

Mohsen Manutchehr-Danai
Dictionary of Gems and Gemology

Mohsen Manutchehr-Danai

Dictionary of Gems and Gemology

2nd extended and revised edition

With approx. 25 000 entries, 1 500 figures and 42 tables

 Springer

Author**Professor Dr. Mohsen Manutchehr-Danai**

Dr. Johann-Maier-Straße 1
93049 Regensburg
Germany

Library of Congress Control Number: 2004116870

ISBN 3-540-23970-7 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitations, broadcasting, reproduction on microfilm or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media

springeronline.com

© Springer-Verlag Berlin Heidelberg 2005

Printed in Germany

The use of general descriptive names, registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Cover design: Erich Kirchner, Heidelberg

Typesetting: Camera ready by the author

Production: Luisa Tonarelli

Printing and binding: Stürtz, Würzburg

Printed on acid-free paper 30/2132/LT – 5 4 3 2 1 0

Preface to the Second Edition

The worldwide acceptance of the first edition of this book encouraged me to extensively revise and extend the second edition. The book was of value to readers of widely ranging interests as demonstrated by the letters received from scientists, students, mining engineers, editors of periodical papers and teachers.

This revision comes five years after the publication of the first edition. Many entries have been improved and now include new data. In total it includes about 25 000 entries, 1 500 graphic figures and 42 tables.

The first edition was criticized by readers who felt that some entries were not related to respective materials: but I would like to emphasize that many minerals are described in the form of references necessary for determining other gemstone materials.

In this edition chapters on light, color and colorant are dealt with in more depth, a large section introduces new terms applying to these areas.

If you have criticisms or suggestions please feel free to contact the author.

*Mohsen Manuthehr-Danai
Regensburg, Germany, January 2005*

Acknowledgements (Second Edition)

I appreciate the time and effort of Ms. Pamela Krimsky, Meshed/Iran for proof the manuscript of the second edition. I was very pleased with her conscientious and reliable work.

I appreciate the criticism of Mr. Michel J. C. Sandillon, France, as well as his time and effort. He provided me with some new and exact information about diamond localities in India.

I appreciate the time and effort of Professor Hofmeister from the Institut für Edelsteinforschung, University of Mainz, Germany for helping me to find some special books and for much useful information.

I appreciate the time and effort of Dr. G. Niedermayr of the Naturhistorisches Museum Vienna, Austria, who willingly gave me additional new information about references to jade.

I would like to thank my beloved son Human who is worthy of far more acknowledgments than I have space for. He was always standing beside me.

I cannot finish without gratefully acknowledging the help and support of Dr. Christian Witschel of Springer-Verlag, Heidelberg.

My thanks go again to my friend and attorney Mr. Karl Abt for his support and professionalism.

I would like to thank Mr. Michael Schmidt for his great help in resolving computer problems.

Preface to the First Edition

Since World War II the amount of information generated in the science of Gemology has increased tremendously. Therefore this book “Dictionary of Gems and Gemmology and related terms” was written with the aim of providing a “relatively” complete dictionary to assist all students, hobbyists, scientists and interested parties in the fields of gems and gemology.

The forerunner to this book was called “Dictionary of Gems and Gemmology” (English-Persian, Persian-English, published in Tehran-Iran in 1997) and was written with the aid of more than thirty reference books relating to gemology. In response to the effort required to clarify the terms within, I decided to compile a book that brings all the relevant terms into one book. This new book eliminates the use of different reference books and compiles nearly all the relevant terms into a one-stop useful text. It took twenty five years to collect the terms and the information so as to present a complete and functional lexicon.

The text is supported by nearly 170 illustrations and 21 tables to provide detailed and succinct information.

I hope and trust that this book will reach the high standard of other gemological dictionaries. If you have criticisms or suggestions please feel free to contact the author.

*Manutchehr-Danai, Mohsen
Los Angeles, Tehran, Regensburg*

Acknowledgements (First Edition)

The author acknowledges all those who were of valuable assistance during the writing and publishing of this book.

My thanks go to my good friend Professor Dr. Farhad Rahimi of Meshed University, Iran for pioneering my first book in English-Persian, Persian-English and for his further work on my current book.

I appreciate the time and effort taken by my good friend Mr. Bozozrgmehr Vakhshoori who spent a great deal of time helping with the preparation of this book and by Mr. William Ohara for his indefatigable effort in publishing this book.

I am grateful to my proof reader Eleanor Gorman, B.A. Communication, Australia.

I would like to thank my beloved son Human who is worthy of far more acknowledgments than I have space for.

My grateful appreciation goes to my good friend Mr. Dr. Hassan Parvizinia for his skillful graphic work.

I appreciate the support and professionalism from my friend and attorney Mr. Karl Abt.

I cannot finish without gratefully acknowledging to Dr. Heinz Sichert, Rechenzentrum of the University of Regensburg, Mrs. Heidi Krinner and Mr. Hannes Völkli from Pustet Company, Regensburg.

Abbreviations and Symbols Used in the Text

Å	Ångström	Nanometer	10^{-9} meter
a	cell edge in the x direction	nm	nanometer
Ab	albite $\text{NaAlSi}_3\text{O}_8$	ω	ordinary ray in uniaxial crystal. Refractive index
Abbr.	abbreviation	Or	orthoclase KAlSi_3O_8
α, β, γ	the three refractive indices in biaxial crystal from least, intermediate to greatest	Pa-sec	Pascal-second
Adj.	adjective	Port.	Portuguese
An	anorthite $\text{CaAl}_2\text{Si}_2\text{O}_8$	RI:	generally refractive index, also for cubic and amorphous substance
Ångström	0.1 nanometer	RI;	refractive indices of ω : ordinary ray, ϵ : extraordinary ray in uniaxial crystal
b	cell edge in the y direction	RI;	refractive indices of α : alpha, β : beta, γ : gamma in biaxial crystal
Birefringence	in uniaxial crystal is the difference between ω and ϵ . In biaxial crystal is the difference between α and γ	Russia	formerly Soviet Union
c	cell edge in the z direction	SG	specific gravity
$^{\circ}\text{C}$	degrees Celsius, a unit of temperature, known as centigrade	Sri Lanka	formerly Ceylon
ct(s).	carat(s) or metric carat(s)	SWUV light	short-wave ultraviolet light
Diaphaneity	transparent or translucent, or opaque	Thailand	formerly Siam
ϵ	extraordinary ray in uniaxial crystal. Refractive index	X []	X represent the number of formula units per unit cell
Fa	fayalite FeSiO_4	x, y, z	crystallographic axes
Fo	forsterite MgSiO_4	Zimbabwe	formerly Rhodesia
H	hardness on the Mohs's scale	\ominus	optically negative, when ϵ is greater than ω in uniaxial crystal. In biaxial, when intermediate refractive index β is near to γ than α
Hz	hertz SI unit of frequency (c/s)	\oplus	optically positive, when ω is greater than ϵ in uniaxial crystal. In biaxial, when intermediate refractive index β is near to α than γ
Lat.	Latin	\rightarrow	see
LWUV light	long-wave ultraviolet light		
Malagasy	formerly Madagascar		
Mt.	Mountain		
Myanmar	formerly Burma		
N.Y.	New York		

Source of Illustrations

De Beers (CSO): 1-fire rose cut, 2-dahlia cut, 2-marigold cut, 4-sunflower cut, 5-zinna cut.

Eppler, Praktische Gemmologie: Highlight brilliant cut, king cut, magna cut and royal 144 cut.

Liddicoat (GIA), Diamond Dictionary: American brilliant cut, baguette cut, rondelle cut, tapered cut, Trielle cut and whistle cut.

Maier, Brillianten und Perlen: Situation of facets, modified brilliant cut, Peruzzi cut.

Miller and Sinkankas, Standard Catalog of Gems: Honeycomb cut, refraction of light, star and step brilliant cut.

Vollstädt and Baumgärtel, Edelsteine: Prismant.

Webster and Read, Gems: Cross rose cut, blades of tortoise shell.

A a

a; a symbol for one of the three crystallographic axes. With subscript 0, as a_0 . The letter "a" usually appears in italics.

A; the first line of Fraunhofer lines, in the deep red of the solar spectrum. Its wavelength is 760.60 nm caused by oxygen in the earth's atmosphere.

α ; alpha: symbol for denoting the major allotropic form of a substance.

α ; alpha: a radiation consisting of helium nuclei.

α ; alpha: a symbol for optical rotation.

α ; alpha: a symbol for phase constant.

Å; an abbreviation of Ångström and Ångström unit. Also spelled A or ÅE.

A; same as Å.

ÅE; same as Å.

Aaron's Breastplate; same as breastplate of the Jewish High Priest.

abacus; a Mexican term used for stone wash trough.

Abadia do Dourados; a city in Minas-Gerais region, Brazil.

Abadia do Duorados Diamond; a clear pale brown diamond of 104 cts, found around 1938/39 in Brazil. Present location unknown.

Abadia do Duorados Lilac Diamond; a clear lilac diamond of 63 cts, found in 1939 in Brazil. Previously sold to an African, the present owner is unknown. Also, called Abadia do Duorados Lilac Diamond.

Abadia do Duorados Rose Diamond; a natural rose colored diamond of 33 cts, found in 1936. Present location unknown.

Abaeté Brilliant Diamond; an uncut diamond of 144 cts. Found in 1791 in the Abaeté River, Minas Gerais, Brazil. Present location unknown.

Abaeté-Diamond; a rose pink rough diamond of 238 cts, found in 1926 in the Abaeté River, Minas Gerais, Brazil. Present owner unknown.

Abaeté Rose Diamond; a pink rough diamond of 118 cts. Found in 1929 in the Abaeté River, Minas Gerais, Brazil. Present location unknown. Also known as the Cross of the South Diamond.

abalone; term for a marine gastropod, *mollusc haliotis* of the genus *Haliotidae*. A species of ear shell, also called ormer, from which mother-of-pearl is produced. Other pearl-bearing shellfish from *abalone* genus is the *ormer shell* or *haliotis tuberculata*, which live in shallow waters. *Haliotis rufrescens* is a reddish member of the abalone family. Colored baroque pearls produced by abalone have the same iridescence as the interior of

the shell. These shellfish originate in the waters of California, Mexico, New York, Japan, and are also found in the Atlantic Ocean. Abalones in New Zealand are known as *paua shell* and in Japan *Awabi shell*. → *Haliotis*, *paua shell*.

abalone pearl; usually small iridescent salt-water pearls, with a high quality nacre. Usually abalones produce blister pearls of various shapes classified as baroque, flattened button, irregular pear, and elongated. These are true pearls found occasionally in Mexico, Japan, and California. Many of them are hollow. These pearls are usually of pronounced green, yellow, blue, pale green or pink hues. The iridescence is only skin-deep.

abalone shell; a member of the salt-water mollusk family.

abandon; to leave, to give up or stop excavating a mining site due to unprofitable or unsafe business conditions.

Abâsi; correctly spelled Abbassi from Abbass. An old Persian weight for pearls. Weighing 2.66 troy grains. Also spelled Abbassi.

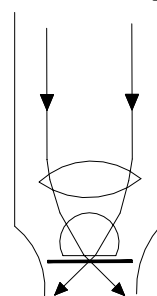
abate; to carve or produce a relief figure using hammer.

abatement; a term used in cutting for waste produced a cut stone to a specified size.

Abbas-Mirza-Diamond; an Indian rose diamond of 130 cts. In 1832, it appeared at the capture of Abbas-Mirza Crown-Prince of Iran. Now in National Jewel Treasury of Iran, Tehran?

Abbassi; → Abâsi.

Abbé condenser; an eyepiece or lens system placed below the stage of a microscope, which corrects the



Abbe condenser

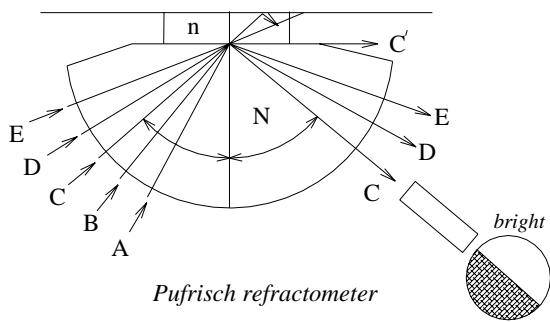
aberration of rays. It is known as an Abbé substage condenser and consists of two or three lenses, and has a wide aperture.

Abbé number; same as reciprocal dispersion.

Abbé refractometer; an optical device, which is used to measure the refractive index of minerals, gemstones, and liquids. Its function is based on the measurement of the variation of the critical angle in a hemicylinder of highly refractive glass.

Abbé-Pulfrich-totalrefractometer; an optical device used for the measurement of the refractive indices of

gems and minerals. Made by Abbé and Pulfrich (1840-



1905). → Abbé refractometer.

Abbé theory; a theory which states that to obtain a true image of an object, the lens used (in a microscope or other instrument) must be suitably large as to permit the transmission of the entire diffraction pattern.

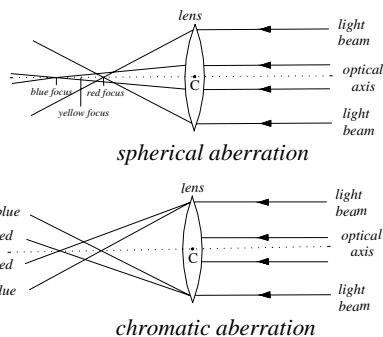
abbot's ring; usually a gold ring, set with a single stone, traditionally worn by an abbot on the third finger of the right hand.

Abdollah-Giw turquoise; a misnomer for the chrysocolla from Abdollah-Giw by Meshed, Iran.

Abdul-Madjidi; a term used in Nishabur turquoise mine for fine dark color but not pure and soft. → Turquoise classification in Nishabur, Iran.

Abernethy Pearl; a fresh-water pearl of 43.60 grains and 11.50 mm in diameter, found in Scotland. Belonged to Abernethy Pearl, now on display at the establishment of Cairncross in Perth, Scotland. Also called Little Willie Pearl. It was known as Bill's Pearl.

aberration; failure of an optical or electronic lens or mirror to bring light into focus. When aberration is due



to the form of the lens or mirror, it is called *spherical aberration*. When aberration is due to a change in the refrangibility of light of different colors, it is called *chromatic aberration*. Aberration in magnifiers often causes an inaccurate diagnosis of flawlessness or color of gems. There are various types of aberration, such as chromatic aberration, coma, spherical aberration, astigmatism, and distortion. Also called optical aberration.

aberration, chromatic; → aberration.

abies balsamica; same as *abies canadensis*.

abies canadensis; a genus of gymnosperm fir trees from which Canada balsam is obtained. Also called *abies balsamica*. → Canada balsam.

ablation; the removal away of rock debris, as by erosion or weathering.

abortive ova theory; a brilliant cell in the center of freshwater mussels marine oysters when opened show an equal size of ova of the same oyster, which formed upon the external surface of this ovum. A theory from Everard Home.

abrade; to wear away by friction, as in, to abrade rocks. → Abrasive.

abraded culet; a term applied to a culet of diamond, when scratched by other stones or when it has been faceted.

abrasax; same as *abraxas*.

abraser; a term used for a device to wear resistance surfaces of a substance or specimen by rubbing.

abrash; a Farsi term used for mottled turquoise stone with two colors. → Turquoise classification in Nishabur, Iran.

abrasion; the wearing off of a part of the earth's surface by moving water, ice, gravity, waves or wind. Often diamonds are tumbled or rubbed with other fragments in river or in the sea.

abrasion; sometimes polished diamonds abraded or scratched, by contact with other diamonds. → Abraded culet, paperworn diamond.

abrasion test; → abrasive test.

abrasive; any natural or artificial hard substance suitable for grinding, cutting, polishing, honing, lapping and pressure blasting. Diamond, emery, silica, oilstone, garnet, pumice, and diatomite powder are naturally abrasives. Artificial abrasives include borazon, silicon, carbide, aluminum oxide, and boron carbide powder.

abrasive; any minute, hard-cornered fragment of rock or mineral that is active in the abrasion of the earth's surface and rock material.

abrasive grain; tough refractory particles, which are used as abrasive material. → Abrasive material.

abrasive material; hard, and sometimes brittle, natural or artificial substances used for grinding, polishing, or scouring. Also called abrasive matter. Varieties of abrasive materials are: *a-carbonado*, which consist of microcrystalline diamond and amorphous carbon. *b-Hailstone borate*: containing alternate sheets of diamond and other substance. *c-Framsite*, which is more granular than carbonado and contains less diamond. *d-Stewartite*: similar to carbonado but also contains of some magnetite. *e-Ballas*: microcrystalline diamond, usually free of inclusions. Also termed shot

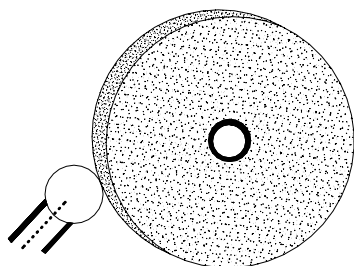
boart. Found in diamond mine areas. → Abrasive, ballas.

abrasive matter; → abrasive material.

abrasive point; abrasive or grinding point in different forms, set on a shank, used by dentists and also for metal removal.

abrasive test; this test employs a rotating grinding wheel or plate, charged with diamond powder, against which gemstones are held. The test sample is abraded for a given number of revolutions. The loss of weight of the gemstone is a measure of the abrasion resistance of the material. Also called abrasion test. → Attrition milling.

abrasive wheel; wheels, which are provided with



abrasive wheel machine

abrasive materials such as diamond or emery set on a shank.

abraxas; an invented word or symbol. An ancient charm word engraved on gemstones composed of seven Greek letters, which when converted to numerals, totaled 365 (the number of heavens by Gnostic sect). Originally believed to have magical powers and inscribed on amulets, etc. From second century A.D. on, personified by Gnostics as a deity, the source of divine emanations. An abraxas is usually engraved with a lion or a cockerel head, a human body, etc. Also spelled abraxas, and abraxax.

abraxas; same as abraxas.

abrir a cor; → opening the color.

abruki; a trade term used in India for shade of smoke in emerald.

absite; a term used in South Australian for a mineral containing titanium, rare earth, uranium and thorium, which occurs in pegmatitic association.

absolute perfect; → perfect.

absolute scale; same as absolute or Kelvin temperature scale. → Absolute temperature.

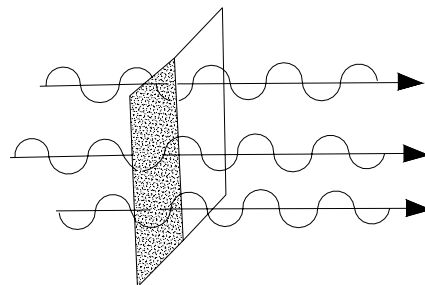
absolute temperature; temperature measured from the absolute zero, which is used mainly for thermodynamic work. Absolute zero or zero Kelvin is equal to -273.16°C on the Celsius scale, or $0^{\circ}\text{C} = 273.16^{\circ}\text{K}$ on the Kelvin scale, or 459.69°F on the Fahrenheit scale. Also called Kelvin temperature scale.

absorbance; same as transmission density. Former term:

abrasive matter – absorption spectrum

optical density.

absorption; in optics, the reduction of the light intensity in transmission through an absorbing substance



light wave and absorption

(medium) or in reflection from a surface, in crystals, minerals and gems. Absorption may vary with wavelengths of vibration in the direction of the transmitted light or ray (color). Also called light absorption.

absorption bands; narrow dark zones or lines in the absorption spectrum of a given substance due to certain electromagnetic wavelengths in the spectrum being selectively absorbed, on passing through a medium. Known as absorption lines. → Absorption spectra.

absorption differential selective; → pleochroism.

absorption filter; this filter absorb the unwanted regions of the spectrum by which the energy is usually converted into heat. Such filters are made from glasses, plastics, crystals, liquids and gelatins and containing substances with selective absorptions as transitional metal ions. → Color filter.

absorption lens; an eyepiece, which absorbs certain wavelengths of electromagnetic radiation.

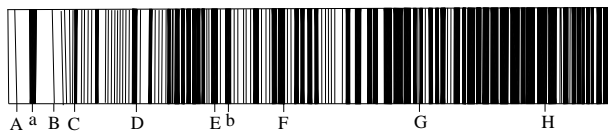
absorption line; narrow dark line of wavelength or frequency in the electromagnetic spectrum, caused by the absorption of a gaseous element. Also called hair lines. → Absorption bands.

absorption, selective; the absorption of certain colors from incident light, when passing through a colored gem (medium).

absorption spectra; → absorption spectrum.

absorption spectrum; arrangement of spectrum lines or bands obtained, when white light is transmitted through a colored gemstone, this is because certain colored stones have certain wavelengths, which will be absorbed more readily than others. When the spectrum is passed through a medium into a spectroscope, the colors most strongly absorbed may appear as dark bands or finer lines. This interrupts the *continuous spectrum* or *Newtonian spectrum* in characteristic positions, which is known as an absorption spectra. The spectrum from the light of the sun is called the *solar spectrum* or, *Fraunhofer spectrum*. The use of the

absorption spectrum is instrumental in gemological identification. → Emission spectrum, Fraunhofer lines,



continuuus sun absorption spectrum

bright-line spectra.

absorption state level; → inverted population level.

Abu-Eshaghi; a Farsi term used in Nishabur turquoise mine fine dark color with high brilliant and quasi pure. → Turquoise classification in Nishabur, Iran.

abyssal rocks; rocks occurs in very great depth, which is a synonym for plutonic rocks.

abyssinian gold; imitation gold or a variety of brass resembling gold used for costume jewelry. Consisting of approximately 91% Cu, 8% Zn, or 86% Cu, 12% Zn, and 1% Sn. Also called gold shell or Talmi gold.

Ac; a chemical symbol for the element actinium.

acacia gum; same as gum arabic.

Acaeté Diamond; a rough diamond of 161.50 from Brazil, Found in 1971. The current owner is unknown.

accabar; → accarbaar.

accarbaar; a name applied to black coral or *King's Coral* or *Antipathes spiralis*, in southeastern Asia and the Indian Ocean region. Also spelled accabar, accarbar or akabar.

accarbaar item; the highest trade quality black-coral in southeastern Asia.

accarbar; → accarbaar.

accelerated erosion; erosion taking place more rapidly than geologic norm.

accelerator; a gigantic machine developed for increasing the kinetic energy of substance particles or atomic nuclei, in which the particles spiral inside two flat, D-shaped, hollow metal electrodes, under the effect of a strong vertical magnetic field. Particles gain energy by high-frequency voltage, applied between the electrodes. Often used to change the color of diamond green, and dark tourmaline is to green, yellow, or reddish-brown. → Electron accelerator, cyclotrone diamonds.

acceptor; in molecular structure an attraction between ions of opposite charges, one of which is an electron donor, and the other an electron acceptor

acceptor; in Type I diamonds, the presence of aluminum

atoms as impurities increases the number of holes in semiconductor such as diamond, which act as acceptors and nitrogen or boron atoms in Type II diamonds as donors. Also known as acceptor impurity.

acceptor impurity; → acceptor.

accessory elements; same as trace elements.

accessory mineral; the opposite of essential mineral. Term applied to any mineral occurring in small quantities in a rock, and whose presence or absence does not affect its analysis.

accidental inclusion; a mineral present, or fragments of a crystal, having no genetic connection with the igneous rocks, in which they occur. Also called exogenous inclusion, exogenous inclusion, enallogene of lacroix allothigenous ejectum, foreign inclusion, accidental xenolith and xenolith.

accidental pearl; the genuine natural pearl as distinguished from the cultured pearl, which is artificially induced.

accidental xenolith; → accidental inclusion.

Accra; metropolis of Ghana, Africa.

Accra Diamond Company; one of the diamond companies in the metropolis of Ghana, Africa, licensed by their government to buy diamonds from native miners.

Accra Diamond Market; a diamond market in Accra, which has the sole right to purchase diamonds produced by native diggers, and bears authority from the government of Ghana.

accretion; filling-up of a river due to wave action.

accretion; gradual deposition of land on a shore because of wave action.

accretion; gradual buildup of material around or along the walls of a cavity.

accretion limestone; limestone formed by the slow accumulation of organic remains.

accumulative rock; those igneous rocks formed by accumulation of crystals, which elected out from magma mass by action of gravity. Also called cumulate.

acentela; Spanish name for rock crystal.

acetate; a colorless, corrosive liquid with a pungent odor, of a salt or an ester of acetic acid, consisting of monovalent ion CH_3COOH or the group CH_3COO^- . Contained in vinegar. Used in the manufacture of cellulose acetate and artificial resins or plastics and fibers.

acetate of copper dye; a term used for heat-treated beryl (or quartz), by which the stone after heating will plunged into a bath of bright green acetate of copper, verdigris, indigo, or copper salts. Due to cracking and upon cooling the dye color drew within the recesses and give suitable color to it. Dyeing with acetate of

copper.

acetic acid; CH_3COOH , a clear, colorless, corrosive liquid used undiluted for testing. Used also as adhesive for plastics. Miscible with water, alcohol, and acids.

acetone; an organic, colorless, volatile, flammable, sweet smelling liquid form of CH_3COCH_3 . Miscible with water, alcohol and ether. Soften cellulose plastics and therefore useful in their distinction. RI:1.361.

acetylene; a colorless, flammable, poisonous gas of CHCH , with a disagreeable odor, soluble in alcohol, acetone, and water. Used with oxygen or air for welding and melting metals.

acetylene tetrabromide (tetrabromoethane); a yellowish, heavy liquid, the formula of which is $\text{C}_2\text{H}_2\text{Br}_4$. Used for specific-gravity determination and for the separation of gemstones. RI:1.63. SG:2.964 at 20° C. Miscible with water, alcohol, ether and xylene. Also called sym-tetrabromoethane.

Achaemenian Jewelry; artifacts articles of gold jewelry, including ear-rings, finger rings, bracelets, and anklets from the Achaemenid dynasty, of Cyrus the Great, in Persia (559-330 BC). Exhibited in Schmuckmuseum, Pforzheim, Germany.

Achat; German name for agate.

achate; second stone at Jewish High Priest Breastplate. → Breastplate.

achates; an ancient name for agate.

achirite; a Buchara merchant, Achir Mehmèd. An obsolete name for diopside.

achite; a Hebrew term for agate. Also spelled achite.

achito; same as agate.

achlusite; a green altered topaz resembling steatite. Cloudy and misty in appearance.

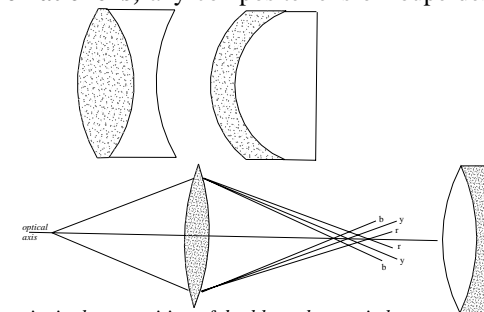
achroite; a colorless variety of tourmaline, used as a gemstone.

achromatic; without color, such as many colorless gemstones

achromatic; capable of reflecting or refracting light without chromatic aberration.

achromatic color; white, black or any nuance of gray, devoid of hue.

achromatic lens; any composite lens or loupe designed

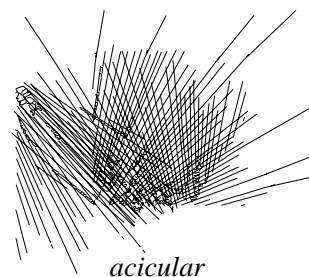


principal composition of doublet achromatic lens

to minimize chromatic aberration usually made of crown and flint glass.

achromatic loupe; → achromatic lens.

achromatic triplet; a corrected loupe for chromatic aberration. → Achromatic lens.



acicular; needle-like in form, referring particularly to crystals, such as rutile needles in quartz

acicular; a particle whose length is more than its width.

acicular crystals; crystals or minerals consisting of fine, needle-like, crystal forms such as natrolite or rutiled quartz. Also called acicular habit.

acicular habit; same as acicular crystal.

aciculate; needle-shaped, or needle-like.

acid and solvent; acids, particularly diluted hydrochloric acid, are of great value in testing gems. They serve a variety of purposes, for example, any carbonate, such as calcite, when dyed can be used as imitation jade, coral, shell, smithsonite, rhodochrosite, pearl, malachite, etc. The original nature is revealed by the process of pronounced effervescence, where a drop of dilute hydrochloric acid is placed on the surface.

acid cleaning; same as acidizing, or acidizing. Mounted diamonds are sometimes boiled in sulfuric acid to remove the dirt and other residue from the girdle.

acidizing; treating a diamond with acids (usually hot) to clean it after mining or cutting, especially to remove oxides or polishing residue from surface fissures.

acidizing; a method for cleaning and removing the color coating from rough diamonds, in a solution consisting of hydrofluoric acid.

acid dye; an azo dye with acid constituents such as nitro acid, carboxy acid, or sulfonic acid. Used as dyes. Also called anionic dye.

acidic; applied to igneous rock and magma rich in silica, where silica forms more than 2/3 of the mass or consisting of at least 65% of the rock.

acid polishing; a process of polishing cut decorations on glass articles by immersing the specimen in an acid bath for several minutes, rinsing in water, and brushing out the cut parts.

acid rocks; a subdivision of igneous rocks. Applied to rocks rich in silica to the extent, where silica forms more than 2/3 of the mass. Generally of light color and

acid test - adamantine

oversaturated with silica, so that free silica or quartz, is present. Chief types are granite, syenite, rhyolite, dacite and pegmatite.

acid test; acids used for testing noble metals such as nitric acid.

acid test; a process whereby small bubbles of gas escape from a mineral's surface, when acid is dropped on it. Especially as a result of chemical action such as carbonate, minerals are the result of such chemical action.

acid test; acidizing.

acier; a French term for steel.

aciform; needle-shaped or needle-like.

acira; a Sanskrit word for diamond and sun.

acmite; same as aegirine.

acquamarine; an Italian term for aquamarine.

acquamarine se Siam; an Italian misleading term for blue zircon.

acquamarine crysolide; an Italian misleading term for peridot.

acrolein; a colorless to yellowish liquid with disagreeable odor of CH_2CHCO . Soluble in water, alcohol and ether used as polyester resin. Very toxic.

acronym; a term formed from the syllables or initial of other words.

acrylic jewelry; → acrylic resin (plastics).

acrylic resin (plastics); a clear glass-like synthetic material (polymethyl-methacrylate), which can be suitably colored. It is used widely in scientific and optical instruments. It has been used for the production of molded faceted imitations of sapphire, amethyst, ruby, emerald, topaz, garnet and for the cores of solid bead imitation pearls. RI:1.485-1.50. SG:1.18. H:2. It is better known to the English under the name Perspex and to Americans as lucite.

actinolated quartz; rock crystals, which include fibrous-like crystals of green variety of actinolite known as byssolite.

actinolite; a member of the amphibole family of minerals. This mineral is an end member of the tremolite-actinolite series. Green occurs as fibers, and microscopic inclusions in *sagenitic quartz*. A tough, compact variety that supplies the mineral of commerce known as nephrite. The fibrous variety is known as asbestos.

System: monoclinic.

Formula: $2[\text{Ca}_2(\text{Mg}, \text{Fe})_3(\text{Si}_4\text{O}_{11})_2(\text{O}, \text{OH})]$.

Luster: vitreous, often with silky shining to dull.

Colors: white to green.

Diaphaneity: transparent to nearly opaque.

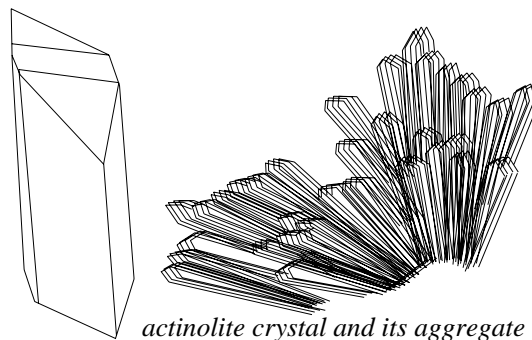
Streak: none or colorless.

Cleavage: {110} good, {100} parting.

Fracture: uneven to subconchoidal. Brittle.

SG: 2.90-3.20.

H: about 5.5.



actinolite crystal and its aggregate

Optics; α :1.619-1.622, β :1.632-1.634, γ :1.642-1.644.

Birefringence: 0.022-0.026. \ominus .

Found in all countries.

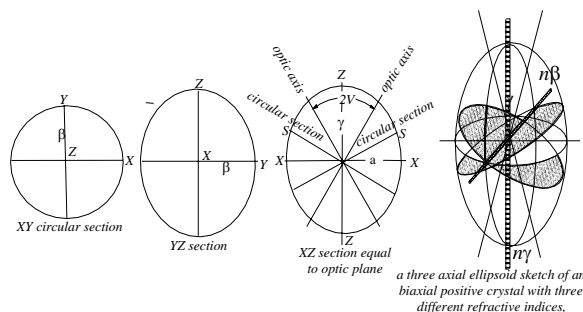
activators; crystals with large band-gap known as activators. → Idiochromatic, nitrogen, sensitization.

active mine; a profitable mine

acute; sharply pointed, needle shaped

acute; an angle less than 90.

acute bisectrix; in crystallography the line, which



acute bisectrix of a positive crystal

bisects the acute angle between the optic axes in biaxial crystals.

adamant; the term was formerly used for diamond, and sometimes for corundum.

adamant; a very hard stone, mineral, metal or material, real or imaginary.

Adamant Research Laboratory; a subdivision research laboratory of Diamond Research Laboratory, Johannesburg of South Africa to make commercial production of synthetic and industrial diamond. Founded by De Beers-Anglo-American company.

adamantean; a poetical term for diamond or adamantine.

adamantine; a term used to describe typical diamond luster. Diamondlike. → Luster.

adamantine; hardness associated with diamond, zircon, demantoid and some diamond imitations.

adamantine compound; a chemical compound with the same tetrahedral covalent crystal structure an arrangement of atoms as the diamond.

adamantine luster; a term used to describe typical diamond luster. Possessed only by minerals of high refractive index. → Luster.

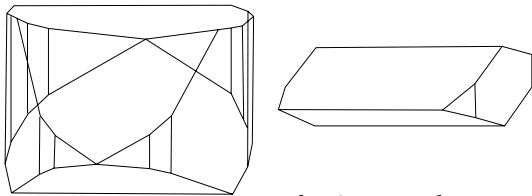
adamantine spar; a term applied to silky dark grayish-brown variety of corundum or sapphire, chiefly to dull opaque corundum from India, used as polishing agent.

adamas; an ancient Gr. name for diamond.

adamellite; a plutonic rock consisting of plagioclase, orthoclase and quartz with tiny biotite, hornblende, apatite, zircon and some oxides. Also called quartz monzonite.

adamellite; a synonym for a granite consisting of 2/3 of the total feldspars from which 1/3 is plagioclase.

adamite; a rare transparent to translucent mineral. Colorless, yellow, green, rose and purple pleochroism.



adamite crystals

Vivid green luminescence under SW and LW light. Rarely cut as faceted gems but prized by collectors.

System: Orthorhombic.

Formula: $4[\text{Zn}_2(\text{OH})\text{AsO}_4]$. Frequently Co, Cu.

Luster: vitreous.

Color: colorless, light yellow, light green, greenish, rose and pink, parti-colored.

Streak: colorless.

Diaphaneity: transparent to translucent.

Cleavage {011} perfect.

Fracture: subconchoidal to uneven. Brittle.

SG: 4.32-4.48

H: 3½.

Optics; α :1.71-1.712, β :1.735-1.736, γ :1.758-1.76.

Birefringence: 0.041-0.049. ⊕.

Dispersion: strong.

Found in Italy, Mexico, Greece, Chile, Turkey, Algeria, Nevada, California, and Utah (USA).

adamite; a commercial term for artificial corundum powder, manufactured for abrasive purposes. Compare alundum.

adamsite; an obsolete term for greenish-black variety of muscovite mica.

adco; a commercial term for certain types of turquoise imitation made by ceramics or of glazed, fired clay.

adder stone; colored glass beads, worn in medieval times, for their protective or curative powers as charm. → Toadstone

adder stone; a stone with absorbent qualities, once set

adamantine luster - Adiel Topaz

in finger rings and used as amulets. Also called serpent's stone.

additional facets; in diamond cutting, so as to create new and fashionable variations, occasionally cutters add symmetric facets to a standard-cut. These added facets are not blemishes and are not to be confused with extra facets.

additive coloration; a term used in optics to process of producing or reproducing color by excessive addition of color centers to the crystal structure by exposing a crystal to excessive metal such as fluorite exposing to hot calcium vapor. Addition of color centers to the crystal structure can done by using electrodes to a heat fluorite crystal when an electric passing through it. → Additive primary colors, subtractive color process.

additive color process; a process of producing or reproducing color by mixing additive primary or three different colors in various proportions. → Additive primary colors, subtractive color process, additive coloration.

additive primary colors; a term used in optics to three different colors usually red, green and blue, which are mixed together in a additive process, proportion is determine the color will obtained. → Additive color process, subtractive color process, additive coloration.

adorned; a term used for turned or set figures back to back as adorned pieces on a coat of arms.

adductor muscle; in bivalve mussel, a muscle passing across one valve to another, valve and connecting the two valves or halves.

Adelaide ruby; a local and misleading term for the blood-red almandine or pyrope (garnet), from Adelaide, Australia.

ADEX; an acronym for Australian Diamond Exploration Joint Venture.

adhesion; intermolecular attraction which hold matter together, particular contiguous surfaces, such as liquid in contact with a solid.

adhesive; substances which hold materials together by surface attachment, such as liquid glues, cements, dry film, etc.

ADIA; an acronym for American Diamond Industry Association.

adiabatic; a term used in thermodynamic and other test of minerals in which no heat enters or leaves.

adiabatic piezoelectric; → adiabatic pressure.

adiabatic pressure; a term used in thermodynamic to the relationship of pressure and volume in which no heat enters or leaves. In an adiabatic operation, compression caused rising of temperature and expansion in a system.

adiabatic pyroelectric; → adiabatic pressure.

Adiel Topaz; a dark-blue, irradiat Brazilian topaz of 4kg

adinole – aerosiderolite

or 20.000cts. It was cut from a rough stone of 7.8kg. Found in 1987. Sold to unknown Japanese.

adinole; a German term meaning compacts. A greenish-gray fine-grained, felsitic, contact-metamorphic or metasomatic rock, rich in quartz and albite. Adinoles are formed by reaction following the intrusion of silicified diabase, or porphyries, into shale or slate (compare spilosite; desmosite). In German, the term is Schalstein.

adit mining; a miner term used for a mine with a horizontal entrance.

adjusting microscope; same as focusing microscope.

ADM; an acronym for Accra Diamond Market, Argyle Diamond Mines, LTD.

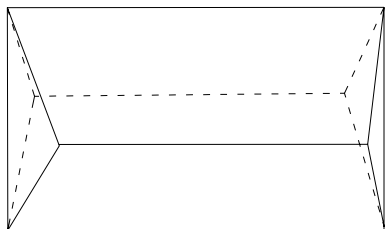
adobe; a term applied in Mexico and Southwestern USA for a heavy-textured, clayey and silty substance used for sundried bricks.

adornar con diamantes; a Spanish term meaning to adorn with diamonds.

adular; → adularia.

adularescence; a milky-white or bluish sheen, seen when a gemstone is held in a certain direction. Usually adularia, a moonstone feldspar display this property, when it is turned under light, and its effect is caused by diffused reflections of light in the gem and due to parallel intergrowths of another type of feldspar with a slightly different refractive index of that of the main mass of adularia. It is often called schiller. → Adularia, schiller, labradorescence.

adularia; named after the Adular mountains in



adularia crystal

Switzerland. A pure colorless to milky variety of orthoclase feldspar, often with silky shining. Same as precious moonstone. Sometimes spelled adular. Valencianite is a local term for adularia from Valencia, Mexico.

Formula: $4[\text{KAlSi}_3\text{O}_8]$.

System: triclinic, pseudo-orthorhombic.

Luster: vitreous

Colors: colorless, white to milky.

Streak: white or colorless.

Fracture: uneven to conchoidal. Brittle.

Diaphaneity: transparent to translucent.

cleavage, {001} perfect, {010} less perfect.

SG: 2.54-2.57.

H: 6.

Optics; α :1.519, β :1.523, γ :1.525.

Birefringence: 0.006. \ominus .

Dispersion: 0.014.

Principally from Sri Lanka.

adularia-moonstone; same as precious moonstone.

adularization; introduction of or replacement by mineral adularia.

adventitious; a term used for non-accidental pearl, which occurs not naturally, in contrast to accidental pearl.

adventurine; obsolete term for aventurine.

adventurine feldspar; obsolete term for aventurine feldspar.

adventurine glass; obsolete term for aventurine glass.

adventurine quartz; obsolete term for aventurine quartz.

ÅE; → Å. Ångström.

aegirine; an acicular or fibrous crystal of the clinopyroxene group. Its intense green color, which is related to jadeite. Cabochon is rarely cut because of the chatoyance effects. Varieties are acmite, which display the chatoyance effect, and aegirine-augite. Also called aegerite.

System: monoclinic.

Formula: $4[\text{NaFe}(\text{Si}_2\text{O}_6)]$.

Luster: vitreous to resinous.

Colors: green, greenish-black, greenish-brown.

Streak: yellowish-gray, green.

Diaphaneity: opaque to translucent.

Cleavage: {110} good, {010} parting.

Fracture: uneven. Brittle.

SG: 2.50-3.60.

H: 6-6½.

Optics; α :1.76, β :1.785, γ :1.806. For aegirine-augite α :1.740-1.748, β :1.76-1.767, γ :1.78-1.79.

Birefringence: 0.046. \ominus . For aegirine-augite: 0.040-0.042. \ominus .

Found in Arkansas, Colorado, New Jersey (USA), Montreal (Canada), Greenland, Norway, Brazil and Portugal.

aegirine-augite; → aegirine.

aegirite; same as aegirine.

aeoline rocks; rocks or placer, which has accumulated by wind action. → Eolian, eolian placer, eolian marble.

aeoline deposit; same as aeolian rocks.

aeolotropic; → crystal anisotropy.

aeolotropy; → crystal anisotropy.

aeroide; a term for used by Pliny for pale sky-blue aquamarine beryl.

aeroides; a local American term for pale sky-blue aquamarine beryl.

aerolites; → meteorite.

aerosiderolite; → stony iron meteorite.

aetites; → eaglestone.

Affenrücken; a German term meaning monkey-back. Also, an alluvial area, which produces diamonds in South-West Africa owned and operated by Consolidated Diamond Mines of South-West Africa.

Afghanistan amber; a misleading term for orange to orange-brown, semi-translucent thermosetting or thermoplastic amber imitation from Afghanistan or Middle East, which named as prayer beads and also called Egyptian amber.

Afghanistan lapis; a deep blue, top quality lapis lazuli from Fizabad of Badakhshan, Afghanistan. Russian lapis is of the same high quality.

Afghan turquoise; a misleading term for stained magnesite.

African amber; a term applied to yellow, opaque, oblate or barrel-shaped amber imported from Baltic area to Africa, which were worn by natives with colorful glass beads.

African amber; a misleading term for copal amber.

African Diamond Diggers' Association; formerly, a union of independent Nigerian Diamond Miners in Ghana, Africa, now inactive.

African Diamond Winners' Association; formerly, a union of independent Grannies Diamond Miners in Ghana, Africa, now inactive.

African blue marble; a less brilliant blue, marble, from Kenya, Africa.

African emerald; a misleading term for green fluorite from South-West Africa.

African emerald; a misnomer for green tourmaline from Africa.

African emerald; yellowish green emerald from the Transvaal of South Africa. Optics; ω :1.593, ϵ :1.586. SG:2.75. Also, found in Zimbabwe.

African jade; a misleading term for a green, compact variety of grossular garnet from Africa. Also called Transvaal jade, or South African jade.

African nephrite; a misleading term for Transvaal jade.

African pearl; a natural pearl, fished off the east coast of Africa, between Zanzibar and Inhambane.

African star coral; a misleading term for a precious opal of the genus *Allopora nobilis* from Africa.

African tourmaline; a commercial term for all yellowish-green to bluish-green tourmalines, of any origin, the same as Transvaal tourmaline.

African tourmaline; frequently used for fine, nearly emerald-green tourmaline from South West Africa.

African Yellow Diamond; the yellow cut diamond of 112 cts, which historically noted in 1882. Present owner unknown.

afrcita; Spanish for black tourmaline (schorl).

Afro-American Enterprises; a company in Accra,

Ghana, licensed by its Government to buy diamonds from native miners in Ghana, Africa.

Afro-West Mining, Ltd.; an Australian diamond corporation operating mines in Western Australia.

afterglow; a luminescent glowing effect after the induced energy has disappeared. Many diamonds, show an afterglow effect (phosphorescence). Also called persistence.

Ag; a chemical symbol for the element silver (argentum).

Aga Khan III Diamond; the flawless, pear-shaped diamond of 33.13 cts, which had been recut from a 38 cts, pear-shaped stone. Named after Aga Khan III, it was most recently sold in 1988.

agalite; a fine fibrous variety of talc, which is pseudomorphosed after enstatite.

agalite; a synonym for asbestine.

agalmatolite; a soft, waxy, silica-rich and compact mineral or stone such as painite, pyrophyllite, and steatite of a greenish, grayish, yellowish and brownish color. RI:1.552-1.600. SG:2.80-2.90. H:1-1½. Consequently, it has a greasy touch. Used by Chinese for carving small images, miniature pagodas, and other objects. Some agalmatolites are steatite $Mg_3Si_4O_{10}(OH)_2$ or pyrophyllite $Al_2Si_4O_{10}(OH)_2$. Synonym: figure stone, pagodite, lardite, pagoda stone, lard stone, figured stone. Sometimes loosely called soapstone or soap rock.

agalmatolite; sometimes incorrectly called to jade.

agmatite; a migmatite in which introduced xenolithic materials.

agmatite; fragmental plutonic rocks which are embedded in granitic cement.

agaphite; named after the scientist Demetrios Agaphi. A vitreous variety of Persian turquoise from Nishapur, Iran.

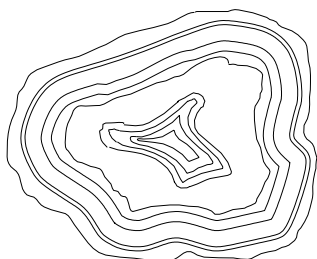
agaric chalk; synonym for sepiolite.

agaric mineral; synonym for moon milk.

Agastimata book; an Indian ancient book before the 10th century A. D., which treatise gemstones and recognize 8 categories of emerald.

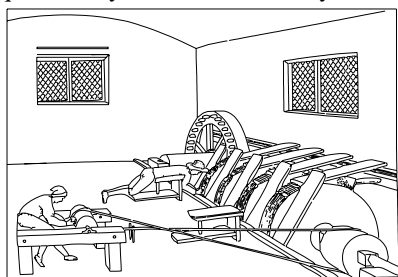
agate; a subvariety of chalcedony of varying shades or, translucent to semitransparent cryptocrystalline varieties of quartz. Often, variegated chalcedony, alternates with opal. This type is characterized by colors arranged in alternating stripes or bands as in banded agate, sometimes with onyx. In the translucent form agate shows irregular cloud-like shapes with mossy or dendritic inclusions (moss-agate), frequently creating the impression of landscape or vegetation. Found in virtually all colors, and usually of low intensity, it commonly occupies vugs in volcanic rocks, and cavities in certain other rocks. Most gray-banded agate is dyed to improve its color. Often used for

gemstones, cut cabochon, beads, pendants and for



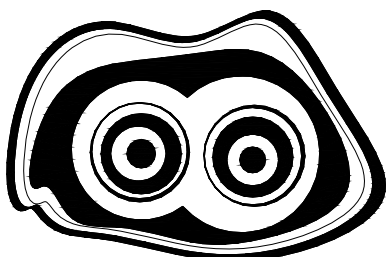
section through an agate with partly concentric varicolored bands

carving objects, and for example clock cases. Agate varieties are found in India, Brazil, Hungary, Malagasy, Mexico, Namibia, Uruguay, Germany, and the USA. The different classification of agate, jasper, and chalcedony are based upon its transparency. Jasper is the opaque variety, while chalcedony is translucent.



a historical agate working center in Idar-Oberstein, Germany. After Vollstaedt & Baumgaertel

Many translucent and bright colored stones are known as agate: → Banded agate, clouded agate, moss agate,



typical concentric rings on polished surface of agate

scenic agate, lace agate, fire agate, shell agate, Turritella agate, and onyx.

agate bead; an agate bead resembling coral in color.

agate glass; a type of glass of various colors, which resembles agate. → Agate ware.

agate, inclusions in; → fibrous of quartz in agate.

agate jasper; an impure mixture of jasper containing veins of chalcedony occur. It occurs in many colors, what is now called jasper agate, was once known as *jaspe fleuri*. Also called jaspagate.

agate like; similar to agate.

agate mortar; a bowl-shaped vessel made from agate, in which hard brittle substances, principally glass and minerals, are ground into powder.

agate, onyx; same as onyx agate.

agate opal; misleading term for either opal or agate. It is mineralogically impossible for a stone to be both. Also called opal agate. → Opalized agate.

agate shell; from the agate snail, a large land snail, of no gemological interest.

agate thunder egg; → thunder eggs, star-shaped core.

agate ware; in pottery, a variety of Wedgwood, veined and mottled in colored, and marked to resemble agate. Clay bodies are formed by blending different colored clays, or by coloring surfaces with different colored slips.

Agathis australis; → copal.

agathocopalite; → kauri, kauri copal.

agatiferous; term meaning to produce agate, or containing agate.

agatine; term meaning pertaining to agate, or agate-like.

agate; term meaning to convert into, or cause to resemble, agate.

agatized coral; same as fossil coral. Used as cabochon and sometimes dyed blue or pink.

agatized wood; chalcedonic pseudomorphic wood or, a variety of silicified wood, which may resemble any of the agates. Also, called silicified wood, petrified wood, or wood agate. → Mineralization.

agaty; a miners term used in Australia to a mixture of potch and colored clay which gives a banded effect to the stone. Also called agatey potch.

agatey potch; → agatey.

aged; → stress cracks in amber.

age of gymnosperms; → Mesozoic.

age of reptiles; → Mesozoic.

agglomerate; a chaotic assemblage of coarse, angular, pyroclastic fragments embedded in an ashy matrix, as the result of explosive volcanic activity, which united by action of heat, as opposed to a conglomerate.

agglomerate; uncoated or loosely-attached pyroclastic fragments.

aggregate; (lat.: corporate, collective), a cluster or group of minerals. A mass of units or parts somewhat loosely associated one with the other by a natural binding agent, which is separable by mechanical means. → Mineral aggregate, crystalline aggregate.

Agilulf, King; → Crown of King Agilulf.

agmarine; a French term for aquamarine.

agmatite; migmatite looking like a breccia.

agnostogenic; rocks or minerals of unrecognized origin.

Ago Bay; a major center in Japan for culturing pearls, are farmed in Mie Prefecture, Honshu, Japan.

Agra Diamond; the rose, cushion-shaped diamond,

possibly of Indian origin. Said the Baber (1483-1530) the first Mogul Shah from India possessed this diamond at one time and named it after the city of Agra. It was smuggled to Europe, and bought by Duke of Brunswick in 1844, after having been recut in Paris, reducing its weight from 46 cts, to 31.50 cts. Again sold in 1904 by Christie's, to the CIBA Corporation of Hong Kong, China.

agrostemma flos jovis; equivalent Latin term for flower of jove used by Pliny.

AGS; an acronym for American Gem Society.

AGS color grading system: the AGS color system, which has eleven grades, from colorless to yellow designated as 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10. The steps are broader than the traditional scale. Often called the American system. See appendices.

Agstein; a German term for jet.

aguacate cut; a drop-cut form like avocado, polished without facets used as pendant.

Agua Suja Mine; a diamond mine near the Bagagem River in Minas-Gerais, Brazil, famous for its gem-quality diamonds.

Agulhas; Brazilian miner's term for titanium oxide, associated with diamonds found in Brazilian Diamond mines.

aguamarine; Spanish spelling for aquamarine.

agua-marinha; Portuguese spelling for aquamarine.

agua-marinha de São; a Portuguese misleading term for aquamarine colored zircon.

ahlāmäh; a term for the ninth stone of Aaron, the biblical High Priest Breastplate. Generally associated with amethyst and engraved with the name Dan. In Hebrews, Dan means *dream*.

Ahmed-Abad Diamond; an Indian diamond, bought by Tavernier who had recut it in Paris, reducing its weight from 157.25 cts, to 94.50 cts. It sold once in Persia. It has been recut since.

Ahrens Prism; a modification of calcite, or the Nicol prism. A transparent calcite prism used for production plane, and for polarized light to obtain a more economical use of calcite.

ahtet-kya; a Burmese term used for fourth class corundums which are known as ahtet-kya and graded into two categories. → Corundum classification in Myanmar.

ahtet-kya; a Burmese term with the means fallen from the top. A term used for mixed corundum stones of the above grades therefore little defective in shape and water. Parcels of lower grade stones. → Corundum classification in Myanmar.

Ahura; → Ahura-Mazda.

Ahura-Mazda; → asura.

Aichal diamond mine; (Russ.: glory), the mine digging the kimberlitic pipe of diamonds occurring in the

Jaccutian district of Siberia, the Russian Federation, CIS. Also spelled Aikhhal.

Aichal pipe; a kimberlitic pipe of diamond, which occurs in the Aikhhal district of Siberia, the Russian Federation, CIS.

aigrette; an ornament, or piece of jewelry in the form of a plume of feather, used as a hair ornament. Also called aigrette jewel. → Jeqa.

aigrette jewel; → aigrette.

aigue-marine; French name for aquamarine.

aigue-marine chrysolite; a French misleading name for aquamarine colored peridot.

aigue-marine de Siam; a French misleading name for aquamarine colored zircon.

aigue-marine orientale; a French misleading name for aquamarine colored sapphire.

aigue-marine; French name for aquamarine.

ajkaite; → ajkrite.

Aikhhal; same as Aichal.

Aikal pipe; → Aichal pipe.

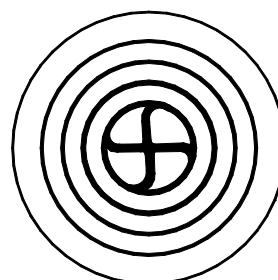
aikinite; a mineral of $PbCuBiS_3$. Orthorhombic crystal. Gray to black color. Metallic luster. Streak black. Needle-shaped crystals. SG:7.07. H:2. Found in Russia and Idaho, USA. It is of interest to gem collectors. Also called needle-ore, patrinite and belonite.

air etching; small cavities or etch marks formed on the surface of minerals or crystals during weathering process.

air void; same as air pore or air interstice.

airy disc; a bright spot of light that can be seen around the diffraction rings, which produces a clear point while an optical lens system can not produce a point image, due to the nature of waves of light. This diffraction pattern is known as *antipoint*.

Airy's spiral; an optical interference effect which can be seen in a twinned uniaxial crystal such as quartz or



Airy's spiral interference figure of quartz crystal

particularly in amethyst in which the brushes intersecting similar to black cross at the center but the ends of crosses are curved in a spiral form and do not cross the color rings. Also called Airy's spiral interference.

Airy's spiral interference; → Airy's spiral.

A-jade; a term applied to some jades, treated or coated with wax or paraffin.

Ajerlaut; a fancy term for the sea-green diamonds from Borneo, Indonesian.

ajkite; a pale-yellow to dark reddish-brown, sulfur-bearing fossil resin found in brown coal. Synonym: ajkaite.

Ajmer-Merwara Emerald Field; an emerald field in south Rajasthan, India with fine crystal of Precambrian in calc-silicate rocks, quartzites, limestones, and schists.

à jour; a French term which literally meaning to allow light to penetrate. Used to describe an open style setting for gems mounting which permits a view of its pavilion. Most modern mounts are of this type, unlike the earlier closed setting.

AK-1 Pipe; → Argyle Kimberlite Number 1.

akabar; or accarbaar, a name applied to black coral found in the southeastern Asia and the Indian Ocean regions.

akaganeite; a natural mineral of goethite family or beta-FeO(OH), occurring at the Akagane mine, Japan. → Goethite.

Akbar Shah; → Akbar Shah Diamond.

Akbar Shah Diamond; a famous Indian diamond, believed to have once been set as one of the eyes of the Peacock Throne, named after Shah Akbar and Shah Jehan. When Nadir Shah of Persia invaded India in 1739, he retrieved this diamond and brought it back to Persia. In 1866, it was sited again in Constantinople where it had been renamed as Shepherd Stone Diamond. It was recut into a drop shape in London, reducing its weight from 116 cts, to 73.60 cts. Also known as The Akbar shah or Jahan Akbar Shah. Its present owner is unknown.

akerite; a term used for blue spinels, found in marbles in Aker, Norway.

akerite; an augite-bearing syenite rock from Aker Norway, containing microcline, oligoclase, and augite.

akerite; fine-grained, leucocratic essexite and normarkite.

akerite; an augite-bearing syenite rock from Aker Norway, containing microcline, oligoclase, and augite.

Akim Concessions, Ltd.; a Ghanaese diamond company that works an alluvial deposit in Ghana, Africa.

akori coral; a horny, porous, blue variety of coral (*Allopora subiroleca*), which was used in ancient times for jewelry. It was collected, fashioned and prized by the black people of the West African coast and in Samoa. Also called blue coral

akori coral; the name has been recently applied to substitutes such as pearl, glass, coral, and rock. → Black coral.

Akoya-Gai; a Japanese term for the *Pinctada martensii* mollusk, used for cultivating pearls.

Akoya-oyster; a Japanese term for the *Pinctada martensii* (silver-lipped or gold-lipped), *Pinctada maxima* (black-lipped), *Pinctada margaritifera* (black-winged) mollusk used for cultivating pearls.

aku-vamarin; Turkish name for aquamarine.

Akwatia; an alluvial diamond mine, on the east bank of the Birim River in Ghana, Africa.

akyan-the; a Burmese term used for like asa-yo but for smaller corundum stones. → Corundum classification in Myanmar.

akyaw-the; a Burmese term used for pale, minute corundum stones of good quality. → Corundum classification in Myanmar.

Al; a chemical symbol for the element metallic aluminum.

alabandine; alternate pronunciation for almandine. → Almandine garnet.

alabandine ruby; a misleading term for alabandine garnet (contain Mn) from the ancient district of Alabanda, Asia Minor.

alabandine ruby; a misleading term for now sometimes used to refer to violetish-red spinel.

alabandite; an old term for almandine, from Alabanda, in Asia Minor.

alabaster; a firm very fine-grained, massive ornamental variety of gypsum. Usually snow-white and translucent but sometimes, delicate shades with yellow, gray, brown, red, or orange. Because its soft, it is used in interior decoration, also, widely used for ornamental purposes and for statues. Optics; α :1.5207, β :1.5230, γ :1.5299. Birefringence: 0.010. \ominus . SG:2.32-2.33. H:2. Found in Italy, and England, where it is known as *pink Welsh alabaster*. It may be dyed. Also spelled alabastron.

alabaster; sometimes also incorrectly referred to is the beautifully banded form of stalagmitic calcite occurring in Algeria, and in Egypt. → Gypsum, onyx marble, Egyptian alabaster, Oriental alabaster. The alabaster of ancients was calcite, but what we now call alabaster is massive gypsum. Also called alabastrite.

alabaster glass; a special opalescent glass used for imitation pearls. Not to be confused with true alabaster.

alabaster-jade; a misleading term used for amazonite.

alabaster onyx; incorrect name for a colorless, banded travertine or stalagmitic calcite, or marble.

alabaster of ancient; a misleading term for alabaster, Oriental.

alabaster, Oriental; a misleading term for stalactite and stalagmitic varieties of calcite, consisting of straight or parallel bands of calcite of alternating shades. Also miscalled *Algerian onyx*, *alabaster of ancient*.

alabaster pearl; alabaster beads, coated with a pearl-like surface.

alabastrite; another term for alabaster.

alabastron; an earlier and misleading term for calcite-marble.

alabastron; another spelling for alabaster.

alacolite; same as diopside.

Aladdin Mine; an opal mine operating in Thackaringa Hills, Queensland, Australia, founded in 1878 by Paddy Green.

alagite; a dull red, or green, altered rhodonite.

alajites; a Mexican name for altered rhodonite.

alalite; a local term for the green variety of diopside from Ala Valley, Piedmont, Italy. Also, found in Brazil, and Austria.

almandine; same as almandine.

Alamasi Ltd.; → Almasi Ltd.

alambre; a Portuguese term applied to Amber.

Ala mine; a small grossularite garnet deposit of brilliant hyacinth-red color from Ala, Turin, Italy.

alaqueca; Spanish pronunciation for hematite.

alargan; a German alloy of aluminum and silver, used as a substitute for platinum in jewelry, and in making commercial handicrafts.

Alaska black diamond; a misleading term for hematite.

Alaska diamond; a misleading term for a transparent rock crystal from Alaska.

Alaska jade; an incorrect name for pectolite.

Alaskan amber; Alaskan amber is found in Cretaceous strata.

alaskite; a leucocratic, granite, which contain quartz and feldspar, when it consisting mostly of quartz; it is a transitional phase between alaskite and quartz.

alaskite-quartz; an acidic quartz-feldspar rock, containing mostly quartz; it is a transitional phase between alaskite and quartz.

alasmoden pearl; a freshwater pearl of the best quality, found in the *Alasmodon margaritifera* mollusk in Nova Scotia, Canada, and in Chinese rivers.

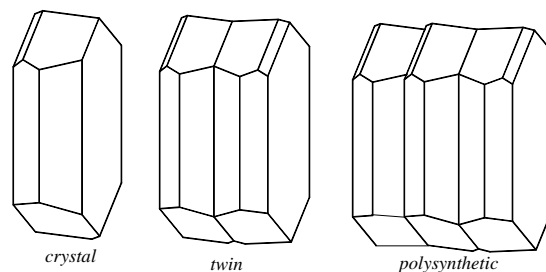
alberene stone; a commercial term for a dense gray soapstone, known as polyphant stone. found in Albermarle County, North Carolina, USA.

alberene; a trade name for a dense gray soapstone, occurring in Albermarle County, North Carolina, USA.

albertite; a jet-like mixture of hydrocarbonate or asphalt mineral. Albertite have an adamantine luster and a conchoidal fracture. RI:1.55. SG:1.097. H:2. Occurs in veins in oil bearing strata. Insoluble in most organic solvents. Used for carving and as imitation jet. Found in Albert County, and New Brunswick, Canada.

albite; an end member of the plagioclase series of the feldspar group. A transparent to translucent mineral. Varieties are *albite moonstone*, and *peristerite*, which is also called *pigeon stone*. Albite sometimes display adularescence and chatoyancy effects. Some albite or oligoclase is the source of weak sunstones. When albite

or oligoclase inclusions are exsolved in microcline or orthoclase feldspars, and they are visible to the naked eye this is called *perthite*. Albite moonstone, sunstone



albite crystal and polysynthetic twinning

and aventurine feldspar are varieties. → Feldspar, perthite feldspar, antiperthite.

System: triclinic.

Formula: $4[\text{NaAlSi}_3\text{O}_8 + n\text{CaAl}_2\text{Si}_2\text{O}_8]$.

Luster: vitreous.

Colors: white to colorless, occasionally reddish, bluish, yellowish, greenish, gray, gold, or brownish-pink.

Diaphaneity: transparent to translucent.

Fracture: uneven or conchoidal. Brittle.

Streak: white or colorless.

cleavage: {001} perfect, {010} nearly perfect, and {110} imperfect.

SG: 2.60-2.63.

H: 6-6.

Optics; α :1.527, β :1.531, γ :1.538.

Birefringence: 0.011. ⊕.

Dispersion: 0.012.

Found: widespread.

albite as inclusion; in some topaz albite feldspar can be seen as inclusion.

albite-epidote-hornfels; a hornfels rock, which contains albite and epidote. Also called albite-epidote rock.

albite-epidote rock; same as albite-epidote-hornfels.

albite moonstone; a rare variety of albite feldspar-plagioclases, which exhibits a silvery sheen.

albite porphyrite; → albitite.

albite twin law; refers to a type of twin law seen in albite feldspar with orientation of alternate lamellae, in which the twinning plane is brachypinacoidal and is common in albite. → Albite.

albitite; a coarse-grained porphyritic igneous rock containing phenocrysts of albite in groundmass. Common accessory minerals are quartz, garnet, muscovite, apatite and opaque oxides. Also called albitophyre, albite porphyrite.

albitophyre; → albitite.

albolita; a plastic cement consisting mainly of silica and magnesia. Also spelled albolith.

albolith; → Albolita.

albumen; a substantial part of the corozo nut or the

alcohol – alexandrite-like

white of an egg. It is a water-soluble, albumin protein.

alcohol; especially ethyl alcohol. A transparent, colorless, aromatic volatile liquid. Composition C_2H_5OH . Used for diluting certain heavy liquids and as an immersion liquid in microscopy. RI:1.36. Also called ethanol.

aldehyde; formula: CH_3CHO , it has a pleasant smell. Used essentially for synthetic resins. Also called aldehyde resins (plastics).

aldehyde resins (plastics); same as aldehyde.

aldur; same as pollopas.

alexandrita; Spanish pronunciation of alexandrite.

Alençon diamond; a misleading term for smoky rock crystal from Alenon, France. The French spelling is Pierre d' Alenon.

Alenoon diamond; a misnomer for rock crystal.

Aleppo stone; same as eye agate. → Cyclops agate.

alexandrine turquoise; another spelling for Alexandrian turquoise. Also called Egyptian turquoise.

Alexander Bay; named for the German geologist who it in 1926, discovered the southern lip of the diamond-bearing district at the mouth of the Orange River in Namaqualand, Africa.

Alexander Bay Development Corporation; a diamond company, operated the alluvial deposits south of Alexander Bay, on the west coast of South Africa. Now called Alexcor.

alexandrite; a smart misspelling of *alexandrite*, which has been deceptively used for alexandrite-like synthetic sapphire, or synthetic spinel.

Alexandrian turquoise; a commercial term for Sinai Peninsula, Egyptian turquoise. From Sinai. Also known as Egyptian turquoise.

Alexandria shell; also called Egyptian shell, synonym for mother-of-pearl.

alexandrine; a misleading term for synthetic alexandrite-like sapphire, which changes color. Also called synthetic alexandrite.

alexandrine sapphire; a misleading term for a sapphire, which is blue in natural daylight. But changes to violet, purple or reddish under most artificial light, same as alexandrite. Synonym: alexandrite-like sapphire.

alexandrite; named after Russian Tsar Alexander II. A highly dichroic, rare variety of chrysoberyl. Emerald green in natural daylight, reddish in violet by artificial light, due to its unusual absorption properties. One of the hardest and most important gemstones. A fine variety is the *night stone*. Iron-rich varieties are yellow, green and brown in color, and are inert under UV light or X-rays. Only alexandrite exhibits a weak, red luminescence under SWUV light. Synthetic alexandrites are produced by the Czochralski, the pulling method, the flux process, and the floating-zone method.

System: orthorhombic.

Formula: $4[Al_2BeO_4]$.

Luster: vitreous.

Colors: emerald green in daylight, reddish to violet by artificial light.

Streak: none or White.

Diaphaneity: transparent.

Cleavage : {110} distinct, {010} imperfect, {001} indistincts.

Fracture: conchoidal to even. Brittle.

S.G. : 3.75 0.10.

H : 8 .

Optics; α :1.746, β :1.748, γ :1.756.

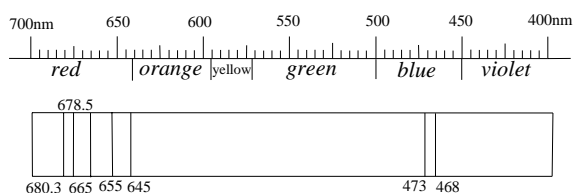
Birefringence: 0.009-0.012. \oplus may be also \ominus .

Dispersion : 0.015

From Sri Lanka, Brazil, China, and Russia.

alexandrite; a misleading trade term for imitation alexandrite, which is made from certain other synthetic stones, such as vanadium colored synthetic corundum, or spinel. Mistakenly named *synthetic alexandrite*. → Twinning in chrysoberyl.

alexandrite absorption spectrum; contains a broad absorption band at 580 nm for chromium, while alexandrite is strongly trichroic and has a different



alexandrite absorption spectrum

spectrums in different direction. → Alexandrine.

alexandrite cat's-eye; a chatoyant variety of alexandrite, with parallel inclusions. Cut en cabochon, it has a light cat's-eye effects.

alexandrite-colored sapphire; → alexandrine sapphire.

alexandrite cut; mostly for yellow stones used mixed cut, step cut and also cut cabochon, accentuates cat's-eye effects.

alexandrite doublet; a misleading term for both suitably colored synthetic sapphire and spinel, which are used to create alexandrite doublet.

alexandrite garnet; a misleading term for a garnet, which display color change.

alexandrite inclusions; needles of actinolite and goethite, mica, apatite, quartz, displaying two or three phases of inclusions.

alexandrite-like sapphire; → alexandrine sapphire.

alexandrite-like synthetics; suitably-colored, synthetic sapphire and spinel, used to imitate alexandrite. → Alexandrine sapphire, synthetic alexandrite.

alexandrite-like tourmaline; synonym for chameleonite.

alexandrite twinning; commonly twinned pseudo-hexagonal, as trillings, *cyclic twin* or *flowers* exist in some Russian alexandrite.

alexandrium; an artificial gem comprised of lithium aluminum silicate and made in a variety of colors. neodymium as a coloring agents yields pink lavender colors. A vivid, laser blue variety blue is colored by copper.

Alexcor; → Alexander Bay Development Corporation.

alexite; a misleading term used by manufactures for synthetic or imitation diamonds such as YAG, in the USA.

alfrax; electrically fused alumina (Al₂O₃), which is used as a refractory.

algae; dark brown, wavy patterns characteristic of algae. Same as seaweed.

algal marble; a marble containing remains of fossilized algae. → Coralline marble.

algam; in Wales, a common word for the metallic element, tin.

Algeiba Star; the yellow, cushion shaped diamond of 133.03 cts, probably from South Africa. Formerly named as Mahjal, it was sold in 1983. Present whereabouts unknown.

Algeiba Star Diamond; a yellow, cushion-shaped diamond of 133.03 cts, from South Africa. It was recut from a stone of 139.38 cts, which was known as the Mahjal Diamond (an India Maharajah of Kapurthala, Punjab). Sold by Christie's in 1983. Also called Mahjal Diamond.

Algemene Diamantbewerkerbond van Belgie; an organization of diamond cutters in Belgium.

Algemene Nederlandsche Diamantbewerkerbond; an organization of diamond cutters in the Netherlands.

Algerian coral; a trade classification for a medium-quality coral from the coast of Algeria, Africa. → Coral,-trade classification of.

Algerian onyx; a misleading term for a stalagmitic variety of calcite, characterized by beautifully banding. Also known as Alabaster Oriental or Oriental Alabaster, Algerian onyx (marble). → Alabaster.

Algerian onyx (marble); → Algerian onyx.

algerite; an alteration of scapolite mineral, usually related to painite.

algodonite; a silver white to steel gray, opaque, copper arsenate (Cu₆As) with a hexagonal system. It's metallic luster, which quickly tarnishes on contact with air. SG:8.38. H:3-4. Found in Chile, the Czech Republic, Iran, and Michigan. Sometimes cut as cabochon. → Domeykite, mohawkite.

alignment of facets; → facet alignment.

Alice Roosevelt Aquamarine; same as Roosevelt Aquamarine, Alice.

align properly; in a triplet stone sometimes inclusions are seen in the crown which may are not similar to the inclusions of pavilion or do not align properly with it.

alizarin; an orange-red crystal natural and synthetic dyes C₆H₄(CO)₂C₆H₂(OH)₂. Soluble in aromatic solvent, hot methyl alcohol, ether and very less in water. Used as indicator and dyes.

alizarin red; an orange-red crystal natural and synthetic dyes. Soluble in aromatic solvent, hot methyl alcohol, ether and very less in water. Used as indicator and dyes.

alizarin yellow; a compound contain an azo group and the most important natural and synthetic dyes, prismatic or needle form aggregate, yellow brown powder. Soluble in water, used as indicator and dyes. Also called madder, turkey red, C.I. 75330, and C.I. natural red.

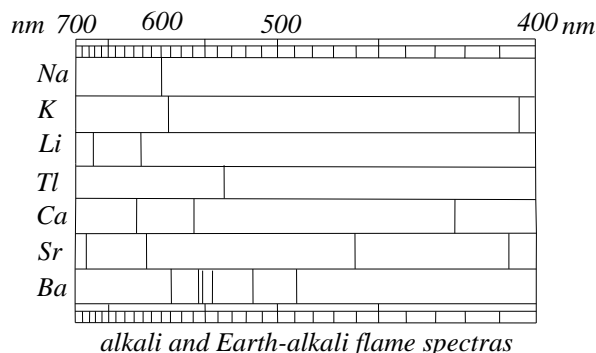
alkali; a substance, which dissolves in water to form an alkaline solution found in arid and semi-arid regions.

alkali; hydroxides of sodium (NaOH) and potassium (KOH) and lithium (LiOH) are known bases.

alkali; any bitter-tasting salt, composed of sodium or potassium carbonate

alkali; a general name for an alkali metal.

alkali and earth metal spectrums; spectrums of alkali and earth metal are seen below.



alkalic; a solution containing alkali cation. Igneous rocks with more alkali elements than average for their class, with less than 51% alkali-lime index.

alkali earth metals; the bivalent and strongly basic metal in group IIA of the Periodic System, comprising of beryllium, magnesium, calcium, strontium, barium, and radium. → Alkali and earth metal spectrums.

alkali-etchants; potassium hydroxide used for etching crystals, minerals, gemstone, etc. → Alkali.

alkali feldspar; an alkali-bearing feldspar such as orthoclase, microcline, albite, sanidine, adularia, and anorthoclase, which contains very little calcium.

alkali garnet; a term for a member of the sodalite group, closely related chemically and crystallographically to the garnets.

alkali granite - allopheane

alkali granite; an acidic, coarse-grained rock, containing free quartz, and characterized by a great excess of alkali-feldspar over plagioclase.

alkali metals; the monovalent metal in group IA of the Periodic System, namely, lithium, sodium, potassium, rubidium, cesium and francium.

alkaline; having the qualities of a base, synonym for basic.

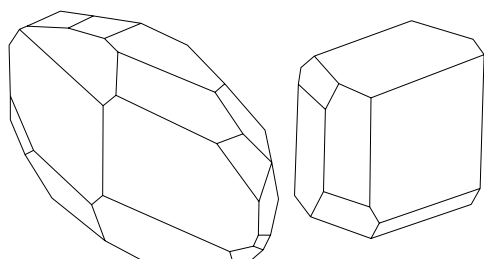
alkaline; substance which have PH greater than 7.

alkaline earth; the oxides of barium, strontium, calcium, beryllium, magnesium, and radium.

alkalinity test of beryl; alkaline reaction of moistened crushed of calcined beryl family on litmus paper while uncalcined beryl do not react.

alkali spinel; green, gray and black, isometric varieties of spinel, containing minute amounts of the alkalis, K₂O and Na₂O 1.31% and 1.38%. Found in northern Sweden.

alladinite; an artificial thermoplastic resin. Used to produce imitation gemstones.



allanite or orthite crystals

allanite; a cerium-bearing mineral of epidote group. Radioactive, it is of interest to gem collectors. Synonym for orthite.

System: monoclinic.

Formula: 2[Ca,(Ce,Th)₂(Mg,Fe⁺³,Fe⁺²)Al₂(O)(OH)(SiO₄[Si₂O₇)].

Luster: semimetallic to vitreous,

Colors: reddish, greenish, brown to black,

Streak: none or white.

Diaphaneity: Semitranslucent to opaque,

Cleavage: none.

Fracture: conchoidal to even. Brittle.

SG: 3.00- 4.20.

H: 5 -6.

Optics; α :1.640-1.791, β :1.650-1.815, γ :1.659-1.828.

Birefringence: 0.013-0.036. \oplus may be also \ominus .

Dispersion: 0.019 similar to epidote.

From Saxony, New York, New Jersey, Norway, Finland, Ural and Sweden.

allcharite; same as goethite.

Allende meteorite; → heteronuclear intervalence charge transfer.

allexite; commercial term for synthetic alexandrite grown by the Czochralski technique, and made by Diamonair Company of Liton Airtron.

Allmana Avensk, ElektriKA Aktiebolaget; a Swedish corporation, which, since 1953 produces synthetic diamonds. Abbreviation: A.S.E.A.

allocation; a scope of rough diamonds, selected by the Central Selling Organization, for each sightholder.

allochroite; a calcium-chromium garnet, the light brown variety of andradite.

allochromatic; a term which refer to those gemstones or minerals, which in their purest state, are colorless but colored by a minor impurities of coloring agent added to their chemical composition of minerals. Opposite of idiochromatic. → Allochromatic minerals.

allochromatic crystals; → allochromatic minerals.

allochromatic gems; → allochromatic minerals.

allochromatic minerals; the term referring to minerals, which in their purest state are perfectly colorless or white. Because the major elements consisting minerals do not produce characteristic color, if the mineral is pure it will be colorless or white when transparent. By chance, these are colored by submicroscopic impurities, or inclusions, of other minerals. Generally a metallic oxide, which has no essential part in the chemical composition of a particular mineral, such as corundum, which when pure, is colorless (white sapphire). When it containing titanium oxide the result is a blue color (sapphire). A trace of chromium oxide yield a red (ruby), while iron gives green and yellow (green and yellow sapphire). The opposite is an idiochromatic mineral. Same as allochromatic gems or allochromatic crystals. → Idiochromatic stones.

allochromatic transitional elements; → transitional elements.

allochthonous; term meaning not formed or occurring in the place where it is found. Drifted, transported. Not *in situ*. → Autochthonous.

alloglastic breccia; a breccia formed by volcanic activity, composed of nonvolcanic rock in a volcanic matrix.

allogene; an allogenic mineral or rock is not formed on the spot, which is derived from pre-existing rocks and transported to the present spot such as a xenolith in an igneous rock or a detrital mineral in a placer deposit. Also called allothigenous, allothogenic or allothigenic. → Authigene.

allomerism; same as isomorphism.

allomorph; same as pseudomorph.

allomorphism; different crystalline forms of the same chemical composition.

allomorphite; barite mineral which is pseudomorphous after anhydrite.

all-opal; a term applied to formation rich in opal.

all-opal; an inferior type of jelly opal with almost transparent patch color.

allopheane; an amorphous clay mineral of Al₂O₃.SiO₂ or

hydrous aluminum silicate gel with various colors such as colorless, snow white, blue, green, brown, or yellow. Often occurs in incrustations and rarely as stalactitic masses.

allophane; → kandite.

allothigenic; → allogene.

allothigenous; → allogene.

allothigenous ejectum; same as exogenous inclusion.

allothogenic; → allogene.

allotriomorphic; → anhedral.

allotriomorphic-granular; same as xenolith-granular. → Anhedral.

allotrope; term meaning one of the different crystal forms of a particular substance that displays allotropism, such as diamond and graphite, which are both allotropes of carbon. → Polymorphism.

allotropic; the name applies to the phenomenon shown by some chemical compositions or elements, which exist in different metastable forms, over a given temperature range, such as carbon, which from which diamond, charcoal or graphite may be formed.

allotropy, allotropism; the capability of some substances to exist in more than one form, different characteristics at different temperatures. → Allotrope.

alloy; an intimate confusion of two or more metallic elements with nonmetallic elements, such as steel.

alloy; a mixture of two or more metallic elements such as bronze, which is an alloy comprised of copper and silver. Electrum is a naturally alloy. Alloys are produced to achieve other characteristic properties such as greater durability, strength, hardness, etc.

alluvial; pertaining to, or having the character of, alluvium; meaning deposited by the action of waves or of running water. Used for valuable minerals, such as gold, diamond, and ruby, which are associated with an alluvial placer, such a secondary deposit is known as an alluvial deposit. Synonym: alluvium. → Deposit.

Alluvial; an obsolete term for tertiary.

alluvial cone; a low, outspread, relatively flat to gently sloping mass of rock material, shaped like an open fan or segment of a cone, deposited by a stream. Also called debris cone, and dejection cone. → Alluvial fan.

alluvial deposit; unconsolidated, or loose, secondary deposits of valuable minerals, which have been deposited by rivers and are found in their dried-up beds. → Alluvium.

alluvial diamond; diamond found associated with waterworn material.

alluvial diamond-bearing gravel; loose particles of diamond, which have been brought down by rivers and are found in gravel.

alluvial digging; same as alluvial mining.

alluvial fan; a low, outspread, relatively flat to gently

sloping mass of rock material, shaped like an open fan or a segment of a cone, deposited by the action of a stream. Sometimes called prism. → Alluvial cone.

alluvial gold; gold fragment found associated with waterworn material.

alluvial gold-digging; a term applied to mining of diamond in placer.

alluvial gold-gravel; loose deposits of gold, which have been brought down by rivers, and are found in their dried-up beds.

alluvial gravel; loose deposits of valuable minerals, which have been brought down by rivers, and are found in their dried-up beds. Also called gem gravel. → Alluvium, alluvial deposit.

alluvial laterite; a white to cream to red residual clay produced in humid tropical and subtropical conditions of good drainage by the weathering of igneous rocks, usually of basic composition. Contains some silica, particularly of iron oxides and hydroxides and aluminum hydroxides. It is related to bauxite and found in alluvial deposit.

alluvial mining; the process of exploration of alluvial placers, or deposits, such as gold, gemstones, rare earths, platinum. Recovered by hydraulicking, by dredging or by shallow drifting and sometimes panning. Also called alluvial digging.

alluvial ore; loose particles of valuable minerals, which have been brought down by rivers and are found in their dried-up beds.

alluvial placer; concentration of valuable alluvial minerals such as gold, diamond, and ruby on the surface, chiefly of fluvial origin. Recovered by hydraulic washing, dredging, and sometimes panning. → Alluvial deposits, alluvial ore.

alluvial quartz; loose particles of quartz minerals, which have been brought down by rivers.

alluvial sand small fragment of detrital rock, which have been brought down by rivers. Mostly composed of quartz.

alluvial sorting; same as alluvial stone; for example alluvial diamond deposits in South Africa on the west coast of Namibia.

alluvial stone; natural sorting of gemstone or minerals which have been transported and deposited by streams.

alluvial tin; tin fragment found associated with waterworn material.

alluvial values; recoverable from mineralized alluvial beds such as gold, diamond, cassiterite, rutile, monazite, platinum and other gemstones.

alluvion; → alluvium.

alluvium; mixture of clay, silt, sand, gravel and other unconsolidated rock materials. Deposited during comparatively recent geologic time, by running or flowing water, as sorted and semisorted sediment, in

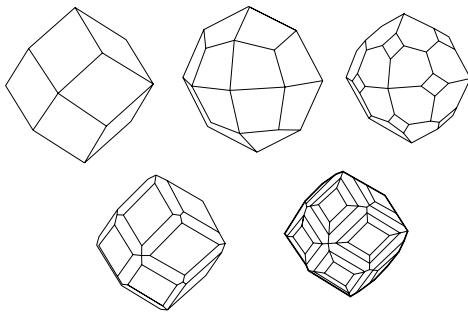
almagra - alomite

the bed of a stream or, on its flood plain. Known as alluvial deposits and alluvion. → Alluvial.

almagra; a dark red ocher from Andalusia, Spain, similar to Indian red. Used for polishing glass and metals, and as pigment.

almagre; red ocher from Mexico.

almandine; term applied to the iron-aluminum group of garnets, a red to purple gem quality, which occur in mica-schist, and other metamorphic rocks. Usually a hollow cabochon, cut to lighten the color, is known as a carbuncle. Sometimes this is seen as a weakly formed of four-pointed or six-pointed star can be seen. Such stones are known as star almandine. These four-rayed and 6-rayed star almandine occur due to fine needles and inclusions. Almandine is practically opaque to X-rays.



almandine crystals

Sometimes the word almandine is used as a prefix, which is a misnomer, for example, almandine spinel, etc. or Cape garnet. Alabandite is an obsolete term. Also called almandite, noble garnet, precious garnet, oriental garnet. Also spelled almandine. → Garnet, almandine spinel.

System: cubic.

Formula: $8[\text{Fe}_3\text{Al}_2(\text{SiO}_4)_3]$.

Luster: vitreous to resinous.

Streak: white.

Colors: purplish to deep red, violet-red and black.

Diaphaneity: transparent.

Fracture: conchoidal to even. Brittle.

Cleavage: none.

SG: 3.80 - 4.20.

H: 7-7.

RI: 1.75-1.83.

Birefringence: none.

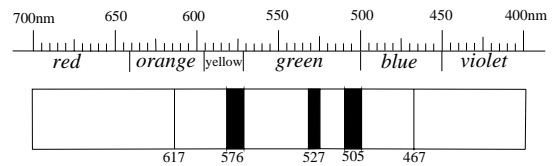
Dispersion: 0.024-0.027.

From many localities.

almandine absorption spectrum; the three main bands are due to ferrous iron, at 576 nm in yellow, 526 and 505 nm in green. A weak line is displayed at 617 nm in orange, and at 462 nm in blue.

almandine cut; → almandine.

almandine garnet; same as almandine.



almandine absorption spectrum

almandine, inclusion in; → inclusion in almandine garnet.

almandine spinel; a misnomer for the reddish-purple to purple red color of gem spinel. → Ruby spinel.

almandite; a misleading trade term for synthetic almandine spinel.

almandite; a mineralogical name for almandine

almandite; a misleading term for synthetic reddish to violet colored spinel.

almandite ruby; an incorrect name for reddish to violet spinel.

almandite sapphire; an incorrect name for bluish to violet spinel

almashite; a local, Rumanian name for the green or black amber from Almash, Moldavia, that is poor in oxygen. It shows fluorescence qualities.

Almasi; → Alamasia Ltd.

Almasi, Ltd.; a small diamond-mining company in Tanzania, Africa. Also spelled Alamasia or Alamasia Ltd.

almaz; a term for uncut diamonds, in Russian or Slavic languages.

Almaz Export; the marketing agency of Russian diamonds, Almaz Rossii-Sakha. Under contract to De Beers, it sells rough diamonds, which are exported to the Central Selling Organization.

Almaz Jeweler Export; a Russian corporation, controls Russian diamonds and gemstones, located in Antwerp, Belgium.

Almazni Fund; one of the world's most famous museums of gems, diamonds, and jewelry, in the Kremlin, Moscow, Russia. → Russian Diamond fund.

Almaz Rossii-Sakha; meaning Diamonds, of Russia and Sakha. This diamond agency, which operates in Sakha (Yakutia) through Yakutalmaz. The production of rough material is marketed through, this agency's Almazexport subsidiary. Also known as Diamonds of Russia and Sakha.

almeria ore; a Spanish name for hematite.

almond rock; same as amygdaloid.

almond-shaped cavity; same as amygdaloidal cavity.

almond stone; a synonym for almandine garnet.

alomite; named after Charles Allom. A commercial term

for blue sodalite, from Bancroft, Canada. An ornamental stone, also called princess blue. Used for ornamental objects.

alowitz; trade name for fused aluminum oxide (Al_2O_3).

aloxite; a commercial term for an abrasive material made of synthetically produced aluminum oxide, or artificial corundum (Al_2O_3) powder.

alpha amyrene; a major part of resin obtained from species of angiosperms a kind of flowering trees.

alpha chalcosite; same as digenite.

alpha decay; spontaneous radioactive disintegration of an unstable atomic nuclei or change of one nuclide into one or more different isotopes by the emission of an atomic particle. Also called radioactive disintegration. → Alpha ray.

alpha diamond; α -C, a stable, cubic diamond.

alpha disintegration; → alpha ray.

alpha index; the lowest index in biaxial minerals or gemstones.

alpha irradiation; the exposure of certain pale or poorly colored gemstones or diamonds to alpha rays, to enhance their color. → Alpha ray.

alpha particle; a positively charged particle emitted by certain radioactive materials during radioactive decay, which has two neutrons and two protons. Hence, it is identical with the nucleus of a helium atom. Also called α -ray, alpha radiation.

alpha particle treatment; → cyclotron-treated diamonds, cyclotron diamonds.

alpha quartz; polymorphic quartz, stable below 573°C , which has formed in veins, geodes and large pegmatites. Its vertical axis has three-fold symmetry, and the three horizontal axes have two-fold symmetry. It has a higher refractive index and birefringence than that of beta quartz. Also called low quartz and spelled α -quartz.

alpha radiation; → alpha ray.

α -ray; a less-preferred synonym for alpha particle. → Alpha ray.

alpha ray; a less-preferred synonym for alpha particle. Also spelled α -ray, alpha particle, alpha radiation.

alpha zircon; in mineralogy an obsolete term for any high quality zircon. Optics; ω :1.920-1.940, ϵ :1.970-2.010. Birefringence: 0.036-0.059. \oplus . Dispersion: 0.039. SG:4.67-4.70. Alpha zircon is the only type of zircon, which used in jewelry. Also called high zircon. → Low zircon, zircon.

alpine cleft; a name used for the cave features in the rock of European Alps where the rocks are folded and distorted by movement of the earth's crust, in which several fine minerals are found.

alpine diamond; an incorrect name for pyrite, from the Alps.

alshedite; a variety of titanite, or sphene, containing yttrium. Named after the parish of Alsheda in Sweden.

alstonite; synonym for bromlite. Not to be confused with bromellite

alstonite; a double carbonate composed of calcium and barium.

alteration; in mineralogy, the change in the chemical and mineralogical composition of a rock or mineral, since its original formation. It implies changes to new minerals or new rocks textures. → Altered rock.

altered diamond; same as treated diamond.

altered mineral; a mineral that has undergone some changes in its chemical and mineralogical composition to varying degrees.

altered rock; a rock that has undergone some chemical change under geological action.

altered stone; natural stones are frequently altered in a manner that may have an important bearing on their value. Any stone, of which the appearance, especially the color, has been changed by any artificial means, whatsoever. Such changes may be either external or internal.

alternant system; a term used for organic colorants with non-significant variants or allomorphs such as resonance of benzene. → Resonance.

Alto Ligonha Beryl; a pink and blue beryl crystals forming sometimes large aggregate until 200 tons are quarried found in Mozambique.

Alton Noel; an analyzing refractometer from Noel Alton. A refractometer employing the polarizing system to analyze the nature of the birefringence of gemstones.

alum; a hydrous, double sulfate of aluminum and potassium.

alum; in chemistry, any one of a group of salts, which are hydrous, double sulfates of aluminum, chromium, iron, or manganese, and one of the alkali metals.

alum; in Mineralogy a group of minerals consisting of hydrous, double sulfates of aluminum, chromium, iron, or manganese, and one of the alkali metals such as alum, kalinite, mendozite, soda alum and ammonalun (tschermigite).

alunag; a commercial term for colorless synthetic spinel, used as a diamond simulant.

alumina; an important constituent of aluminum oxide (Al_2O_3) occurring as the minerals corundum and emery, and in hydrated forms, as bauxite

alumina; any silicate, in which aluminum oxide is an important part of the composition, such as feldspar, mica, feldspathoid, etc.

alumina ceramic; any ceramic white ware, in which aluminum oxide is the essential, crystalline part.

aluminatchromite; → Alumo-chrompicotite.

aluminite; any mineral or constituent of aluminum oxide.

aluminium; British spelling for aluminum.

alumnoelbaite; a suggested name for elbaite-schorl mixture of tourmaline.

aluminobuergerite; a suggested end-member of tourmaline.

alumino-silicate; same as aluminum silicate.

aluminum; a light, silver-white, ductile, malleable metal, with a high electrical conductivity and good resistance to corrosion. Its chemical symbol is Al. Used in jewelry, for costume jewelry and junk jewelry.

aluminum as impurity in quartz; the color of smoky quartz is probably caused by natural defect color centers produced by impurity of aluminum and irradiation. For producing smoky color in quartz is an unpaired electron necessary this will happen by trivalent aluminum ion replacing tetravalent silicon ion. This replacement needed an alkali element (monovalent) such as sodium ion or a hydrogen ion for electrical balance. During irradiation of such quartz with an impurity of aluminum one of a pair of electrons may be thrown off its position such as an oxygen ion adjacent to an aluminum. This action leaves the other electron unpaired which giving rise to a hole color center.

aluminum enamel; a porcelain enameled specifically composed with aluminum oxide.

aluminum gold; an alloy containing 22 % aluminum and 78 % gold, with a ruby red color. Its melting point is 1060° C.

aluminum minerals; minerals which contain aluminum oxide, such as alunite, andalusite, bauxite, corundum, cyanite, sillimanite, topaz, spinel, turquoise, amblygonite, etc.

aluminum oxide; a white or pink powder, of natural or synthetic corundum, used as a polish and abrasive also used in ceramic bodies. Also called alumina, diamontite, diamontine. Linde A. compound is a sapphire or ruby powder. Emery is an intimation mixture of alumina and magnetite, or hematite, bauxite, diaspor, and gibbsite.

aluminum powder; aluminum in the form of powder, is used as a pigment in paints, inks, etc., usually, after coating with a lubricant, to gain luster and leafy appearance.

aluminum silicate; a chemical compound, which containing varying proportions of silica and alumina, in some cases with water or hydroxyl, such as feldspar, mica, etc. Also called alumino-silicate.

aluminum solders; an alloy of gold, silver, copper, and zinc; used for soldering aluminum brass.

aluminum spinel; an isometric, synthetic crystal of aluminum spinel (Al₃O₄).

alumo-berezowskite; members of the spinel group, from chromite, with the composition (Mg,Fe)(Cr,Al)₂O₄. → Alumo-chrompicotite.

alumo-chrompicotite; members of the spinel group from magnesiochromite, with the composition (Mg, Fe)(Cr,Al)₂O₄. Synonym: aluminatchromite. → Alumo-berezowskite.

alumocalcite; a variety of opal, with alumina and lime impurities, from Australia.

alumogel; an amorphous, aluminum hydroxide of indefinite composition, forming the constituent of bauxite. Used as an abrasive.

alum rock; a basic hydrous, double sulfate of aluminum and potassium.

alundum; the registered, commercial term for an abrasive material made of synthetically produced aluminum oxide or artificial corundum (Al₂O₃) powder.

alurgite; a manganiferous, rich variety of mica or biotite of purple color.

alveolar; abalone pearl having a small cell-like or pitted surface, like of a honeycomb.

alveolar structure; a term used for some kind of abalone pearl of hollow nature without concentric nacreous layers like oriental pearl.

alveolar structure; same as honeycomb structure.

Am; a chemical symbol for the element americium.

amakusa; the Japanese equivalent of china stone.

amalgam; an alloy composed of mercury with one or more other metals. Used for gilding metals. Known as fire gilding, or mercury gilding.

amalgam gilding; → amalgam.

amargosite; a commercial term for bentonite.

amarantsteen; a rarely used Dutch term for aquamarine emerald.

amarud; French term for aquamarine emerald.

Amarillo Starlight Diamond; the diamond of 16.37 cts, found in 1975, at the crater of Diamonds State Park, Arkansas. Is named after Amarillo a town in Texas, USA.

amarillo stone; a term applied to figured chalcedony, from Texas.

amaryl; a commercial term for light green, synthetic corundum, named as such become similar to leaves of an amaryllis. In South Africa, named belladonna lily.

amas; a Japanese term for girls who dive to fish pearl oysters.

amas; a Middle Farsi or Pahlavi term for diamond.

Amati Diamond; a diamond weighing 31 cts, which once belonged to Mrs. N. Coffin (Maiden name was Amati), stolen in 1949.

amatista; Spanish pronunciation for amethyst.

amatista mosquito; Spanish name for mosquito amethyst.

amatite; a manufactured of synthetic imitation of diamond, such as YAG in USA

amatrice; a commercial term for the concretions variety of variscite, found in the reddish, gray or brownish matrixes of chalcedony, or quartz, or both together. Frequently found with wardite, or/and variscite. SG:2.60. H:5-7. Also called amatrice, variscite quartz.

amatrice; a green, gem variety of variscite, cut as cabochon, with its surrounding matrix, from Utah. Also called Utah matrix.

amatrix; name applied to a mixture of variscite, with reddish or brownish quartz (or chalcedony) from Ely, Nevada. Cut cabochon. SG:2.60. H:5-7, and which found in Stockton, Utah, USA. Once called American matrix. Also called amatrice.

amause; another term for strass, a metaloxide, colored glass or enamel.

amausite; a fine, crystalline quartz, or devitrified glass. Also called petrosilex.

amazonite; a bright green, to blue-green, laminated variety of microcline-feldspar. An ornamental stone, cut en cabochon or used for tumbled gems. Synonym for amazon stone. → Perthite feldspar, antiperthite, bareketh.

System: triclinic.

Formula: $4[\text{KAl}(\text{Si}_3\text{O}_8)]$.

Luster: vitreous.

Streak: white.

Colors: light green to white-green.

Diaphaneity: semitransparent to opaque.

Fracture: uneven. Brittle.

SG: 2.56-2.58.

H: 6-6½.

Cleavage: 001 perfect, 010 perfect.

Optics: α : 1.514-1.529, β : 1.518-1.533, γ : 1.521-1.539

Birefringence: 0.008-0.010. \ominus .

Dispersion: 0.012.

Found in Russia, Virginia, Pike's Peak, Colorado and other sources.

amazonite cut; cut en cabochon as ovals, and tumbled.

amazonite jade; a misleading term, applied to the bright green, laminated variety of microcline-feldspar. Sometimes referred to as Amazon jade, which is a misnomer.

amazonite luminescence; yellow-green under LWUV. Inert under SWUV. Under X-rays green.

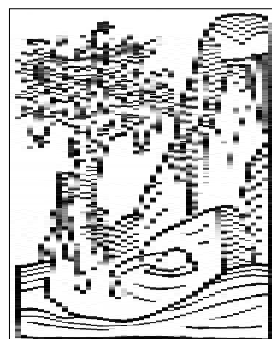
amazonite rough; rough material is obtained from Virginia, Colorado (USA), Ontario (Canada), South Africa, Norway and Finland.

amazon jade; a misleading term for amazonite jade.

amazon stone; same as amazonite, also written amazonstone.

ambar; a Spanish term applied to Amber. Also spelled ambeur.

amber; a Farsi (Persian) term for transparent, to translucent, to opaque fossil resin of hydrocarbons, from extinct varieties of certain pines, particularly the *Pinis succinifera* (succin mean sap or gum), which flourished in Oligocene times, more than 60 million years ago. Chemically amber is an isoprene unit (C_5H_8) which is found in natural resins. Amber is warm to the touch, light in weight, and induces negative static electricity when rubbed. Sometimes in it embedded are remains some extinct insects, plants or other organic or inorganic material, from prehistoric times and or, *stress marks*, which resemble crackling. Opaque or cloudy amber can be clarified and change in color, when boiled in capable oils, such as colza oil or rape oil. After treatment frequently some crack-like marks resembling *nasturtium* leaves and are known as *sun spangled* can be seen can be seen. *Pressed* or *reconstructed*, amber is made by melting small fragments of the material and



*excluda
amber drops
from the tree.
From Hortus
1507*

compressing it into blocks by hydraulic pressure. Since Bronze age, it has been used as ornament and talisman cut cabochon, for beads, rosaries, and carved objects. Rarely is faceted. Sea amber occurs along certain shores, while pit amber (distinguished it from sea amber) is mined from Oligocene gravels in Myanmar (Burma) and Sicily. A variety is called muntenite from Rumania, and the variety gedanite from Poland, and Mexico. Imitations are made from kauri gum, copal, ambroid, glasses, and plastics. Amber can be distinguished from imitations by its lighter specific gravity and characteristic odor of pine, when heated or burned. Electrum was an obsolete ancient Greek term for amber. In northern of Europe amber was known as gles. Amber of Chinese is calling hu-p'o, meaning soul of tiger. → True amber, block amber, gedanite, burmite, rumanite, simetite, bastard amber, almashite, ambergris, kauri gum, copal.

System: amorphous.

Formula: $\text{C}_{10}\text{H}_{16} + \text{H}_2\text{S}$.

Luster: resinous.

Streak: white.

Colors: It is usually yellowish or brownish but may also be red, orange, black, whitish, greenish, bluish, or violetish or be stained