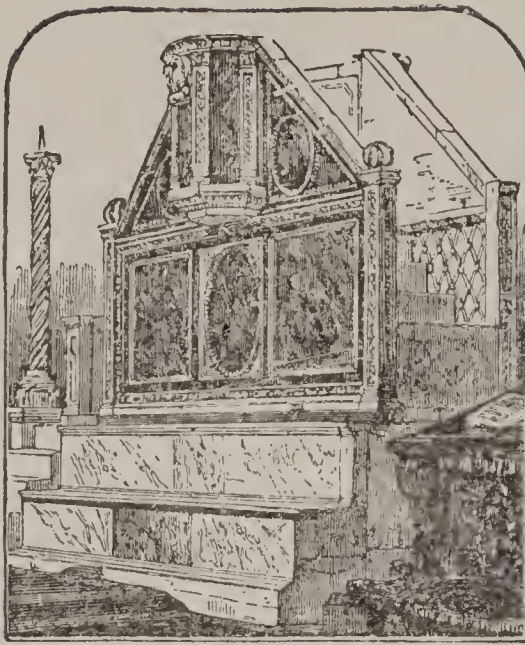
**AMBLYGON**, n. *ăm'blĩg-đn* [Gr. *amblũs*, obtuse, *gōnia*, an angle]: obtuse-angled figure, especially an obtuse angled triangle. **AMBLYGONITE**, n. *ăm-blĩg'đn-ĩt*, a mineral of bluish, greenish, and other colors; a fluo-phosphate of aluminium and lithium, found often in oblique rhombic prisms, with the tourmaline, etc., of Paris, Me., and elsewhere.

**AMBLYOCARPOUS**, a. *ăm'blĩ-ō-cār'pũs* [Gr. *amblũs*, obtuse, dull; *karpos*, fruit]: in *bot.*, having seeds abortive.

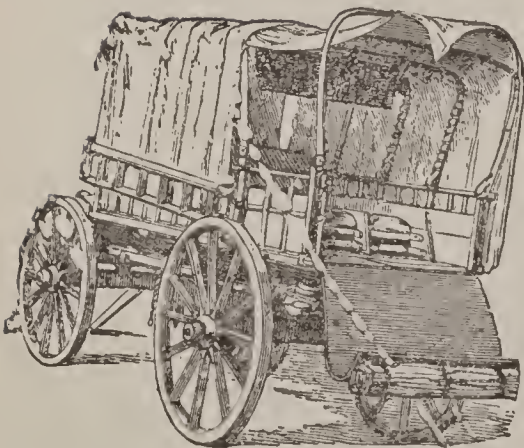
**AMBLYOPIA**, n. *ăm-blĩ-ō'pĩ-a* [Gr. *amblũs*, dull; *ōps*, eye]: dullness of vision, with no visible organic lesion and not capable of improvement with lenses. A. may be congenital; or may arise from disuse of the eye; from excessive indulgence in tobacco or alcohol; from poisons, e.g., lead, urea, etc.; or from disease, e.g., diabetes. Injuries about the skull or globe of the eye may produce temporary and perhaps permanent A. in one or both eyes. When in one only, and of congenital origin, it is frequently associated with squint. **AMBLYOPIC**, a. pertaining to.

**AMBLYOPSIS**, n. *ăm'blĩ-ōp'sĩs* [Gr. *amblũs*, obtuse, dull; *ōps*, eye]: genus of blind-fish (see under **BLIND**) found in the waters of the Mammoth Cave, Kentucky.

**AMBO**, n. *ăm'bō*, or **AMBON**, n. *ăm'bōn* [Gr. *ambōn*, a raised stage: mid. L. *ambo*; F. *ambon*, a pulpit ascended



Ambo, Church of San Lorenzo, Rome.



Ambulance-wagon in use in the British army to carry seven sick or wounded men.



Amentum. — Willow (*Salix fraxinifolia*), male and female, with separate flowers.



Amice.

## AMBOISE—AMBOYNA.

by steps]: a kind of reading desk or pulpit, which, in early churches, was placed in the choir. The Gospels and Epistles were read from the A., and sermons were sometimes preached from it, although the more usual practice in the primitive church was for the preacher to stand on the steps in front of the altar. The A. is still to be found in oriental churches, and specimens of it may be seen in Rome. The A. had two ascents—one from the east, and the other from the west. In the Roman churches, there were two ambos, one on each side of the choir, from one of which the Gospel was read, and from the other the Epistle. Where two such ambos were used, their construction was somewhat different. The name A. was also given to the analogium or reading-desk used in monastic choirs, which was usually in the form of an eagle.

AMBOISE, *õnb-wáz'*: t. on the left bank of the Loire, in the dept. of Indre-et-Loire, France. It is 15 m. by railway e. of Tours, in a region so rich in vineyards that it has been called 'the Garden of France.' Its manufactures are unimportant. A. has a castle, in which several French kings have resided. Charles VIII. was born here. It was also the scene of his death. The town is memorable as the place in which the religious wars that devastated the kingdom during the 16th c. broke out, and where the word 'Huguenot' was first applied to the Protestant party. The castle of A. was much improved by Louis Philippe, and was the residence of the Arab chief Abd-el-Kader, during his captivity in France. Pop. 5,000.

AMBOISE, GEORGE D', Cardinal and Prime-minister under Louis XII. of France: 1460–1510, May 25; b. Chaumont-sur-Loire. When only 14 years old he was made bishop of Montauban, and almoner to Louis XI., and in 1493 was made archbishop of Rouen. Initiated in early years into the intrigues of court, he soon, by his zealous services, secured the confidence of Louis of Orleans (Louis XII.), by whom he was made premier in 1498. From this time A. became the prime mover in all the political affairs of France. By his advice, the king undertook the capture of Milan, which had such great influence on the fortunes of France. After the death of Pope Alexander VI., A. endeavored to raise himself to the papal see, and having failed, became the dangerous enemy of the succeeding popes, Pius III.—who occupied the papal chair only 27 days—and Julius II. To secure his own election, A. encouraged a schism between the French Church and the see of Rome, and convened a separate council, held first at Pisa, afterwards at Milan and Lyons; but his plans were frustrated by the failures of the French army in Italy. He died at Lyons. The Cardinal A. was a dexterous and experienced statesman; but was accused of avarice, vanity, and ambition, and it was said that his vast fortune of 11,000,000 livres had been accumulated by not over-scrupulous means. His biography was written by Montagnes (1631) and Legendre (Rouen, 1724).

AMBOYNA, *ãm-boy'nă*, or APON, or THAU: most im-

## AMBREIN—AMBROSE.

portant of the Spice Islands belonging to the Dutch: lies s.w. from Ceram, and n.w. from Banda,  $127^{\circ} 51' 30''$ — $128^{\circ} 22' 15''$  e. long.,  $3^{\circ} 26' 40''$ — $3^{\circ} 49'$  s. lat.; 287 sq. m. The bay of A. runs into the island lengthways, forming two peninsulas, the northern called Hitu, and the southern, which is the smallest, Leitimor. A. is mountainous, the highest peaks being in Hitu. The climate is healthy—average temperage,  $82^{\circ}$  F.; lowest  $72^{\circ}$ . The east monsoon brings heavy rains and storms. There are many rapid streams, and the town of Amboyna is supplied with excellent water from three small rivers. Clove, sago, mango, and cocoa-nut trees are abundant, also fine timber for cabinet-work. The sago-palm grows along the shores. The hills are covered with the cajeput or leucadendron, from the leaves of which a medicinal oil is extracted. The clove produce varies much, but the average of ten years is about 400,000 lbs. In a good year, a bearing tree gives about 5 lbs. Sweet potatoes, coffee, pepper, indigo, rice, and fruits are grown. Fish are plentiful, and on the banks of A. beautiful shells are found. Deer are numerous on Hitu. There are hogs and goats, a few sheep, monkeys, civet-cats, ant-eaters, crocodiles, snakes, etc. Buffaloes, horned cattle, and horses are imported. The natives are for the most part civilized, though still very superstitious. They speak a Malay dialect, and observe customs which indicate a Hindu origin. Daughters are a source of wealth, a payment of jewels, slaves, or clothing being exacted from the bridegroom. The *villagers* are set apart for the clove cultivation, and employed in feudal service during one half of the year. The *freemen* follow handicrafts, grow fruits and vegetables, fish, make fragrant oils, and trade. The trade, which is small, is chiefly carried on by Chinese and Arabs. The Dutch took A. from the Portuguese in 1605. Pop. 28,000, fully one-half being Christians; the remainder, except 2,000 heathen, Mohammedans.

AMBOYNA, the cap., is near the middle of the n.w. shore of Leitimor, on the bay of A.,  $3^{\circ} 41' 40''$  s. lat.,  $128^{\circ} 15'$  e. long. A wooden pier, where ships lie in 20 fathoms, leads to the town through Fort Victoria, in which are two companies of infantry and half a company of artillery, making a force of 271 men and 23 officers. The town is built at the base of Mount Soya. The streets are wide and clean: many houses are shaded by nutmeg trees. Principal buildings are two Protestant churches, an orphan house, hospital, etc. Europeans live s.w. of the fort in low stone houses. There is a theatre, and there are well-kept markets. The Netherlands Missionary Soc. has a training-school for native teachers and ministers, with a printing establishment for lesson-books. The Reformed Church has 1,800 members, 1,300 being natives, with 2 ministers who superintend other churches. Since 1854 A. has been a free port. Pop. 10,500.

AMBREIN, AMBREIC: see under AMBER. AMBRITE, n. *ăm'brīt* [so named from its resemblance to *amber*]: a fossil gum-resin, found in the soil of New Zealand.

AMBROSE, *ăm'brōz*, SAINT, one of the most celebrated

## AMBROSIA.

of the ancient fathers of the church: about 340–397; b. prob. at Treves, where his father, as prefect of Gaul, was wont to reside. A. received a fortunate omen even in his cradle: a swarm of bees covered the slumbering boy; and the astonished nurse saw that the bees clustered round his mouth, without doing him any harm. His father, perhaps remembering a similar wonder related of Plato, foreboded from this a high destiny for A. He received an excellent education, and went with his brother Satyrus to Milan, in order to follow the legal profession. He soon distinguished himself so much that in 369 he was appointed, by Valentinian, prefect of Upper Italy and Milan. In this office his gentleness and wisdom won for him the esteem and love of the people, whose prosperity had been much injured by the troubles caused by Arianism. Accordingly, by both Arians and Catholics he was unanimously called to be bishop of Milan, 374. A. long refused to accept this dignity, and even left the city; yet he soon returned, was baptized, as hitherto he had been only a catechumen, and was consecrated eight days afterwards. The anniversary of this event is still celebrated as a fête by the Catholic Church. As a bishop, A. won the universal reverence of all, by his mild and gentle character, though severe and unbending towards wickedness of every kind. Thus he repulsed the emperor Theodosius himself even from the door of the church, on account of his having caused the rebellious Thessalonians to be cruelly massacred by Rufinus, excommunicated him, and only restored him to the church after eight months of severe penance. The best edition of his works, in which he followed in many things the Greek theological writers, is that published by the Benedictines (2 vols., Paris, 1686–90). The hymn *Te Deum Laudamus* is usually ascribed to A., but it is asserted by some authorities to have been written 100 years later. The Ambrosian ritual has also received his name, perhaps only because A. had made some changes upon it, which are retained at the present day in the Milanese Church. A commentary on the epistles of Paul, which was formerly ascribed to A., was probably composed by the Roman deacon Hilarius, and is usually quoted as the Commentary of the Ambrosiaster. A. is the patron saint of Milan, and the Ambrosian library received its name in honor of him.

AMBROSIA, n. *ăm-brō'zhĭ-ă* [Gr. *ambrōsĭă*—from *a*, not; *brotos*, mortal]: said by the ancients to have been the food of the immortals; whatever is pleasant to the taste or smell. AMBRO'SIAL, a. *-zhĭ-ăl*, pertaining to the food of the gods; pleasing to the taste or smell. AMBRO'SIALLY, ad. *-lĭ*. AMBRO'SIAN, a. *-zhĭ-ăn*, of St. Ambrose; ambrosial.

AMBROSIA: in Greek and Roman mythology, the food of the gods, which conferred immortal youth and beauty. It was brought by doves to Jupiter, and was occasionally bestowed upon such human beings as were the peculiar favorites of the gods. A. was also used as a fragrant salve, which the goddesses employed to heighten their beauty; with which Jupiter himself anointed his locks; and which had the property of preserving bodies from corruption.

## AMBROSIAN CHANT—AMBRY.

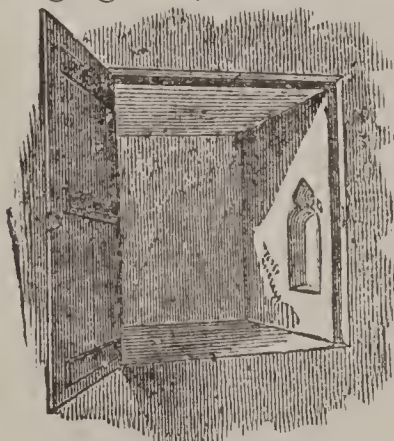
Hindu mythology has also its *amrita* [from *a*, signifying 'without' or 'not,' and the Sanscrit root, allied to the Lat. *mort*, and Greek *brot*], or liquor of immortality, that resulted from the churning of the ocean by the gods; and the gods of the Scandinavian pantheon were preserved in perpetual vigor by eating the apples guarded by Idun.

**AMBROSIAN CHANT:** the choral music of the early Christian church, introduced from the eastern church into the western by Ambrose, bishop of Milan, 4th c.; it was founded on the first four authentic modes of the ancient Greeks, and was sung antiphonally. It continued in use until the 6th c., when Pope Gregory the Great reformed the music of the church by introducing the Gregorian chant. There exists still another specimen of music by Ambrosius, now known only in the German Lutheran Church by the air of one of Luther's hymns, *Nun kommt der Heiden Heiland*; it is beyond a doubt 1,400 years old, and remains a beautiful specimen of melody, expressive of filial humility and submission. The A. C. continued to be sung in the cathedral at Milan long after Gregory's reformation, and till this day, it is said, it may be heard there.

**AMBROSIAN LIBRARY**, in Milan: so named in honor of Ambrose, patron saint of that city. It was established in 1609 by the Cardinal Archbishop Federigo Borromeo, who employed learned men to collect books in Europe and Asia. This library was afterwards enriched by the acquisition of the MSS. of the Pinelli collection. Borromeo intended to establish, in connection with the library, a college of sixteen learned men, each having charge of a particular department, to make known the works in the library, and assist strangers in their researches. The want of funds limited the number of members of this college. The chief acting officer, or *prefetto*, and four assistants are Doctores Bibliothecæ Ambrosianæ. The library contains 140,000 vols. of printed books, and 8,000 MSS. Among the many rarities belonging to it, besides the Palimpsests and other as yet un-

edited MSS. discovered by Maio, Castiglione, and Maz-zuchelli, it contains a 'Vergil,' in which Petrarch had written an account of his first meeting with Laura.

**AMBRY**, n. *ăm'brĭ*, or **AUMRY**, n. *avom'ri*, or **AUMBRY**, n. *avom'brĭ*, or **ALMERY**, *ăl'mēr-ĭ* [F. *armoire*; Sp. *armario*; L. *armarium* or *almārium*; Ger. *almer*, a chest or cupboard; supposed by some a corruption of *Almonry*]: a niche in the wall



Ambry, Rushden, Northamptonshire—14th century.

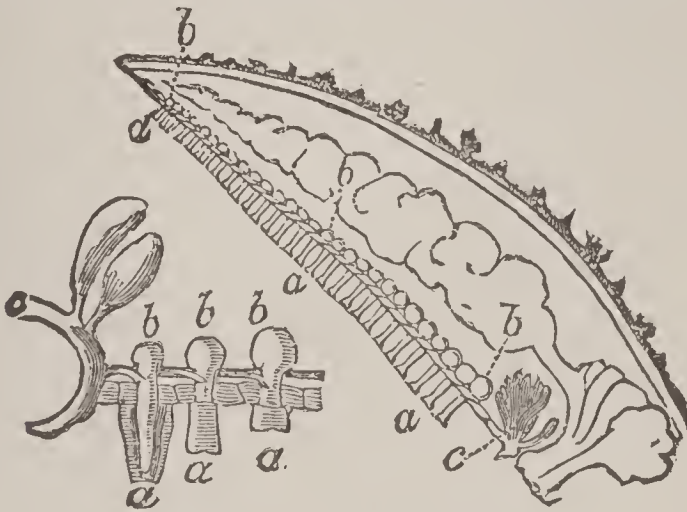
of a church, shut in by a door; or a small cabinet of wood placed by the side of the altar, for the purpose of holding the vestments and utensils, such as the chalices, basins, cruets, etc., used for the service of the mass; also for the

## AMBS·ACE—AMBULANCE.

deposit of alms. In monastic buildings, ambries were used for various purposes, such as keeping plate, hanging towels for the monks to dry their hands with before dinner, and the like. In this sense the term A. seems to have been applied to any kind of cupboard which was closed in and locked, and it is so used in Scotland at the present day

AMBS·ACE or AMES·ACE, n. *āmz'ās* [Norm. F. *ambezatz*; L. *ambo*, both, and *ace*]: a double ace; two aces turned up at the same time at dice.

AMBULACRA, n. plu. *ām'bū lā'krā* [L. *ambulācrum*, that which serves for walking, a garden-walk]: peculiar organs of locomotion with which star-fishes and other *Echinodermata* are furnished. They are fleshy, more or less elongated, and terminated by suckers. They pass through orifices in the shell or other external integument of the animal, and are generally arranged in rows. Those of the *Echini*, or Sea-urchins, are long enough to extend



Ambulacra of Star-fish,

As seen in a longitudinal and vertical section of one of the rays; and three of them in a separate figure on a larger scale in which they are shown in different conditions: *a, a, a*, tubular feet; *b, b, b*, internal vesicles; *c*, the organ which supplies the fluid with which they are filled.

beyond the point of the spines, and by means of them the animal is able to climb a perpendicular rock. They are tubular, and each has at its base a vesicle, filled with a fluid which, on the contraction of the vesicle, is forced into the tube, dilating it to its full extent, whilst, on the contraction of the tube, the fluid returns again into the vesicle. The fluid is not secreted by these vesicles, but provided for them by distinct secreting organs. AM'BULA'CRAL, a. *-krāl*, pert. to.

AMBULANCE, *ām'bū lāns* [see AMBULANT]. originally, in France, the movable hospital attached to every division of the army; this was greatly improved during the wars of the first Napoleon, by Baron Larrey. The term now denotes a special vehicle for conveyance of the sick or injured. The A. used in the British army is a four wheeled wagon, provided with stretchers, marked on the canvas roof with the Geneva cross (see GENEVA CONVENTION), and

## AMBULANT.

drawn by two horses, driven postilion fashion. Ten of these ambulances are attached to each division, and it is their province after an action to drive on to the field, pick up the wounded and carry them to the dressing station or field hospital. The French had ambulances during the Crimean war; but the British, having no such system, were obliged to borrow from their allies. In 1858 a commission for the purpose organized the A. service at present in use for the British army. Applied to the German army, the A. corps is termed a 'Sanitary Detachment.' The Knights of St. John in England and the St. Andrew's A. Assoc. in Scotland have each organized a street A. system in most of the large towns of those countries. Classes are trained in A. service by lecturers belonging to these organizations, and ambulances and, from their offices, attendants can be summoned by telephone or otherwise. Altogether, the best and completest form of A. has been devised and applied in the United States and generally copied throughout the world wherever such vehicles are in use. During the civil war the ambulances generally used were of the 'Wheeling' and 'Rucker' patterns. After the war, these vehicles being found unsuitable for the requirements of the A. service then being undertaken in New York, an entirely different wagon was constructed. The many years of study of the subject by the surgeons and carriage makers of New York have improved greatly on the form which at first was the best attainable, and an A. has been produced which is believed to meet all the needs of city service. The popularity of this pattern is shown by the great number which have been built in New York and sent to other localities, e.g., nearly all the principal American cities, London and Bristol, England, Panama, Guatemala, and other countries. The first vehicle used in New York as an A. was the old four-wheeled covered market wagon, supplied with a mattress, pillows and blankets, and whatever articles were necessary to carry. The improvement has been slow but constant to the present perfected form. The improved A. in present use, as described, weighs from 1,100 to 1,300 lbs., and costs about \$600. Eight persons can be carried in it if necessary; one sitting with the driver, three lying on the bed, two sitting on the surgeon's cross-seat, supported by straps in the rear, and the surgeon riding on the step which hangs down from the rear end of the body. The wagons are painted black and dark green. The bed runs on small iron wheels, and is easily run in or pulled out from the body of the vehicle. The roof is of hard wood, the sides and rear furnished with adjustable leather curtains; the sides of the body are padded and covered with enamelled leather or rubber cloth. To the rear of the driver's seat iron frames hold the medicine chest and a box containing antiseptic dressings and instruments. Each wagon is provided with one or more stretchers, upon which patients are brought to the ambulance.

AMBULANT, a. *ăm'bū-lănt* [F. *ambulant*—from L. *ambulans* or *ambulan'tem*, walking]: walking; strolling; moving from place to place. AMBULANCE, n. *ăm'bū-lăns*,



## AMBURY—AMELIORATE

[F.]: vehicle for conveyance of the sick or injured (see above); in France, the movable hospital of an army. **AM'BULA'TION**, n. a walking about, the act of moving about. **AMBULATORY**, a. *ăm'bū lā'ter ă*, that has the power of walking, applied to a single limb, or to an entire animal. **N.** a place for walking, spec in *arch*, the cloisters of a cathedral, college, etc.

**AMBURY**: see **ANBURY**

**AMBUSCADE**, n. *ăm būs-kād'* [F. *embuscade*, an ambush: It. *imboscare*, to hide in a wood; *imboscata*, an ambush—from F. *bois*; It *boseo*; mid L *boscus* (Eng. *bush*), wood—*lit.*, a lying hid in a wood or thicket]: a lying in concealment to attack an enemy by surprise, the place where troops lie in wait: **V.** to lie in wait. **AMBUSCA'DING**, imp. **AMBUSH**, n. *ăm'boosh* [F. *embuche*, a snare. Norm. F. *embuscher*, to lie in wait in a wood It. *im*, in; *bosco*, a wood or thicket]: a lying in wait, soldiers concealed in order to attack an enemy by surprise, an ambushcade: **V.** to lie in wait for; to surprise. **AMBUSHING**, imp. **AMBUSHED**, pp. *-boosht.* **AMBUSHMENT**, n. *ăm boosh-měnt*, an ambushcade.

**AMBUSCADE**, or **AMBUSH** one of the maneuvers adopted in war. It applies to any attempt to attack an enemy by lying in wait and coming upon him unexpectedly. In former days, when soldiers fought hand to hand more frequently than at present, the A. was much resorted to, but the tactics of modern times render it less available. An A. is neither an 'attack' nor a 'surprise,' in military language; it is something more sudden and unexpected than either. See Col. Malleson, *Ambushes and Surprises* (1885).

**AMELANCHIER**, *ăm-ěl-ăn kî-er*: genus of plants of the natural order *Rosaceæ* (q v.), sub-order *Pomeæ*; distinguished by having five ovaries, each of which is divided into two cells, with one ovule in each cell, the ripe fruit including 3-5 carpels. It consists of a few species of small trees with deciduous simple leaves, abundant racemes of white flowers, and small fruit of the size of a pea, or a little larger, but soft, juicy, and agreeable. The common A (*A. vulgaris*) is a native of the Alps, Pyrenees, etc. The other species are natives of North America. *A. Canadense* is the edible June-berry, or shad bush, named because flowering in shad time. It is common n., with its varieties *botryarium* (meaning grape-pear, formerly classed under *Pyrus*, which includes pears), *oblongifolia*, *rotundifolia*, *alnifolia* (alder-leaved), and *oligocarpa* (few-fruited)

**AMELIA**, *â-mā lē-â* (*anc. Ameria*): t. of central Italy, prov. of Perugia, 21 m s w. of Spoleto, picturesquely situated on the mountains between the Nera and the Tiber, about 7 m. from the junction of the two rivers. It is the seat of a bishop, and has a cathedral. Pop. of commune, 3,000.

**AMELIORATE**, v. *ăm-měl'yō-rāt* [mid. L. *ameliorātus*, made better, made more vigorous—from L. *ad*, *melior*, better: F. *ameliorer*, to improve]: to make better; to improve. **AMEL'IOA'TING**. imp. **AMEL'IOA'TED**, pp.

## AMEN – AMENDE.

**AMEL TORA'TOR**, n. *-tér*, one who. **AMELIORATION**, a. *ă-měl'yǒ-ră'shŭn*, a making better; improvement. **AMELIORATIVE**, a. *ă-měl'yǒ-ră'tiv*, producing improvement.

**AMEN**, v. *ă'měň'* or *á'měň'* [Gr.—from Heb.]: a Hebrew word of asseveration, equivalent to 'Yea,' 'Truly;,' commonly adopted in the forms of Christian worship (Ps. cvi. 48): N. stability, firmness, truth (Rev. iii. 14; 2. Cor. i. 20). In Jewish synagogues, the A. is pronounced by the congregation at the conclusion of the benediction at parting. Among the early Christians, the prayer offered by the presbyter was concluded by the word A., uttered by the congregation. Mention is made of the practice in 1. Cor. xiv. 16. Justin Martyr is the earliest of the fathers who alludes to the use of this response. 'In speaking of the sacrament, he says that, at the close of the benediction and prayer, all the assembly respond "A." According to Tertullian, none but the faithful were permitted to join in the response.' A somewhat noisy and irreverent practice prevailed in the celebration of the Lord's Supper until the 6th c., after which it was discontinued. 'Upon the reception both of the bread and of the wine, each person uttered a loud "A.;" and at the close of the consecration by the priest, all joined in *shouting* a loud "A."' The same custom was observed at baptism, where the sponsors and witnesses responded vehemently. In the Greek Church, the A. was pronounced after the name of each person of the Trinity; and at the close of the baptismal formula, the people responded 'A.' At the conclusion of prayer, it signifies (according to the English Church Catechism) *So be it*; after the repetition of the Creed, *So is it*.

**AMENABLE**, a. *ă-mě'nă-bl* [F. *amener*, to bring or lead into—from F. *mener*, to drive—from mid. L. *mīnārē*, to drive, as cattle, to lead from place to place—*lit.*, capable of being managed or led]: liable to answer; liable to be called to account. **AME'NABLY**, ad. *-blĭ*. **AME'NABIL'ITY**, n. *-ĭ-tĭ*, liability to answer. **AMENAGE**, v. *ăm'ěn-ăj* [AS. *a*, on, and *menage* for *manage*]: in *OE.*, to manage; to direct by force. **AMENANCE**, n. *ăm'ěn-ăns*, in *OE.*, conduct; behavior.—**SYN.** of 'amenable:' accountable; answerable; responsible; docile; liable.

**AMEND**, v. *ă-měňd'* [F. *amender*, to amend—from L. *emendārē*, to correct, to improve—from L. *ex*, *mendum*, a fault or error]: to free from faults or errors; to correct; to make or grow better; to improve. **AMEND'ING**, imp. **AMEND'ED**, pp. **AMEND'ABLE**, a. *-ă-bl*. **AMEND'ATOR'Y**, a. *-ă-tér'ĭ*, corrective. **AMEND'MENT**, n. a change for the better; improvement; the correction of an error. **AMENDS**, n. *ă-měňdz'*, satisfaction; a recompense. **TO MOVE AN AMENDMENT**, to propose a change, an alteration, or an omission in any measure before a public body, or even its rejection.—**SYN.** of 'amend': to correct; reform; emend; rectify; improve;—of 'amends': compensation; remuneration; recompense; satisfaction; requital; reward; meed; guerdon.

**AMENDE**, n. *ă-mǒngd'* [F. a fine or penalty]: reparation

## AMENDMENT—AMENTACEÆ.

AMENDE HONORABLE, *ă-mòngd' òn'ò-rá'bl* [F. apology honorable]: a full apology for insult or injury.

AMENDMENT. term in judicial and in parliamentary proceedings. In the former, it is a power of correction of any errors in actions, suits or prosecutions, which has been greatly extended of late, and which has largely improved and simplified the administration of law. In parliamentary practice A. applies to a motion (or the substance of a motion) intended to oppose, vary, or qualify a question or resolution; and in the case of bills, it is employed as a courteous method of dismissing the bill from any further consideration, by moving that instead of 'now,' it be read at the end of three months, six months, or any other term beyond the probable duration of the session. It is also competent to a member to move as an A to the question a resolution declaratory of some principle adverse to that of the bill, provided it be strictly relevant. A. in judicial proceedings, is the correction, by allowance of the court, of an error committed in the progress of a cause. Amendments at common law are in all cases in the discretion of the court for the furtherance of justice, and may be made at any time while the proceedings are subject to the control of the court. Amendments are, however, always limited by due consideration of the rights of the opposite party, and when by an A these would be prejudiced or exposed to unreasonable delay, it is not granted

AMENITY, n. *ă-měn'ì-tì* [L. *amœnitas*, delightfulness—from *amœnus*, pleasant. F. *aménité*]. pleasantness; that which delights the eye; suavity or evenness of temper.

AMENOPHIS, *ăm ē-nō fīs*, AM UNOPH, or AMEN-HOTEP: name of three Egyptian kings, of the 18th dynasty.—A I reigned B C 1499-78 he warred against Canaan and Ethiopia, and beautified the city of Thebes.—A. II. succeeded his father, Thotmes III. he took Nineveh by assault, and conquered the Ethiopians. Some writers identify him with Memnon, who fought in the Trojan war.—A. III. reigned B.C. 1400-1364, when the Egyptian kingdom had its greatest extent, from the Euphrates into Ethopia. The Egyptian obelisk in the Palace de la Concorde, Paris, commemorates his exploits, and among the many existing monuments of his period is 'the Vocal Memnon.'

AMENORRHEA, or AMENORRHŒA, n. *ă měn ò rē'a* [Gr. *a*, without; *mēn*, month, *roia*, flow]. absence of the regular monthly flow in a woman in whom it should naturally exist. See MENSTRUATION

AMENTACEÆ, *ă-měn-tă'sê-ē*: according to some botanists, a natural order of dicotyledonous or exogenous plants, consisting entirely of trees and shrubs, whose flowers are unisexual, the male flowers, and very often also the female flowers, disposed in *amenta* or catkins (q.v.), and the perianth either wanting or incomplete. This order, which contains many well known and important trees, is divided into a number of sub-orders, which by many have been erected into distinct orders, forming the *Amental Alliance* of Lindley. Under A. are ranked *Salicineæ* or *Salicaceæ* (see WILLOW)

## AMENTHES—AMERCE.

*Myricæ* (see CANDLEBERRY MYRTLE), *Casuarinacæ* (see CASUARINA), *Betulacæ* (see BIRCH), *Altingiucæ*, called also *Balsamacæ*, but not to be confounded with *Balsaminacæ*, or *Baisamineæ* (see LIQUIDAMBAR); by some also *Corylaceæ* or *Cupuliferæ* (q.v.), and *Platanæ* (see PLANE), both of which Lindley excludes from his Amental Alliance, associating the former with *Juglandacæ* (see WALNUT), as a distinct alliance, and referring the latter to the *Urtical Alliance*. See URTICACEÆ. On the other hand, he unites with the Amental Alliance the order *Elæagnacæ*. See ELÆAGNUS.

AMEN'THES: Egyptian mythological word equivalent in meaning to the Greek word *Hades*, the unseen world. Plutarch explained it as signifying 'the giving and taking,' an interpretation generally adopted, but erroneously. A. literally means 'the hiding' (-place understood). On Egyptian monuments is pictured the god Anubis leading to A. the souls which, in the form of birds, are escaping from the body through the mouth. He conducts them before the throne of Osiris, who sits as judge, with a council or jury of forty-two persons. The female deity, AMENT, represented on monuments in Upper Egypt, is merely a female form of Ammon, and her name has no connection with that of A.

AMENTIA, n. *ă-měn'shĭ-ă* [L. *amentĭă*—from Gr. *a*, without; L. *mens* or *mentem*, the mind]: imbecility of mind; idiotism.

AMENTUM, n. *ă-měn'tŭm*, or AMENT, n. *ăm'ěnt* [L. *amentum*, a leathern thong]: in bot., a catkin or spike with scaly bracts hanging somewhat like a rope or cat's tail. AMENTACEOUS, a. *ă-měn-tă'shŭs*, producing amenta or catkins. AMENTIF'EROUS, a. *tĭf'ěr-ŭs*, denoting plants having amenta or catkins.

AMERBACH, *ă'měr-băk*, JOHANN: a German printer, one of the first to use Roman instead of Gothic letters. From his press at Basel, he published the works of St. Ambrose and St. Augustine.

AMERCE, v. *ă mĕrs'* [OF. *amerciĕr*; mid. L. *amerciārĕ*, to impose a pecuniary fine on one guilty of crime: F. *a*, at; *merci*, mercy]: to impose a pecuniary penalty on one, that is, at the discretion or mercy of the court; to cause to pay a sum of money by way of punishment. AMERC'ING, imp. AMERCED, pp. *ă-mĕrs't'*. AMERCEMENT, n. *ă-mĕrs'mĕnt*, money paid by way of punishment or fine at the mercy of the court. AMER'CER, n. *-sĕr*, one who. AMERCEABLE a. *ă mĕrs'ă-bl*.

## AMERICA.

**AMERICA:** one of the four quarters of the globe; smaller than Asia, but nearly as large as both Europe and Africa together. It is the only one of the four main divisions of the land that is washed by all the four great oceans—the Northern, the Atlantic, the Southern, and the Pacific. If Terra del Fuego and Greenland are included—as ought to be done on geological grounds—A. occupies about  $150^{\circ}$  of long., and about  $135^{\circ}$  of lat.

*Physical Aspect.*—If Greenland, described under its own heading, be left out, and this continent be viewed as a whole, the chief feature is the great range of lofty mountains which runs with little interruption from n. to s. near the Pacific coast. This range is remarkable not only for its great length, but also for the fact that its general direction, n. to s., differs from that of the leading mountain ranges of the old world, which, at least in the n. hemisphere, mostly stretch e. and w. See **ROCKY MOUNTAINS: CORDILLERAS OF CENTRAL AMERICA: ANDES.**

Scarcely anywhere do these mountains consist of a single chain. In almost every part of their course, at least two ranges can be made out, separated by one or more valleys or plateaus, or, in s. Chili, where the w. range occupies islands, by the sea. Where they begin, in British North A., three ranges, separated by valleys, are distinguishable; but on entering the United States, the Rocky Mountain region expands into a vast tableland from which numerous detached ranges emerge, almost all of which run more or less n. and s. The only exceptions are the Uintah Range of Utah and Wyoming, and the Sweetwater Range in Wyoming, both of which run e. and w. Within this table-land is included a large area known as the Great Basin (q.v.), which has no outlet; and elsewhere it is a noteworthy fact that the rivers of the Rocky Mountains do not follow the course of the valleys separating the ranges, but cut across the latter, showing that the rivers already existed before the elevation of the mountains, and gradually deepened their beds as the mountains rose. The region immediately to the s. and e. of the Great Basin is highly remarkable on account of the enormous depth to which the rivers, more particularly the Colorado (q.v.) have worn their beds through the rocky plateaus, the sides of their beds rising almost, or in some places quite perpendicularly up, and forming what are known as cañons. To the s. of the vast plateau region of the western states other separate plateaus of greater or less elevation occur, in New Mexico, Mexico, and Central A.; and at the Isthmus of Panama (q.v.), the range may be said to disappear for a short interval where the elevation sinks to between 500 and 600 ft.

Beginning again on the other side of the depression, the s. half of these mountains, the Andes, have their parallel chains more continuous, and for the most part closer together than in North A.; and here, too, the American mountains attain their highest elevation, the highest peaks of the Andes being surpassed only by those of the Himalayas. Only in Peru and Bolivia do we meet with broad plateaus comparable to those of western North A. On the w.

## AMERICA.

side, the slope of the Andes is very steep, descending rapidly down, n. of about  $40^{\circ}$  s., to a comparatively level strip of from 60 to 80 m. in breadth; while s. of that point, the mountains advance to the sea.

Both in North and South A., the descent is much more gradual on the east side than on the west; in North A., indeed, the slope towards the plains of the Mississippi is so gradual as to be almost imperceptible. In both halves of the continent, too, the land rises again into mountains on the e. side; in North A., in the Laurentian Range (see CANADA), the Green Mountains and the Appalachians (q.v.), and in South A. in the mountains of Guiana n. of the Amazon Valley, and the Serra do Espinhaço and the Serra dos Orgaos and Serra do Mar in Brazil, to the s. of that valley. Other isolated ranges, such as those of Cordova, Velasco, and Aconquija, occur farther to the s. amid the plains of the Argentine Confederation. In the e. part of North A. the Appalachians form a very important feature, but the only fact of a general nature that need be alluded to here is the existence of a valley varying in breadth from 15 to 50 or 60 m., running longitudinally through the whole extent of the system, forming in the extreme n.e. the valleys of the St. Lawrence, Lake Champlain, and the Hudson: while in Pennsylvania it forms Cumberland Valley, in Virginia the Shenandoah Valley, and in e. Tennessee the Tennessee Valley.

Volcanic manifestations and phenomena of an allied nature are now confined to the w. side of the continent. On the e. side, the volcanic fires are long extinct. There the oldest eruptive rocks, at least in North A., are melaphyres and so-called traps of secondary age. On the Pacific, or more recently elevated side (see below, under *Geology*), there are signs of recent volcanic activity through the whole length of the continent; and there are still active volcanoes at intervals along the whole line from Terra del Fuego to the Mexican plateau, and, again, in Alaska and the Aleutian Islands. The same regions, but more especially the west coast of South A., are more or less subject to earthquakes. On the great table-land of western North A., it may be remarked, Dr. Archibald Geikie met with unmistakable evidence of volcanic eruptions, in a recent geological epoch, on a scale to which the volcanoes of the present day show no parallel, the molten matter having poured forth from huge fissures so as to flood the lower ground with horizontal sheets of basalt. In that region, at present, the chief sign of volcanic activity is in the celebrated geysers of the Yellowstone region.

*Climate.*—In comparing North A. with Europe and Asia, we must contrast not east and west with each other, but west with west, and east with east—neither Newfoundland with England, nor British Columbia with Kamtchatka, but Kamtchatka with Newfoundland, and England with British Columbia. Such a comparison shows that the difference lies not, as is often assumed, between the two continents, but between the opposite shores of either continent within itself. For instance, at Nain, in Labrador, the mean tem-

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perature is  $7^{\circ}$  F. below freezing; while at Sitka, in Alaska, it is  $12^{\circ}$  above freezing. This difference of  $19^{\circ}$  between the e. and w. coasts of the new world is only a very little less than the difference between the e. coast of the new and the w. coast of the old; for the temperature of Gottenburg, in Sweden, is only  $21^{\circ}$  higher than that of Nain. It is to be remarked, however, that this difference between the opposite coasts of the two continents diminishes as we proceed southwards. New York is only  $7^{\circ}$  colder than Naples; and Florida has the same temperature as Cairo. This difference between the two sides both of the old world and the new, and correspondence between the corresponding sides of the land of the two hemispheres, is due to the fact that the same influences act on both continents. In both cases, the n.e. shores are washed by cold currents flowing out of the Arctic Ocean; while the corresponding latitudes on the w. have their temperature maintained by the prevailing warm s.w. winds, and these winds have their temperature kept up by the warm currents which proceed in the same direction from the equatorial parts of the ocean.

But whatever influences may be common to the climates of both continents, there are, as might be expected, interesting contrasts in respect of climate, due to the difference in physical structure between the old world and the new, and especially to the existence in the latter of that long backbone of mountains described in the previous section, and the absence in the n. half of the continent of e. and w. ranges corresponding to the Himalayas and some of the mountains of Siberia and Mongolia. The backbone of mountains exerts an important influence on climate through its entire course, mostly arresting the passage of the clouds and rains so as to make the windward slope a fertile garden, while the leeward slope is a barren desert. The exceptions to this rule will appear on considering the effects of this mountain barrier in different parts.

The n. part of the range lies in a region where, as in the corresponding parts of Europe, the winds are very variable, but where the rain-bearing winds blow chiefly more or less from the s.w. Here, accordingly, the rainy side of the mountains is the w. side, and as in Europe, the heaviest rains are near the w. coast. The chief difference between Europe and this quarter of America lies in the fact, that in A. the proximity of the mountains to the coast causes the annual rainfall to diminish more rapidly to the east than anywhere in Europe except in Norway, where the borders of the Scandinavian plateaus have the same effect. The rainfall in the w. of Vancouver's Island is much heavier than in the e., and here again the rainfall is much heavier than in the valley between the coast range of the mainland and the next range in the interior. At Esquimalt, in the s.e. of Vancouver's Island, the annual rainfall is nearly 30 inches; while at Spence's Bridge, in the valley referred to, the total annual precipitation (including snow converted into rain) is only about 10 inches. Further inland in these latitudes, where the rainfall is not so much dependent on w. winds, there are ample rains in summer and deep snows in winter.

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Farther s. is a region where the chief rain-bearing winds are still s.w. but where, e. of the mountains, rain is extremely deficient. W. Oregon and the whole of Upper California w. of the Sierra Nevada have an abundant rainfall, and are among the most fertile tracts in the world; while the e. base of the Sierra Nevada (which forms the w. boundary of the Great Basin mentioned in the previous section) is one of the driest regions on the globe; so dry, indeed, that in spite of the low temperature which characterizes the nights there in consequence of the excessive loss of heat by radiation, there is not even a deposition of dew (q.v.). The Great Basin is only part of a wide region which, stretching to the n., e., and s. of that basin, and embracing in all about 1,400,000 sq. m., has been called the Great American Desert; so called, however, with impropriety, inasmuch as, though remarkable for its deficiency of moisture, the region includes large areas richly productive as they are, and capable of being made by artificial means still more so. The report of the U. S. land office for 1876-7, however, describes the whole region from the meridian of 100° w. in the e. to the Sierra Nevada and Cascade Region in the w., and from the Mexican frontier in the s. to the British frontier in the n., as one in which agriculture in the sense in which it is pursued in the Mississippi Valley—agriculture without irrigation—is impossible; and a more recent American surveyor, Mr. Low, has furnished us with more precise details as to this arid region. He classes the districts of the United States in which there is a deficiency of moisture under three heads: First, treeless plains covered with grass, under which head fall Nebraska, Dakota, w. Kansas, and e. Colorado. Second, semi-desert regions, treeless tracts with little or no grass, but covered with low somewhat shrubby plants, such as *atriplex*, *artemisias* (sage-brush), *aplopappus*; under this head fall Nevada, Utah, Wyoming, n w. Texas, the w. part of the Indian Territory, and New Mexico; but in most of them the mountains with which they are traversed occasion very numerous oases. Third, genuine deserts with only very scanty vegetation, or, over large tracts, with no vegetation at all, such as the Mohave Desert in s. California and w. Arizona, the Gila Desert in s.w. Arizona, and the Painted Desert in n. Arizona and s. Utah.

South of these deserts is a region where the prevailing winds are from the e. This is within the tropics and the trade-winds (see WIND), and the modifications of the trade-winds produced by the configuration of the land surface must be considered. Throughout this region, as far as the valley of the Amazon, the rainfall on the e. side is for the most part divided between a rainy and a dry season, the rain being generally abundant during the former, and scanty during the latter. In this region are included the West India Islands generally. The peninsula of Yucatan, though included within it, is a comparatively dry region, for the surface is so low that it shares to some extent in the rainlessness characteristic of the trade-wind region on the ocean.



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Before considering the w. side of the mountains in this region, it will be well now to look at the more easterly parts of A., which have not yet been considered, to the n. of this region, for there is seen another effect of the same mountain barrier. The lower part of the Mississippi Valley (the states of Louisiana, Mississippi, and Alabama) has the highest rainfall in North A. outside of the tropics, with the exception of the w. maritime strip already referred to. This rain is brought by winds charged with moisture drawn from the steaming area of the Mexican Gulf, and these winds may be regarded partly as trade-winds which have had their course deflected by the obstruction of the Mexican mountains. In part, however, they are directly due to the great rarefaction of the air in the interior of the North American continent. The e. seaboard, again, derives its rain from the Atlantic; and here it is the Appalachian system which divides the rainier districts towards the sea from the drier districts further inland. Here, as in the Mississippi Valley, the total annual rainfall increases as we go southwards. Both in Florida and in the Mississippi states above mentioned, the average rainfall for the whole year reaches 60 inches or upwards.

On the w. side of the mountain barrier in tropical and sub-tropical latitudes, first appears an exceptionally dry region in the n. (Lower California and n.w. Mexico). But further to the s., where evaporation is more rapid, there is not the same dearth of rain. Here the mountain barrier has an opposite effect. It prevents the moisture due to the great local evaporation from being continuously carried away by constant winds, as occurs in the ocean where the trade-winds blow; and hence throughout the whole length of the tropical strip as far as lat.  $4^{\circ}$  s. there is an abundant rainfall. In the narrow Isthmus of Panama and in Costa Rica the rains are so abundant throughout the year that a rainy and dry season cannot even be distinguished.

But at the point mentioned, lat.  $4^{\circ}$  s., a sudden and very remarkable change takes place. From that point southward, there follows a strip on the w. side of the Andes, stretching to about  $30^{\circ}$  s., on which rain hardly ever falls. This, also, has been well shown to be directly due in part to the mountain barrier, of which we have seen various other effects on the climate of this continent. Partly it is due, beyond question, to a cold current which flows n. along the w. coasts of South A. between the degrees of latitude mentioned, for in the n. the climate changes as if by magic where that current leaves the American shores. The direct effect of the current is to reduce the amount of evaporation. But on the w. coast of Africa there is a similar cold current which has a much more limited effect on the climate. Even Damara Land and the so-called Kalahari Desert are by no means as dry as this parched strip in South A.; and farther to the n. there are in the corresponding latitudes of Africa abundant rains. But the effect of the Andes range is this: it cuts off the region of rarefied air to the e. from the Pacific Ocean, and the amount of rarefaction

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in the narrow strip to the w. is not sufficient to produce an indraught of moisture-laden air from beyond the cold current. Hence the total absence of rain till a high elevation on the mountains is reached.

On the high table-lands between the parallel chains of the Andes, the table lands known in Peru and Bolivia as punas, the rainfall is not very abundant, but is generally sufficient; but there is one extensive region where the want of rain is as absolute as in the desert at the base of the mountains. This region lies in the same latitude as the most desolate part of the desert just referred to, in the s.e. of Bolivia, and n.w. of the Argentine Confederation, and it bears the name of the Despoblado or Unpeopled. Darwin describes it as 'a valley of the grandest dimensions,' yet 'completely dry, excepting, perhaps, for a few days during some very rainy winter.' He adds that no considerable torrent could ever have flowed down this great valley, and as one proof of the absolute dryness of the region, he mentions that he observed in one place, where a side valley joined the main one, that the bed of the former was lower than that of the latter. 'A mere rivulet of water in the course of an hour would have cut a channel for itself; but it was evident that ages had passed away and no such rivulet had drained this great tributary.'

On the e. side of the Andes, within the latitudes of the desert strip on the w. side, the phenomena are entirely different. The slopes of the Andes themselves on this side are almost constantly supplied with copious rains from the Atlantic, but in the lower regions the character of the rainfall varies. In the valley of the Amazon, which is directly exposed to the trade-winds, there is abundant rain, especially at certain seasons, and the length of the rainy season increases with the ascent of the valley. Further to the s., plenteous rains are confined to the maritime tracts beyond which the mountains of s. Brazil deprive the atmospheric currents of their moisture. Further inland the campos of Brazil, the whole of Paraguay, and the n. part of the Argentine Confederation, are rather deficient in rainfall.

Still southward, beyond the tropics is a region in which the windward side is again the western, as in the temperate parts of North A., and here the rainfall increases on the w. side of the mountains from about lat. 30°, until at Ancud, in the n. of the island of Chiloe, the rainfall for the year rises to about 130 inches. The whole of the southern archipelago, including Terra del Fuego, is deluged with rain; while the plains of Patagonia and the southern part of the Argentine Confederation are almost rainless.

So much regarding the rainfall of the American continent. With regard to the *temperature*, there is little to be said of a general nature in addition to what is stated at the beginning of this section. Here, as elsewhere, the temperature depends chiefly on latitude, elevation, and the character of the prevailing winds: for details as to the way in which these factors affect the temperature in different parts of the American continent, see the articles on the different countries composing it. Besides the general fact already alluded

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to, that wherever a dry region is exposed to a hot sun there are great extremes of temperature between night and day, there are two important circumstances relating to temperature in the American continent. One of these pertains to North A., and is the effect of the second of the two differences between the physical structure of that part of the continent and the corresponding part of the old world—the difference, namely, arising from the absence of e. and w. mountain ranges in the former. The presence of such ranges in the old world shuts off the cold air which in winter accumulates to the n. of them from the regions lying further to the s.; while in North A., during the winter months (November to February) that air from time to time sweeps down the Mississippi Valley, and rapidly reduces the temperature by many degrees, and then, reinforcing the trade-winds, strikes with violence against the w. coast of Mexico. Such winds, known in the United States as ‘northers’ and in Mexico as ‘nortes,’ bring down the mean temperature of the districts affected by them below that of most other places in the same latitude. Ice forms at the mouth of the Mississippi in lat.  $30^{\circ}$ ; and even in the extreme s. of Texas, lat.  $26^{\circ}$  n., about the same as that of Patna in Bengal, the thermometer has been known to sink on some occasions to  $23^{\circ}$  F.

The other point to be noticed relating to the temperature of the American continent is that, owing to the greater extent of ice in the s. Polar as compared with the n. Polar regions, and the greater openness of the Antarctic Ocean as compared with the Arctic, the s. parts of South A. have a much colder climate than places in corresponding latitudes in the n. hemisphere. On the w. coast, glaciers descend to the water’s edge at the parallel of  $46^{\circ} 30'$  s., a latitude corresponding nearly to that of La Rochelle in France, or to the n. part of Cape Breton (q.v.) on the e. or colder side of the North American continent; and in the Straits of Magellan, the temperature of the warmest month does not exceed  $46^{\circ}$  F., and snow falls almost daily.

*Hydrography.*—It is in its river system that the continent of A. possesses one of its chief advantages over the old world. For further information relating to the principal rivers, see the separate titles. All that is necessary here is to advert to some of the most striking facts regarding this part of the American water-system, especially with reference to the facilities it affords for inland navigation. Thus it may be mentioned that the Amazon drains an area of between two and three millions of sq. m., and discharges a greater quantity of water than the Yenisei, Indus, Ganges, Obi, Lena, Amur, Hoang-ho, and Yang-tse-kiang all put together; while, as regards its navigation, steam-vessels can ascend (though not without interruption) every one of its main branches nearly to the e. foot of the Andes, being thus able to avail themselves of several different routes, each 2,500 m. in length. The Mississippi, again, drains an area nearly, if not quite, as large as that of the Amazon, and although its discharge of water is not nearly so great, its importance as a channel for inland navigation is much greater, in consequence of the greater populousness of the country which it traverses. Its value in this last re-

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spect may be conceived from the fact that it has been found practicable, by means of this river, to send grain and flour entirely by water to Liverpool and Glasgow from St. Paul and Minneapolis, the chief towns in Minnesota, the state in which the Mississippi has its sources. The St. Lawrence, too, possesses far more than an average value in relation to its length as an artery of internal communication.

Of the *Lakes* of A., a brief notice here will be sufficient. The great lakes on the frontiers of Canada and the United States are well known to be the largest bodies of fresh water in the world, though they are not the largest inland seas, the Caspian Sea being much larger than all of them taken together. The largest of the other fresh-water lakes of A. (Lakes Winnipeg, Athabasca, Great Slave Lake, Great Bear Lake, etc.) are all in the Dominion of Canada; but the most interesting geographical feature to notice under this head is the great number both of large and small lakes, mostly with rock-bound shores, with which this part of the continent is studded, a feature in which it corresponds with the extensive area of crystalline rocks occupying Finland and Lapland in similar latitudes in Europe. The largest lake (except Lake Michigan) in the United States, the Great Salt Lake in the Great Basin; and the largest in South A., Lake Titicaca on the table land of Peru and Bolivia, are salt, or, more precisely, the first extremely salt, the latter brackish.

The vast advantage in point of nival communication possessed by the new world over the old, has already been adverted to. There is, however, a hydrographical feature in which one of the grand divisions of the e. continent is decidedly superior to A. The coast line of Europe, in proportion to extent of surface, is incomparably longer than that of even the n. half of the western continent. This is at once apparent on glancing at the two maps. Europe and America are hydrographically so connected as to be the most accessible to each other of any two great portions of the earth. The dividing sea, besides being itself physically by far the narrower of the two intercontinental oceans, is virtually narrowed still more by its winds and its currents. Along a belt of about  $30^{\circ}$  on either side of the equator, the easterly trade-wind with its attendant current wafts the voyager westward from Africa; while above that belt the reaction, strengthened and accelerated by the peculiar formation of the Caribbean Sea and the Gulf of Mexico, is ready to carry him round again to Europe, under the double pressure of the Florida stream and its generally prevailing breezes from the s.w. Nor yet can the hydrographical relations of A. with Asia be denied their proportion of significance and influence, linked as the two continents are by Behring's Strait, and twice bridged as is their ocean, first by the Aleutian Isles—a continuation of the Kuriles and Japan—and then by the Polynesian clusters, that series of offshoots from the Indian Archipelago.

*History.*—This may be glanced at under the three heads of Aboriginal Ages, Discovery, and Colonization.

As to the *Aboriginal Ages*, there arises a question, too interesting to be overlooked, and yet too doubtful to be solved

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as to the origin of the native tribes and peoples of A. Without prejudicing the question (considered under INDIANS) whether the aboriginal inhabitants of A. are to be considered, in an ethnological point of view, as substantially of one stock, it appears highly probable that they did not all spring from one and the same primeval band of adventurers; in other words, that different colonies, voluntary or involuntary, must have reached the new continent at different times. This view, to say nothing of the direct testimony of local traditions, seems to be in itself more than probable, when we consider that through the length and breadth of the universal ocean even the most insignificant specks of land had each received at least one influx of human wanderers. But beyond such probabilities and such traditions the view in question is strengthened by facts which it is difficult otherwise to explain—by diversities of language, by different degrees or kinds of civilization, and, above all, by monuments, architectural or otherwise, of defunct races of bygone days. On this supposition, whence came the successive shoals of invaders? To this question no direct answer can be given. We can only scan the various routes by which, previously to what we call the discovery of A., the old world was most likely to people the American continent. To begin with the natural routes on the side of the Pacific—Behring's Strait, the Aleutian Isles, and the Polynesian Archipelagoes—we can hardly conceive anything but barbarism having been conducted to A. by any one of them. The country that stretches back from Behring's Strait to the Kolyma may be asserted to be, without exception, the most inhospitable portion even of Siberia; and, moreover, the strait itself has more probably been a channel of migration from A. than from Asia, the Tchuktchi of the latter regarding themselves rather as a branch than as the stem of the Tchuktchi of the former. With respect, again, both to the Aleutian Isles and the Polynesian Archipelagoes, the successive stepping-stones in either series, instead of being presumed to have been so many halts for Asiatic Columbuses and Magellans, must rather be viewed as each a mother-country to a new colony, as each a point of departure for a fresh swarm. Thus would the ever-aggravating blight of isolation—exemplified even in the old world among the Lapplanders, the Kamtchadales, and the Hottentots—prepare at each remove a deeper and deeper barbarism to land at last on the w. shores of A. Further, if an ancient civilization ever did find its way to A. as certainly appears to have been the case, it must have come directly and immediately from the old world, and that under circumstances and conditions in no sense favorable. In remote times such accidental or unintentional visits of Europeans and Asiatics may have occurred as are known to have actually taken place in more modern days. Japanese junks have repeatedly been driven by stress of weather across the Pacific to the new world; and again, on the Atlantic, the easterly trades, within eight years after Columbus's earliest voyage, wafted the unconscious Portuguese to Brazil, during their second voyage to India—the very first, in fact, which they had attempted

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by steering clear of the headlands of Africa. Such incidents, however frequently they might have happened, were much more likely to civilize existing communities than to found new ones; and it is at least a curious fact that the only aboriginal nations which could be regarded as in any sense civilized at the date of the Spanish conquest, pointed in their traditions to such events as we have endeavored to describe. Mexico and Peru had each had its Cecrops, or semi divine civilizer—the former referring him to the e. across the Atlantic, and the latter to the w. across the Pacific. How far such hypotheses may account for the admitted facts is not left altogether to conjecture. Isolated individuals from England and other civilized lands cast the light of the present on the past. That which William Adams achieved in Japan two hundred years ago, and that which John Young and James Brooke have more recently effected in the Sandwich Islands and in Borneo, perhaps may make more easily understood certain undeniable traces and traditions of aboriginal civilization.

*Discovery.*—Whatever may have been the kind and degree of aboriginal civilization, A. was destined not to be the perpetual inheritance of the red man. New actors were to appear on the scene, before whom the old possessors were in a great measure to pass away.

Before the times of Columbus, Europeans had certainly visited A. The Scandinavians, after having colonized Iceland in 875, and Greenland in 983, had, by the year 1000, discovered A. as far down as  $41^{\circ} 30'$  n. lat., a point near New Bedford, Mass. These Scandinavians afterwards settled in the neighborhood—the mother-country, most probably through the intervention of Iceland and Greenland, maintaining an intercourse with the colony down to the 14th c. But these enterprises do not appear to have left any special impress on the character or prospects of the new continent, being more akin, perhaps, to similar incidents of yet earlier ages, than to the long meditated and well-matured scheme of the illustrious Genoese. After the Scandinavian discovery, and before that of Columbus, A. is believed by some to have been visited by a Welsh prince. In Cardoc's *Historie of Cambria* it is stated that Madoc, son of Owen Gwynnedd, prince of Wales, set sail westward in 1170 with a small fleet, and after a voyage of several weeks, landed in a region totally different, both in its inhabitants and productions, from Europe. Madoc is supposed to have reached the coast of Virginia. Neither this, however, if true, nor the earlier Scandinavian expeditions, can be said even to have formed a connecting link between the A. of the red man and the A. of his white brother. Even if the northmen had possessed resources worthy of their heroic courage, the old world was not yet ripe for the appropriation of the new.

At the end of the 15th c., however, science and politics were alike strengthening Europe for its task. The mariner's compass and the astrolabe had facilitated long voyages out of sight of land; while, in almost every country of Christendom, various causes were consolidating government, and promoting the growth of population—a position which

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derives, perhaps, its best illustration from the fact that the capture of Granada—the last foothold of the Moslem in Spain—preceded by only a few months the discovery of A.

Columbus (q. v.) set out on his great enterprise to discover A. under the patronage of the crown of Spain, 1492, Aug. 3, Friday; at which date, properly speaking, begins the deeply interesting history of A. Had the Atlantic been broader, or had not the easterly trades wafted Columbus almost on a parallel from the Canaries to the Bahamas, he must have failed in his bold attempt; and, in fact, those same easterly trades, assisted by a still nearer approach of the two continents, speedily (eight years later) proved their own value in this respect by carrying the Portuguese, without their own consent, to the shores of Brazil. Indeed, Columbus's discovery of A., though not so accidental, was quite as unintentional as that of the Portuguese. It was towards the east that his hopes directed his western course, hopes whose supposed fulfilment still lives in the misapplication to the new world of the terms Indian and Indies. Much of our subsequent knowledge of A. has been owing to the same desire of reaching the East Indies that led to the discovery of the new continent. The gorgeous East was the aim alike of Davis, Baffin, and Hudson at the n., and of Magellan, Schouten, and Lemaire at the s., as also of the earlier enterprise of Balboa on the Isthmus of Darien; while, under a similar impulse, the French of Canada were ascending lake after lake as nature's ready-made highway to the same goal. Even to more recent times may these remarks be applied. While the eastern coasts of Africa, and the upper shores of Asia, as not bearing on the grand question of oriental traffic, were comparatively neglected and forgotten, Cook and Vancouver, in quest of a passage between the two oceans, surveyed every indentation of the coast of A. from Columbia river to Behring's Strait. Nor have the aspirations of Columbus and his noble band of successors and imitators been altogether disappointed. That same continent which, in their case, barred a westward advance along nearly the whole interval between the Arctic and Antarctic circles, has to Europe already become more than a substitute for the ocean which it was found so extensively to displace. By the railway across the Isthmus of Panama, the Caribbean Sea, whether for passengers or for goods, is brought near to the Pacific by a route nearly parallel to the line of the canal promoted by M. Lesseps. Nor is it merely across the narrow span of Central America that art has conquered the barriers of nature. In 1869, continuous railway connection was established between New York and San Francisco, and it became possible, apart from accidental delays, to travel from the commercial capital of the e. coast of the vast domains of the Union to the chief city on the Pacific shore in six days and eleven or twelve hours. Numerous railroads of the e. and s. connect with the Union Pacific railroad at Omaha in Nebraska; and from Ogden in Utah to the Pacific the connection is made by the Central Pacific railroad. From New York to San Francisco by the shortest route is about 3,400 m. Recently finished, or in progress, are the Southern Pacific,

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from Galveston to San Francisco; the Northern Pacific, from St. Paul to Burrard Inlet; and the Canada Pacific.

Through Columbus's discovery of the new world, colonization, which, since the early ages of Greece, had slumbered for 2,000 years, received an impetus, which, after building up empires in the West, was to build up others in an East richer far than that which was so long the loadstar of European navigators—an East where, almost without a metaphor, the grass was to be wool, and the stones to be gold.

The first-fruits of Columbus's enterprise were the Bahamas, Watling's Island probably being the spot where he landed, 1492, Oct. 11. Without attempting, in so summary a sketch as this, to distinguish the results of each of his four voyages from each other, it is sufficient to state that this great man, besides discovering Hispaniola, or St. Domingo, Cuba, Jamaica, and others of the Antilles, discovered and explored Central A. from Honduras southward along the coast of Veragua, and South A. from the mouths of the Orinoco westward, as far as Margarita. It was on this last-mentioned scene of his operations that he was followed by Hojeda, whose pilot, Amerigo Vespucci (q v.), though not claiming it for himself, has had the glory of giving his name to the new world. Within twenty years after Columbus's first discovery, Ponce de Leon discovered Florida; and, what was certainly of far more consequence, he ascertained that, through the strait which separated that peninsula from the Bahamas, there constantly ran a strong current to the n.e. In 1513, one year later, Vasco Nunez de Balboa crossed the Isthmus of Darien to the Great South Sea, or as it was afterwards named, the Pacific Ocean. About thirteen years before this last event, almost immediately after Columbus's own continental explorations, the interval left between his most southerly point from Honduras, and his most westerly point from the Orinoco, was, in a great measure, filled up by the voyage of Bastidas. To the s. of the Orinoco, Pinzon and Solis sailed along the continent down to 40° s. lat. 1500-14. The former after anticipating, by a few months, the Portuguese on the shores of Brazil, had seen the Amazon; and the latter, sent out for the express purpose of entering, if possible, Balboa's Great South Sea, found his way into the La Plata or Plate, being there slain by the neighboring natives. Moreover, to return to the northward, by the year 1519, different navigators had between them completed the examination of the Gulf of Mexico. Within twenty-seven years, therefore, after Columbus's first departure from Spain, the eastern shores of South and Central A. had been almost continuously explored by the Spaniards down to within 15° of the southern extremity of the continent.

Nor had other nations been idle in the north. The Cabots, on behalf of England, had discovered Newfoundland, and portions of the adjacent continent in 1497. In 1500, the Portuguese, under the Cortereals, sailed along the coast of Labrador nearly up to Hudson's Bay, having, it is supposed, entered the Gulf of St. Lawrence, long known among them as the Gulf of the Two Brothers. Thus gradually there grew up the opinion, since proved true, that any practicable



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passage between the two oceans must be looked for towards the south of the Plate. Accordingly, in 1519. Magellan, a Portuguese in the service of Spain, undertook the voyage in which was discovered the strait that bears his name—a voyage which furnished the first instance of the circumnavigation of the globe. Thus there remained little to be done, unless in the extreme north and the extreme south. In the extreme south, Schouten, a Dutch navigator, discovered, 1610, the passage round Cape Horn; while six years thereafter, Lemaire a mariner of the same nation, passed through the strait of his own name between Staten Land and Terra del Fuego. Towards the north, the French and English divided the labors and honors of the enterprise. Scarcely had Magellan's companions—for he had been killed—returned to Europe, when Verrazzano, under the auspices of Francis I. of France, sailed along what are now the Atlantic shores of the United States, thereby connecting the discoveries of the Cabots with those of Ponce de Leon; and again, about ten years later, Jacques Cartier, in the service of the same prince, explored the gulf and river of St. Lawrence, penetrating as far to the westward as the island of Montreal. In the extreme north, however, the English may be said to have been without a rival. It is unnecessary, in this summary sketch, to do more than mention names which tell their own story on every map—Davis, Baffin, Lancaster, and Hudson. (See these titles).

To pass now to the western coast of A.: the conquerors of Mexico and Peru effected, in a few years, more perhaps than they left behind them for future ages to effect, ranging along the coast from the southern extremity of Chili to the peninsula and gulf of California. Beyond Lower California, the only direction in which there was much to do, the English Drake, whose voyage was in 1578, divided with the Spaniards the credit of having discovered Upper California. For nearly two centuries, excepting the half-fabulous voyages of Fonte and Fuca, the Spaniards and the English alike slumbered over their task; and it was not till towards the close of the last century that Cook and Vancouver co-operated with Spanish and American navigators in dispelling the mystery that had so long hung over the n.w. coast of A.

To advert to *inland* discoveries: as early as 1537, within six years after the landing of Pizarro in Peru, and within two after the founding of Buenos Ayres, the Spaniards met each other on the eastern borders of Peru, from the opposite shores of the continent; and, in 1540, within three years more, they sent forth that eastward expedition which ended in Orellana's exploration of the Amazon, from its source to its mouth. In the northern half of the continent, similar enterprises were of much later date. It was in 1682 that the French first descended the Mississippi; it was in 1771 that Hearne traversed the wilderness from Hudson's Bay to the mouth of the Coppermine; and it was respectively in 1789 and 1793 that Alexander Mackenzie reached the mouth of the river that bears his name, and passed through what is now British Columbia, to the shores of the Pacific Ocean.

*Colonization.*—Among the European powers that colonized

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A., the most prominent were Spain, Portugal, France, and England.

Spain took the lead, having, with few exceptions, accomplished its task before any rival state had entered on the work. In one respect, its colonies differed from all others on the new continent. Spain alone came in contact with civilization, such as it was among the aboriginals; and, accordingly, in Mexico, and Peru, colonization required to be preceded by something like regular war and formal conquest. But, notwithstanding this peculiar obstacle, the colonies of Spain grew at first with a rapidity which, perhaps, has scarcely found its parallel even in the somewhat similar case of Australia. As an illustration of this—for the statement needs no proof—it was colonial resources that armed Cortes and Pizarro for their respective enterprises. Without the direct and immediate aid, in either instance, of the old country, Cuba, within twenty-seven years after the first discovery, equipped the conquerors of Mexico; while the town of Panama, only twelve years later, sent forth the adventurers that were to subjugate Peru. So unexampled a degree of vigor and vitality continued to advance in Spain's transatlantic possessions, precisely while they were so organized and conducted as to afford scope to individual ambition. Never, perhaps, was this scope sufficiently free and full, for, even from the beginning, government often embarrassed and blighted the fairest schemes by its jealous and suspicious interference. But, for a time, it generally found its account in tolerating the unrestricted liberty, or license, of its instruments. It was, therefore, only after law and order were established, and the original actors had disappeared from the scene, that the authorities of the mother-country stereotyped their despotism along the length and breadth of every colony. From that moment, vigor and vitality were succeeded by stagnation and torpor. Still, with such elements of prosperity on every side—above the earth and below it—material interests could not fail to flourish. But the soul had fled; the body alone remained. Under these circumstances, Spain, though continuing to claim the entire continent to the n., more especially on the Pacific, did very little to enforce its pretensions. To this New Mexico and Upper California were the only exceptions. It was not before 1594 that New Mexico was at all occupied; and it was not till a century later that the province, after ten years of bush-fighting, was finally subdued; while it was only in 1767 that the Franciscans, on behalf of Spain, took possession of Upper California. But Spain never abandoned the hope of extending its dominions towards the n.w. coast. As late as 1790, that power, while restoring Nootka Sound, and acknowledging England's right of planting other settlements, took the precaution, useless as it proved, of expressly reserving a similar right to itself; and it was only in 1819, nearly thirty years later, that Spain formally ceded to the United States all its claims to the coast above the parallel of 42°. See AMERICA, SPANISH.

The efforts of Portugal, in the cause of American colonization, were at first less energetic than those of Spain. In

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fact, Portugal, which had doubled the Cape of Good Hope in 1497, was so zealously engaged in the East as to allow a generation to pass before sending any colony to Brazil. The discovery of the country took place in 1500, but its colonization only in 1531, or rather 1548. Within thirty-two years thereafter, in 1580, Brazil, at the same time as Portugal itself, was annexed to the Spanish monarchy, soon afterwards falling, in this its new character, partly into the hands of the revolted Hollanders. In 1640, Brazil, as well as Portugal, threw off the Spanish yoke with the help of the Dutch settlers. But the continued presence of the latter retarded the progress of the colony. It was only after their expulsion, that the Portuguese, who had lost nearly everything in India, turned their attention more largely to Brazil. It accordingly became the most flourishing colony, as such, south of the English settlements; and, as the refuge of the House of Braganza from French domination, it received, about fifty years ago, an impetus which has rendered it, as an independent state, the most flourishing power of Southern A.

France, as the claimant to the basins of the St. Lawrence and the Mississippi, may be said rather to have pitched camps than to have planted colonies, in those vast possessions. She regarded A. chiefly as a supplementary battlefield for England and herself. Every French settlement was but an inert part of a political machine, powerful, indeed, but unwieldy, expensive, and unproductive. The government was everything, and the individual subject was nothing. Hence, neither Louisiana nor Canada at all realized the proper idea of a colony. In corroboration of this may be cited two authentic and official facts. As an encouragement to marriage, rewards and exemptions were held out to the parents of three children; and the erection of a dwelling on a lot of less than 40 arpents (about 32 acres) was prohibited by a royal ordinance. In 1762, France gave up Canada to England, and, as an indirect concession also to the same power, transferred Louisiana to Spain—events which, singularly enough, did much to facilitate France's grand scheme, the separation from England of her old colonies.

England, though the most energetic and successful of all in the work of colonization, was the last in the field among the four powers already mentioned. Among her continental colonies, excepting Newfoundland, Virginia, the oldest, was established in 1607, four years after the union of the crowns; and Georgia, the youngest, as late as 1733. With these two exceptions, the remaining eleven were, one and all, founded during that period of civil and religious troubles which, in the mother-country's own history, sent one Stuart to the scaffold, and drove another into exile. In 1620, Massachusetts was occupied by the Puritan fathers; in 1623 and 1631 respectively, New Hampshire and Connecticut were first settled; in 1634, Maryland was granted to Lord Baltimore, a Roman Catholic nobleman; in 1636, Rhode Island became a refuge from the religious intolerance of Massachusetts; in 1653, North Carolina became an offshoot from

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Virginia; in 1664, New York, New Jersey, and Delaware were taken from the Dutch; in 1670, South Carolina was established; and in 1682, Pennsylvania was granted to William Penn. the Quaker, continuing to be a proprietary government down to the Revolution. In nearly all these cases, the civil and religious liberties for which chiefly the colonists expatriated themselves, were secured by liberal, nay, virtually republican charters. Subject only to the appointment of a governor on the part of the crown, every colony was practically a state within itself; and it is a suggestive fact that the very earliest assertion of legislative superiority on the part of the mother-country was 7 and 8 Will. III. c. 22, which, however, only operated negatively by forbidding every colony to make laws repugnant to those of England. With such aspirations and such institutions, the enterprising inhabitants of a new home could not fail to prosper; while their prosperity was rendered more solid and permanent by the comparative poverty of a region where steady industry, in agriculture or in the fisheries, was a necessity. Under these circumstances, the germs of political independence were at work long before the year 1765; and it is not merely a probability, but a fact, that the expulsion of the dreaded power of France from Canada and Louisiana, 1762, was closely connected with the troubles which so soon began.

*American Antiquities.* —The architectural remains already alluded to in connection with a general estimate of aboriginal civilization, are found in each of the grand divisions of the new continent. Those furthest north may be divided into three groups: one confined chiefly to the area now forming the state of Wisconsin; the second distributed over the valleys of the Ohio and the lower Mississippi, and along the coast of the Mexican Gulf from Florida to Texas; and the third in the remarkable cañon region in the present Utah, Arizona, New Mexico, and Colorado. The structures belonging to the Wisconsin group are remarkable on account of their shape, their ground-plan commonly presenting rough but easily recognizable imitations of the forms of animals (quadrupeds, birds, reptiles, and even men). They are usually found in groups, sometimes in long series, and are seldom surrounded by circumvallations.

The Ohio and Mississippi Valley group vary in character from n. to s.; but throughout the region occupied by them, the structures bear a sufficient resemblance to one another to leave little doubt that they ought all to be referred to the same people. They are mostly confined to the river valleys, and consist of mounds generally pyramidal or conical, built of earth and stone, or both combined. The mounds are mostly truncated, and generally there are steps or a winding path leading to the top. The more northerly of these mounds are frequently in groups, inclosed by circumvallations, which are sometimes regular, sometimes irregular in shape, the latter being always constructed in adaptation to the nature of the ground, and manifestly intended for defense. The regular ones are mostly square or circular, but sometimes in the form of rectangles, ellipses, or polygons, and are all built on flat, carefully-selected river-ter

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ances. These were constructed either to be used in connection with religious services, or for some other non-warlike purpose. The structure of the mounds, or the nature of the remains found in them, shows that they were either places of sacrifice, places used in other ways for temple service, or places of burial. In the mounds have been found, besides human remains, knives, axes, chisels, lance-heads, and other articles, partly of excellent workmanship. Silver and copper are the only two metals that the mound-builders can be shown to have been acquainted with. Many of the mounds are adorned with sculptures, the outlines of which are said to be simple but correct. The common animals still characteristic of A. are all represented in extremely beautiful style, the execution being sometimes, it is stated, not behind that of Greek art. The most extensive groups of mounds are always found at the junction of two rivers. Near Portsmouth, at the influx of the Scioto into the Ohio, are three groups forming one great series extending along the Ohio for  $7\frac{1}{2}$  m. In Ohio these remains are remarkably abundant, and the single county of Ross in that state contain nearly 100 circumvallations and 500 mounds. Along the Gulf of Mexico circumvallations are extremely rare, and the mounds become larger and more elaborate in structure, so as to approach in form the Teocallis (q.v.) of Mexico. Scarcely any approximation can be made to the exact date to which these remains must be referred, but it is certain that they must be thousands of years old; for it is found, first, that they are never constructed on the most recent river-terraces; and, second, that in many cases the mounds and circumvallations are now overgrown by forests.

The last group of North American antiquities, those of the cañon region, are those which have been most recently brought to light and examined, and in some respects by far the most remarkable of all. They are distributed over an area now perfectly desert on the terraces of the precipitous cliffs overhanging the beds of the Rio Mancas, Rio San Juan, Rio Chaco, and other streams; and, from the region in which they are found, their builders are known as the 'cliff-dwellers.' Where a wide stretch of flat land is to be found by a river's bank, remains of a large town may be met with; but many of the habitations of these people were built on the sides of the cliffs themselves over yawning abysses, in spots which cannot be reached from above, and to which it is now equally impossible to climb from below. Recent explorations have shown that some of these remains belonged to a densely-populated settlement that must have extended for several thousand sq. m. over the adjoining parts of Utah, Colorado, Arizona, and New Mexico; and among other sculptures on the walls of the cañons, there is to be seen a head of maize, showing apparently that this grain was cultivated by the inhabitants of that settlement.

For the antiquities of Central and Southern A., see MEXICO: PERU: TEOCALLI: CHICHEN: PALENQUE: COPAN: CHOLULA: etc. A more thorough exploration of the antiquities of Mexico and Central A. than any hitherto undertaken is in progress under the conduct of M. Désiré

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Charnay, the cost being borne by a wealthy American gentleman. Regarding the antiquities of the Mississippi Valley, the most complete information is to be found in Squier and Davis's *Ancient Monuments of the Mississippi Valley*; and regarding those of the cañon region, which have been explored by Hayden, Wilson, Jackson, Holmes, and Ingersoll, in a report by Hardacre.

*Geology.*—Of the geology of the American continent, as a whole, only enough is known to authorize a very general sketch of its geological history. It is known that in early Palæozoic times, the present continent of A. was represented by a number of islands, the largest of which corresponds to the southern part of the Dominion of Canada, together with a large portion of the east and north-east of the United States, and the two next in importance to the modern Guiana and Brazil; while a large number of smaller islands in the west seem to have occupied the regions where the different ranges of the Rocky Mountains and the Andes now stretch. The greatest part of Greenland, and of the Greater Antilles, seem likewise to have existed in the form of islands at the same remote period. The subsequent geological history of the continent of A. consisted mainly in the gradual filling up of the gaps between these islands, so far as they are yet filled up, and in the elevation of the mountain chains to their present height. But in A., as elsewhere, the process of filling up gaps was not a continuous one, but varied with phases of emergence and submergence. The islands already referred to, however, remained throughout the whole period more or less as dry land, and the alterations of land and water affected chiefly the intervening spaces.

Of all these islands, the oldest as well as the largest was that in the n.e. part of the northern half of the continent. It is here that we have the most extensive development of the oldest sedimentary deposits in the world, the strata forming the Laurentian System (q.v.) on the estuary of St. Lawrence. This island, which consisted of two portions, one running more or less e. and w. through what is now chiefly the Dominion of Canada, and another running n.e. and s.w. through the eastern states, was enormously enlarged after the close of the Silurian epoch, chiefly by the addition of new land within these two branches. This new land is represented by the Silurian deposits so extensively developed on both sides of the St. Lawrence, and to the s. of the great lakes. A still greater accession of land had been made by the close of the Devonian and Lower Carboniferous epoch, when the dry land in this part of A. formed a somewhat compact island extending on the w. almost everywhere to at least  $95^{\circ}$  w., while on the s. it extended at two points on different sides of the present course of the Mississippi to at least  $33^{\circ}$  s., and on the e. was nowhere very far from the present coast-line, which it actually attained from Long Island Sound northward.

The climate of this vast island was warm and moist, and a large part of its surface was occupied by marshes covered with a vegetation that gave rise to the vast coal-fields of the Appalachian region and the Mississippi Valley (Illinois,

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Missouri, Kansas, etc.). As yet, however, the Appalachian Mountains were not. So far, the only mountains in the North American continent were the Green Mountains in the n.e. states, and the rudiments of the Rocky Mountain region in the west. Not till about the close of the Palæozoic era did those folds and contortions take place which led to the elevation of the Appalachian Mountains, leading at the same time to the dislocations of the sedimentary rocks, in some cases to the depth of more than 10,000 feet.

Meanwhile the w. part of the North American continent was still composed of islands, some large, some comparatively small; and this western portion of the continent was separated, even in Jurassic times, from the vast eastern island just described by a sea extending right up to the Arctic Ocean. During the Cretaceous period, this sea still extended at least as high as the Saskatchewan Valley, and to this period belong those deposits from which have been obtained the remains of gigantic saurians of various kinds, as well as of toothed birds (*Odontornithes*, q.v.), for which American palæontology is remarkable.

The complete connection between the e. and w. halves of the North American continent was not effected till the close of the Cretaceous period, and even during the Tertiary period, part of the intervening surface was covered with immense fresh-water lakes, the ancient beds of which have yielded mammalian relics (marsupials, ancestral forms of the horse and tapir, etc.) as interesting as the saurian remains of the previous age. At the same time the sea extended on the side of the Gulf of Mexico up the present valley of the Mississippi to a little above the point at which that river is now joined by the Ohio, and from this point the coast trended s.w. through Missouri, Arkansas, and Texas, to Mexico; and on the other side, s. through Tennessee and Mississippi, and then e. to Alabama, about 100 m. from the present coast. On the e. the coast had gained little since Jurassic times; but by the close of the Tertiary epoch the North American continent, as far as the s. of the United States, had been brought nearly to its present form. The Rocky Mountain region was now continuous dry land, and the mountains themselves had been raised to their full height. The most important additions of later (post-tertiary) times were the peninsula of Florida, wholly of coralline origin, and a strip of land along the n. shore of the Gulf of Mexico. Another great change of post-tertiary date was the temporary submergence of the entire area of the great lakes, one great lake stretching far to the southward of the present lakes, and probably having a southern outlet through the Mississippi.

As to the south of the United States, little can be added, but it may be mentioned that it is only in the n.w. of Mexico (in the state of Sonora) that we first meet with those granitic and ancient crystalline rocks which pass northward in a wide continuous stretch through the w. part of the United States. North A., there can be no doubt, was separated from South A. in very recent geological times, probably as late as the pliocene, by an arm of the sea lying where the Isth-

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mus of Panama now lies; and the final filling up of the intervals between the South American islands of Brazil, Guiana, and the Andes appears also of no earlier than tertiary date. To that epoch are referred the deposits now forming the llanos of the Orinoco, the valley of the Amazon, and the plains of the Argentine Confederation and Patagonia; while the superficial deposits of the pampas are of still later (quaternary or pleistocene) age. As in North A., the e. half of the continent was the first to reach its present elevation, and the Andes, like the Rocky Mountains, although long in existence apparently as an island, or series of islands, were first raised into lofty mountains during tertiary times. On the other hand, all the isolated ranges of the n. part of the Argentine Confederation appear to consist of the oldest igneous and metamorphic rocks, and must also have existed as islands or mountains from a very early period.

The four largest of the West Indian Islands are all composed of a nucleus of granitic rocks, on which lie, in certain places, limestones chiefly of Cretaceous, but partly also of younger age; and all the islands to the e., as far as Barbuda and Antigua, are either Cretaceous or Tertiary; while to the s. of these last two islands all the members of the group are of volcanic origin, and appear (at least all those from St. Lucia southward) to have belonged at one time to a range of volcanic mountains forming part of South A., not to have been originally volcanic islands. Tobago and Trinidad must have been separated from South A. only in very recent times. In the west, this group seems never to have been connected with the mainland of A., except for a short time, and then the connection must have been with Yucatan, not with that portion of the continent which now forms the United States, and which, as has been already shown, was separated from the West Indies by a wide expanse of sea till a quite recent geological period.

The tertiary and post-tertiary deposits of South A., like those of North A., are peculiarly interesting on account of their mammalian remains. From the tertiary deposits have been obtained both the *Anoplotherium* (q.v.) and the *Palaotherium* (q.v.), the predecessors of our present ungulates so abundant in Europe also in tertiary times, and the more recent deposits of the pampas and the shores of Patagonia have yielded a number of very extraordinary extinct animals peculiar to South A., among which we may note the *Glyptodon*, a huge armadillo-like animal; the *Macrauchenia*, the nearest extinct ally of the llamas and alpacas of the present day; the *Megatherium* (q.v.) and its allies, the extinct representatives of the modern sloths; and the *Toxodon*, an animal as large as a *Megatherium* or an elephant, but shown by the structure of its teeth to be allied to the Rodents, the order which includes most of the smallest mammals at the present day.

For the volcanic phenomena, see above, under *Physical Aspect*.

*Botany*.—Considering the vegetation of A. first with reference to its affinities, and beginning in the n., we find there a remarkably close correspondence with the flora of



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the same latitudes in the old world. The Arctic flora of A. is in fact part of a common flora throughout the north polar regions, with only slight variations according to longitude. Out of nearly 400 species of flowering plants belonging to Arctic A., upwards of 250 are regarded by Hooker as Scandinavian forms. The general diffusion of this flora throughout the Arctic Regions points to the probability of a former land-connection between the old and the new worlds in the region of Behring's Straits; and when the fact is considered that the deepest part of these straits is no more than 30 fathoms, the probability of that connection is enhanced. Further south, the affinity between the floras of the old and new world becomes less and less; and, what is more peculiar, there is greater affinity between the flora of the e. side of North A. and that of Japan and Eastern Asia, than between the two floras on opposite shores of the Atlantic or the Pacific. This affinity was first pointed out by the American botanist and geologist Asa Gray, who at the same time divined the true explanation of the phenomenon. He maintained that in a former geological epoch, a much milder climate must have prevailed in high latitudes, and at that time the flora, which has representatives in the e. states of A. closely allied to those of Japan, must have been generally distributed throughout the Arctic regions, and that when colder climates supervened, this flora migrated southward along various meridians. In this southward migration, however, the flora became differentiated according to the differences of climate in lower latitudes, and as e. North A. and Eastern Asia correspond in climates, so also they came to correspond in the constituents of their flora. The main fact which lies at the bottom of this explanation, the extension of a flora now confined to more southern latitudes to regions far within the Arctic regions, was afterwards confirmed by the discovery of abundant remains of such a flora in Tertiary (Miocene) deposits in Greenland, Spitzbergen, Grinnell Land, on the Mackenzie river, and elsewhere; and hence Engler has applied to this flora the name of the Arcto-tertiary element in vegetation. See GEOGRAPHICAL DISTRIBUTION OF ANIMALS AND PLANTS. It is this element which predominates in the vegetation of A. as far s. as the table-land of Mexico. And here a remarkable fact appears. The flora of the table-land of Mexico is almost totally distinct from that of the low lands at its base, although in most cases a highland flora is allied to the adjoining flora belonging to lower elevations. The reason of this is, that the table-land of Mexico was directly open to the reception of a flora suitable to it derived from more northern latitudes, while the flora of the lower regions, being tropical in character and accordingly perennial in its vegetation, could not so quickly adapt itself to the conditions of a table-land on which there was an alternation of summer vegetation with a winter's repose.

The table-land of Mexico may thus be said to form the boundary between the regions in which the Arcto tertiary and Neotropical elements of Engler respectively predominate. The latter element then prevails throughout the whole

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of South A. on the e. side of the Andes to the s. of Patagonia, although with the widest possible difference in the general aspect of the vegetation in accordance with the differences of climate. In the valley of the Amazon we have the vegetation at the very height of tropical richness and variety; while further s., in the campos of Brazil, it becomes scantier, and then more and more sparse still fruther s. into and through Patagonia. It is this Neotropical region in which the flora of the new world presents least affinity to that of the old.

There remains for consideration the chain of the Andes itself. The w. side of this chain, from about 34° S. to the s. extremity of the continent, including the whole of Terra del Fuego, bears a vegetation sufficiently peculiar in its composition to be regarded as distinct from that of the adjoining parts of the continent. This strip is what is known as the Antarctic Forest region, and is characterized by the predominance in it of what Engler calls the Old Oceanic element, consisting of vegetable forms scattered over the islands of the southern hemisphere, including Australia and New Zealand, as well as the s. parts of the continents of A. and Africa. It is this element in the vegetation especially which gives to the flora of the Antarctic Forest region a greater affinity to that of the old world than that of the Neotropical region, and in particular which gives to it that affinity to the floras of Australia and New Zealand long ago pointed out by Hooker. This last affinity has been accounted for by the supposition of a greater extent of land-surface, together with a milder climate in the Antarctic regions in an earlier epoch, and this explanation, it may be remarked, is quite in keeping with the present theory of the Glacial Period (q.v.). But it is not merely this Old Oceanic element which shows the alliance of the vegetation of this part of A. to that of the old world. Another peculiarity of the same region is that it contains a very considerable number of Arctic and even Scandinavian plants. Hooker counts no less than 70 Scandinavian species in the flora of this region, and though other botanists find in a great many cases specific differences between the forms of the Antarctic Forest region and those of Scandinavia, this does not affect the closeness of the affinity. There can be no doubt that these forms must have reached their southern habitat by travelling along the American backbone of mountains; but in the opinion of Hooker, these mountains must at one time have reached a greater elevation in Central A. to enable them to traverse that interval in their southward migration. A certain proportion of Scandinavian forms are found at every part of the chain, but most have survived in the southern region, where the climate most closely resembles that of Scandinavia itself.

As for the remainder of the Andes region, the portion to the n. of 34° s., its flora is regarded by Engler as being on the whole most closely allied to that of the Neotropical region, to which he refers it; but it contains with the forms that indicate that alliance a considerable admixture of others

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derived both from the Arcto-tertiary element in the north and the Old Oceanic in the south.

As might be expected from the geological history of the West Indian Islands (see above, under *Geology*), the flora of that group shows little special affinity to that of North A., from which it was separated till a quite recent geological era by a wide expanse of sea. As a whole, the flora is Neotropical in character, and that of Trinidad is entirely South American.

When the vegetation of A. is considered with reference to its habit and general aspect, the correspondence between vegetation and climate is exhibited in a peculiarly striking manner, especially with regard to the presence or absence of forests. South of the region of Arctic vegetation, strictly so called (that is, s. of a line which rises to beyond the Arctic circle in the w., but sinks to about  $59^{\circ}$  n. in the e.), forests prevail, except where they have given place to cultivation, throughout the continent, wherever there is sufficient moisture. In the dry regions—which include, as was shown in the section on climate, almost the whole area of the United States west of the Mississippi to the Sierra Nevada, as well as lower California and Mexico as far as the tropic of Cancer in South A.—the campos of Brazil, and almost the whole of the low-lying regions southward to the Straits of Magellan, and also the strip on the w. of the Andes from  $4^{\circ}$  s. to about  $34^{\circ}$  s., forests are absent and trees rare, except along the courses of the streams. Yet in South A. about two-thirds of the whole area is covered by dense forests.

In the forests of the n.w. the trees are almost all conifers, but these gradually give place to foliage-trees towards the s.e.; and in the e. states of North A., foliage-trees predominate. The forest region of the w. states, however—the region which covers the moist and equable western slopes of the Rocky Mountains—is quite peculiar in its character, being remarkable for its hosts of giant conifers, such as the Lambert pine, the Douglas spruce, and the Redwood, a congener of the rarer mammoth tree or Wellingtonia (q v.: see also PUGET SOUND). In the tropics the forests are too varied in their character to be described in general terms, but it may be mentioned that here, in the new as in the old world, there is a remarkable abundance of palms; and further, that on the e. slopes, of the Andes, the cinchonas are so abundant within the tropics as to give a quite peculiar character to that part of the region. Further s., in the Antarctic Forest region, the characteristic trees are partly foliage-trees and partly peculiar conifers, such as the Araucaria and Podocarpus.

In the drier regions of North A. vast areas are almost entirely covered with fodder-plants, such as that known by the name of the sage-brush (*Artemisia*), and grasses such as the buffalo-grass and grama. Further south, cactuses and yucas (the Spanish bayonet) prevail. In South A., the most characteristic vegetation of the drier regions consists mainly of cactuses.

Among the natural orders and sub-orders confined to the new world (chiefly to the Neotropical region) are the Brom-

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Uaceæ, Sarraceniaceæ, Vochysiaceæ, Cactaceæ (with the single exception of the genus *Rhipsalis*), Agaveæ (a sub-order of Amaryllidaceæ), Hydrophyllaceæ, and the Gesneraceæ.

Maize is one of the most important of the botanical productions of A. It is the only important cultivated grain of American origin; it was in cultivation before the advent of Europeans, by whom its value was soon recognized, and it has now become an important crop in climates suitable for it in all quarters of the world. The other chief grains have all been introduced into A. by Europeans, with the sugarcane, the banana and plantain, coffee, flax, and many other plants now generally cultivated both in tropical and temperate regions. The yam is regarded as among its native productions, common to its tropical regions with those of other quarters of the world. Tobacco is a native production of A., the cultivation and use of which extended from it to the old world, and rapidly became prevalent among a great part of mankind. More than one species, or at least varieties, of cotton were in cultivation among the natives before the arrival of the Europeans, but the species now most generally cultivated in A. is of eastern origin and European introduction. But of all the vegetable productions of A., the potato is the most important and useful. A. produces also the Jerusalem artichoke and several other plants, valuable for their roots and tubers, as the arracacha, the mellico, etc., the use of which has scarcely yet extended beyond their native regions. With them may be mentioned the quinoa, which is not a grain (the seed of a grass), but the seed of a species of *Chenopodium* or goose-foot, resembling the seeds of the cereal grasses in its qualities, and extensively cultivated on the high table-lands of Chili and Peru. Tapioca, arrowroot, cocoa, vanilla, pimenta or Jamaica pepper, and Cayenne pepper are among the native productions of the tropical parts of A. The Agave (q.v.) or American aloe, valuable both for its fibre and its juice, has now become common in the warm parts of Europe, and in similar climates in other quarters of the globe. The pine-apple is a native of tropical A. although now naturalized, or nearly so, in other tropical regions. Tropical A. and the West Indies produce also many other fine fruits, among which are the guava, different species of anona or custard-apple, and of granadilla or passion-flower.—The forests of North A. yield much valuable timber, chiefly different kinds of oak and pine. The black walnut and hickory of the United States are much esteemed. The West Indies and neighboring parts of the mainland yield mahogany; and from the same regions comes logwood, one of the most useful dye-woods. The tropical forests of South A. produce many valuable timber-trees, of which perhaps the most deserving of notice are the Greenheart (q.v.) or Bibiri, and the Mora. Brazil wood and Pernambuco wood are among their dye-woods. One of the most remarkable productions of this region is the Cow-tree (q.v.), the juice of which possesses many properties in common with milk, and is used instead of it. The milky juice of some other trees of tropical A.

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thickens into caoutchouc.—Different parts of South A. produce *Maté* (q.v.) or Paraguay tea, a species of holly, the leaves of which possess properties similar to those of tea and coffee, and afford a beverage extensively used, although not yet an article of export to other parts of the world; and the Coca (q.v.), a shrub of which the leaf has been, from a remote period, employed by the Indians as a narcotic.

*Zoology*.—A. forms the Nearctic and Neotropical regions in the scheme adopted by Mr. Wallace in his treatises on distribution. See GEOGRAPHICAL DISTRIBUTION OF ANIMALS AND PLANTS. The former includes all temperate and North A., including Greenland, and its s. boundary is fixed by Mr. Wallace at a line running from the Rio Grande del Norte on the e. coast to a point nearly opposite Cape St. Lucas on the w., in such a manner, however, as to include the whole of the Mexican table-land in the more northerly of the two regions. In this respect it agrees with the botanical line of demarcation indicated in the section on Botany.

With regard to the fauna of the Nearctic region, the most notable fact, perhaps, is the same as that already mentioned in relation to the flora—the close agreement between it and that of the corresponding latitudes of the old world, and especially in the higher latitudes. ‘At first sight,’ says Mr. Wallace, ‘the mammalia of North A. do not seem to differ much from those of Europe or Northern Asia. There are cats, lynxes, wolves and foxes, weasels, bears elk and deer, voles, beavers, squirrels, marmots, and hares, all very similar to those of the eastern hemisphere, and several hardly distinguishable. Even the bison, or “buffalo,” of the prairies, formerly so abundant and characteristic, now rapidly disappearing, is a close ally of the now almost extinct “aurochs” of Lithuania.’—*Island Life*. But besides these forms which North A. shares with the corresponding region of the old world, the former region has likewise distinctive forms sufficiently numerous to mark it out as a separate region geologically. Thus among mammals it has ‘three peculiar genera of moles, one of which, the star-nosed mole, is a most extraordinary creature, quite unlike anything else;’ three peculiar genera of weasels, including the well-known skunk; the raccoons, a highly distinctive family of carnivora; in the Rocky Mountains, the pronghorn antelope (*Antilocapra*), and the mountain-goat of the trappers (*Aplocerus*); many peculiar rodents, such as the family of the pouched rats (*Geomyidæ*), the so-called prairie-dog (*Cynomys*), a remarkable creature between the marmots and the spermophile squirrels, very abundant on the prairies; further, the tree porcupine and the opossum (*Didelphys*), the last belonging to an order of mammals (the *Marsupialia*) not known in the present geological epoch in the old world outside the boundaries of the Australian region. Among birds there is an absence of the characteristic families of *Muscicapidæ*, *Sturnidæ*, and *Sylviadæ* (true fly-catchers, starlings, and warblers) of the old world; while there are present such peculiar forms as the American fly-catchers and starlings (*Tyrannidæ* and *Icteridæ*), in addition to mocking-birds,

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bluejays, tanagers, humming-birds, turkey-buzzards, and wild turkeys. And among reptiles, there are true rattlesnakes, several genera of Iguanidæ (an exclusively American family), and an unusual number of tailed Batrachians; including the two peculiar families of the Sirens and Amphiumidæ, and the equivocal axolotl, an ally to the European Proteus.

The correspondence between the fauna of the Nearctic region and that of the Palæarctic region (the name applied to the similarly situated region of the old world) is not difficult to account for, in view of the probable land-connection between the two continents in the region of Behring's Straits already referred to in the section on Botany. What seems much more difficult to account for is the very marked degree of peculiarity which characterizes the more southerly of the two regions into which the American continent is geologically divided. For in spite of the fact that this region, the Neotropical, is continuous with the former (except in the West Indies, which are included in it), 'no other region,' says Mr. Wallace in his *Distribution of Animals*, 'can approach it in the number of its family and its generic types,' and in his more recent *Island Life*, he adds: 'Whether . . . we consider its richness in peculiar forms of animal life, its enormous variety of species, its numerous deficiencies as compared with other parts of the world, or the prevalence of a low type of organization among its higher animals, the Neotropical region stands out as undoubtedly the most remarkable of the great zoological divisions of the earth.'

As to its peculiarities, there is the same authority for stating that out of 168 families of vertebrates, 44 are peculiar; out of 130 genera of mammals, 103 or 79 per cent. are peculiar, while no other zoological region has more than 64 per cent. of mammalian genera peculiar to it; and out of 683 genera of birds (more than twice as many as in any other zoological region, though the Neotropical is one of the smallest in area), 576 or 84 per cent. are peculiar, while in this case also no other region has more than 64 per cent. peculiar.

To enter more into detail, among peculiar mammals are prehensile-tailed monkeys and marmosets, blood-sucking bats, coati-mundis, peccaries, chinchillas, agoutis, sloths, armadillos, and certain ant-eaters, besides llamas and alpacas, the last two constituting the genus *Auchenia* (q.v.), interesting as the only genus of ruminants confined to South A., and also as being so widely separated from its nearest allies, the camels of the old world, with which, however, it is connected through the extinct camels of North A. Then among birds peculiar to this region there are the sugar-birds, or Cœrebidæ, an immense variety of tanagers, tree-creepers of the family Dendrocolaptidæ, and parrots (especially macaws); richly-colored chatterers, toucans, puff-birds, trumpeters, and 400 species of humming-birds. In its reptiles, amphibians, fresh-water fishes, and insects, the region is equally peculiar.

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No less characteristic, as above indicated, are the deficiencies of the region. The whole order of the Insectivora is wanting, except for a few species found in Central A. and the West Indies. The wide-spread family of the Viverridæ or civets is also absent; and there are no sheep, oxen, or antelopes in the native fauna. Then in the avian fauna there are none of the tits, shrikes, starlings, or pheasants of the old world; none of the sun-birds, bee-eaters, and rollers, so abundant in Africa. The low type of organization above referred to as characteristic of the higher animals of the region is shown by the predominance of edentates, marsupials, and rodents among the mammalia.

Like the flora the fauna of the West Indies is on the whole Neotropical in character, but the remoteness of the land connection of this archipelago with the mainland is shown by its extreme poverty in mammals. Great numbers of North American birds, however, migrate hither in winter.

The subjoined tables show the political distribution of A., and were compiled chiefly from census reports and official estimates. The figures after the most important govts. indicate the date of such report or estimate. Many discrepancies in reports of population are due to the local habit of including or excluding aborigines. Thus, in the United States only those Indians who belong to the five civilized tribes in Indian Terr. are included in the census; Chili excludes 50,000 wild Indians from her census; and Paraguay excludes 60,000 semi-civilized and 70,000 wild Indians. The treaty (1881) between Bolivia, Chili, and Peru, largely altered the area and population of each country, Chili securing an increase in both from her defeated antagonists.

### 1. GOVERNMENTS OF NORTH AMERICA.

GOVERNMENTS.	Area, sq. m.	Pop.	Capitals.
Denmark:			
Greenland, (1890)	34,015	10,516	Godthaab.
Farøe Islands, (1891)	514	12,954	Thorshavn.
Iceland, (1891)	40,457	69,234	Rejkjavik.
France:			
St Pierre } (1891)	90	5,983	St. Pierre.
Miquelon }			
Great Britain:			
Dominion of Canada, (1891)	3,315,647	4,832,679	Ottawa.
Newfoundland, (1891)	40,200	193,121	St. John's.
Labrador, E. coast of (1881)	120,000	4,211	
Bermuda, (1891)	19	15,743	Hamilton.
British Honduras, (1891)	8,291	27,668	Belize.
United States of America, (1890)	3,602,990	62,885,548	Washington.
Mexico, (1892)	761,640	11,885,607	Mexico.
Salvador, (1891)	18,720	777,895	San Salvador.
Nicaragua, (1888)	51,600	282,845	Managua.
Honduras, (1888)	39,600	381,938	Tegucigalpa.
Guatemala, (1891)	44,800	1,452,003	Guatemala.
Costa Rica, (1892)	19,980	262,700	San José.
<b>Total,</b>	<b>8,098,563</b>	<b>83,100,635</b>	

## AMERICA.

### 2. WEST INDIAN GOVERNMENTS.

GOVERNMENTS.	Area, sq. m.	Pop.	Capitals.
Haiti, (1837)	9,500	960,000	Port au Prince.
Dominican Republic, (1838)	18,000	417,000	San Domingo.
Spain			
Cuba, (1892)	45,831	1,521,634	Havana.
Porto Rico,	3,596	806,708	San Juan.
Great Britain:			
Jamaica, (1891)	4,192	639,491	Kingston.
Trinidad, (1891)	1,754	198,747	Port of Spain.
Barbados, (1891)	166	182,206	Bridgetown.
Grenada, and Grenadine Islands,	138	49,337	St. George.
St. Vincent,	147	40,548	Kingston.
Tobago,	114	18,051	Scarborough.
St. Lucia,	243	42,504	Castries.
Antigua,	108	34,321	St. John's.
Montserrat,	47	10,033	Plymouth.
St. Kitts, Anguilla,	103	43,774	Basseterre.
Nevis,	50	11,704	Charlestown.
Virgin Islands,	64	5,287	Roadtown.
Dominica,	275	28,211	Roseau.
Bahama Islands, (1891)	4,466	49,500	Nassau.
Turks, Caicos Islands, (1891)	169	4,778	Grand Turk.
France:			
Guadeloupe, (1891)	721	165,154	Basseterre.
Martinique, (1891)	381	175,863	Fort de France.
St. Bartholomew's,	8	2,898	Gustavia.
Netherlands			
St. Martin { Curaçao }	(1890) 237	29,729	Willemstad.
Denmark:			
St. Thomas, (1891)	33	14,389	Charlotte Amelia.
St. Croix, (1891)	84	18,430	Christianastadt.
St. John, (1891)	22	944	.....
<b>Total,</b>	<b>90,483</b>	<b>5,471,341</b>	

### 3 GOVERNMENTS OF SOUTH AMERICA.

GOVERNMENTS	Area, sq. m.	Pop.	Capitals.
Venezuela, (1891)	623,695	2,323,527	Caracas.
Colombia, (1831)	504,773	3,873,600	Bogota.
Ecuador, (1892)	120,000	1,270,000	Quito.
Peru, (1883)	503,000	2,699,945	Lima.
Bolivia, (1880-89)	567,240	1,192,162	Sucre.
Argentine Confederation, with Patagonia, (1889)	1,125,036	4,086,492	Buenos Ayres.
Uruguay, (1839)	72,110	633,943	Montevideo.
Paraguay, (1837)	145,000	329,645	Asuncion.
Chile, (1892)	293,970	2,817,552	Santiago.
Brazil, (1888)	3,209,878	14,002,335	Rio de Janeiro.
Brit. Guiana, (1891)	109,000	237,931	Georgetown.
French Guiana (Cayenne), (1891)	30,463	25,796	Cayenne.
Dutch Guiana (Surinam),	46,060	74,132	Paramaribo.
Falkland Islands, (1891)	6,500	1,890	Stanley.
<b>Total,</b>	<b>7,356,775</b>	<b>33,674,000</b>	
<b>Grand total of America,</b>	<b>15,425,821</b>	<b>122,241,765</b>	

An estimate in 1903 gave the total area as 16,076,332 sq. m., and the total pop. as 127,182,261. Spain had lost Cuba and Porto Rico, and a treaty for the sale of the three Danish West India islands to the United States was pending.



## AMERICA—AMERICANISMS.

**AMERICA, BRITISH:** in mere extent, almost equal to the American republic. The term was commonly used to describe the British colonies in North America, now united to form the Dominion of Canada, together with the island of Newfoundland still a separate colony. In this sense its area, more than 3,500,000 sq. m., is little less than that of the United States. If the name be taken as synonymous with the British possessions in America—north, south, and central—there must be added Belize, the Bermudas, the British West Indies, and the Falklands; making a total of 3,613,712 sq. m.—exceeding the area of the United States by 10,000 sq. m. Since 1878, when the present commercial policy of Canada was adopted, there has been considerable agitation in Canada and the United States for a more practical commercial union. While a sentiment has been developed in the United States against further enlargement of trade with Canada till the two countries become politically united, Canadian liberals ask for unrestricted reciprocity, and conservatives wish to limit reciprocity to natural products. The subject of union has been stimulated by the introduction of a joint resolution in congress 1888, Dec., authorizing the pres. to invite negotiations for complete union; the declaration of Premier Mercier of Quebec 1889, Nov. 10, that a large number of Canadians desired a change; and the expressed belief of many English publicists during 1889 that Canada would meet with no opposition from England if she really desired annexation. Any such desire in Canada has evidently diminished in recent years. See the separate divisions.

**AMERICA, RUSSIAN:** name long given to Alaska, now a territory of the United States, which was purchased from the Russian government in 1867 for \$7,200,000. It forms the n.w. extremity of the American continent. It was discovered by a Russian expedition conducted by Behring (q.v.), which sailed from Kamtchatka 1741. Its principal town is New Archangel (now called Sitka), on the island of Sitka. See **ALASKA: SITKA: UNITED STATES.**

**AMERICA, SPANISH:** now shrunk into Porto Rico and Cuba, belongs rather to history than to geography. Yet for many years it practically embraced all South and Central America and great part of North America as well. See the separate divisions.

**AMERICAN**, a. *ă-měr'ĭ-k'ĭn.*: of or from America.  
**AMERICANISM**, n. *-ĭzm.* an American peculiarity of speech  
**AMERICAN ALOE:** see **AGAVE.**

**AMERICAN FEDERATION OF LABOR:** organization of workmen, formed at Columbus, O., 1886, Dec. It consists of about 96 national labor organizations, comprising 1,378 local unions, affiliated for united action. Its membership is about 2,000,000.

**AMERICANISMS:** words and phrases current in the United States, not current in England. These peculiarities are much more prominent in conversation than in writing; indeed, in the American writers that are usually considered classical, it is difficult to detect anything of the kind. The

## AMERICANISMS.

number of absolutely new words introduced into the English language in America is not great. As an instance may be mentioned *caucus*, for a secret political assembly. This is a corruption of *calk-house*, a calker's shed in Boston, where the patriots before the revolution had usually held their meetings. The term *Yankee* (an Indian corruption of the French *Anglais*) is another. The great body of A. consist in giving an unusual sense to existing words: as *clever*, in the sense of amiable, and *smart* for clever; *wagon* for a very light kind of carriage; *book-store* for book seller's shop; *wilted* for withered; *creek* for a small river, instead of a small arm of the sea.

The several divisions of the Union have their characteristic peculiarities. Thus, in the New England States—Yankee-land proper—*ugly* is used for ill-natured; *friends* for relations (so used also in Scotland); and *guess* for a great variety of things—to think, presume, suppose, etc. This use of *guess* is found chiefly in New England; the inhabitants of New York and of the Middle States generally employ *expect* in the same way; while those of the Southern States *reckon* and those of the Western States *calculate*. Several words which became current first in the Middle States, and are now more general in their use, are of Dutch origin, as *loafer* for a vagabond, from the Dutch *loopen*, to run; and *boss* for a head workman or employer. The Southern States have a more limited range of peculiarities than the other divisions. In the Western States, though the people of culture, now numerous, show a linguistic correctness equal to those of any other part of the country, there are extensive regions in which there is hardly any recognized standard of speech, and in some districts 'it would hardly be an exaggeration to say that every prominent person has his own private vocabulary.' The verb *to fix* is made to do duty for expressing every conceivable kind of action. The vague use of this word is common all over the Union, but in the West the abuse is carried to the extreme. *Help*, in the sense of servant, is common to the West and to New England, but is nearly unknown in the Middle States. The well-known phrase *go ahead* is a coinage of the West; it is sufficiently expressive of the leading characteristic of the American people. *Posted-up* or *posted* on a subject, for 'well informed,' is one of a class of metaphors indicative of the prominence of mercantile pursuits.

The tendency to the use of slang is excessive in America, especially in the Western States.

A variety of causes have been enumerated to account for the American deviations from standard English; such as, the influence of the Indian languages; the various tongues spoken by settlers from Europe other than English; the original provincial peculiarities of portions of the English settlers, etc. For instance, Prof. Schele de Vere, whose work, *The English of the New World* (1873), is the best on the subject, states that the largest number of so-called A. are good old English words which have become obsolete or provincial in the mother-country. But even supposing the language of the United States were at this moment in every

## AMERICAN JOURNALISM—AMERICUS.

respect identical with that of England, and to be henceforth unaffected by the importation of foreign elements, the complete identity could not be expected to continue long. Not only do new circumstances and wants make new terms necessary, and modify the application of old, but those changes of structure which constitute the organic growth of every living tongue, are evolved more or less rapidly according to the industrial and political activity of those that speak it. To complain, then, that the English language in America, or in any of the British colonies, should exhibit deviations from the standard of the mother-country is as unreasonable as to complain that an animal should exhibit changes in its coat or its habits when removed from one climate to another. Though it is certainly desirable that the language of the various sections of the Anglo-Saxon race should be substantially one, yet the general adoption of a new term or mode of expression by a great community may be presumed to have a cause deeper than any that can be controlled by criticism.

As the Americans of Anglo-Saxon origin do not exceed one-third of the whole population of the United States, it seems wonderful that the English language should have held its ground so well—that it should not have been completely corrupted, or even in some places supplanted by other tongues. Yet there is apparently no danger of this. The original Dutch of New York has disappeared, with the exception of a few stray words; and although French is still spoken in one-half of the city of New Orleans, it has been preserved at the expense of the speakers isolating themselves and losing their due influence. The proximity of the German-speaking and the Welsh-speaking population that still hold out in Pennsylvania, Ohio, etc., has no sensible effect upon the language of their English-speaking neighbors; while, on the other hand, the influence of the English is reducing the language of the Germans to a corrupt patois, swarming with English words.—See *The English Language in America*, in the Cambridge Essays for 1855; Bartlett's *Dictionary of Americanisms* (1858).

**AMERICAN JOURNALISM:** see NEWSPAPERS.

**AMERICAN UNIVERSITY, THE:** institution at Washington, D. C., designed to provide advanced courses of study for graduates of colleges; chartered 1891, May 28. It has since been placed under the patronage of the Meth. Episc. Chh. It has a board of 50 trustees, of which the pres. and vice-pres. of the United States, the chief justice of the supreme court, and the speaker of the house of representatives are ex-officio members. Bp. J. F. Hurst, D.D., LL.D., is pres. of the institution, which is not yet organized for instruction. A fine site of 90 acres on Massachusetts Ave. has been given by the citizens of Washington for the erection of buildings. The institution is designed for the co-education of the sexes.

**AMERICAN VOLUNTEERS:** see VOLUNTEERS.

**AMERICUS, *â-mě'r'i-kus*:** city, capital of Sumter Co., Ga. It is situated on the Georgia and Alabama and the

## AMERIGO VESPUCCI.

Central Georgia railroads 71 m. s.w. of Macon. It contains a college for women, and is the centre of a stock-raising and cotton-growing country.

AMERIGO VESPUCCI, *â-mâ-rê'go vës-pôt'chê*: 1451, Mar. 9-1512, Feb. 22; b. Florence: a naval astronomer, from whom America accidentally received its name. His father was a notary. The education of A. was intrusted to his uncle, Giorgio Antonio Vespucci, a monk, and apparently a man of superior enlightenment. The youth made small progress in his Latin grammar, though he showed great aptitude and liking for natural philosophy, astronomy, and geography—at that period favorite objects of study, on account of their commercial importance. It is not precisely ascertained when he first went to Spain: in 1486, he was there, in mercantile pursuits. He was at the head of a large Florentine firm in Seville, 1496, when Columbus was making preparations for a second voyage to the new world. The success of the great discoverer inflamed A. with a passion for discovery, and having abandoned 'business,' he sailed from Cadiz, 1499, May 20, in the expedition commanded by Admiral Hojeda, and, after a voyage of 37 days, arrived at that portion of the continent of America now called Cumana, explored the Bay of Paria, lying between the isle of Trinidad and the mainland, and some hundreds of miles along the coast. He returned in the autumn of the same year, but commenced a second voyage under Admiral Pinzon in December, which resulted in the discovery of a crowd of small islands on the s. of the Gulf of Mexico. He was now allured by promises into the service of Emanuel, king of Portugal, and undertook two other voyages with Portuguese ships; the first, 1501, May 10; the second, 1503, May 10. His purpose was to sail westward, in hopes of discovering a passage to Malacca, the extreme point of discovery in the East. He lost one of his ships; and after encountering great perils, the other five found refuge in All Saints' Bay, on the coast of Brazil. The monarch gave orders that some remains of the ship *Victoria*, in which A. made his last voyage, should be suspended in the cathedral of Lisbon, but fulfilled none of the promises which he had made. A. consequently returned to Spain, and in the year 1508 succeeded in obtaining the office of piloto-major. He died at Seville.

The character of A. V. has been covered with unmerited obloquy. He has been accused of endeavoring to claim the honor of discoveries which he never made, and has been commonly regarded as an unprincipled adventurer. Humboldt, however, has successfully vindicated him from such aspersions. He had a very considerable knowledge of various branches of science, and it was on account of his superior attainments in these that he was selected to accompany the expeditions as naval astronomer. He was a prompt and skilful inspector of the commissariat while under his control; vigorous, practical, and severe in his demands for increased knowledge on the part of the naval functionaries under him; an earnest navigator and close friend of

## AMERSFOORT—AMES.

Columbus in the last years of the great admiral's life. How America came to receive its name from him is not quite clear; but it is certain, from Humboldt's investigation, that A. himself had nothing to do with it. The name of the new world probably originated in Germany. A selection from A.'s narrative of his American voyages found its way into that country. Martin Waldseemüller, of Freiburg, in Baden, translated it for a bookseller of St. Diez, in Lorraine. As the first account of the wonderful discovery, it was greedily devoured. Edition after edition was printed off, and, according to Humboldt, it was Waldseemüller who proposed that the new world should be called America in honor of the author. Afterwards, this name was generally employed by geographical writers, and even the Spaniards and Portuguese adopted it.

**AMERSFOORT**, *â'mers fôrt'*: ancient town in the Netherlands, prov. of Utrecht, on the Eem, which flows into the Zuyder Zee. It has a large trade in grain. Tobacco is grown in the district, and cotton and woolen goods, leather, soap, beer, etc., are manufactured. The church of St. Joris was completed in 1248. A. has a Jansenist college and court of justice. Here the statesman Oldenbarneveld was born. A. has railway connection with Amsterdam. Pop. (1883) 14,182; (1891) 15,694.

**AMES**, *âmez*, **ADELBERT**. soldier, U. S. senator, and gov. of Mississippi: b. Rockland, Me., 1835, Oct. 31. He graduated from West Point 1861, fought in the war of the rebellion, and was brevetted col. and maj. gen. U. S. vols. He was mustered out 1866 as brev. maj. gen. U. S. A., and promoted to lieut. col. 24th U. S. infantry. He was appointed provisional gov. of Miss. 1869; elected U. S. senator from Miss. 1869-73, and gov. 1873-76. Gen. A.'s administration aroused the hostility of the democrats—the white population. riots ensued and many atrocities, and the returns of the election 1876 showed democratic supremacy. At the beginning of the war against Spain (1898) he was appointed a brig.-gen. of volunteers.

**AMES**, **EDWARD RAYMOND** bishop of the Meth. Episc. Church. 1806, May 20—1879, Apr. 25; b. Baltimore. He was educated at the Ohio State Univ., and opened a high school at Lebanon, Ill., 1828, which afterward became McKendree College. He joined the Indiana Meth. Episc. Conference 1830, and became an itinerant. He was a presiding elder 1844-52, and was then chosen bishop. During the civil war he was a member of several important commissions. Bp. A. was abundant in zeal and Christian labor. He died in Baltimore.

**AMES**, **FISHER**: statesman and orator 1758, Apr. 9—1808, July 4; b. Dedham, Mass., son of Nathaniel A., M.D. He graduated at Harvard 1774; and after teaching for several years, studied law and began practice 1781. He soon gained reputation, not only as a lawyer but as a writer of political essays, and 1788 was elected representative in the state legislature, and member of the convention

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to ratify the federal constitution, in which his speeches were of extraordinary eloquence and power. He joined the federal party, was elected to congress, and served through Washington's two administrations. His most eloquent and impressive speech was delivered 1796, Apr. 28, in advocacy of the appropriation for execution of Jay's treaty with Great Britain: at its close the taking of a vote was objected to, because of the excitement of his hearers. He retired from public life on account of failing health. In 1804 he declined the presidency of Harvard College. A collection of his works, with a life, was pub. Boston 1809 (enlarged, 2 vols. 1854).—A.'s speeches were mostly extemporaneous as to words, though his theme was carefully thought out. His diction was felicitous, luminous, and often sublime. He was a brilliant talker, a sparkling letter-writer; and of gentle manners and amiable disposition.

AMES, JOSEPH: artist. 1816–1872, Oct. 30; b. Roxbury, N. H. He began painting portraits in early life and opened a studio in Boston, where though wholly self-taught he was very successful. He went to Rome, where he painted a portrait of Pius IX. He returned to Boston but after 1870–1 he resided in New York. His portraits include those of many prominent persons.

AMES, OAKES: manufacturer: 1804, Jan. 10—1873, May 8; b. Easton, Mass.; eldest son of Oliver A., a blacksmith noted for making excellent shovels. He received a public school education, acquainted himself with his father's business of making shovels, and established the firm of Oliver Ames & Sons. The firm did an enormous business; also were heavily interested in the construction of the Union Pacific railroad, but transferred their contracts to the Credit Mobilier, which gave rise to a serious financial scandal. A. was a member of the executive council of Mass. 1861, and served in congress 1862–73. He d. at North Easton, Massachusetts.

AMES, OLIVER: manufacturer: b. North Easton, Mass., 1831, Feb. 4; son of Oakes A., and nephew of Oliver A., who was pres. of the Union Pacific railroad. He received his education at schools and academies, and at Brown Univ., where he did not enter till after a five years' apprenticeship at the family trade of shovel making. He continued in that business until the failure of the Ames Manufacturing Co., when he administered the estate so judiciously that he restored it and made a large fortune for himself. He was elected to the Mass. state senate, 1880, 1 lieut. gov. 1882–86; and gov. 1887–90. Died 1895.

AMES-ACE: see AMBS-ACE.

AMESBURY town in Mass., one of three co.-seats of Essex co., on the Merrimac river, and on the Boston and Maine railroad; 42 m. n.e. of Boston, 27 m. n. of Salem. It has manufactures of boots and shoes, woolen and cotton goods, machinery, and carriages. Pop. (1880) 3,335; (1890) 9,473.

## AMETABOLIC—AMHERST.

**AMETABOLIC**, a. *ăm-ět'ă-böl'ik* [Gr. *amētab'ōlōs*, unchangeable—from *a*, without; *metābōlē*, change]: applied to insects not possessing wings when perfect, and which, therefore, do not pass through any marked metamorphosis.

**AMETHYST**, n. *ăm'ě-thĭst* [Gr. *amēthus'tos*, without intoxication]: a variety of quartz, forming a precious stone of various colors—generally of a purple or violet-blue color, like wine mixed with water. **AMETHYSTINE**, a. *ăm'ě-thĭs'tĭn*, having the violet-blue tinge peculiar to the amethyst; pertaining to. **AMETHYSTOLINE**, n. *ăm'ě-thĭs'tō-lĭn*, a name applied to the volatile fluid found in the minute cavities of the amethyst.

**AMETHYST**: a variety of quartz (q.v.), differing from common quartz and rock-crystal chiefly in its beautiful violet-blue or purplish violet color—well known as *amethystine*—which is owing to the presence of a little peroxide of iron or of manganese. It is one of the most esteemed varieties of quartz, and is much employed for seals, rings, etc., although, being comparatively abundant, it is much inferior in price to the true gems. An amethystine tinge is frequently to be observed in specimens of quartz, which yet are not perfect **A**. The tinge is often very faint, and is frequently confined to the summits or edges of the crystals. The finest specimens of **A**. are brought from India, Ceylon, and Brazil. It abounds as masses of crystals at L. Superior and in the Rocky Mts. It frequently occurs lining the interior of balls or geodes of agate, and in veins and cavities in greenstone and other rocks. The ancients imagined it to possess the property of preventing intoxication, and persons much addicted to drinking therefore wore it on their necks. The name is derived from a Greek word which signifies *unintoxicated*.—Not to be confounded with this mineral is that sometimes called the *oriental A.*, which is a variety of corundum having an amethystine color, and is a very valuable gem.—False amethysts made of glass or *paste* are very common, and in general very coarse; but a nearly perfect imitation can be, and sometimes is, made.

**AMHARIC**, n. *ăm-hăr'ik*: the modern language of Abyssinia—so named from *Amhara*, one of its provinces. It is of Semitic origin, and is related to the ancient Ethiopian or Geez, having the Ethiopic alphabet with some added letters; and like that language it has close resemblance to the Arabic. See **ETHIOPIA**.

**AMHERST**, *ăm'erst*: t. in Hampshire co., Mass., 82 m. w. of Boston. It is near the Connecticut river, in the midst of picturesque scenery, and has six or eight churches, a weekly newspaper, and several paper-mills. The beautiful village is the seat of Amherst College (q.v.), and of the Mass. Agricultural College. Pop. (1890) 4,512; (1900) 6,028.

## AMHERST—AMHERST COLLEGE.

**AMHERST**: town in Hillsborough co., N. H., 30 m. s. of Concord, 48 m. n. w. of Boston. Horace Greeley was b. here. The village is a summer resort. Pop. (1900) 1,231.

**AMHERST**, *ăm'ěrst*: sea-port of Tenasserim (q. v.), on the shore of the Bay of Bengal; at the mouth of the Salwen. It was founded 1826, as the commercial capital, being named after the then gov. gen. of India; but the plan has failed, the harbor being defective; and A. has no commercial importance. The *dist.* of A., 15,190 sq. m.; pop. (1881) 301,086; (1891) 417,312.

**AMHERST, JEFFERY** (Baron AMHERST): British soldier: 1717, Jan. 29—1797, Aug. 3; b. Riverhead, Kent, England. He was an aide-de-camp under Marlborough, in the wars on the continent, and fought at Dettingen and Fontenoy. In 1758 William Pitt recalled him to England, had him commissioned maj. gen.; and sent in command of an expedition to America. He captured from the French the stronghold of Louisburg, July 26. During the revolutionary war he succeeded Abercrombie in command of the Brit. army in N. America; captured Ticonderoga, Crown Point, and Montreal, thus gaining control of all Canada; whereupon he was made gov. gen. of the Brit. possessions in America. In 1773 he was made gov. gen. of Va. In 1776 he was created Lord A., and 1787 Baron A.; and was appointed field marshal 1796.

**AMHERST, WILLIAM PITT**, Earl of: 1773—1857, Mar. 13; nephew of Baron Jeffrey A. His embassy to China 1816 failed because of his manly refusal to kneel before the emperor in the degrading 'koto.' Earl A. was gov. gen. of India 1823—28. The first Burmese war, with its triumph, made his administration notable.

**AMHERSTBURG**: town in the prov. of Ontario, Canada, on the river Detroit, which empties Lake St. Clair into Lake Erie. It is one of the oldest settlements in Upper Canada, being named from Lord Amherst, who, by the capture of Montreal in 1760, completed what Gen. Wolfe had begun at Quebec in 1759. It occupies the s. w. extremity of the province, the turning-point of climate and character to the basin of the St. Lawrence, the spot where its waters, after having gained southing from the 50th to the 42d parallel, suddenly assume a direction which carries them back to their original latitude above the island of Anticosti. A large business is done here in timber. In the days of slavery in the United States, A. being a frontier town, was a place of refuge for fugitive slaves. Pop. (1901) 2,222.

**AMHERST COLLEGE**: in Amherst, Mass.; founded 1821, in part through the exertions of Noah Webster, LL.D., then a resident of Amherst. Zephaniah Swift Moore, D.D., was called from the presidency of Williams College to the same office in this institution, which opened 1821, Sept. 19, with two teachers and 47 students. The following year a second edifice was built, the two still standing as 'North' and 'South College.' Soon afterward a large chapel was erected between the two, all fronting a magnificent westward view of the Connecticut river valley, from Mt. Holyoke on the south to Mt. Tom



## AMHERST COLLEGE

on the north. The successive presidencies have been as follows: Heman Humphrey, D.D., 1823-45, Edward Hitchcock, D.D., LL.D., 1845-54; William A. Stearns, D.D., LL.D., 1854-76, Julius H. Seeley, D.D., LL.D., 1876-90, and Merrill E. Gates, PH.D., LL.D., 1890-99; George Harris, D.D., LL.D., since 1900. Noted profs. have been Ebenezer S. Snell, LL.D., 1829-76; Jacob Abbott, D.D.; Nathan W. Fiske (father of 'Helen Hunt'); Edwards A. Park, D.D., LL.D.; Henry B. Smith, D.D., LL.D.; Charles U. Shepard, M.D., LL.D.; Edward Tuckerman, LL.D.; and William S. Tyler, D.D., LL.D., the latter's service dating from 1836. The whole number of alumni to 1903 was 4,341. The catalogue of 1902-3 enrolled 36 professors, 7 instructors, and 404 students; the classes, excluding graduate students, averaging 82 each. The undergraduate courses, of four years, with much liberty of optional studies after the first year, may have in view the degree of bachelor of arts, or of science; the degree of PH.D. is conferred on a two years' post-graduate course in science or literature; and special students not in the degree courses may receive certificates. The work in science has been much strengthened by new chemical and physical laboratories and equipment, at a cost of \$100,000. Other facilities of the institution include the Mather art collection of antique and modern casts; an observatory with a 7 $\frac{1}{4}$  inch telescope; the Woods geological cabinet, including the rich Shepard collection of meteorites, and Pres. Hitchcock's suites of specimens from the survey of several New England states; the Appleton cabinet building, with 1,400 ichnological slabs, the Audubon collection of birds, the large Adams collection of shells, etc.; the Pratt gymnasium, and the Pratt athletic field of 13 acres. A beautiful Gothic church of stone, the gift of a son of Pres. Stearns, crowns the east brow of the college hill. The Henry T. Morgan Library, of stone, contains 60,000 vols., and its porch is adorned with sculptured slabs from the palace of Sardanapalus, obtained by the missionary Henry Lobdell. The college was a pioneer in American geology as represented by Pres. Edward Hitchcock, father of the geologist Charles H. Hitchcock, and was also first in developing systematic physical culture under the lead of another son, Edward Hitchcock, M.D. This institution has taken the lead also in a system of government known as 'the Amherst system' of a college senate, by which to a considerable extent the students govern themselves. The college buildings number 13; the entire property with endowments is valued at more than \$2,000,000, and the annual income from all sources is about \$65,000. There are three fellowships (that of Rufus B. Kellogg for original research, yielding \$1,500 a year to the appointee); and very numerous prizes and scholarships; also a 'charitable fund' of \$83,500, with other large funds for aid of those who have in view the Christian ministry. Among the largest benefactors of the institution (each \$50,000 or more) have been Dr. William J. Walker of Newport, R. I., Samuel A. Hitchcock of Brimfield,

## AMIABLE—AMIDES.

Mass., Samuel Williston of Easthampton, Mass., Henry Winkley of Philadelphia, an unnamed donor, and the Fayerweather estate. The college is of the New England type, unsectarian, but under Congregational auspices; and like most institutions of this type, its original motive was earnestly religious.

**AMIABLE**, a. *ā'mī-ă-bl* [F. *aimable*; OF. *amiable*, agreeable, friendly—from L. *amābilis*, lovely, for L. *amicābilis*, friendly—from *āmo*, I love]: worthy or deserving of love or affection; pleasing. **AMIABILITY**, n. *ā'mī-ă-bil'ī-tī*, sweetness of disposition. **AMIABLE'NESS**, n. *-nēs*, loveliness; agreeableness. **AMIABLY**, ad. *-blī*.—**SYN.** of 'amiable': lovely; beloved; charming; pleasing; delightful.

**AMIANTH**, n. *ām'ī-ănth*, or **AMIANTHUS**, n. *ām'ī-ăn'thūs* [Gr. *a*, without; *miaino*, I soil or pollute]: that variety of asbestos (q.v.), or of serpentine, like delicate silky fibres. **AM'IAN'THIFORM**, a. [L. *forma*, shape]. **AM'IAN'THOID**, a. *-thoyd* [Gr. *eidos*, form]: having the form or likeness of amianthus.

**AMICABLE**, a. *ām'ī-kă-bl* [L. *amicābilis*, worthy of love—from *amicus*, a friend: OF. *aimiable* (see **AMIABLE**)]: friendly; peaceable; disposed to friendly intercourse. **AM'ICABLY**, ad. *-blī*, in a friendly way; with goodwill. **AMICABLENESS**, n. *ām'ī-kă-bl-nēs*, the disposition to preserve friendship and goodwill.—**SYN.** of 'amicable': peaceable; friendly; harmonious; kind.

**AMICE**, n. *ām'īs* [L. *amictus*, an outer garment: F. *amict*]: a cloak, generally worn by pilgrims; an oblong piece of linen, resembling an embroidered collar, tied about the neck of a Rom. Cath. priest.

**AMID** or **AMIDST**, prep. *ă-mīd'* or *ă-mīdst'* [AS. *a*, on: Icel. *midr*, the middle]: among; in the middle.

**AMIDE**, n. *ām'īd*, or **AM'MIDE**, n. *-mīd* [Gr. *ammi*, a plant; *am'ulon*, starch: probably made up of *am*, of ammonium, and *ide*]: a chemical compound formed from ammonia by the replacement of one or more of its hydrogen-atoms by an acid radical. **AMIDIN**, n. *ām'ī-dīn*, a substance resulting from the action of hot water on starch. **AMIDOGEN**, n. *ă-mīd'ō-jěn* [Gr. *gennāō*, I produce]: a hypothetical radical of ammonia and the amides. **AMMONIDE** n. *ām'ōn-īd*, an amide. **AMINE**, n. *ām-ēn'*, a compound ammonia, in which hydrogen is replaced by an alcohol radical.

**AMIDES**, *ām'īdz*: group of organic compounds, derived, under certain conditions, from ammonia (NH<sub>3</sub> or NHHH), by the exchange of one or more atoms of hydrogen for a corresponding number of atoms of a metal, or a compound radical. The first of these compounds that was discovered was that in which *one* atom of hydrogen was replaced by one of potassium (NHHK, or NH<sub>2</sub>K). the resulting product being regarded as a compound of NH<sub>2</sub> (*amidogen*) with potassium, and being termed amide of potassium. At present, the term *amide* is restricted to the case in which one or more atoms of hydrogen are replaced by an *acid* radical, and the amides are called primary, secondary, or tertiary,

## AMIDOGEN—AMIENS.

according as one, two, or all three of the atoms of hydrogen are replaced by the acid radical. The primary A. may be obtained in various ways, of which are here noted two: (1) If an ammoniacal salt be heated, two atoms of water are given off and the amide corresponding to the acid is left; thus ammonium acetate  $\text{NH}_4.\text{C}_2\text{H}_3\text{O}_2 - \text{H}_2\text{O} = \text{acetamide}$

$\text{C}_2\text{H}_5\text{NO}$ , which expressed typically is  $\text{N} \left\{ \begin{array}{l} \text{C}_2\text{H}_3\text{O} \\ \text{H} \\ \text{H} \end{array} \right.$  where

$\text{C}_2\text{H}_3\text{O}$  is the radical of acetic acid. (2) If an anhydride be submitted to the action of ammonia, there are formed simultaneously an amide and an ammoniacal salt. Thus valerianic or valeric anhydride  $\text{C}_{10}\text{H}_{16}\text{O}_3 + \text{ammonia}$   $2\text{NH}_3 = \text{ammonium valerate } \text{NH}_4.\text{C}_5\text{H}_9\text{O}_2 + \text{valeramide } \text{C}_5\text{H}_9\text{O}_2.\text{NH}_2$ , which expressed typically is  $\text{C}_5\text{H}_9\text{O}_2 \left\{ \begin{array}{l} \text{H} \\ \text{H} \end{array} \right. \text{N}$ ,

where  $\text{C}_5\text{H}_9\text{O}_2$  is the acid radical of valeric acid. The A. are, for the most part, capable of being obtained in a crystalline form, and are fusible volatile bodies. For a description of the more complicated forms of A., and for a history of their general properties, the reader is referred to the article 'Amides' in Watts's *Dictionary of Chemistry*, and to the chapter on A. in the 2d edition (1867) of Naquet's *Principes de Chimie*, vol. ii., pp. 344-368. If, in place of an *acid radical*, a *base radical* replaces one or more atoms of hydrogen in ammonia, a class of compounds, termed *amines*, is formed, for whose composition see ORGANIC BASES.

AMIDOGEN, *ă-mĭd'ō-jĕn*: a substance procured by the action of the metal potassium on dry gaseous ammonia. The latter contains one atom of nitrogen to three atoms of hydrogen ( $\text{NH}_3$ ), while A. contains one to two ( $\text{NH}_2$ ). A. forms a very important class of organic compounds called *amides* (q.v.), and gives rise to a number of substances closely allied to the alkaloids, many of which, indeed, may be regarded as natural amides.

AMIENS, *ă'mĭ āng'*: ancient city in the plain of Picardy, cap. of the dept. of Somme, France; the seat of a bishop and of a court of justice; has a citadel and fortifications. It possesses a college, an academy, a theol. seminary, an industrial school, a school of medicine, a public library, a picture gallery, a botanical garden, and several literary and scientific institutions. Among its public buildings, the cathedral is a noble edifice, built 1220, esteemed a masterpiece of Gothic architecture. Peter the Hermit was born here. A. has considerable manufactures of velvet, silk, woolen and cotton goods, ribbons, and carpets. The place owes its celebrity chiefly to the 'Peace of A.,' a treaty signed in this city, 1802, March 27, by Joseph Bonaparte, the Marquis of Cornwallis, Azara, and Schimmelpennink, and intended to settle the disputed points between England, France, Spain, and Holland. By this treaty, England retained possession of Ceylon and Trinidad, and an open port at the Cape of Good Hope; France re-

## AMIOT—AMLETH.

ceived back her colonies; the republic of the Seven Islands was recognized; Malta was restored to the order of the Knights of St. John; Spain and Holland regained their colonies, with the exception of Trinidad and Ceylon; the French were to quit Rome, Naples, and Elba; and Turkey was restored to its integrity. These terms were not received with satisfaction by the English, and war was declared against Bonaparte in 1803. In the Franco-Prussian war of 1870, A. was taken by the German general Manteuffel, an event which contributed to the fall of Paris. Pop. (1881) 73,630; (1891) 83,654; (1901) 90,758.

AMIOT, *â'me-o'*, JOSEPH: 1718-94; b. Toulon, France: a celebrated Jesuit and oriental scholar, who lived as a missionary in China from 1750 till his death. His knowledge of the Chinese and Tatar languages enabled him to collect many valuable notices of antiquities, history, language, and arts, in China. Many of his writings may be found in the *Mémoires concernant l'Histoire, les Sciences et les Arts des Chinois* (15 vols. Paris, 1776-1791). His *Dictionnaire Tatar-Mantchou-Français* was edited by Langlès, 1789.

AMISS, a. *ă-mĭs'* [AS. *a*, on; *misse*, in error: Dut. *missen*, to fail]: wrong; faulty; out of order: N. fault; error: AD. in a faulty manner.

AMITY, n. *ăm'ĭ-tĭ* [F. *amitié*—from L. *amicitia*, friendship—from *amo*, I love]: friendship; harmony.

AM'LETH, or HAMLETH: Prince of Jutland: said to have lived B.C. 2d c. According to Saxo-Grammaticus, he was the son of Horvendill and Gerutha; and after the murder of his father by his uncle Fengo, who married Gerutha, he feigned himself a fool, to save his own life. Saxo relates a number of little things regarding A., which are a curious medley of sharp and lively observation, and apparent madness. We are told that, on one occasion, when he visited his mother, suspecting that he was watched, he commenced to crow like a cock and dance idiotically about the apartment, until he discovered, hidden in a heap of straw, a spy, in the person of one of Fengo's courtiers, whom he immediately stabbed; he then so terrified his mother by his reproaches, that she promised to aid him in his intended revenge on his father's murderer, and according to the old chronicler, really did so. Scandinavian traditions confirm the existence of a prince of this name. A field is still pointed out in Jutland with a tomb bearing the name of A. In the vicinity of Elsinore is shown the spot where the father of A. was assassinated. Saxo himself does not mention the manner or circumstances of his death; but his French translator says he was murdered at a banquet. Most of the recent historians of Denmark consider the history of A. fabulous, but Müller thinks there is a substratum of fact in the old myth. It is the source of Shakespeare's tragedy of *Hamlet*, and thus possesses a perennial interest for the civilized world.



THE CATHEDRAL OF AMIENS.

Built in 1220.

A MASTERPIECE OF GOTHIC ARCHITECTURE.



## AMMAN--AMMON.

AMMAN, *âm'mân*, JOST: 1539-91: Swiss artist and engraver; notable for productiveness, for correct and spirited drawing, and for accuracy in costumes. Many of his works (copper-plate and wood-cut) are in the Berlin collection of engravings.

AMMANATI, *âm-â-nâ'tē*, BARTOLOMEO: 1511-92; b. Florence: architect and sculptor. He was at first a pupil of Baccio Bandinelli, afterwards of Sansovino at Venice. In 1550, he married Laura Battiferri of Urbino, celebrated for her poetical gifts. Pope Julius III. employed him in the decoration of the capitol, and Cosmo de Medici appointed him his architect. He completed the Pitti palace, begun by Brunelleschi. His works all have a certain grandeur, but are somewhat marred by a quaint mannerism. His bronzes show great delicacy.

AMMEN, *âm'en*, DANIEL: rear-admiral: b. Ohio; 1820, May 15. He entered the naval service as midshipman 1836, July 7, and was in the Wilkes exploring expedition, and the Mediterranean and E. India squadrons. He served with the Paraguay expedition 1853-4, and on the U. S. steam frigate *Merrimac* 1859-60. In 1860 he was made executive officer of the N. Atlantic squadron, and in 1861 was in command of the *Seneca* in the attack on Port Royal. Appointed commander 1863, he was present Mar. 3 in the attack on Fort McAllister. In 1864 he was ordered to California on board a passenger steamer, in charge of 220 seamen, and was successful in suppressing a mutiny which broke out among them. He was engaged in the Fort Fisher expedition 1864-5; was commissioned capt. 1866, July 26; served on special duty till 1878 when he was retired as rear-admiral. He died 1898, July 11.

AMMERGAU MYSTERY: (OBER-AMMERGAU): see MYSTERIES AND MIRACLE PLAYS.

AMMIANUS MARCELLINUS, *âm'mă-â'nūs măr'cĕl-lī'nūs*: Roman historian of the 4th c.; present in several campaigns in Gaul, Germany, and the East, and afterwards lived at Rome, engaged in literature. Though a Greek by birth, he wrote in Latin a history of the Roman empire from A.D. 91 to 378, in 31 books, of which 13, containing the years 91-352, are lost. This work, which commenced with the accession of Nerva, may be regarded as a continuation of Tacitus, and though the portions remaining have many faults of style, they are valuable on account of the author's love of truth, his careful descriptions of countries and events from personal observation, and especially his remarks on Germany. The work of A. has passed through several editions, of which the best are the Leyden edition (1693) b Gronovius, and the two Leipsic editions (1773 and 1808). The latest ed. is Gardthausen's (1875), 2 volumes.

AMMON, *âm'mon*, or AMON (No-Amon), or AMEN: an Egyptian deity, styled Amun on hieroglyphic monuments; compared by the Greeks with their supreme deity Zeus. The sacred name of Thebes, A.'s city ('*No-Ammon*' in the Old Test., Nah. iii. 8), was therefore translated into Greek by Diospolis. In the temples of this town, his peculiar

## AMMON—AMMONIA.

residence, A. is represented as sitting on a throne, holding the symbols of life and power, and wearing a crown with a peculiar ornament of two feathers and a band falling behind and hanging down to his feet. He was especially the god of Thebes; though his temples are found in other places, as at Meroë, and over the whole of Nubia and Libya. The name Amun or Amen signifies the hidden, unrevealed deity; and in Egyptian mythology, he held the highest place. His undefined character may serve to explain how other deities were identified with A. After the eighteenth dynasty, we find in hieroglyphics the name Amun-Ra frequently inscribed, indicating a blending of A. with the sun-god RA. Similarly the representation of A. with a ram's head shows the blending of him with Kneph. The worship of A. spread at an early period to Greece, afterwards to Rome, where he was identified with Zeus and Jupiter. Temples for his worship were erected in Thebes (Bœotia), Sparta, Megalopolis, and other places.

AMMON, *ám'on*, CHRISTOPH FRIEDRICH: 1766, Jan. 16—1850, May 21: German theologian, chiefly known by his work on the *Development of Christianity as a Universal Religion* (4 vols., Leip. 1833-40), in which he argues in favor of such liberal development of doctrine as may keep theology in harmony with the progress of science. A. was a leader of the rationalist school. He was a man of extensive learning, united with great industry and earnestness, and was generally respected in Saxony, where he resided.

FRIEDRICH AUGUSTUS A.: 1799-1861: second son of the above, known in Germany as the writer of several works on practical medicine and surgery.

AMMONIA, n. *ám-mō'nĭ-ă* [*Ammon*, Egyptian god corresponding to Jupiter; also, from district Libya, where first found]: a transparent gas having a strong, pungent, peculiar smell, consisting of nitrogen and hydrogen, and possessing alkaline properties; a substance used in medicine and the arts, from which hartshorn is made; the volatile alkali. AMMONIAC, a. *ám-mō'nĭ-ăk*, pertaining to: N. a gum brought from Persia, and used in medicine as an expectorant. AMMONIACAL, a. *ám'mō-nĭ'ă-kăl*, pertaining to ammonia; pungent. AMMO'NIUM, n. *-nĭ-ŭm*, the supposed metallic base of ammonia. SALAMMO'NIAC, in *chem.*, the salt usually called muriate of ammonia or *ammonic chloride*. AMMONIC, a. *ám-mōn'ĭk*, denoting a compound whose basic constituent is ammonia—as, AMMONIC CARBONATE, the common smelling-salts of the shops; AMMONIC CHLORIDE or SALAMMONIAC. AMMONIA or GAS LIQUOR, a liquid substance produced during the destructive distillation of coal.

AMMONIA, or HARTSHORN, or the Volatile Alkali: one of the few substances known to the chemistry of the ancients; being referred to by Pliny under the name of *vehement odor*, which he evolved by mixing lime with nitrum (probably sal ammoniac). It derives its name A. from its being obtained from sal ammoniac, which was first procured by heating camels' dung in Libya, near the temple



## AMMONIA.

of Jupiter Ammon. The atmosphere contains a minute quantity of A, amounting to 210-237 parts in 10,000,000,000 parts of air, which is equal to 1 volume of A in 28,000,000 of air. It is likewise present in rain water in variable proportion. The supply of A to the atmosphere is its evolution during the putrefaction of animal and vegetable substances, during the vinous fermentation, and the combustion of coal. It is likewise present in respired air, and is therefore a product of the daily wear and tear of the animal system. The principal source of A. at the present time is the destructive distillation of coal, as in gas making. The materials which pass over from the retort are partly undensable and truly gaseous, and these are carried to gas-jets and burned, but in other parts they are condensable, and are received during the purification of the gas as a mixed tarry and watery liquid. On allowing this liquid to settle, the water portion, containing A, can be separated, and, hydrochloric acid being added to it, there is formed a compound of A. and hydrochloric acid, called chloride of ammonium, which can be obtained dry, by evaporating the solution down in shallow vessels. Pure A. is manufactured from this impure chloride of ammonium by mixing it with its own weight of slaked lime in a retort, and applying a gentle heat, when the A. as a gas passes over, and is received in a vessel containing water. The solubility of A. in water is very great, 1 volume of water dissolving 670 volumes of ammoniacal gas, increasing in bulk and forming a liquid (*liquor ammoniæ* of the chemist, and hartshorn of the shops), lighter than water, its density being 891. The solution of A. is transparent, colorless, and strongly alkaline. In taste it is acrid caustic and in odor very pungent. Applied to the skin in a concentrated form, it blisters. Exposed to the air, the A. escapes, and the solution thus becomes weaker, and, reduced to  $-40^{\circ}$  F., it freezes. As generally obtained, even in the gaseous condition, it exists as a hydrate, or is accompanied by the corresponding amount of water to give the formula  $\text{NH}_4\cdot\text{HO}$ . Dry A. can be procured by passing the vapor of A., as ordinarily obtained, over fused chloride of calcium, when the water is abstracted, and true gaseous A. is left, having the composition 1 nitrogen and 3 hydrogen ( $\text{NH}_3$ ). Gaseous A. can be liquefied under pressure and cold, and then yields a colorless, clear, mobile liquid, with the characteristic odor and other properties of A. much intensified. A. combines with acids to form a class of salts of considerable importance. Thus, the crystallized ammonium sulphate,  $(\text{NH}_4)_2\text{SO}_4$ , is much used as a top dressing by farmers, and is also mixed with manures where an increase of ammoniacal matter is desirable. The chloride of ammonium is also employed in agriculture; likewise largely by the Russian peasantry, as a condiment for flavoring food in place of common salt.

In medicine, the gaseous A. has been rarely used. The solution of A. is employed as a means of rousing the respiratory and vascular systems, and for the speedy alleviation of spasm. It is used also as a local irritant and antacid. It is serviceable in dyspeptic complaints with preternatural

## AMMONIACUM.

acidity of stomach and flatulence; to produce local irritation or destruction of certain parts, and to render comparatively harmless the bites of poisonous animals, such as serpents and insects.

AMMONIUM is a hypothetical metal, said to consist of 1 volume of nitrogen with 4 of hydrogen. It has never been produced in an isolated state; but a singular amalgam of Ammonium and mercury may be formed, by subjecting a globule of mercury, surrounded by a little water of ammonia, to the action of the galvanic current; when the galvanic agency ceases, this amalgam is decomposed into mercury, ammonia and water. Ammonium may likewise be prepared by acting on an amalgam of sodium and mercury with a solution of chloride of Ammonium. A portion of mercury is slightly heated in a porcelain vessel, and pieces of sodium introduced, when the sodium and mercury combine, and form an amalgam of sodium and mercury, which is a semi-solid substance, and scarcely occupies more space than the bulk of the mercury employed. If this be introduced into a vessel containing a strong or saturated solution of chloride of Ammonium ( $\text{NH}_4\text{Cl}$ ), the chlorine combines with the sodium (Na) of the amalgam, forming chloride of sodium ( $\text{NaCl}$ ). and the Ammonium unites with the mercury, forming the amalgam of Ammonium and mercury. As the change referred to proceeds, the amalgam increases in size many times, and forms a spongy mass of the consistence of butter, which rises through the saline solution and floats on the surface. The amalgam of Ammonium and mercury very readily decomposes; hence the difficulty of determining its exact composition.

AMMONIACUM, *ăm-mō-nī'ăk-ăm*, or AMMONIAC, *ăm-mō'nī-ăk*: a gum resin, used in medicine on account of its stimulant and discutient qualities; obtained from *Dorema A.*, a plant of the natural order *Umbelliferae*, a native of Persia—a perennial, about 7 ft. high, with large doubly pinnate leaves. The leaves are about 2 ft. long. The whole plant is abundantly pervaded by a milky juice, which oozes out upon the slightest puncture, and which hardens, and becomes A. The A. exudes from punctures made by an insect, which appears in great numbers at the time when the plant has attained perfection. Much of it is sent to India, and it is generally imported into Britain from Bombay, although sometimes from the Levant. It occurs in commerce either in tears, or in masses formed of them, but mixed with impurities. It is whitish, becoming yellow by exposure to the atmosphere, is softened by the heat of the hand, and has a peculiar heavy unpleasant smell and a nauseous taste, at first mucilaginous and bitter, afterwards acrid. It is not fusible, but burns with white crepitating flame, little smoke, and strong smell.—It was for some time erroneously supposed to be the produce of a species of *Heracleum*, the seeds of which were found inclosed in it.

A similar substance is obtained from *Ferula Tingitana*, an umbelliferous plant, growing on light sandy soils in the n. of Africa; and is said also to be obtained from *F. Orientalis*, a native of Asia Minor and of Greece. Both these plants

## AMMONITE—AMMONITES.

have branched stems, and very compound leaves, somewhat resembling fennel. It would seem that the A. of the ancients was the gum resin of the *Ferula*, which has a more faint odor and less powerful medicinal properties than that of the *Dorema*.

AMMONITE, n. *ăm'môn-īt*, one of an extinct genus of Cephalopoda in which the shell is coiled into a flat spiral, so called from a resemblance to the horns of the statue of the ancient Egyptian god Jupiter Ammon. AMMONITIDÆ, n. plu. *ăm'môn-īt'ī-dē*, the family of fossil shells of which the ammonite is the type.

AMMONITES, *ăm'môn-īts*: a Semitic race, living on the edge of the Syrian Desert; descendants of Ben-ammi the son of Lot (Gen. xix. 38). They inhabited the country lying to the n. of Moab, between the rivers Arnon and Jabbok, i.e. the desert country e. of Gad. Their chief city was Rabbath-Ammon, to which the Greeks afterwards gave the name of Philadelphia. The Israelites were often at war with them and their other Bedouin confederates. Jephthah defeated them with great slaughter. They were also overcome by Saul, David, Uzziah, and Jotham; but after the fall of the kingdom of Israel, B.C. 720, spread themselves in the districts of Judæa e. of the Jordan. In B.C. 582, they were subdued by the Babylonians. After the captivity, they recommenced their feuds with the Jews, but were conquered by Judas Maccabæus. The intermarriages of Jews with the A., which had been frequent, were prohibited by Nehemiah. The chief deity worshipped by the A. was named Milcom, who in his character seems to have resembled Moloch. Justin Martyr affirms that in his time the A. were still numerous.

AMMONITES: genus of fossil shells, nearly allied to the recent genus *Nautilus*, being, like it, chambered and spiral. The molluscous inhabitant appears to have lodged in the last and largest chamber of the shell, the spaces left



Ammonites:

1. *Ammonites obtusus*; 2. Section of *Ammonites obtusus*, showing the interior chambers and siphuncle; 3. *Ammonites nodosus*.

behind as it increased in size being successively converted into air-chambers, and all connected by a tube (*siphuncle*), so that the animal could at pleasure ascend or descend in the sea; while the transverse plates dividing the chambers gave strength to the whole structure without great increase of

## AMMONIUM.—AMMONIUS SACCAS.

weight. A. have long been popularly called *Cornua Ammonis*, from a fancied resemblance to the horns on sculptured heads of Jupiter Ammon. They are found throughout the entire series of fossiliferous rocks from the transition strata to the chalk. They abound in the cretaceous and oolitic groups. Particular kinds distinguish particular formations, a circumstance which renders them of peculiar interest and importance to the geologist. The number of species is very great, considerably above two hundred; and several genera have been constituted, as *Baculites*, *Hamites*, *Scaphites*, *Turrilites*, forming with *Ammonites*, the family of *Ammonitidæ*. A. are of very different sizes, from a very small size, to 2, or even 3 or 4 ft. in diameter. The larger ones were in former times ignorantly mistaken for petrified snakes; and impositions have been practiced upon collectors by adding to specimens nicely carved snakes' heads; while the general absence of the heads was popularly accounted for by a legend of a saint decapitating the snakes, and turning them into stone.

AMMONIUM, *ăm'mō-nī'ŭm*, now known as the oasis of SIWAH, in the Libyan Desert: about 150 m. from the Mediterranean; lat. 29° n., long. 26° e.; about 15 m. long by 12 m. broad. In ancient times it was celebrated on account of the oracle of Ammon, the unfortunate expedition of Cambyses, and the subsequent journeys of Alexander the Great and Cato. Besides the temple of Jupiter, placed in the centre of a grove of palms, the ruins of which still exist, and which contained an image of the god, composed of smaragdus and other gems, A. was remarkable for the palace of its ancient kings, surrounded by a triple wall, in the very heart of the oasis, and for its 'Well of the Sun,' of which the waters were coldest at noonday, and warmest at midnight. Here the emperor Justinian built a Christian church.

AMMONIUS: name of several learned men in the later periods of Greek history: A., the master of Plutarch, who lived during the reign of the emperor Adrian, and, like A. Saccas, taught a species of eclecticism in philosophy; A., the Christian philosopher of the 3d c. who wrote a *Harmony of the Gospels*; A., son of Hermias, a peripatetic philosopher of the 5th c. and disciple of Proclus; A., the famous surgeon of Alexandria, in the time of Ptolemy Philadelphus; A., the Grammarian, at first high-priest in an Egyptian temple, sacred to the god Apis, and afterwards (389) teacher at Constantinople, where he had the church historian Socrates for his pupil.

AMMONIUS SACCAS, *am-mō'nŭs sak'kas*: d. Alexandria, 241; Greek philosopher, founder of the Neoplatonic School; said to have been in his earlier days a porter in Alexandria. His parents were Christian, but he himself is said to have abandoned his early religion, in which he had been instructed by Clemens Alexandrinus, and to have devoted himself to the study of heathen philosophy under Athenagoras; although both Eusebius and St. Jerome deny that he ever formally apostatized from the Christian faith.

## AMMOPHILA.

His great endeavor was to harmonize, through a comprehensive eclecticism, the various philosophical theories which prevailed in the Roman world, especially those of Aristotle and Plato. He also labored to amalgamate with these the doctrines of the Magi and Brahmans; but instead of boldly announcing the result as his own, he claimed for his system the highest antiquity. His most distinguished pupils were Longinus, Herennius, Origen, and Plotinus, the last of whom, by far the most subtle and profound of the Neoplatonists, always expressed the highest respect for his master. He left no writings at his death.

AMMOPHILA, *ă-mŏf'ĭ-lă*: genus of Grasses, closely allied to *Arundo* (see REED), and distinguished by a spike-like panicle, and by the *glumes* being nearly equal, keeled, longer than the *paleæ* of the single floret, and surrounded at the base by a tuft of hairs.—*A. arundinacea*, formerly called *Arundo arenaria*—a grass about 2–3 ft. high, with rigid bluish leaves, the edges of which are rolled in, and very creeping roots; is native of N. J., also of the Great Lakes and the continent of Europe. It is sometimes called SEA REED or SAND REED, and sometimes MAT GRASS, the culms being wrought into foot-mats, coverings for stairs, etc., in the manufacture of which many families residing along the coast of Ireland are employed most of the year. It is also called *Marum*, *Marrum* or *Marram*, by which name it is designated in laws both English and Scottish, by which the destruction of it was prohibited under severe penalties, because of its great utility in fixing the shifting sand. In Holland, and in Norfolk, it is extensively employed—along with the sea LYME GRASS (q.v.)—in preserving the banks of sand which prevent the inroads of the sea. It is of little value as food for cattle, although they eat the very young leaves. The fibre has been used instead of flax, but is too short.







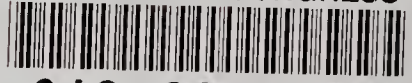








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