Prezentarea C_05_2026

COMPOZIŢIA CHIMICĂ ŞI MINERALOGICĂ A SCOARŢEI TERESTRE

Clasificarea mineralelor

- **Numărul total de specii minerale cunoscute până în prezent (peste 4500) se repartizează claselor minerale în următoarele proporţii: silicaţi – 25,8%, fosfaţi – 17,5%, sulfuri – 13,3%, oxizi şi hidroxizi – 12,4%, sulfaţi – 8,4%, halogenuri – 5,8%, carbonaţi – 4,5%, elemente native – 3,3%, boraţi – 2,9% *etc*.**

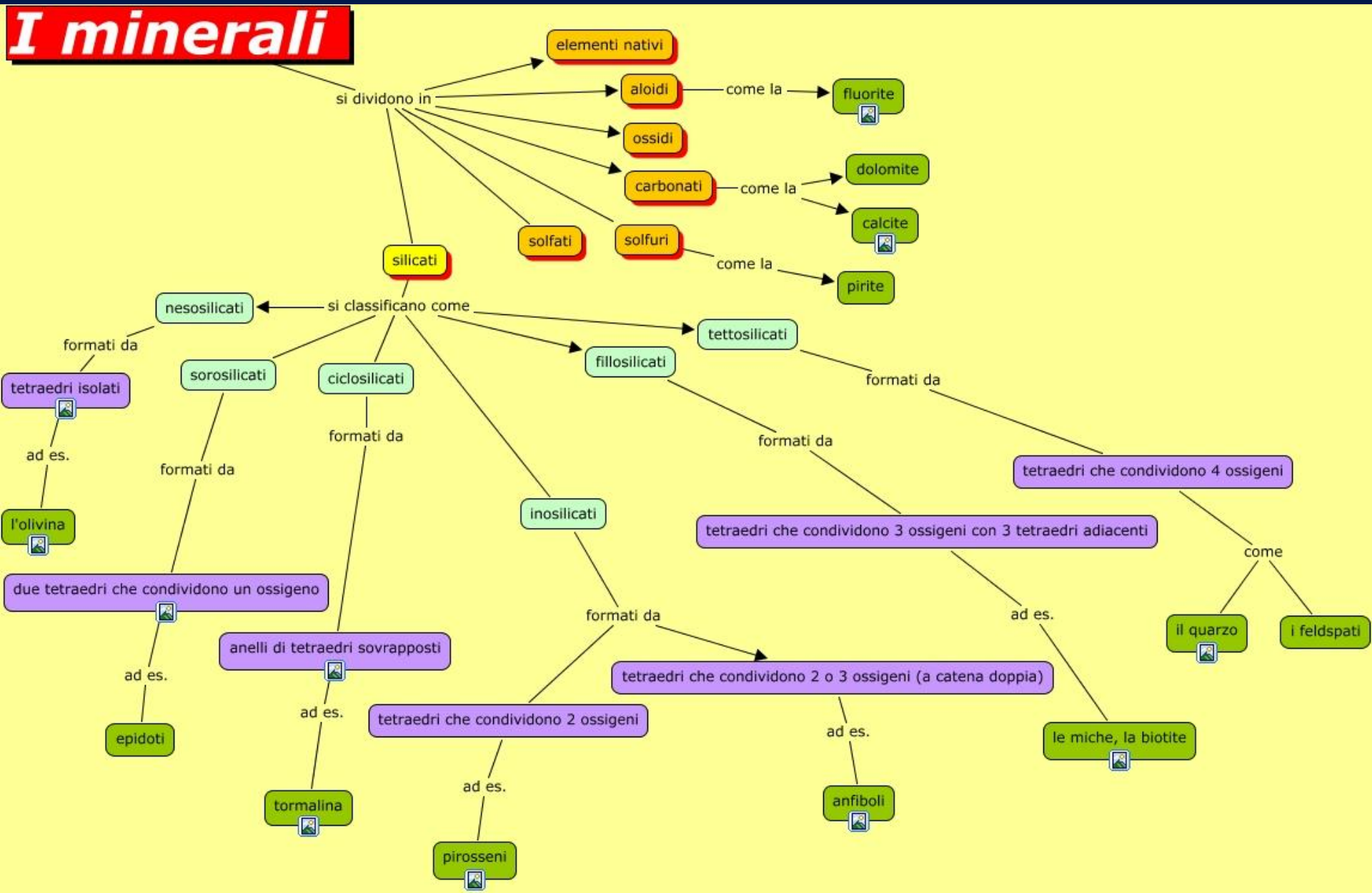
- **După gradul de participare la compoziţia scoarţei terestre, mediile sunt aproximativ următoarele: silicaţi şi silice – 81%, oxizi şi hidroxizi – 14%, carbonaţi – 0,7%, fosfaţi – 0,7%, halogenuri – 0,5%, sulfuri – 0,15%, elemente native – 0,1% *etc*.**

CLASIFICĂRILE MODERNE CU RELEVANȚĂ ȘI ÎN GEOLOGIA ECONOMICĂ AU LA BAZĂ CRITERIILE COMPOZIȚEI CHIMICE ȘI STRUCTURAL.

PRINCIPALELE CLASE DE MINERALE SUNT URMĂTOARELE:

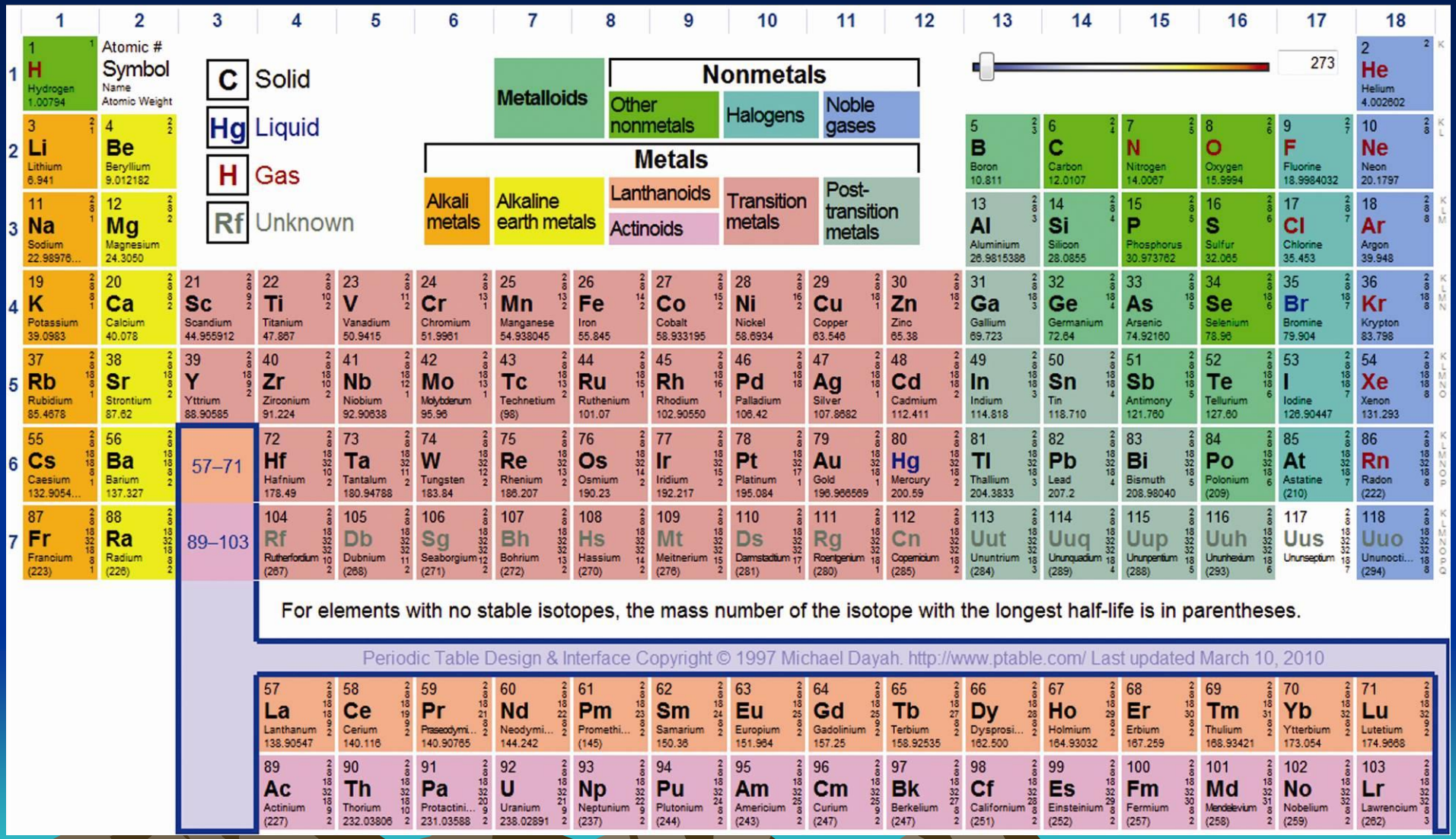
1. ***ELEMENTELE NATIVE***
2. ***SULFURI, SULFOSĂRURI ȘI COMUȘII SIMILARI***
3. ***OXIZI ȘI HIDROXIZI***
4. ***HALOGENURI***
5. ***CARBONAȚI, NITRAȚI ȘI BORAȚI***
6. ***SULFAȚI, CROMAȚI ȘI SELENIAȚI***
7. ***FOSFAȚI, ARSENIAȚI, VANADAȚI***
8. ***SILICAȚI***

I minerali



https://www.google.ro/search?q=ciclosilicati&espv

Sursa: http://www.ptable.com



- ***Elementele native*** - numărul total al speciilor minerale şi varietăţilor minerale din clasa elementelor native este de cca. 80, depăşind numărul elementelor chimice care intră în componenţa lor (cca. 35). aceasta se explică prin aceea că unele elemente în natură se găsesc în două sau mai multe stări allotropice: carbonul (diamant şi grafit), sulful (alfa şi beta) *etc*. De asemenea, elementele native se pot găsi sub forma unor soluţii solide: electrum (Au şi Ag), nichel–fier, platiniridium (Pt şi Ir) *etc*.;

- ***Sulfuri, sulfosăruri şi compuşi similari*** - în această clasă de minerale intră sulfurile, seleniurile, telururile, arseniurile, stibiurile şi sulfurile multiple (sulfosărurile)

- ***Oxizii şi hidroxizii*** - sunt compuşii cei mai simpli ai peste 40 de elemente chimice (metale şi metaloizi) cu oxigenul şi hidroxilul. Foarte răspândiţi sunt oxizii şi hidroxizii fierului, apoi ai aluminiului, manganului, titanului, cromului *etc*.;

- ***Halogenuri*** - mineralele din această clasă sunt reprezentate prin fluoruri, cloruri, bromuri şi ioduri, adică prin săruri simple, hidratate sau complexe ale HF, HCl, HBr, HI. Elementele mai importante care formează săruri haloide sunt K, Na, Li, Mg, Ca, Al, Fe, Mn, Cu, Pb, Ag, Hg şi Si;

- ***Carbonaţii*** **sunt combinaţii ale radicalului $(CO_3)^{-2}$ cu diferiţi cationi, în special bivalenţi: Mg, Fe, Mn, Ca, Ba, Sr, Pb, Zn etc.**

- ***Sulfaţi*** - sunt săruri ale H_2SO_4 $[Me^{+}(SO_4)^{-2}]$

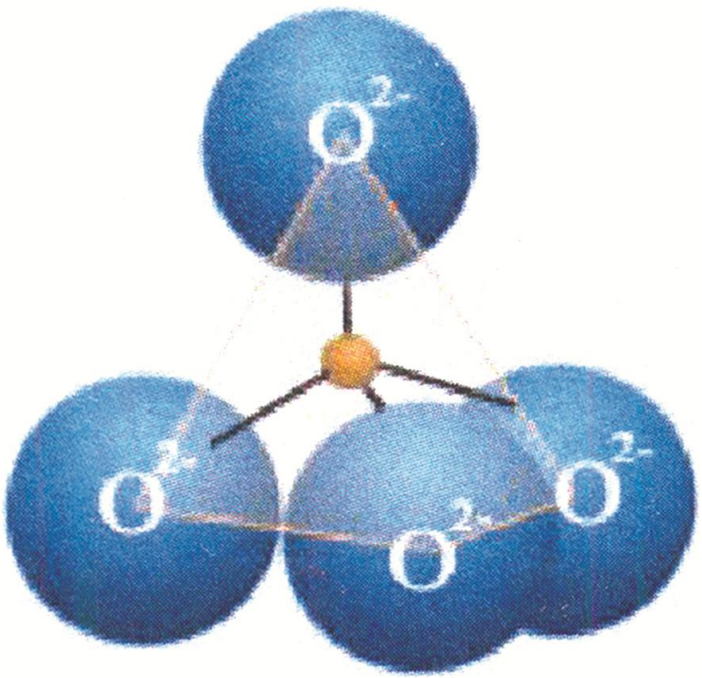
- ***Fosfaţi, arseniaţi, vanadaţi*** - radicalii $(PO_4)^{-3}$, $(AsO_4)^{-3}$, $(VO_4)^{-3}$, formează săruri stabile cu cationii trivalenţi, mai ales cei din grupa pământurilor rare şi cu bismutul; elementele bivalente se întâlnesc în această clasă numai sau forma unor ioni suplimentari ca $(OH)^-$, F^-, Cl^-, O^{-2};

- ***Silicaţii***

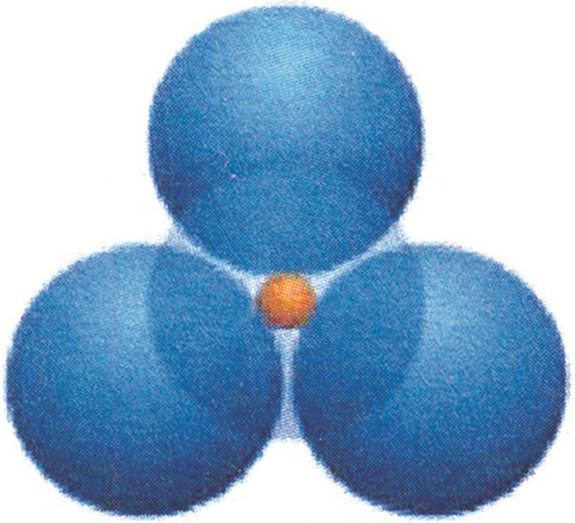
- **mineralele din această grupă au o mare răspândire în natură, constituind peste un sfert din numărul de minerale cunoscute şi aproximativ trei sferturi din masa scoarţei terestre. Unitatea structurală specifică silicaţiilor este tetraedrul de silice, $[SiO_4]^{4-}$.**

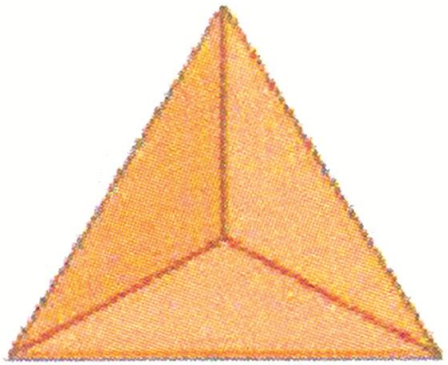
- **Clasificarea silicaţilor are la bază criteriul structural, fiind împărţiţi în *nezosilicaţi* (silicaţi alcătuiţi din tetraedrii solitari de silice, legaţi prin cationi de Ca, Mg, Na, etc., dar nu prin atomi de oxigen ai tetraedrului), *sorosilicaţi* (doi tetredrii de silice legaţi printr-un atom de oxigen aparţinând tetraedrului), *ciclosilicaţi* (o structură ciclică din minim trei tetraedrii de silice, legaţi prin atomi de oxigen), *inosilicaţi* (lanţuri infinite simple – *piroxeni* şi duble – *amfibolili*, de tetraedrii de silice legaţi prin atomi de oxigen), *filosilicaţii* (tetraedrii sunt dispuşi în ochiurile unei reţele plane, hexagoane) şi *tectosilicaţii* (tetraedrii de silice legaţi prin atomi de oxigen sunt dispuşi într-o reţea tridimensională). La valenţele libere ale oxigenului adiţionează ceilalţi cationi şi ioni complexi, formând speciile minerale.**

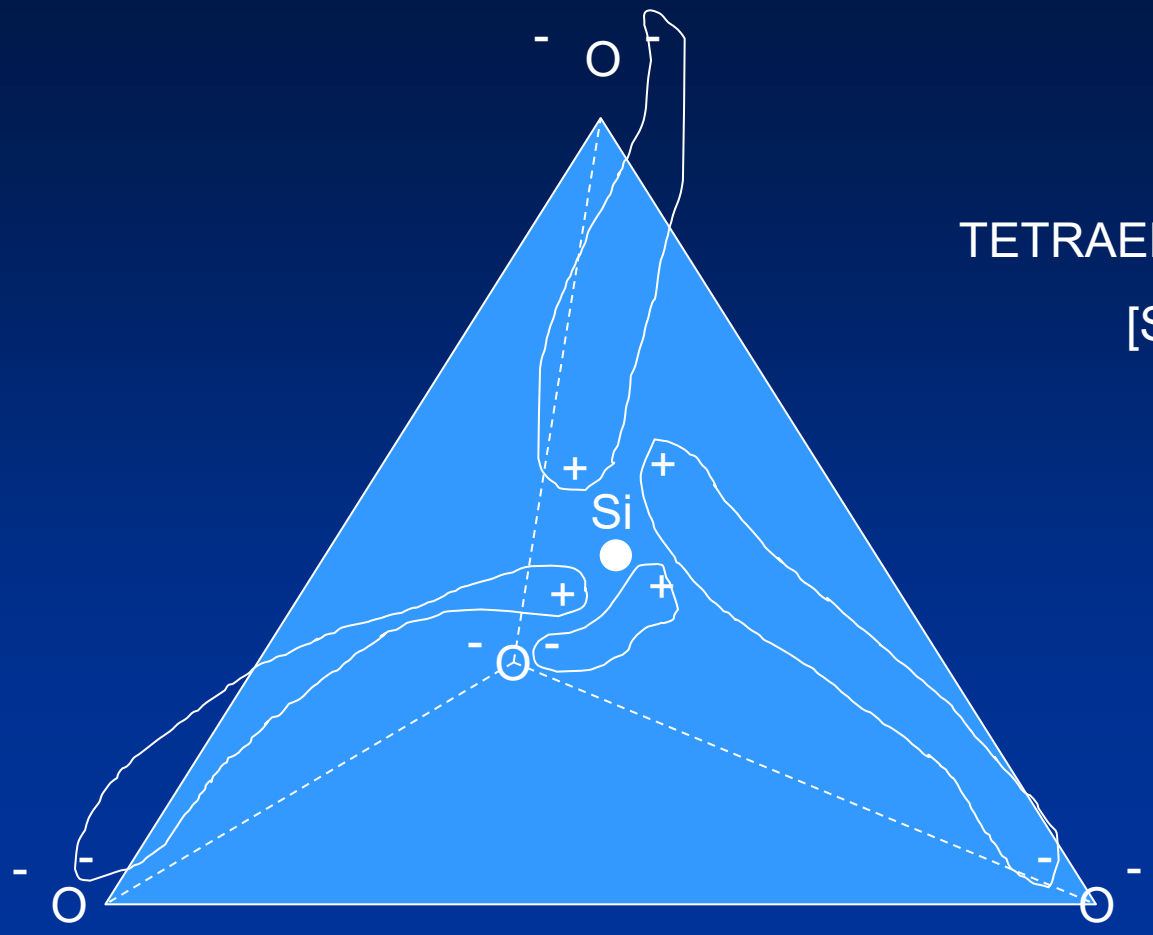
STRUCTURA RETICULARĂ A SILICAŢILOR



Unitatea chimico-structurală a silicaţilor
Tetraedrul de silice – $[SiO_4]^{4-}$







TETRAEDUL DE SILICE

$[SiO_4]^{4-}$

CLASIFICAREA SILICAȚILOR

Nesosilicați

Tetraedrii solitari

$[SiO_4]^{4-}$

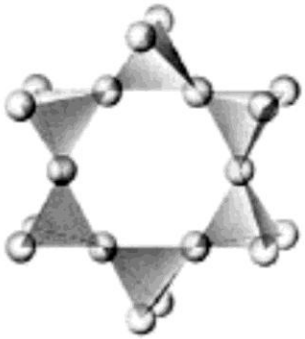
Sorosilicați

Doi tetraedrii solitari, cu un oxigen comun

$[Si_2O_7]^{6-}$

Ciclosilicați

Tetraedrii legați prin câte un anion comun de oxigen, formează bucle (inele) închise (3, 4, 6 tetraedrii).



$[Si_3O_9]^{6-}$

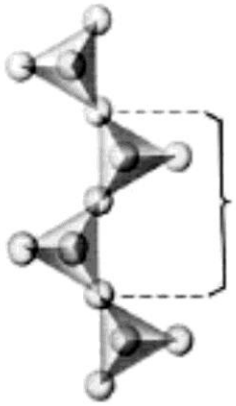
$[Si_4O_{12}]^{8-}$

$[Si_6O_{18}]^{12-}$

Inosilicați

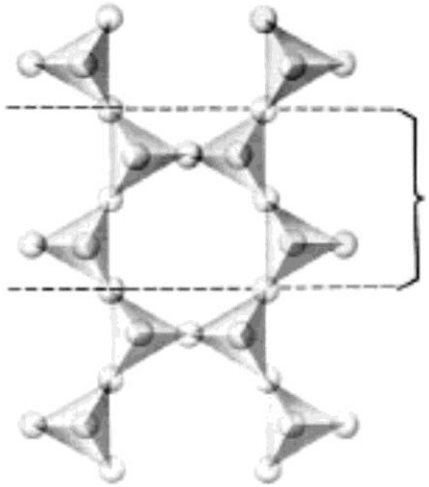
-piroxeni-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri simple, infinite.



$[Si_2O_3]^{2-}$

$[Si_2O_6]^{4-}$



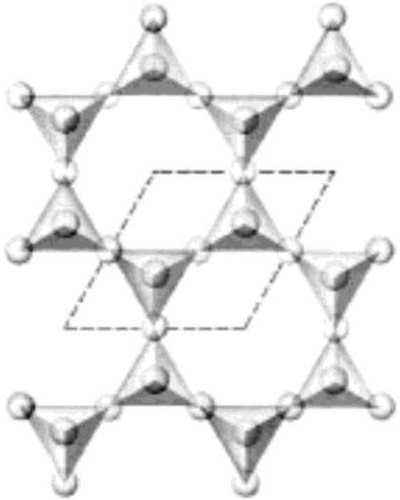
Ionosilicați

-amfiboli-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri duble, infinite.

$[Si_4O_{11}]^{6-}$

$[(Si_4O_{11})(OH)]^{7-}$



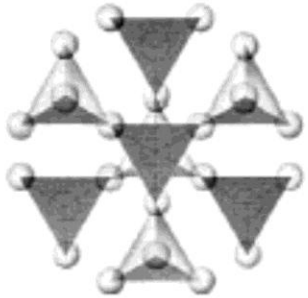
Filosilicați

Tetraedrii legați prin câte un anion comun de oxigen, formează lstructuri planare, infinite.

$[Si_4O_{10}]^{4-}$

$[AlSi_3O_{10}]^{5-}$

$[Al_2Si_2O_{10}]^{6-}$



Tectosilicați

Tetraedrii legați prin câte un anion comun de oxigen, prin toate cele 4 vîrfuri, formează rețele tridimensionale.

$[SiO_2]$, $[AlSiO_4]^-$

$[AlSi_3O_8]^-$, $[Al_2Si_2O_8]^{2-}$

- ***Elemente native***

Gold

Gold from

Yukon River, Alaska

GENERAL INFORMATION

Au

Strunz number: 1.AA.3

Origin of Name: from German geld

Synonyms

Varieties: electrum (Ag-rich var.), porpezite (Pd-rich var.), rhodite (Rh-rich var.)

Series with silver


1 cm

Gold (wire)

Ground Hog mine, Gilman, Eagle Co., Colorado

1 cm

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1 cm

©Wendell Wilson

Gold on Quartz

California

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1 cm

©Wendell Wilson

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Gold

Santa Elena, Venezuela

1 cm

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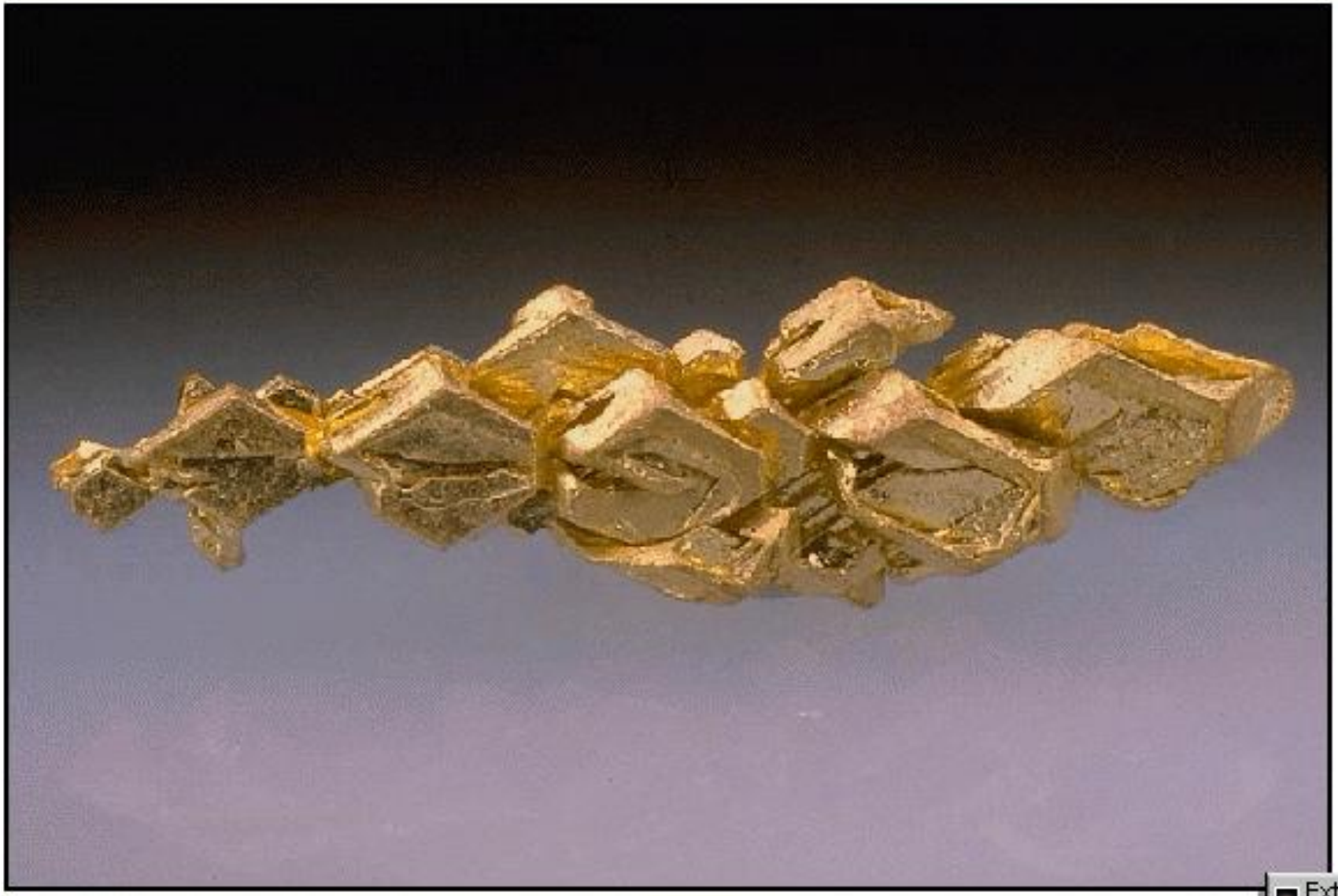
Gold

Magenta mine, Grass Valley, Nevada Co., Calif.



Gold

Mt. Kare, Papua New Guinea

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Gold (arborescent)

Hope's Nose, Torquay, Devon, England

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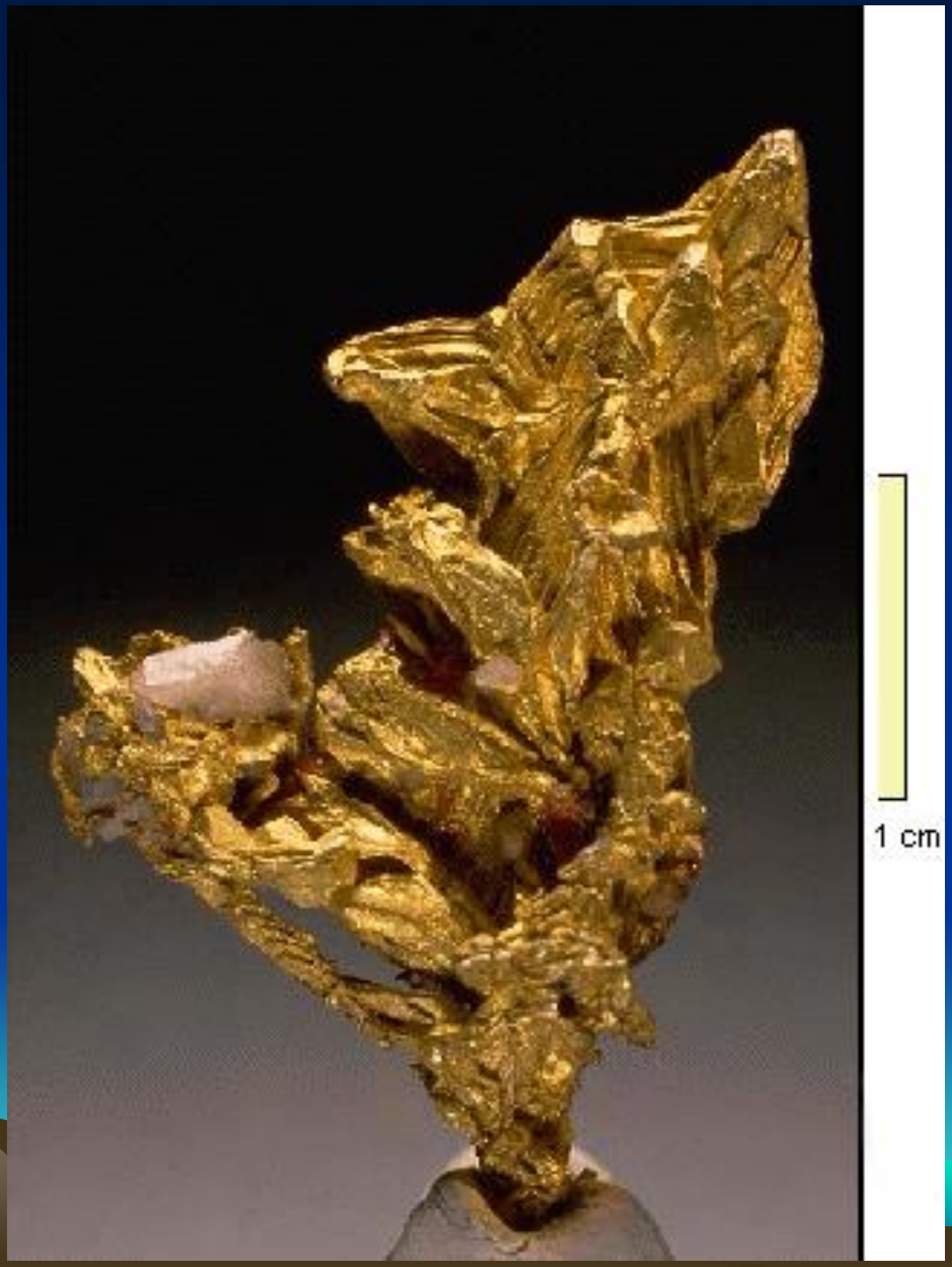
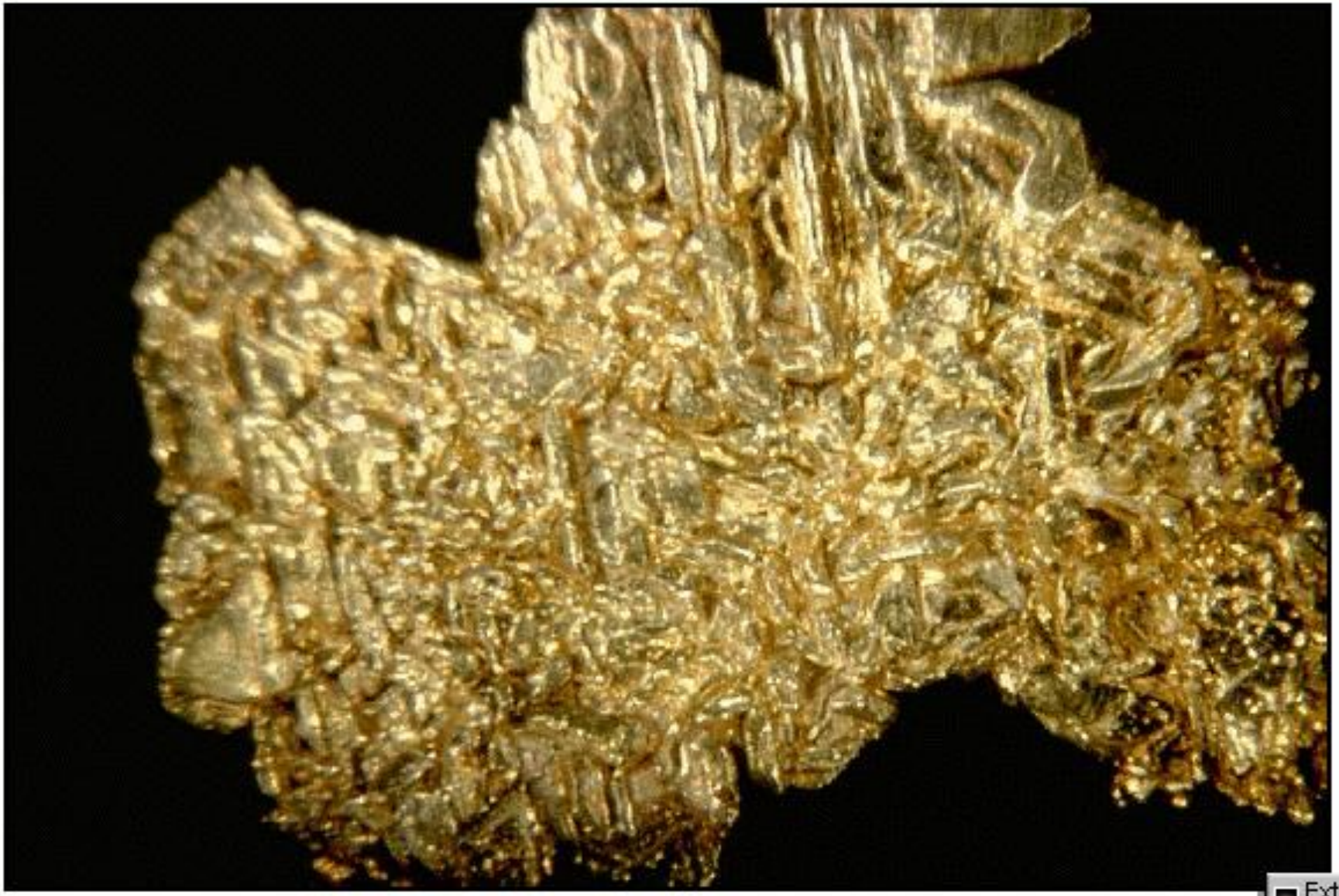

1 cm



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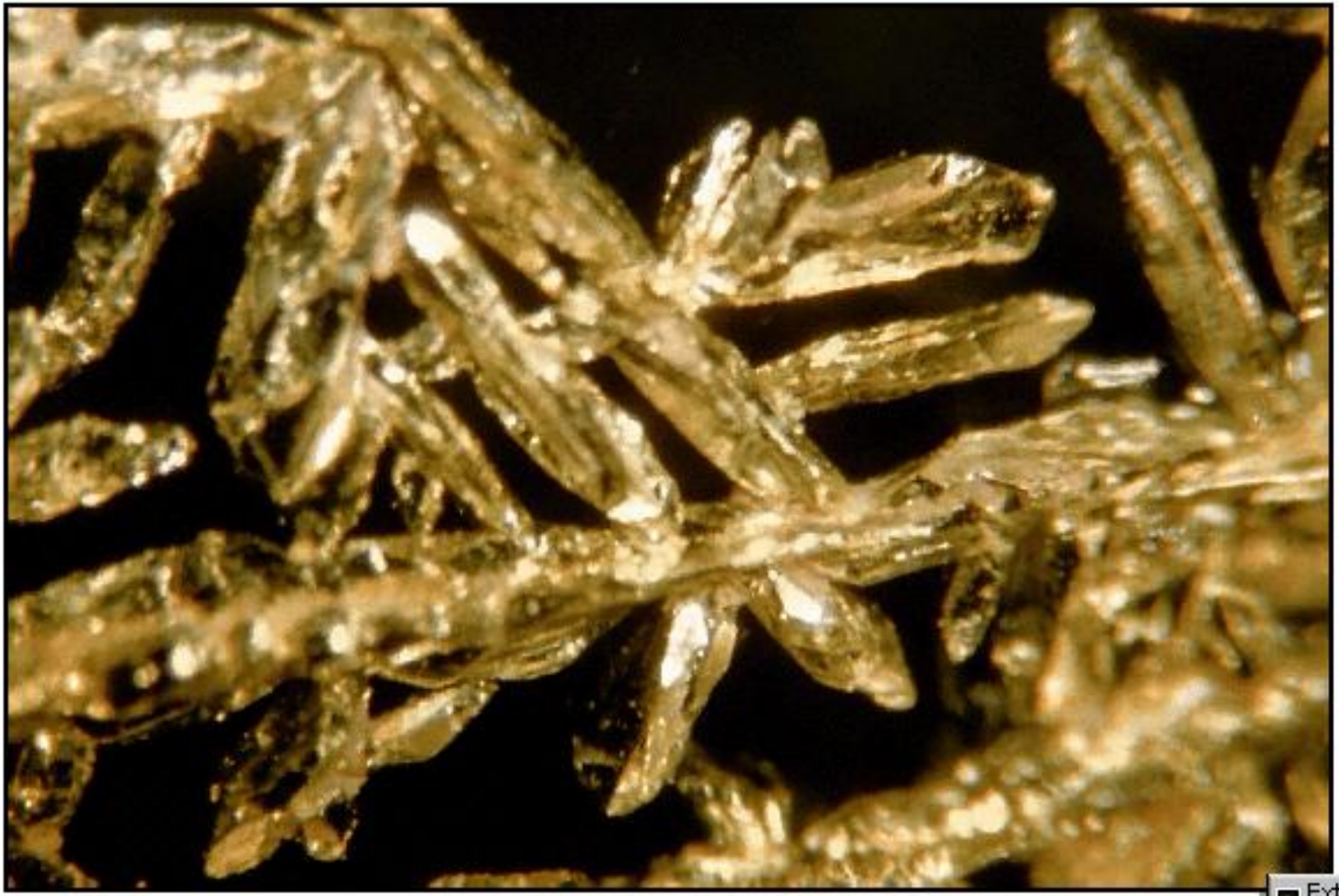
Gold

Breckenridge, Summit Co., Colorado



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Gold (arborescent)

Kittitas County, Washington

Gold

British Columbia, Canada

1 cm

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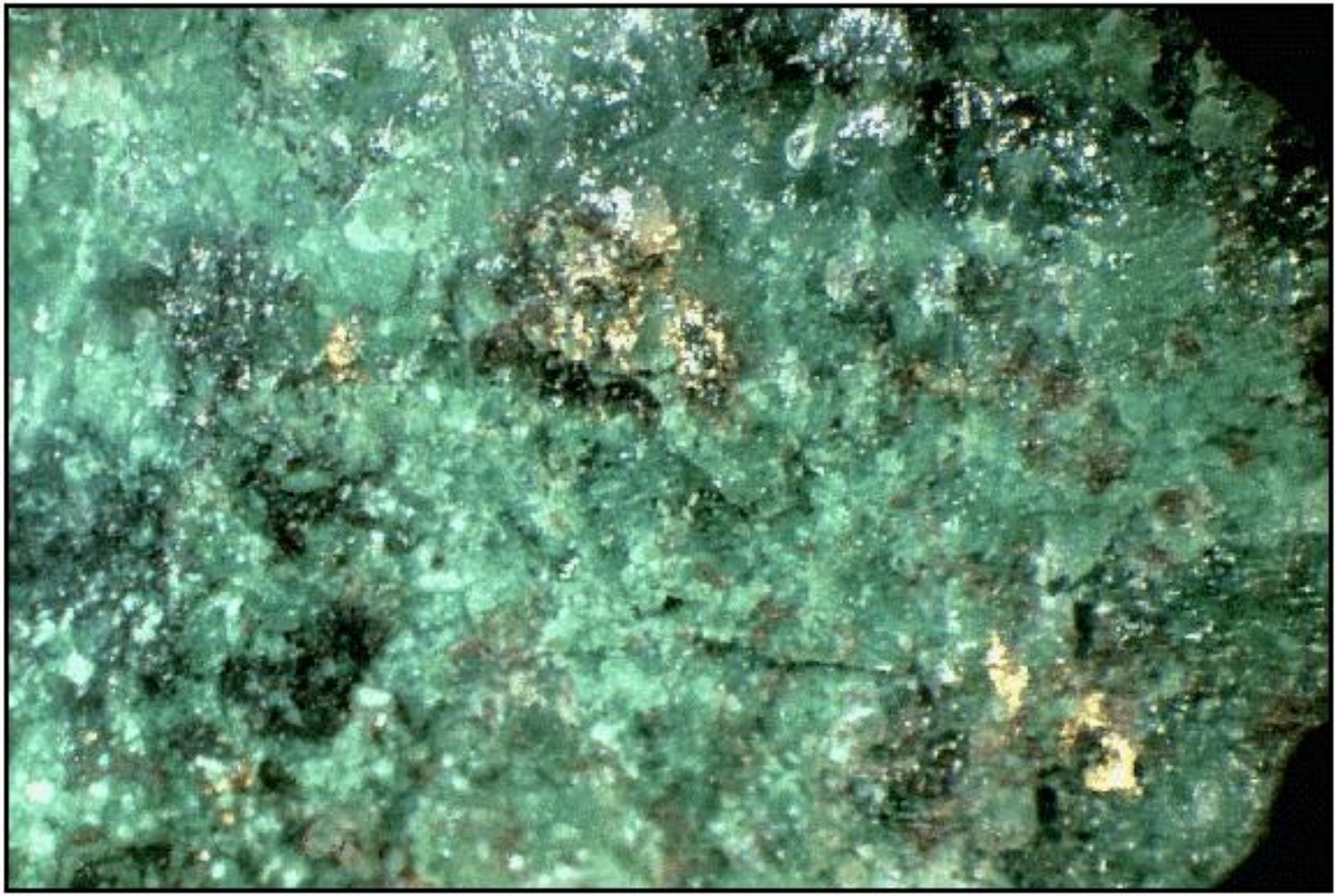

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Gold in Quartz

Found along Oregon Trail in 1850's

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Gold

Musonoi mine, Kolwezi, Shaba, Dem.Rep.Congo

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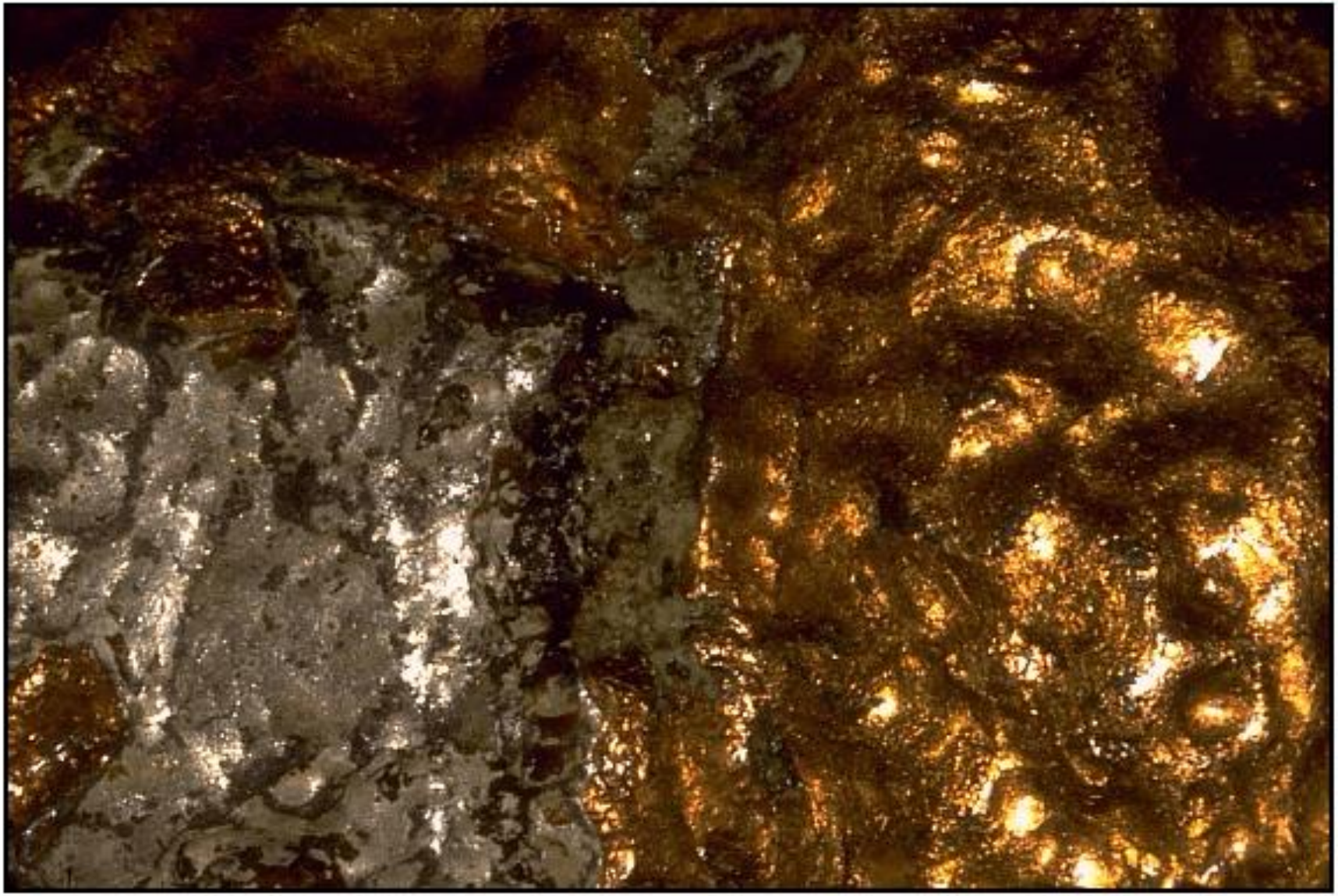

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Gold and Silver

Michigan

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Gold

Tallapoosa City, Tallapoosa Co., Alabama

1 mm

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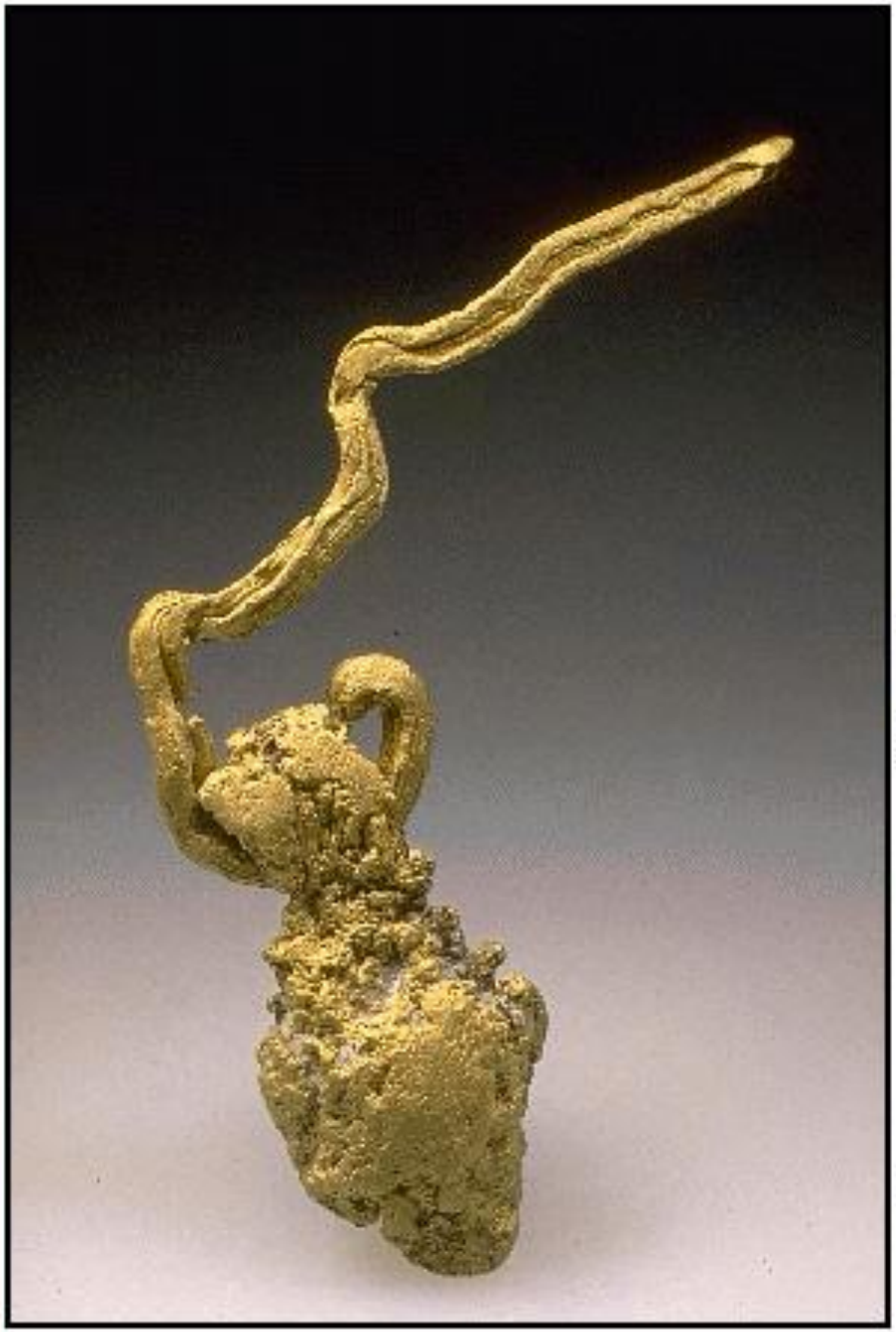

Gold (wire)

Masabe Arroyo dist., Philippines

1 cm

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Gold

Cavca, Colombia

1 cm

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Argint: Ag


1 cm


1 cm

Copper

Copper from

Calumet mine, Houghton Co., Michigan

GENERAL INFORMATION

Cu

Strunz number: 1.AA.1

Origin of Name: from Latin cuprum = metal from Cyprus

Synonyms

Varieties: whitneyite (As-rich var.)


1 cm


1 cm

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Copper

Mohawk mine, Keweenaw Co., Michigan

Copper

Bisbee, Cochise Co., Arizona

1 cm

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Copper

Phoenix mine, Keweenaw Co., Michigan

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Copper

Kelly mine, Kelly, Socorro Co., New Mexico

1 cm

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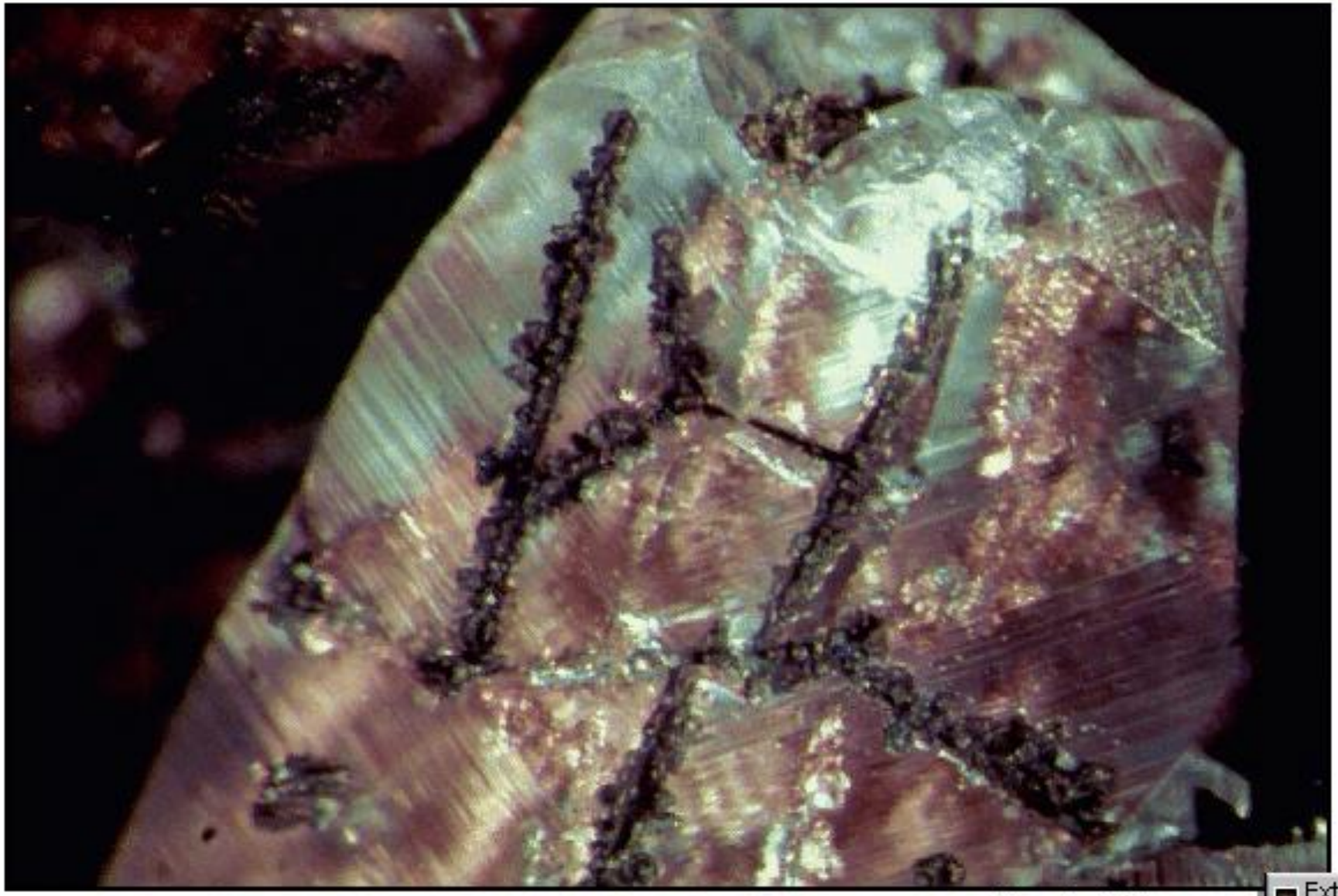

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Copper on and in Calcite

Sonora, Mexico

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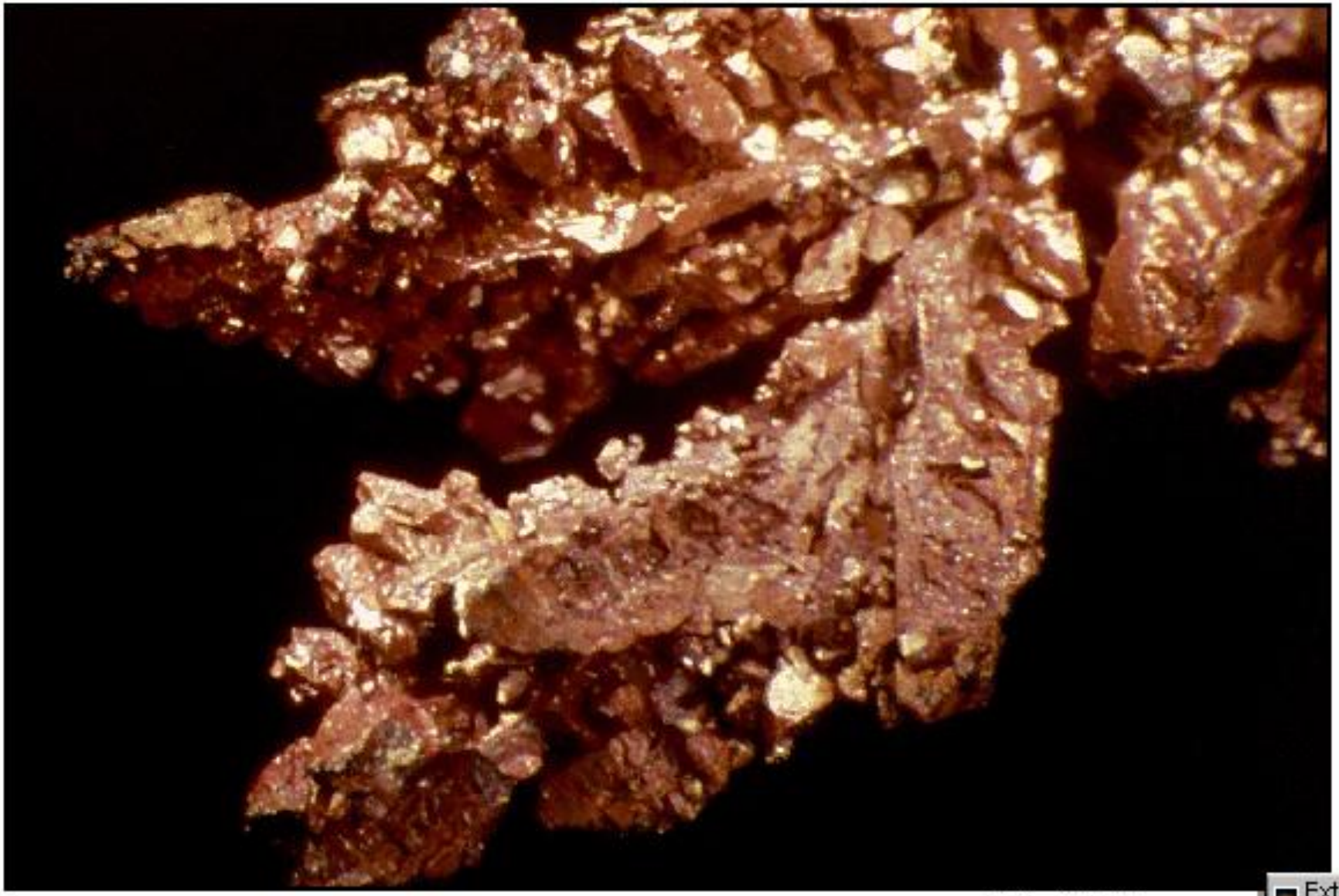

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Copper

Kennecott Pit, Ray, Pinal Co., Arizona

Diamant: C

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Diamond (cyclic twin)

Kasai Prov., Dem. Rep. of Congo

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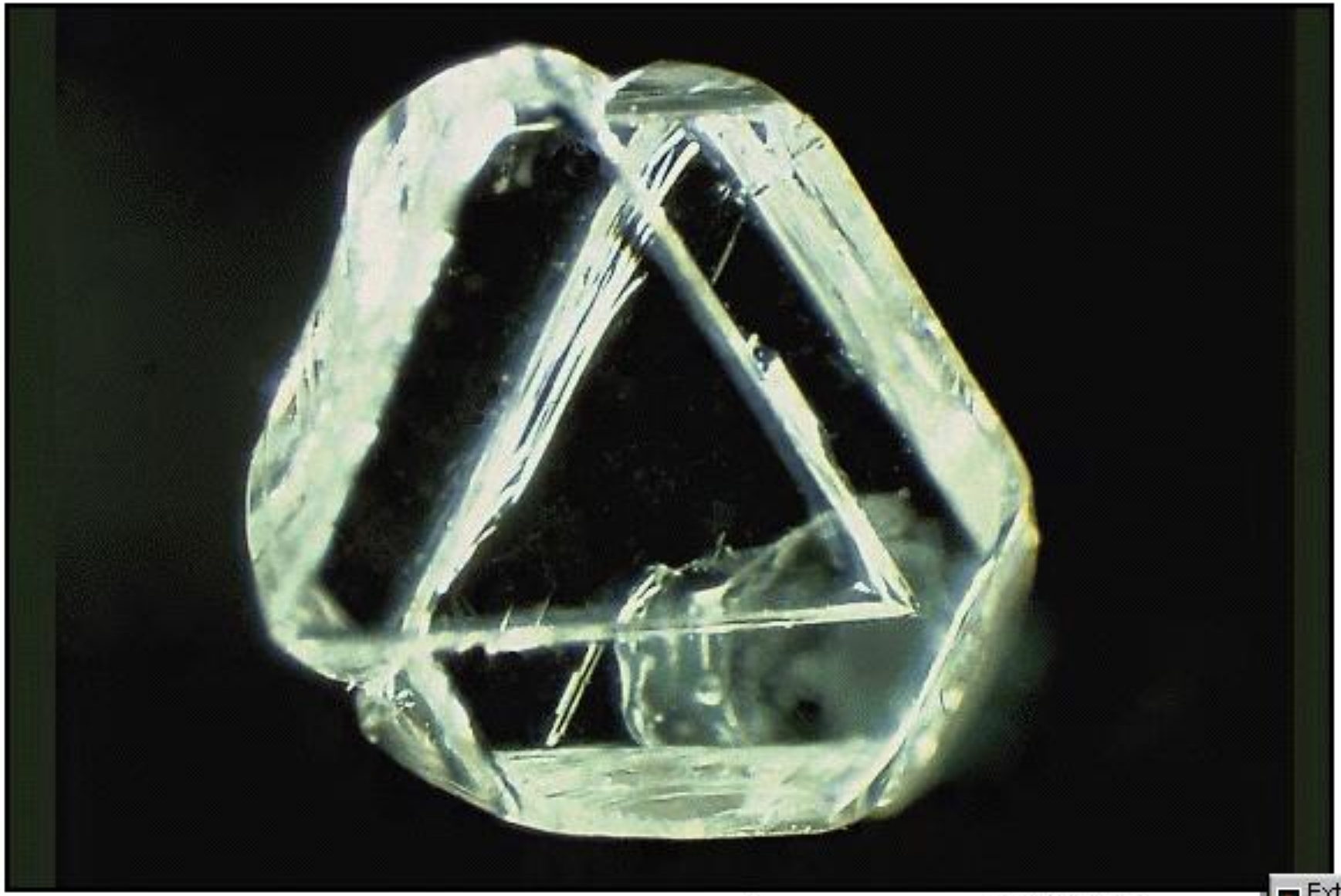
Diamond

Kasai Prov., Dem. Rep. of Congo


1 mm



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Diamond (spinel twin / macle)

Kimberley, Northern Cape, South Africa

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Diamond

Kimberley, Northern Cape, South Africa

Palladium

Palladium from

Corrego Bom Sucesso, Serro, M.G., Brazil

GENERAL INFORMATION

Pd

Strunz number:	1.AG.2
Origin of Name:	for the asteroid Pallas, discovered at about the same time
Synonyms Varieties:	

Platina

©Tony Kampf

Platinum

Trinity River, Trinity Co., California

Plumb

Bismuth

Bismuth from

Reinsburg, near Schneeberg, Saxony, Germany

GENERAL INFORMATION

Bi

Strunz number: 1.CA.3

Origin of Name: from German, probably for white mass

Synonyms Varieties:

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Bismuth

Schneeberg, Saxony, Germany

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- ***Sulfuri - sulfosăruri***

Acanthite

Acanthite from
Bolivia

GENERAL INFORMATION

Ag_2S

Strunz number: 2.BA.3

Origin of Name: from Greek for thorn because of shape of crystals

Synonyms
Varieties:

Dimorphous with argentite, which is stable only above 177°C

1 cm

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Acanthite

Saxony, Germany

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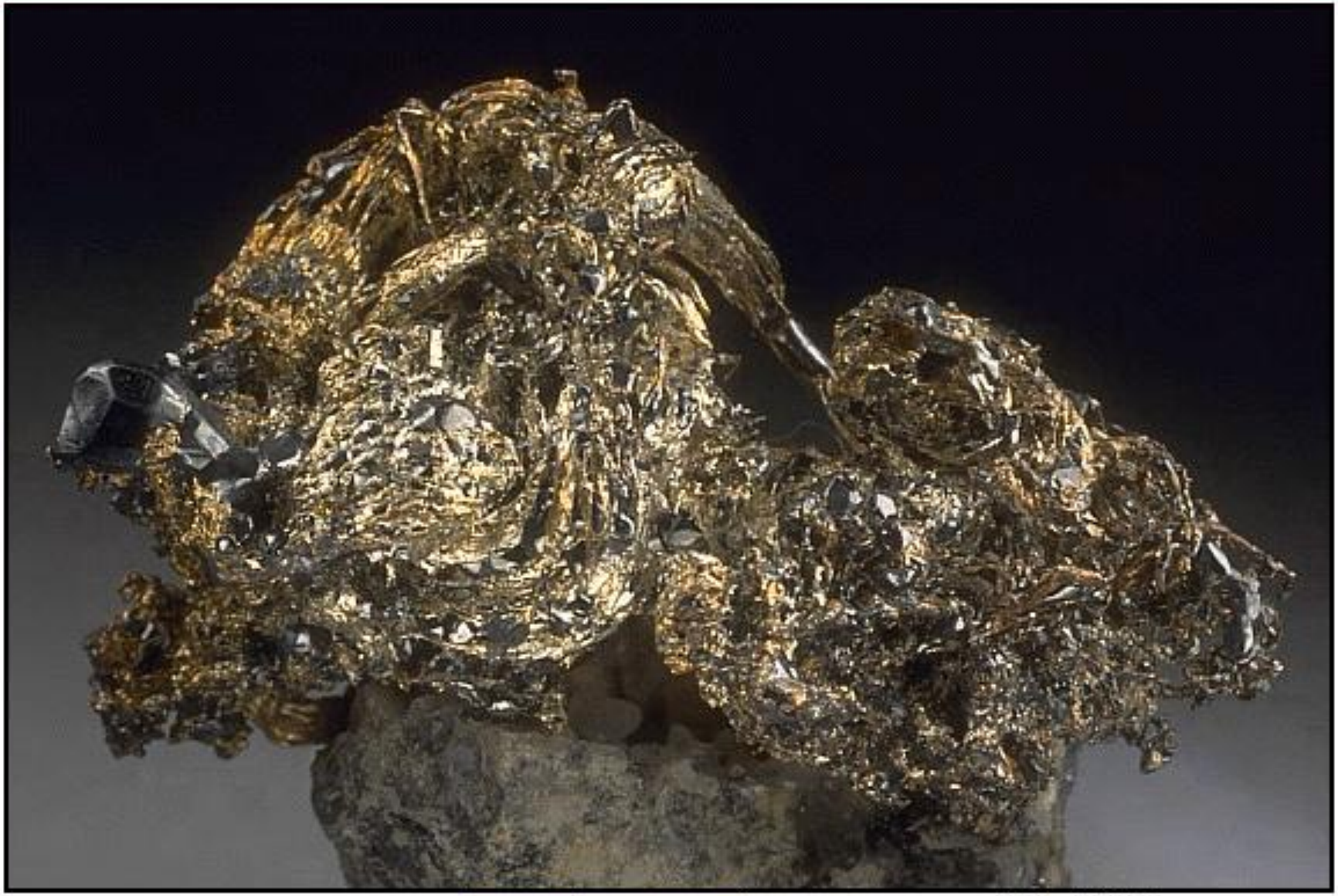

1 cm

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Acanthite on Silver

Uchucchacua mine, Lima Dept., Peru

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Realgar

Realgar from

Getchell mine, Golconda, Humboldt Co., Nevada

GENERAL INFORMATION

As S

Strunz number: 2.KA.1

Origin of Name: from Arabic Rahj al ghar = powder of the mine

Synonyms

Varieties:

Dimorphous with pararealgar; alters to yellow-orange powder on exposure to light

1 cm

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Realgar with Calcite

Shimen, Hunan Prov., China

Orpiment

Orpiment from

Quiruvilca, La Libertad Dept., Peru

GENERAL INFORMATION

As_2S_3

Strunz number: 2.KA.2

Origin of Name: from Latin auripigmentum = golden paint

Synonyms

Varieties:

1 cm

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Orpiment with Calcite

Shimen, Hunan Prov., China

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Orpiment

Zarheshuran mine, Takab, Iran

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1 cm

Bornite

Bornite from

Mufulira mine, near Kitwe, Copperbelt, Zambia

GENERAL INFORMATION

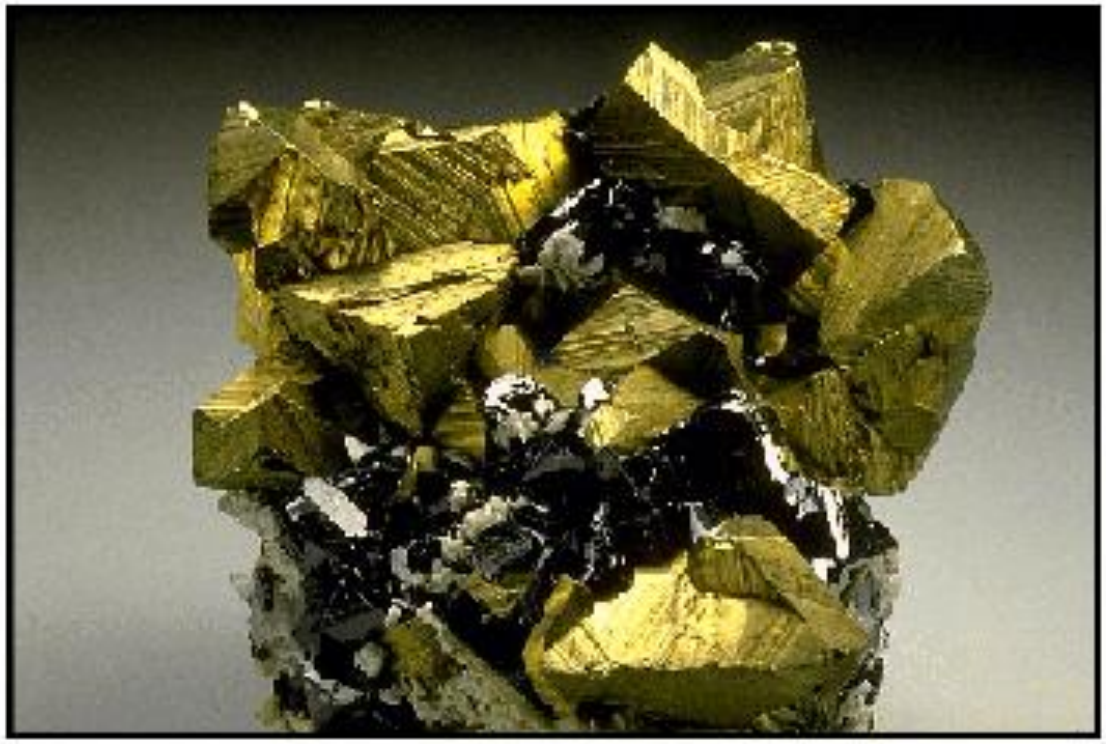
$Cu_5 Fe S_4$

Strunz number: 2.BA.1

Origin of Name: for Ignaz Born, Austrian mineralogist

Synonyms Varieties: erubescite, peacock ore, phillipsine

Chalcopyrite



Chalcopyrite (twins) with Sphalerite from
Camp Bird mine, Ouray, Ouray Co., Colorado

GENERAL INFORMATION

$CuFeS_2$

Strunz number: 2.CB.2

Origin of Name: from composition, copper and pyrite

Synonyms

Varieties:

Series with eskebornite

Chalcopyrite (twin) on Sphalerite

Huaron, Cerro de Pasco, Pasco Dept., Peru

1 cm

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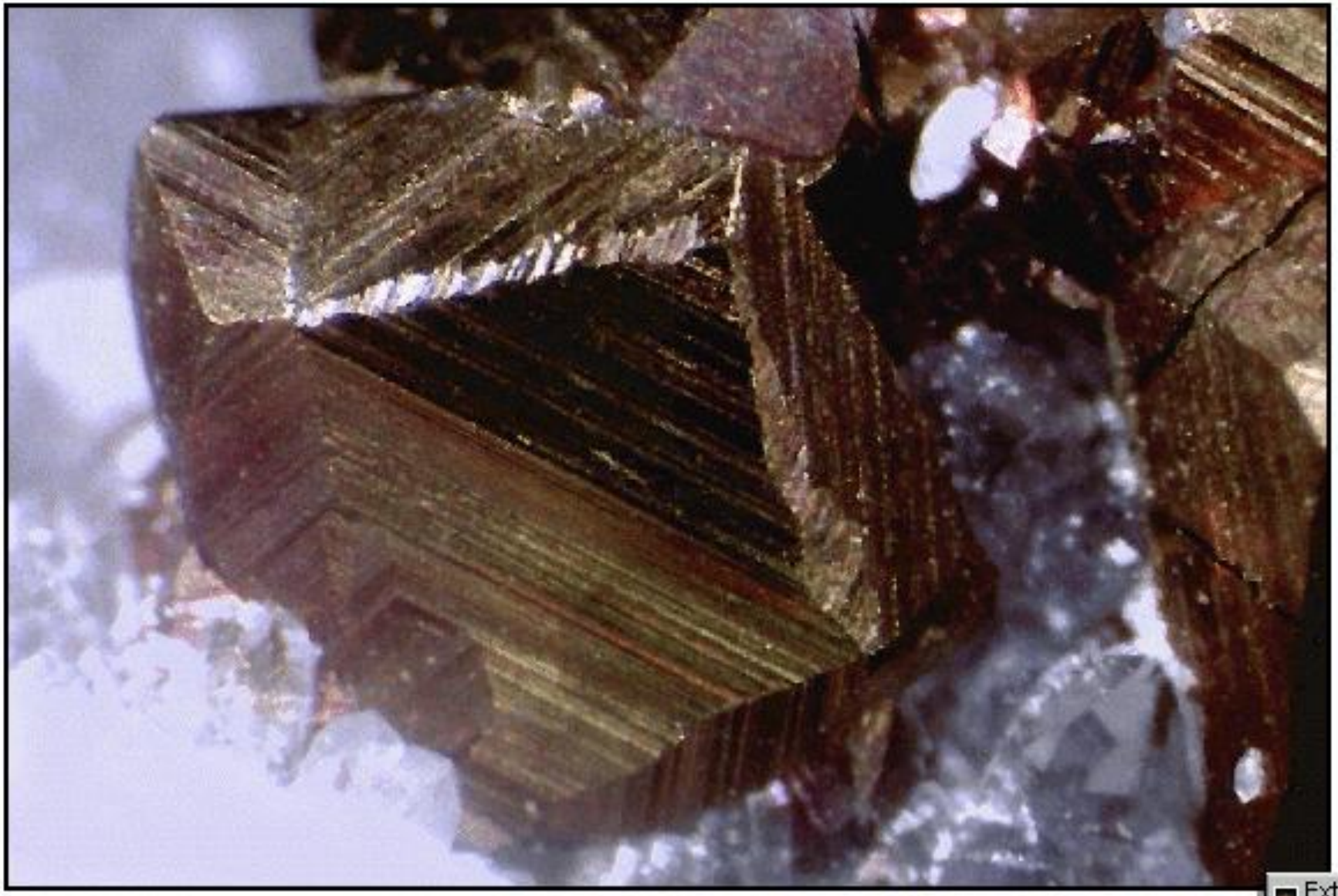

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Extra Images

Chalcopyrite (twin) on Quartz

Naica, Chihuahua, Mexico

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Pyrite

Pyrite from

Nanisivik mine, Baffin Is., Northwest Terr., Canada

GENERAL INFORMATION

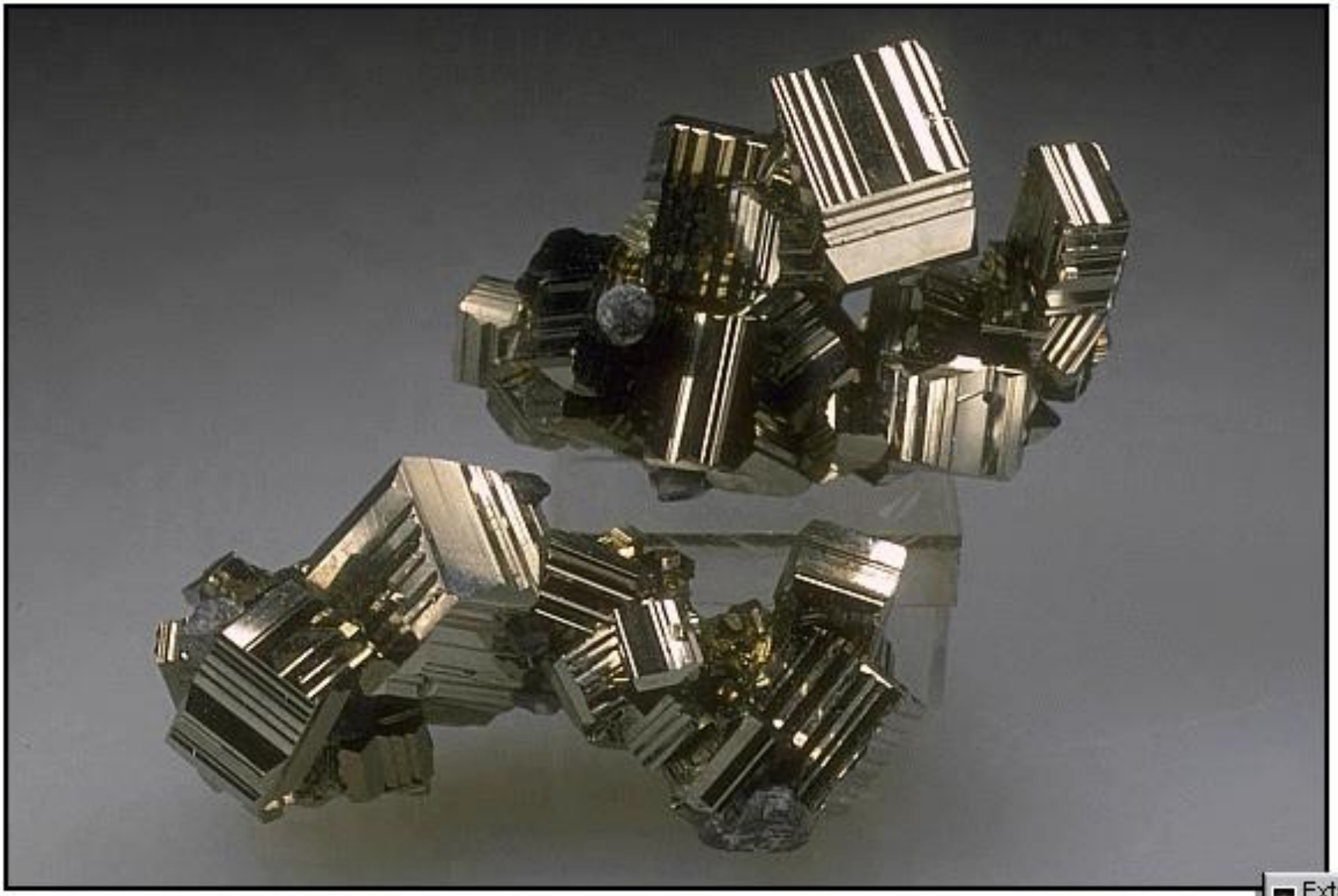
$Fe S_2$

Strunz number: 2.EB.1

Origin of Name: from Greek pyr = fire

Synonyms Varieties: bravoite (Ni-rich var.)

Dimorphous with marcasite; series with cattierite, ferroselite



1 cm

©Wendell Wilson

Extra Images

Pyrite

Daly-Judge mine, near Park City, Wasatch Co., Ut.

1 cm

©Wendell Wilson

Pyrite

Black Pine mine, Philipsburg, Granite Co., Mont.

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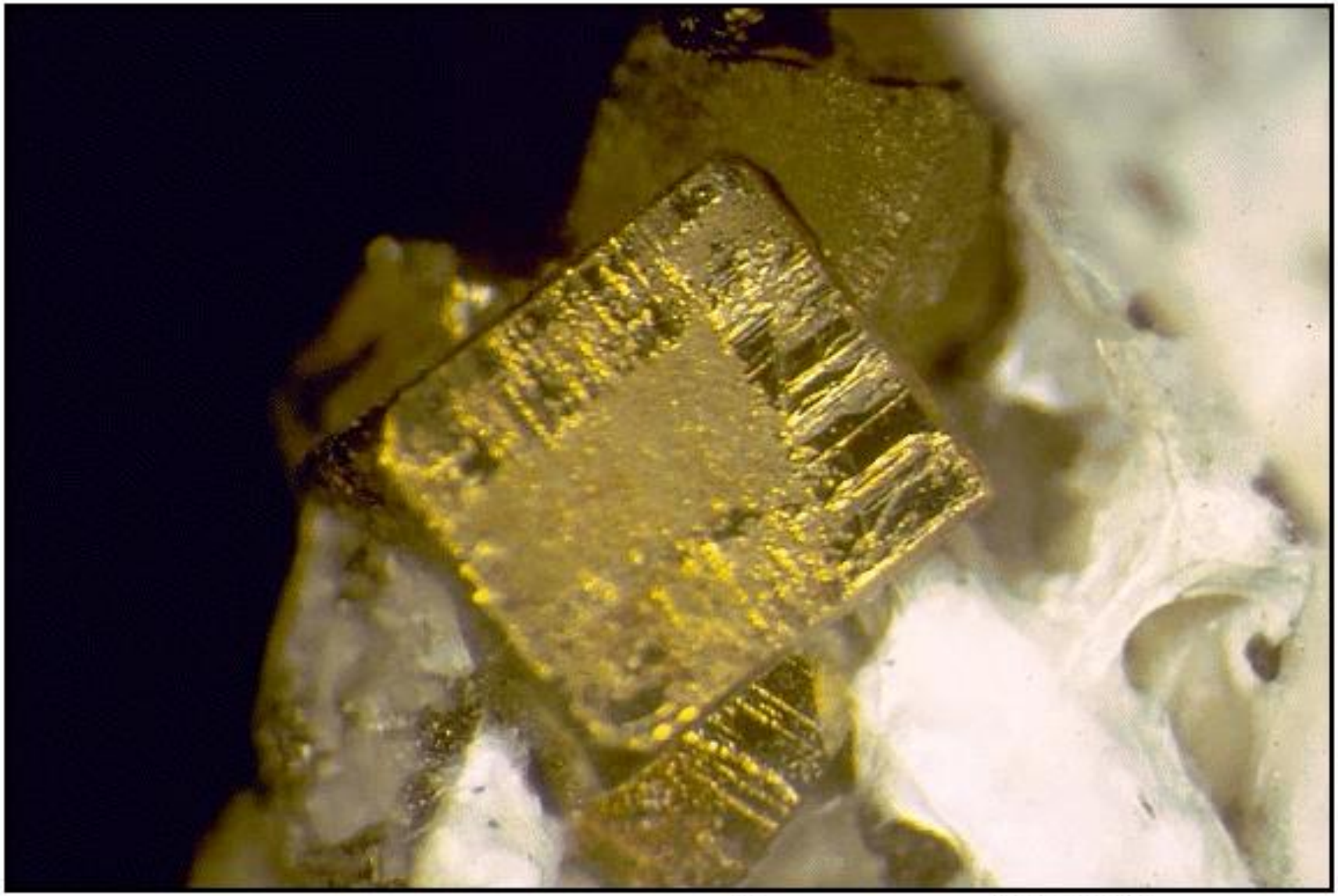
5 cm

©Wendell Wilson

Extra Images

Pyrite with Quartz

Huanzala mine, Huallanca dist., Huanuco Dept., Peru



©Lou Perloff

Pyrite

Fort Lee, Bergen Co., New Jersey

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©Lou Perloff

Pyrite (Iron Cross twin)

Vlotho on Weser, North Rhine-Westph., Germany

Pyrite

Isle of Elba, Tuscany, Italy

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Petzite

Petzite on Gold from

Cash mine, Gold Hill, Boulder Co., Colorado

GENERAL INFORMATION

$Ag_3 Au Te_2$

Strunz number: 2.BA.8

Origin of Name: for W. Petz, mineral chemist

Synonyms Varieties:

Petzite on Gold

Cash mine, Gold Hill, Boulder Co., Colorado

Specimen Data
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Wurtzite

Wurtzite from
Llallagua, Potosi Dept., Bolivia

GENERAL INFORMATION

Zn S

Strunz number: 2.CB.6

Origin of Name: for C. Wurtz, French chemist

Synonyms Varieties:

Data are for wurtzite-2H; there are also -4H, -6H, -8H, -15R, -18R and -21R polytypes; trimorphous with matraite and sphalerite; fluoresces orange under LW

Sphalerite

Sphalerite from
Tiffin, Seneca Co., Ohio

GENERAL INFORMATION

(Zn, Fe) S

Strunz number: 2.CB.1

Origin of Name: from Greek for treacherous

Synonyms Varieties: blackjack, blende, cleiophane (pale-colored var.), marasmolite, marmatite (Fe-rich var.), zincblende

Trimorphous with matraite and wurtzite; also from a meteorite

1 cm

©Wendell Wilson

Extra Images

Sphalerite (spinel twin) with Galena

Iron Cap mine, Aravaipa dist., Graham Co., Ariz.

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Galena

Galena on Johannsenite from
Iron Cap mine, Aravaipa dist., Graham Co., Ariz.

GENERAL INFORMATION

Pb S

Strunz number: 2.CD.2

Origin of Name: from Latin for lead ore

Synonyms
Varieties: galenite, bleiglanz

Series with clausthalite

1 cm

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Extra Images

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Galena

Madan district, Rhodope Mts., Bulgaria

©Wendell Wilson

Galena

Picher, Ottawa Co., Oklahoma

Cinnabar

Cinnabar on Calcite from China

GENERAL INFORMATION

Hg S

Strunz number: 2.CD.5

Origin of Name: from Persian zinjifrah = dragon's blood

Synonyms Varieties:

Trimorphous with metacinnabar and hypercinnabar

Stibnite

Stibnite from

Taxco, Guerrero, Mexico

GENERAL INFORMATION

Sb_2S_3

Strunz number: 2.DB.1

Origin of Name: from Greek stimmi and Latin stibi, names for metal

Synonyms Varieties: antimonite

Dimorphous with metastibnite

Stibnite with Calcite

Kadamdzhai, Osh Oblast, Kyrgyzstan

5 cm

©Wendell Wilson

Stibnite

White Caps mine, Manhattan, Nye Co., Nevada

1 cm

©Wendell Wilson

- ***Oxizii şi hidroxizii***

Hematite

Hematite from

Framont, Vosges Alpes, Alsace, France

GENERAL INFORMATION

$Fe_2 O_3$

Strunz number: 4.CC.1

Origin of Name: from Greek aima = blood

Synonyms Varieties: martite (replacing magnetite), specularite (micaceous var.), turgite, oligiste iron, persian red

Dimorphous with maghemite

©Wendell Wilson

Hematite after Siderite with Quartz

Pike's Peak, Colorado

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Hematite

Wessels mine, Kuruman, No.Cape, South Africa

1 cm

©Wendell Wilson

Goethite and Hematite coating Quartz

Graves Mt., Washington, Lincoln Co., Georgia

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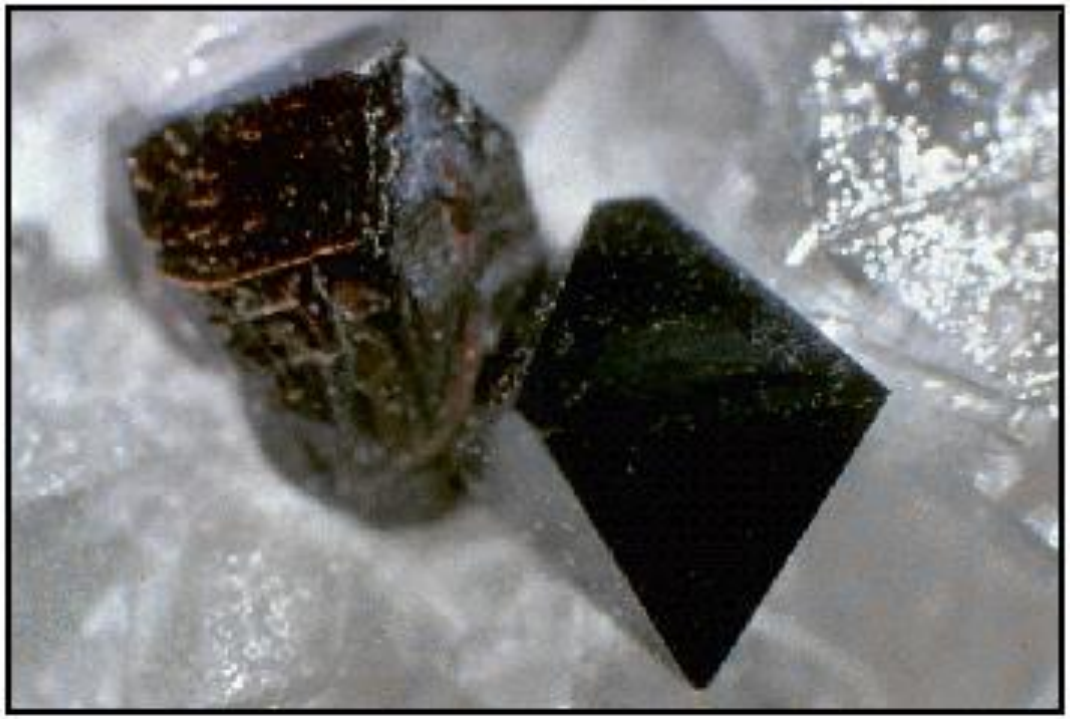
Magnetite



Magnetite (on right) and Ilmenite from
New Idria dist., San Benito Co., California

GENERAL INFORMATION

$Fe\,Fe_2\,O_4$

Strunz number: 4.BB.1

Origin of Name: after locality; lands of ancient Magnetes, Thessaly, Greece,

Synonyms

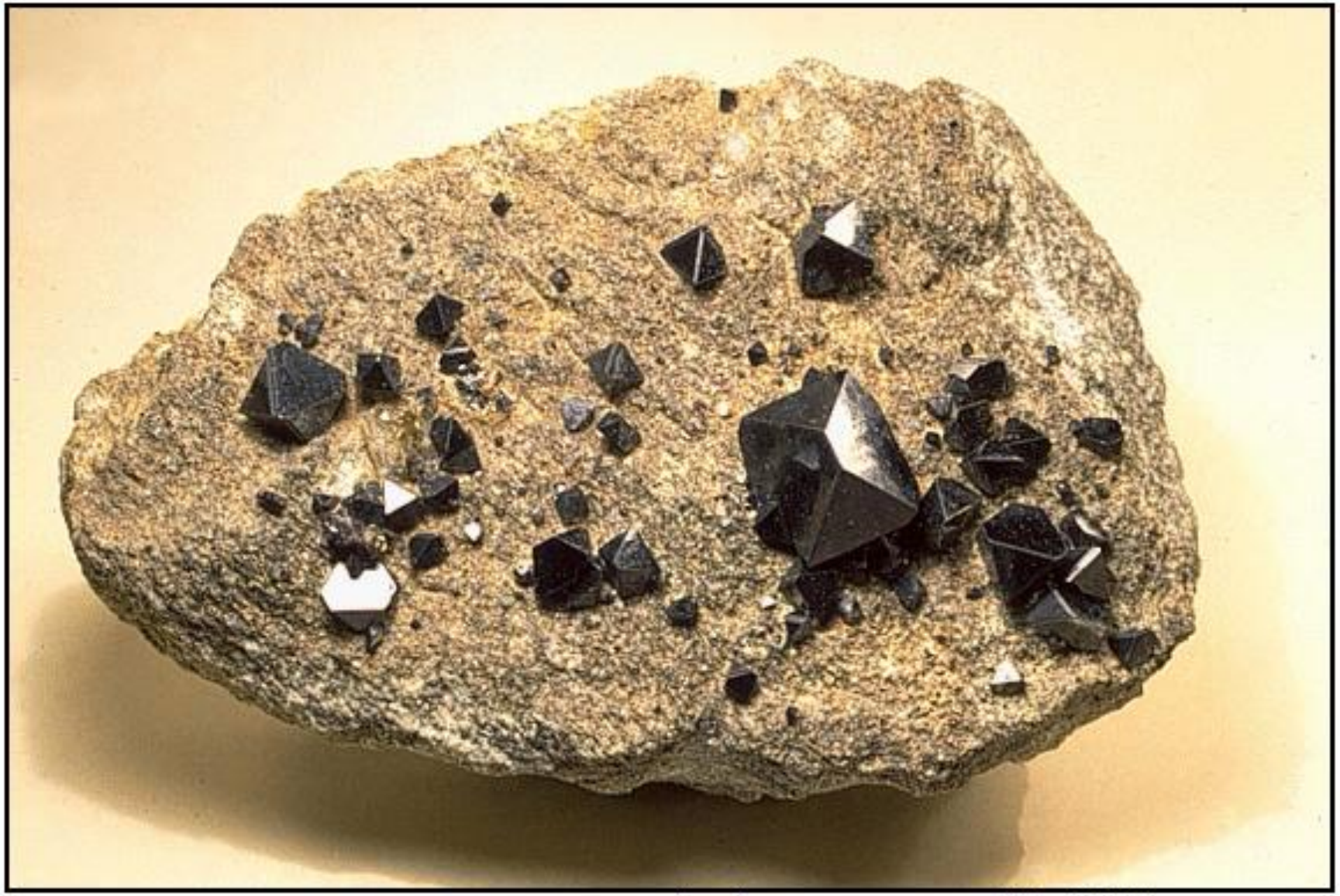
Varieties: heraclion, ishkulite (Cr-rich var.), lodestone (magnetic var.)

Series with jacobsite and with magnesioferrite

©Lou Perloff

Magnetite (penetration twin)

New Idria dist., San Benito Co., California



1 cm

©Wendell Wilson

Magnetite

Binntal, Valais, Switzerland

Ilmenite

Ilmenite on/in Quartz from
Litchfield, Litchfield Co., Connecticut

GENERAL INFORMATION

$Fe\ Ti\ O_3$

Strunz number: 4.CD.1

Origin of Name: after locality; Ilmen Mountains, Russia

Synonyms

Varieties:

Series with geikielite and pyrophanite

Corundum

Corundum (ruby) on Calcite from
Jegdalek, Kabul Prov., Afghanistan

GENERAL INFORMATION

Al_2O_3

Strunz number: 4.CC.1

Origin of Name: from an old East Indian name for the mineral

Synonyms

Varieties: ruby (red gem var.), sapphire (non-red gem var.), emery (impure var.)

Sometimes fluoresces under SW and LW

1 cm

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Extra Images

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Corundum (ruby)

Franklin, Sussex Co., New Jersey

©Wendell Wilson

Corundum (ruby; rough and cut)

Balangoda, Sabaragamuwa Prov., Sri Lanka

Cassiterite

Cassiterite from

Merek, Khabarovsk Kray, Russia

GENERAL INFORMATION

$Sn O_2$

Strunz number: 4.DD.1

Origin of Name: from Greek for tin

Synonyms Varieties: ainalite (Ta-rich var.), wood tin (colloform var.), stannite, varlamoffite (Fe3+-rich var.)

©Lou Perloff

Cassiterite on Quartz

Bennett quarry, Buckfield, Oxford Co., Maine

Cassiterite (twin) on Muscovite

Huya mine, Sichuan Prov., China

1 cm

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Cuprite

Cuprite on Smithsonite from
Tsumeb mine, Tsumeb, Namibia

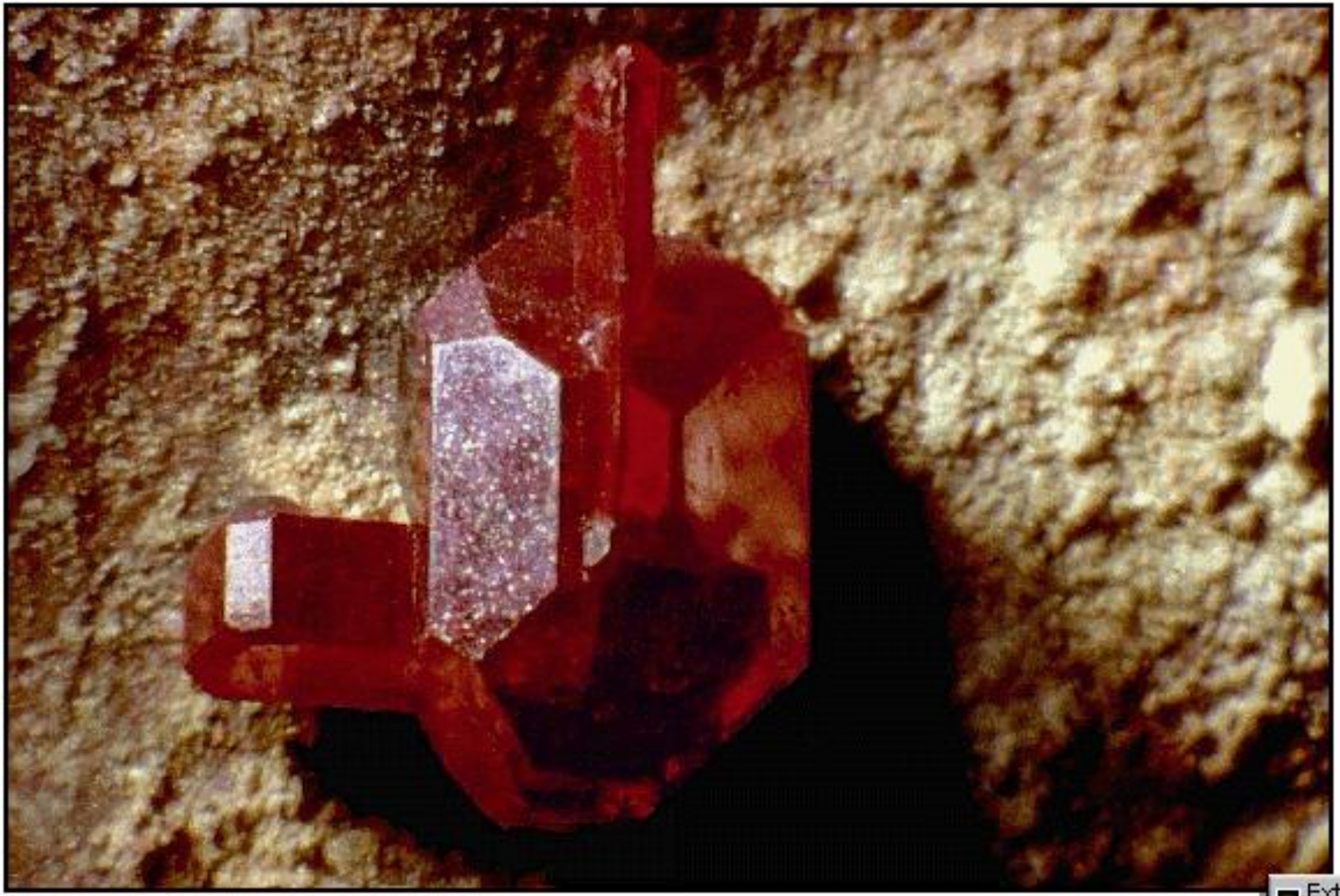
GENERAL INFORMATION

Cu_2O

Strunz number: 4.AA.1

Origin of Name: from Latin for copper

Synonyms
Varieties: chalcotrichite (capillary var.)



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Extra Images

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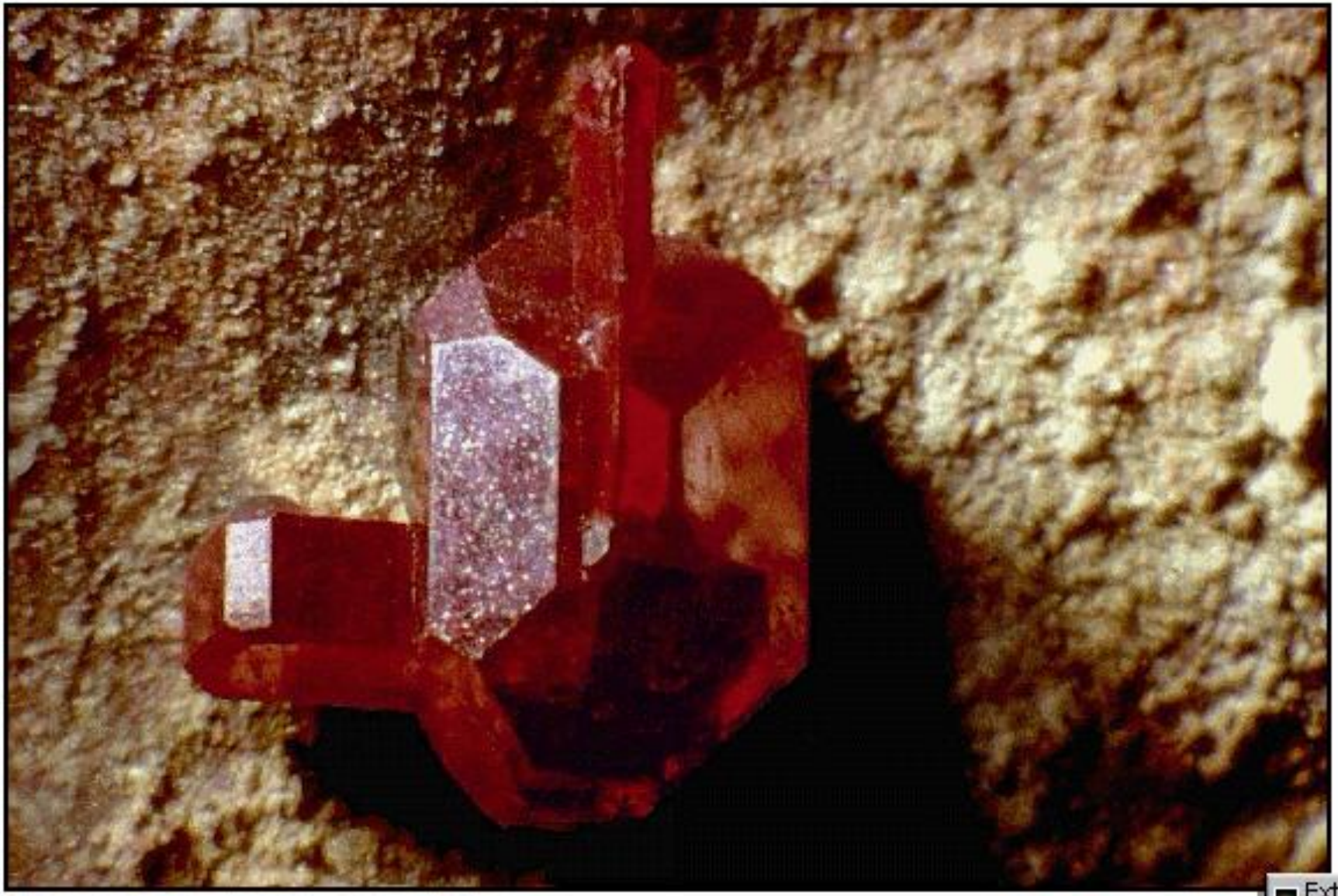
Cuprite

Ray mine, Ray, Pinal Co., Arizona

Cuprite on Copper

Tsumeb mine, Tsumeb, Namibia

©Lou Perloff



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Extra Images

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Cuprite

Ray mine, Ray, Pinal Co., Arizona

Cuprite

Dikuluwe mine, Kolwezi, Shaba, Dem.Rep.Congo

1 cm

©Wendell Wilson

- ***Halogenuri***

Fluorite

Fluorite from

Ft. Wayne, Allen Co., Indiana

GENERAL INFORMATION

CaF_2

Strunz number: 3.AB.1

Origin of Name: from Latin for to flow

Synonyms Varieties: antozonite (dark purple var.), blue john (massive color-banded var.), chlorophane (thermoluminescent var.), fusspat, yttrocerite (Ce,Y-rich var.)

Often fluoresces blue, yellow, white, reddish or pale violet, may thermoluminesce

1 cm

©Wendell Wilson

Extra Images

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Fluorite on Calcite

Naica, Chihuahua, Mexico

1 cm

©Wendell Wilson

Fluorite (rough and cut)

Penfield quarry, Penfield, Monroe Co., New York

Halite

Halite from

Grimberg shaft, near Heringen, Thuringia, Ger.

GENERAL INFORMATION

Na Cl

Strunz number: 3.AA.3

Origin of Name: from Greek hals = salt

Synonyms Varieties: rock salt

Sometimes fluoresces orange, reddish or greenish in UV light due to inclusions of organic or inorganic impurities; soluble in water

1 cm

©Milton Speckels

Halite

Searles Lake, San Bernardino Co., California

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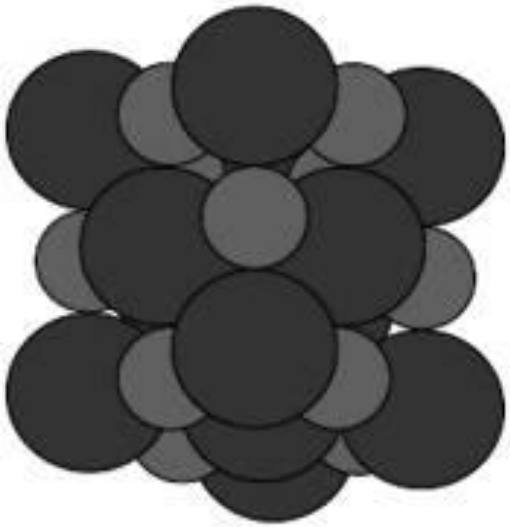
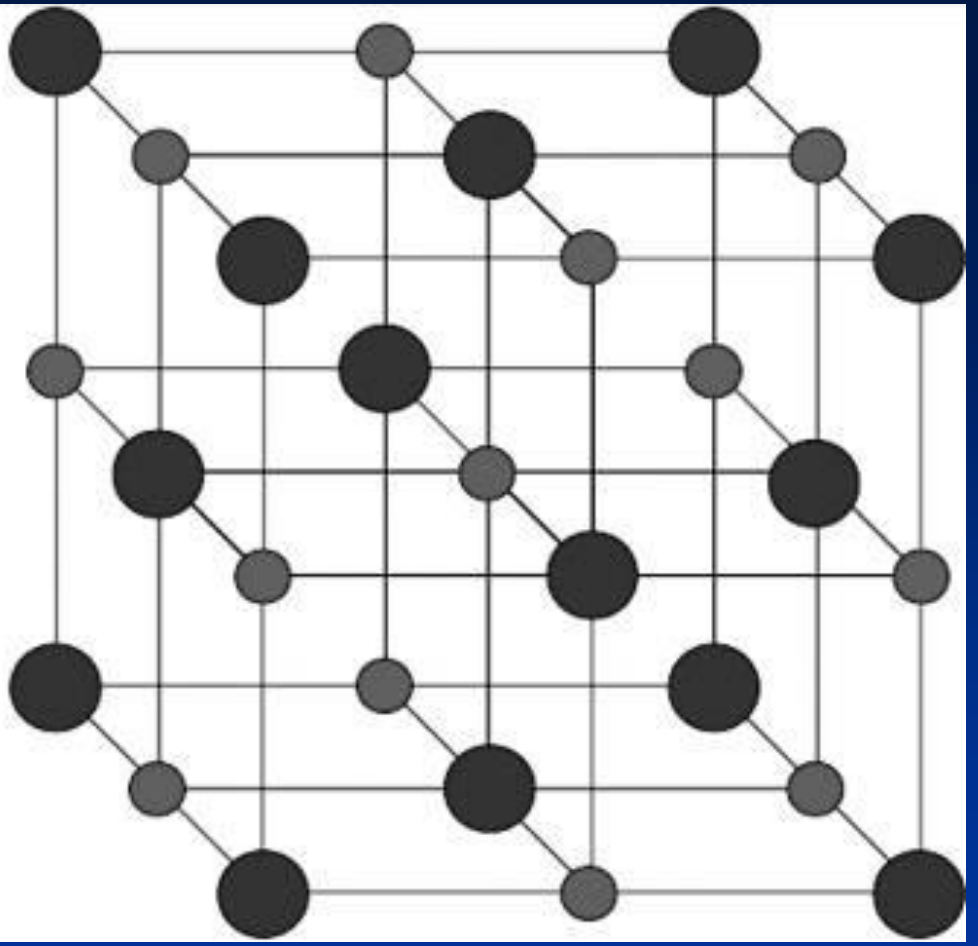
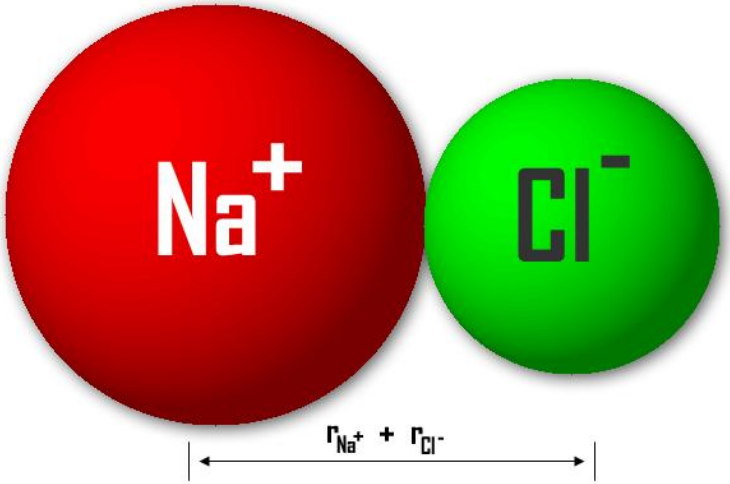
Structura reticulară a halitului







1 cm

©Milton Speckels

Halite

Searles Lake, San Bernardino Co., California

1 cm

©Milton Speckels

Halite

Searles Lake, San Bernardino Co., California

©Wendell Wilson

Halite

Searles Lake, San Bernardino Co., California

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- ***Carbonaţii***

Calcite

Calcite from

Elmwood mine, Carthage, Smith Co., Tennessee

GENERAL INFORMATION

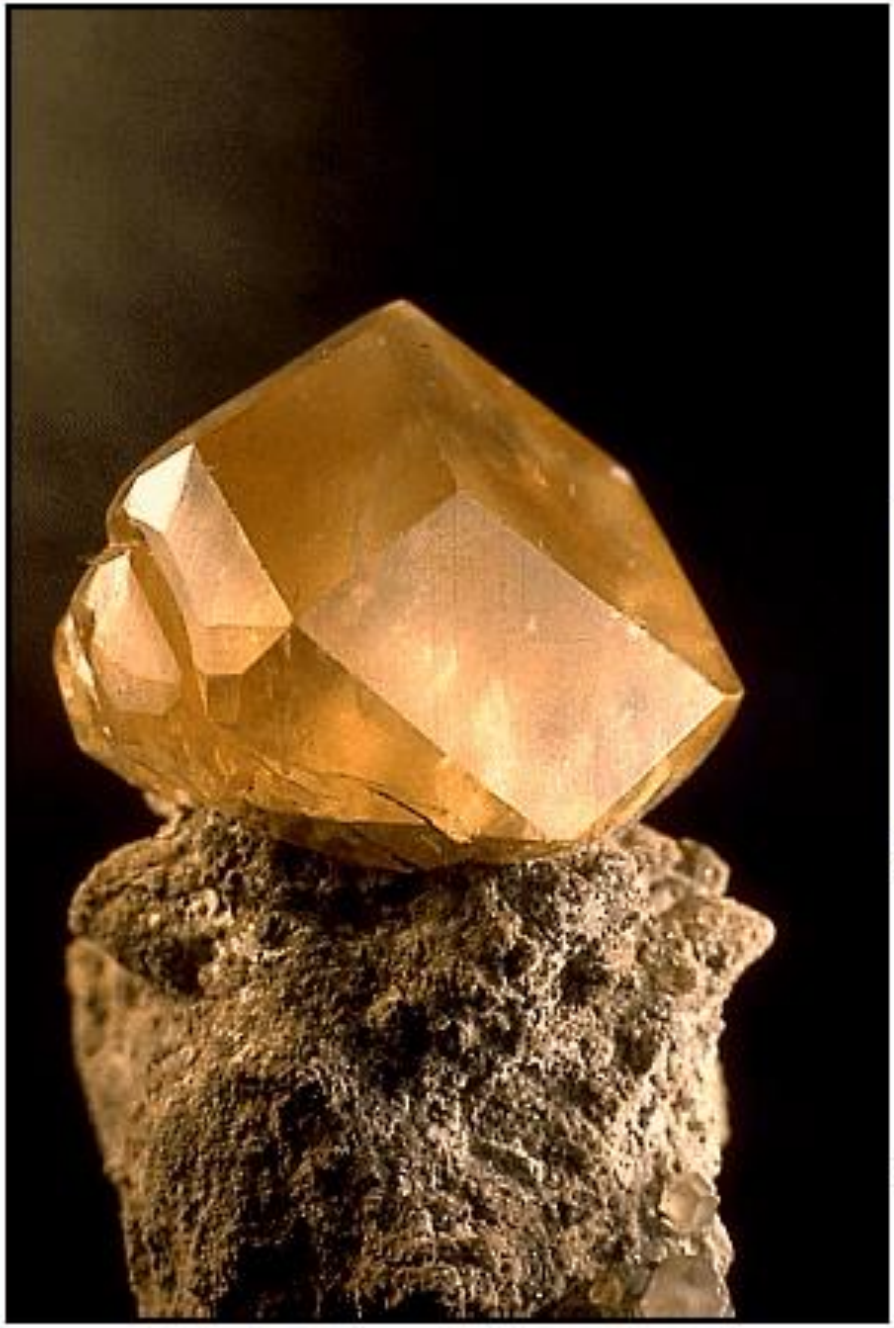
$Ca\,CO_3$

Strunz number: 5.AB.1

Origin of Name: from Latin for lime

Synonyms
Varieties: iceland spar, travertine (hard compact var.)

Trimorphous with aragonite and vaterite; series with magnesite, siderite, smithsonite and rhodochrosite



Calcite

North Vernon, Jennings Co., Indiana

1 cm

©Wendell Wilson

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Calcite

Pallaflat mine, Cumberland, England

1 cm

©Wendell Wilson

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Calcite

Dal'negorsk, Primorskiy Kray, Russia

1 cm

©Wendell Wilson

CALCIT ($CaCO_3$)

CUARȚ (SiO_2)

1 cm

©Wendell Wilson

Calcite (cobaltian) with Malachite

Mupine mine, Kolwezi, Shaba, Dem.Rep.of Congo

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Aragonit tabular

$CaCO_3$ - rombic

Aragonit acicular: $CaCO_3$ - rombic

Dolomite

Dolomite from

Lengenbach quarry, Binntal, Valais, Switzerland

GENERAL INFORMATION

$Ca\ Mg\ (CO_3)_2$

Strunz number: 5.AB.2

Origin of Name: for D. de Dolomieu, French geologist

Synonyms Varieties:

Series with ankerite and with kutnohorite

©Lou Perloff

Dolomite

Lengenbach quarry, Binntal, Valais, Switzerland

1 cm

©Wendell Wilson

Dolomite with Chalcopyrite

Joplin, Jasper Co., Missouri

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Malachite

Malachite from

Czar shaft, Bisbee, Cochise Co., Arizona

GENERAL INFORMATION

$Cu_2 (CO_3) (OH)_2$

Strunz number: 5.BA.2

Origin of Name: from Greek for mallow

Synonyms Varieties:

Luster of fibers silky or velvety

Malachite

New Cornelia mine, Ajo, Pima Co., Arizona

1 cm

©Wendell Wilson

Extra Images
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Malachite on Quartz

Denny Mountain, King Co., Washington

1 cm

©Rick Dillhoff

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Rhodochrosite

Rhodochrosite on Manganite from
N'Chwaning mine, Kuruman, No.Cape, So. Africa

GENERAL INFORMATION

$Mn\ CO_3$

Strunz number: 5.AB.1

Origin of Name: from Greek for rose and color

Synonyms
Varieties: dialogite

Series with calcite and with siderite

©Lou Perloff

Rhodochrosite

Santa Eulalia, Chihuahua, Mexico

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1 cm

©Wendell Wilson

Rhodochrosite on Quartz

Cavnic, Maramures, Romania

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1 cm

©Wendell Wilson

Rhodochrosite on Quartz

Madan district, Rhodope Mts., Bulgaria

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Magnesite

Magnesite from

Dudweiler, Saarland, Germany

GENERAL INFORMATION

$Mg\ CO_3$

Strunz number: 5.AB.1

Origin of Name: from Greek, magnesia lithos = magnesian stone

Synonyms Varieties: baudisserite, breunnerite (Fe-rich var.), giobertite, hoshiite (Ni-rich var.), mesitite (Fe-rich var.)

Series with gaspeite and with siderite

Cerussite

Cerussite (reticulated twin) from
Touissit mine, Touissit, near Ojuda, Morocco

GENERAL INFORMATION

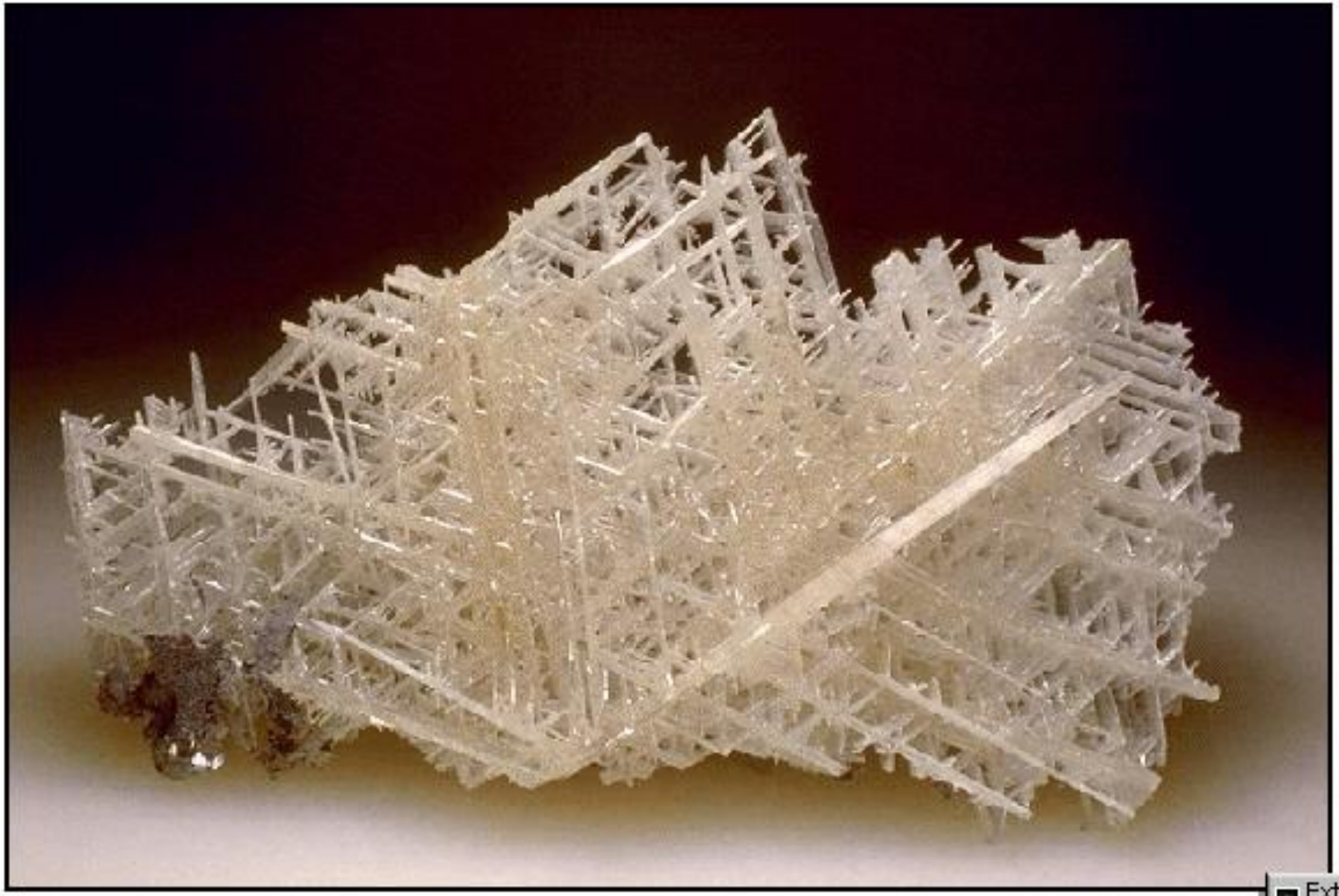
$Pb\ CO_3$

Strunz number: 5.AC.1

Origin of Name: from Greek for lead carbonate

Synonyms
Varieties:

Sometimes fluoresces yellowish in LW



Cerussite (reticulated twin)

Tsumeb mine, Tsumeb, Namibia

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- ***Sulfaţii***

Gypsum

Gypsum from

Zaragoza, Zaragoza Prov., Aragon, Spain

GENERAL INFORMATION

$Ca\,SO_4 \cdot 2H_2O$

Strunz number: 7.CE.2

Origin of Name: from Greek gypos = plaster

Synonyms

Varieties: alabaster (massive, fine-grained variety), gips, selenite (colorless, transparent variety), satin spar (columnar, fibrous variety)

Sometimes fluoresces and phosphoresces greenish white

©Lou Perloff

Gypsum

Manhattan, Nye Co., Nevada

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Gypsum

Newton, Alberta, Canada

1 cm

©Milton Speckels

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Barite

Barite on Calcite from
Elk Creek, Meade Co., South Dakota

GENERAL INFORMATION

$BaSO_4$

Strunz number: 7.AD.2

Origin of Name: from Greek for heavy

Synonyms Varieties: baryte, hokutolite (Pb-rich var.)

Sometimes fluoresces or phosphorescent

Barite

Palos Verdes, Los Angeles Co., California

1 cm

©Tony Kampf

Barite

Pohla mine, Crottendorf, Saxony, Germany

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1 cm

©Wendell Wilson

Barite

Cumbria, England

Extra Images
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Celestine

Celestine from

Austin, Travis Co., Texas

GENERAL INFORMATION

$Sr\ SO_4$

Strunz number: 7.AD.1

Origin of Name: from Latin caelestis = sky (blue)

Synonyms Varieties: celestite, cliftonite (impure var.)

Sometimes fluoresces

©Wendell Wilson

Celestine

Maybee, Monroe Co., Michigan

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- ***Fosfaţii***


Hornbledă
$Ca_2Na(Mg,Fe)_4(Al,Fe)[(Si,Al)_4O_{11}]_2.H_2O$
Apatit
$Ca_5(PO_4CO_3)(F, OH, Cl)$
Wikipedia.ro

Monazite on Muscovite

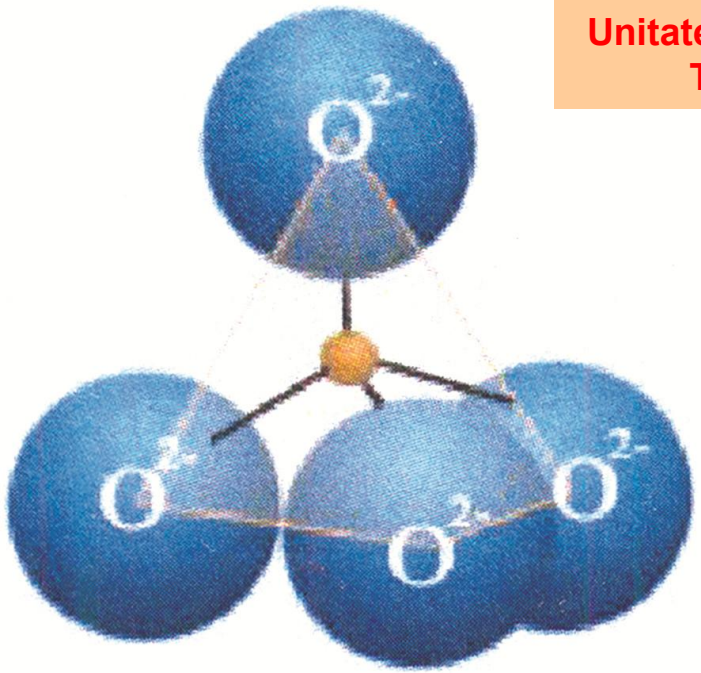
Brook's Farm, Cleveland Co., North Carolina

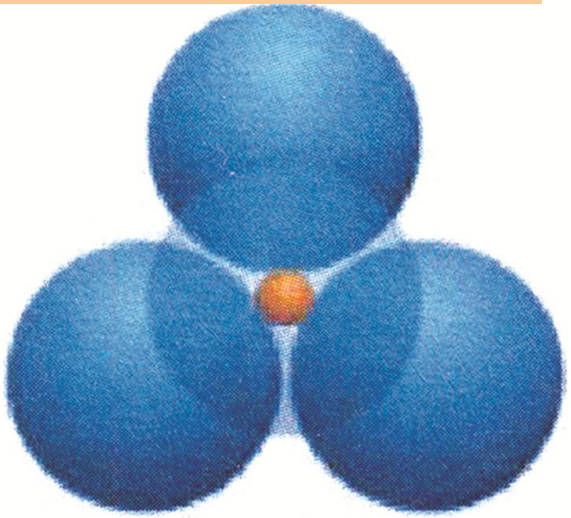
©Lou Perloff

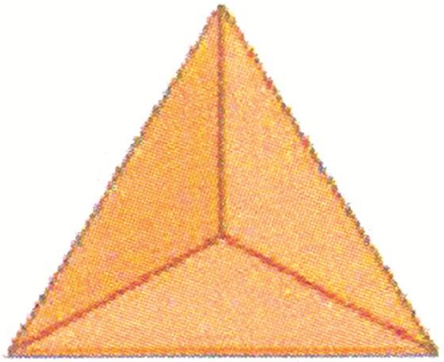
Silicaţii

Clasificarea silicaţilor are la bază criteriul structural, fiind împărţiţi în ***nezosilicaţi*** (silicaţi alcătuiţi din tetraedrii solitari de silice, legaţi prin cationi de Ca, Mg, Na, etc., dar nu prin atomi de oxigen ai tetraedrului), ***sorosilicaţi*** (doi tetredrii de silice legaţi printr-un atom de oxigen aparţinând tetraedrului), ***ciclosilicaţi*** (o structură ciclică din minim trei tetraedrii de silice, legaţi prin atomi de oxigen), ***inosilicaţi*** (lanţuri infinite simple – *piroxeni* şi duble – *amfibolili*, de tetraedrii de silice legaţi prin atomi de oxigen), ***filosilicaţii*** (tetraedrii sunt dispuşi în ochiurile unei reţele plane, hexagoane) şi ***tectosilicaţii*** (tetraedrii de silice legaţi prin atomi de oxigen sunt dispuşi într-o reţea tridimensională). La valenţele libere ale oxigenului adiţionează ceilalţi cationi şi ioni complexi, formând speciile minerale.

Unitatea chimico-structurală a silicaţilor
Tetraedrul de silice – $[SiO_4]^{4-}$







CLASIFICAREA SILICAȚILOR

Nesosilicați

Tetraedrii solitari
$[SiO_4]^{4-}$

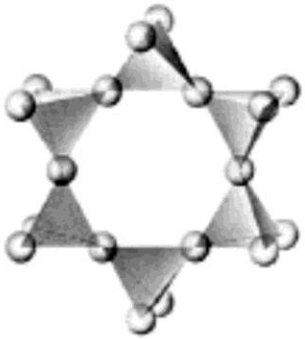
Sorosilicați

Doi tetraedrii solitari, cu un oxigen comun

$[Si_2O_7]^{6-}$

Ciclosilicați

Tetraedrii legați prin câte un anion comun de oxigen, formează bucle (inele) închise (3, 4, 6 tetraedrii).



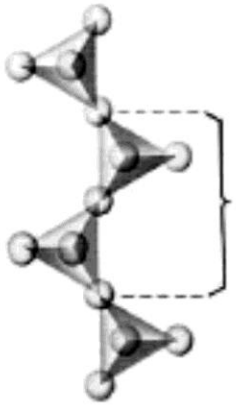
$[Si_3O_9]^{6-}$

$[Si_4O_{12}]^{8-}$

$[Si_6O_{18}]^{12-}$

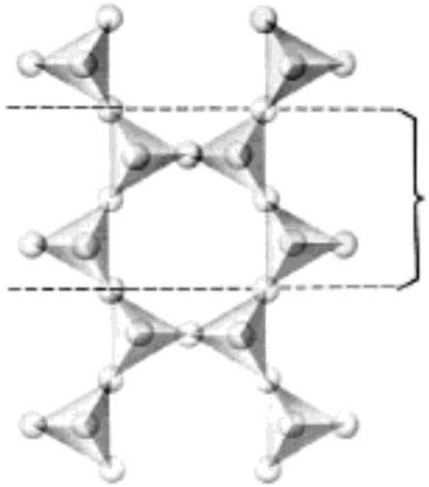
Inosilicați
-piroxeni-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri simple, infinite.



$[Si_2O_3]^{2-}$

$[Si_2O_6]^{4-}$

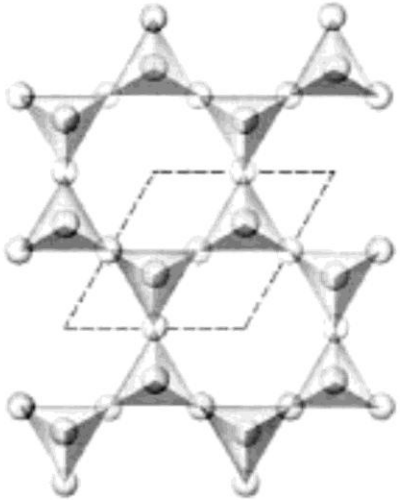


Ionosilicați
-amfiboli-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri duble, infinite.

$[Si_4O_{11}]^{6-}$

$[(Si_4O_{11})(OH)]^{7-}$



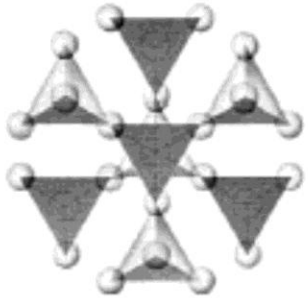
Filosilicați

Tetraedrii legați prin câte un anion comun de oxigen, formează lstructuri planare, infinite.

$[Si_4O_{10}]^{4-}$

$[AlSi_3O_{10}]^{5-}$

$[Al_2Si_2O_{10}]^{6-}$



Tectosilicați

Tetraedrii legați prin câte un anion comun de oxigen, prin toate cele 4 vîrfuri, formează rețele tridimensionale.

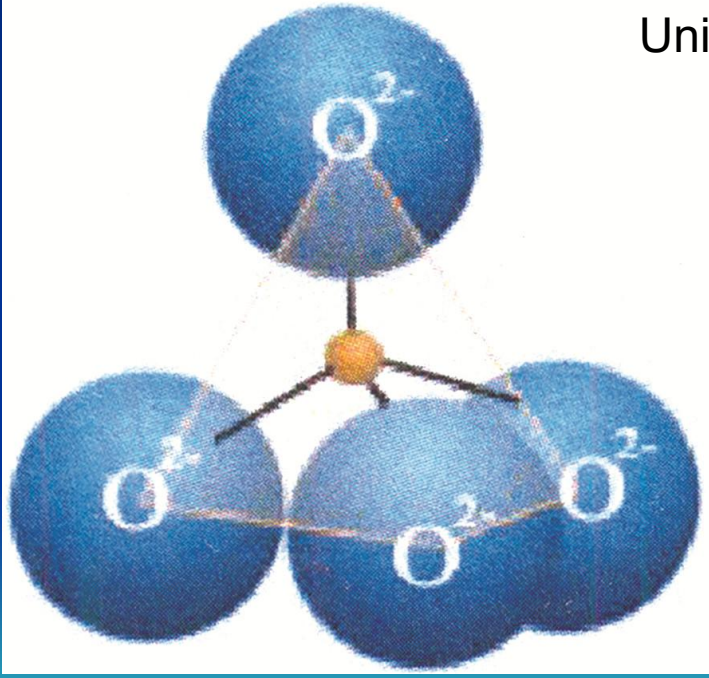
$[SiO_2]$, $[AlSiO_4]^-$

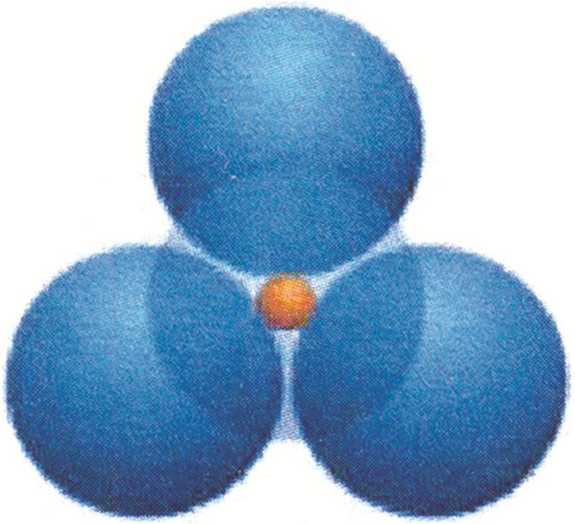
$[AlSi_3O_8]^-$, $[Al_2Si_2O_8]^{2-}$

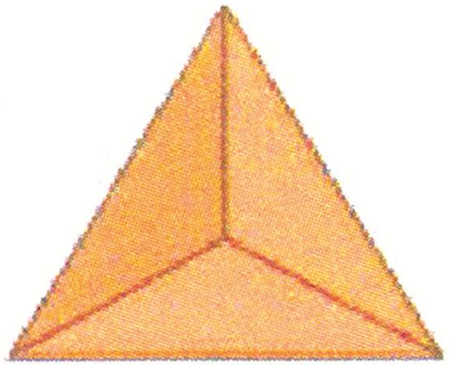
(earth.dinamics.org)

NESOSILICAȚI (SILICAȚI INSULARI)

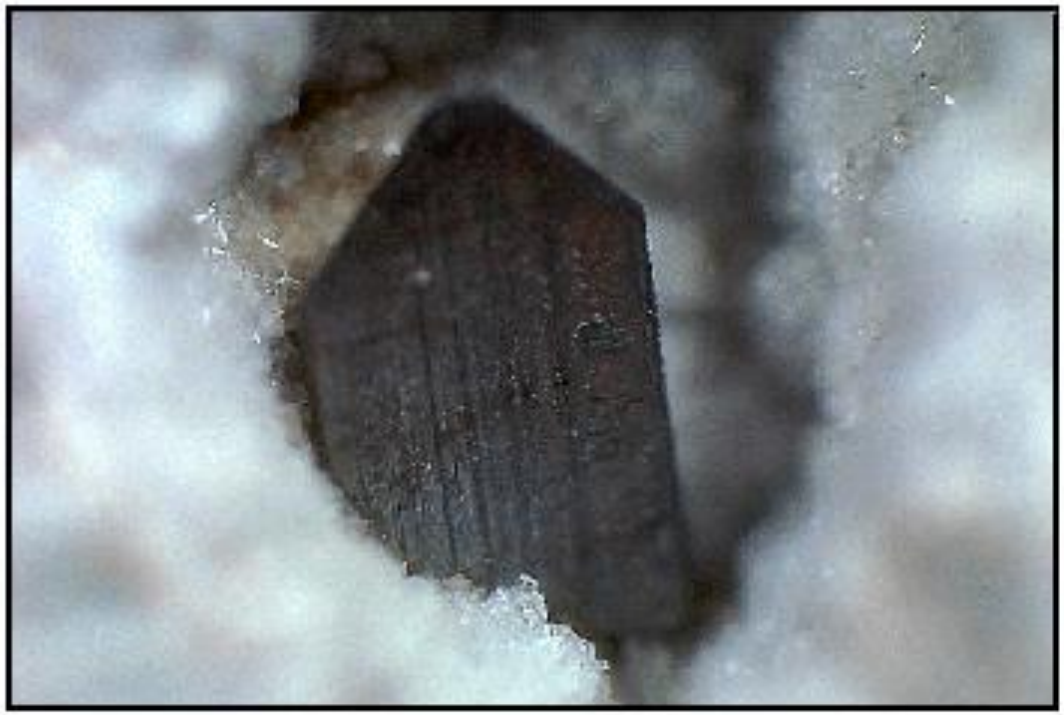
Unitatea chimico-structurală a nesolicaților: $[SiO_4]^{4-}$







Fayalite



Fayalite from

Upper Cascades, Multnomah Co., Oregon

GENERAL INFORMATION

Fe_2SiO_4

Strunz number: 9.AB.1

Origin of Name: locality; Fayal Island, Azores

Synonyms Varieties: hortonolite (Mg, Mn-rich var.), knebelite (Mn-rich var.), olivine (group name), roepperite (Mn, Zn-rich var.)

Series with forsterite and with tephroite

©Milton Speckels

Fayalite on Cristobalite

Coso Hot Springs, Inyo Co., California

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1 cm

©Milton Speckels

Fayalite on Cristobalite in Obsidian

Coso Hot Springs, Inyo Co., California

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Forsterite

Forsterite from

St. John's Island, Red Sea, Egypt

GENERAL INFORMATION

$Mg_2 Si O_4$

Strunz number: 9.AB.1

Origin of Name: for A. Forster, English collector

Synonyms Varieties: boltonite, chrysolite, olivine (group name), peridot (gem variety)

Series with fayalite; trimorphous with ringwoodite and wadsleyite

Forsterite (rough and cut)

St. John's Island, Red Sea, Egypt

Specimen Data
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Forsterite

Sapat, Indus-Kohistan, NW Frontier, Pakistan

1 cm

©Wendell Wilson

1 cm

©Lou Perloff

Forsterite (faceted)

Pyaung Guang, Myanmar

SERIA IZOMORFĂ A GRANAȚILOR

Grossular

Grossular (hessonite) on Diopside from Lowell (Eden Mills), Orleans Co., Vermont

GENERAL INFORMATION

$Ca_3 Al_2 (Si O_4)_3$

Strunz number: 9.AC.1

Origin of Name: from Latin for gooseberry

Synonyms Varieties: grossularite, hessonite/essonite (orange to red var.), tsavorite/tsavolite (green, Cr/V-rich var.)

Forms three series: with andradite, with hibschite and katoite, and with uvarovite

Grossular with Clinochlore

Val d'Ala, Piedmont, Italy

1 cm

©Wendell Wilson

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Grossular on Diopside

Vesper Peak, Snohomish Co., Washington

©Rick Dillhoff

Pyrope

Pyrope (rough and cut) from Arizona

GENERAL INFORMATION

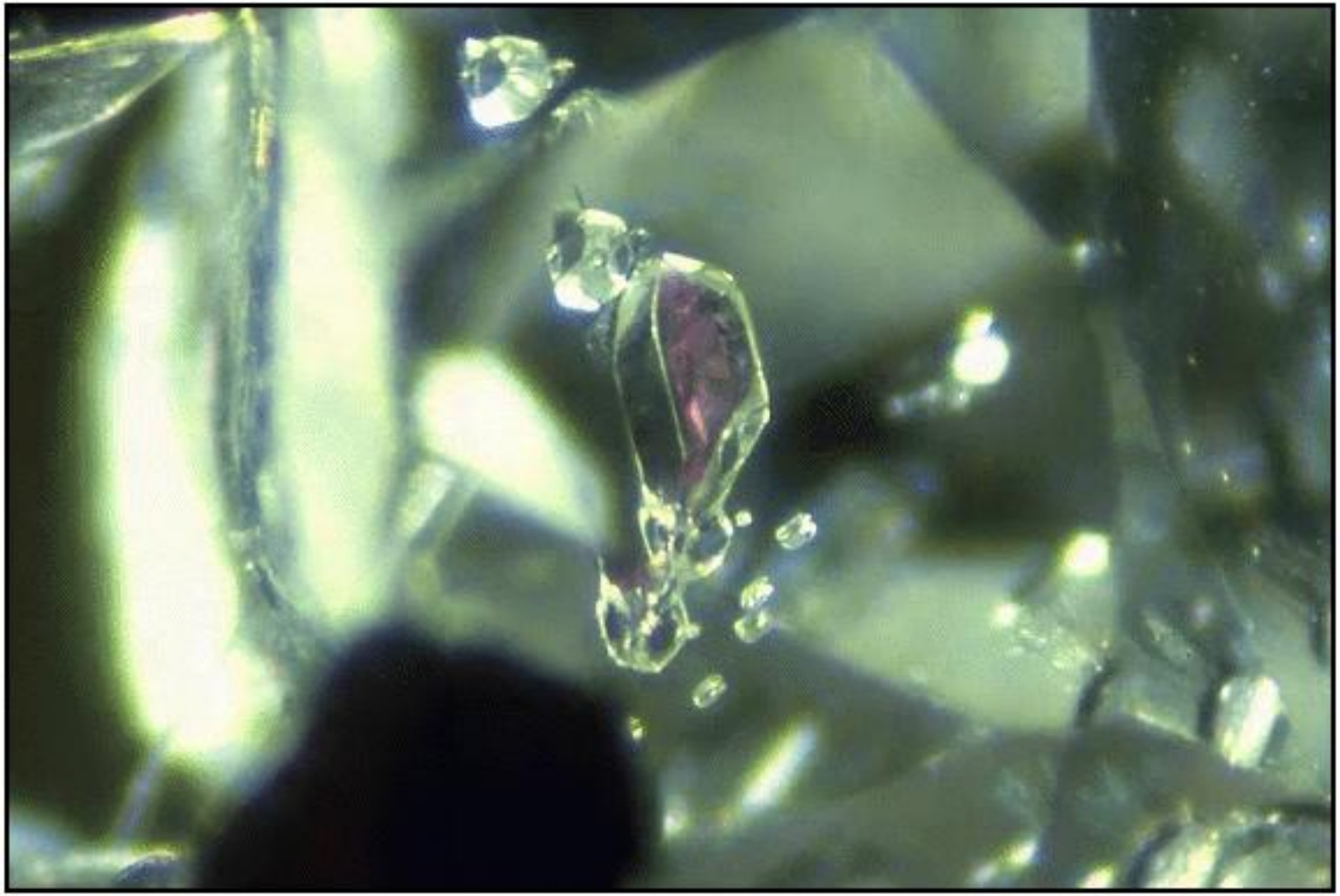
$Mg_3Al_2(SiO_4)_3$

Strunz number: 9.AC.1

Origin of Name: from Greek pyropos = fiery

Synonyms Varieties: carbuncle, rhodolite (purple-red gem var.)

Series with almandine, with spessartine and with knorringite



©Anthony de Goutière

Pyrope in Diamond

unknown locality

Spessartin

$Mn_3Al_2(SiO_4)_3$


1 cm

Topaz

Topaz from

Thomas Range, Juab Co., Utah

GENERAL INFORMATION

$Al_2SiO_4(F, OH)_2$

Strunz number: 9.AI.1

Origin of Name: from Greek Topazion, a Red Sea island often covered in mist

Synonyms

Varieties: imperial topaz (yellow to red-orange gem var.), pycnite (columnar massive var.)

©Wendell Wilson

Extra Images

Imperial Topaz

Vermelhao mine, Ouro Preto, Minas Gerais, Brazil

Zircon

Zircon from

Franklin, Sussex Co., New Jersey

GENERAL INFORMATION

$Zr\ Si\ O_4$

Strunz number: 9.AD.1

Origin of Name: from Arabic zarqun and Persian zar = gold gun = color

Synonyms Varieties:

Transparent to opaque if metamict

Zircon (rough and cut)

Renfrew, Ontario, Canada

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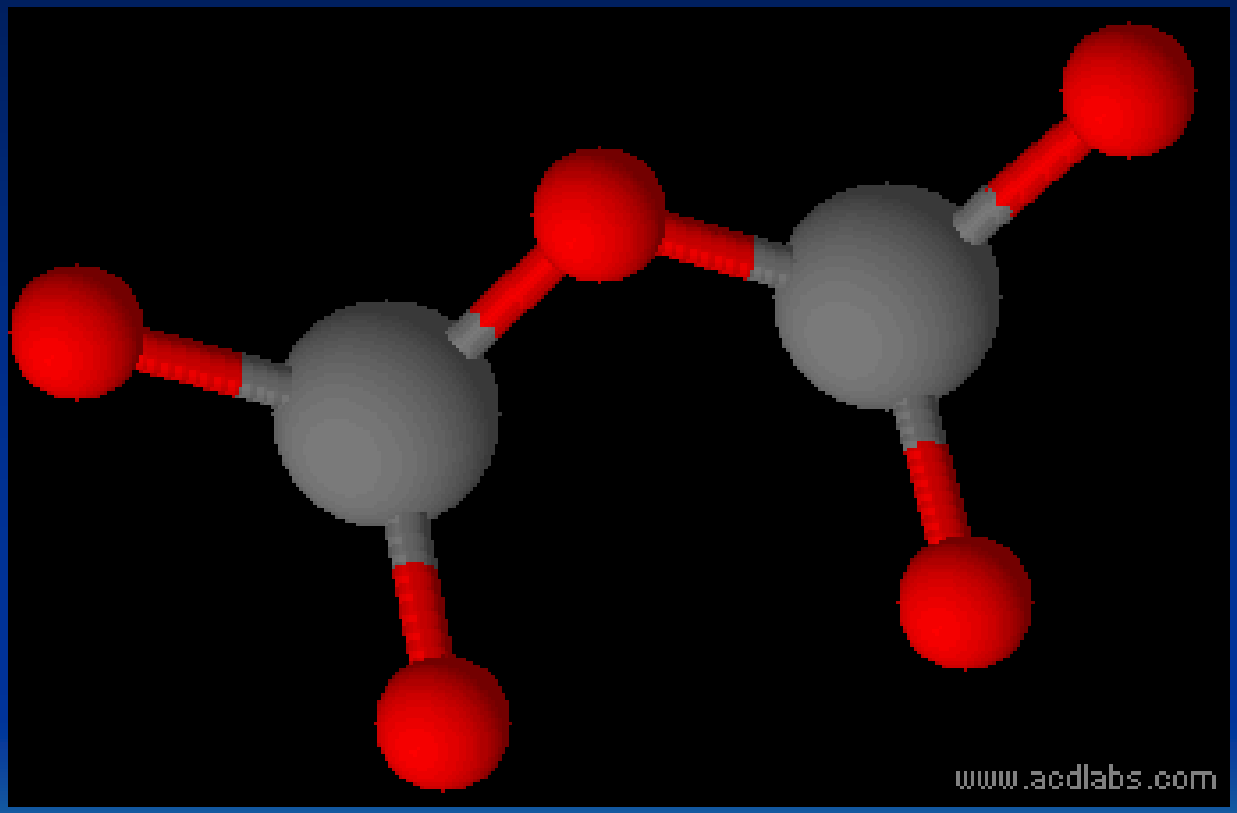
SOROSILICAȚII



CLASIFICAREA SILICAȚILOR

Nesosilicați

Tetraedrii solitari

$[SiO_4]^{4-}$

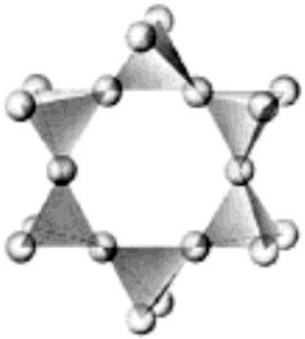
Sorosilicați

Doi tetraedrii solitari, cu un oxigen comun

$[Si_2O_7]^{6-}$

Ciclosilicați

Tetraedrii legați prin câte un anion comun de oxigen, formează bucle (inele) închise (3, 4, 6 tetraedrii).



$[Si_3O_9]^{6-}$

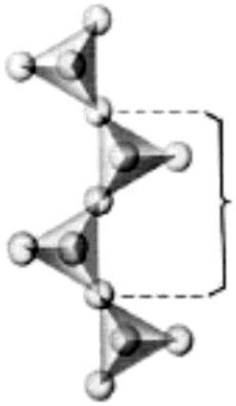
$[Si_4O_{12}]^{8-}$

$[Si_6O_{18}]^{12-}$

Inosilicați

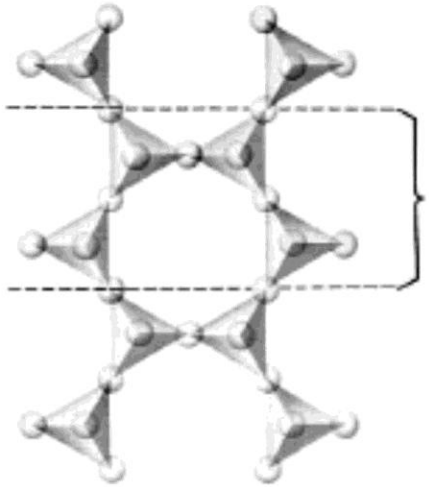
-piroxeni-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri simple, infinite.



$[Si_2O_3]^{2-}$

$[Si_2O_6]^{4-}$



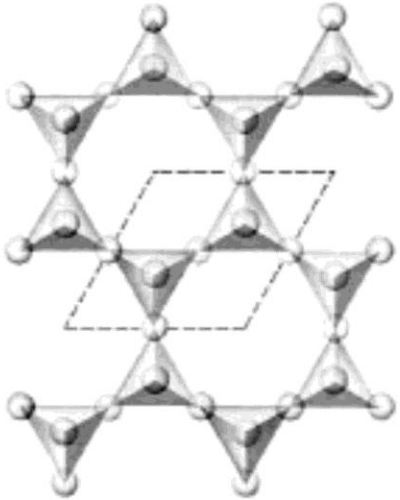
Ionosilicați

-amfiboli-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri duble, infinite.

$[Si_4O_{11}]^{6-}$

$[(Si_4O_{11})(OH)]^{7-}$



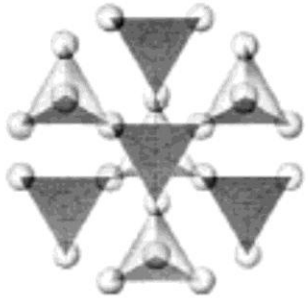
Filosilicați

Tetraedrii legați prin câte un anion comun de oxigen, formează lstructuri planare, infinite.

$[Si_4O_{10}]^{4-}$

$[AlSi_3O_{10}]^{5-}$

$[Al_2Si_2O_{10}]^{6-}$



Tectosilicați

Tetraedrii legați prin câte un anion comun de oxigen, prin toate cele 4 vîrfuri, formează rețele tridimensionale.

$[SiO_2]$, $[AlSiO_4]^-$

$[AlSi_3O_8]^-$, $[Al_2Si_2O_8]^{2-}$

Epidote

Epidote from

Haramosh Mts., Baltistan, Northern Areas, Pak.

GENERAL INFORMATION

$Ca_2 (Fe, Al)_3 (Si_2 O_7) (Si O_4) (O, OH)_2$

Strunz number: 9.BN.1

Origin of Name: from Greek for increase

Synonyms Varieties:

Series with clinozoisite

Epidote

Knappenwand, Untersulzbachtal, Salzburg, Austria

1 cm

©Wendell Wilson

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Epidote

Le Grand Mont, Albertville,
Haute-Savoie, France

©Lou Perloff

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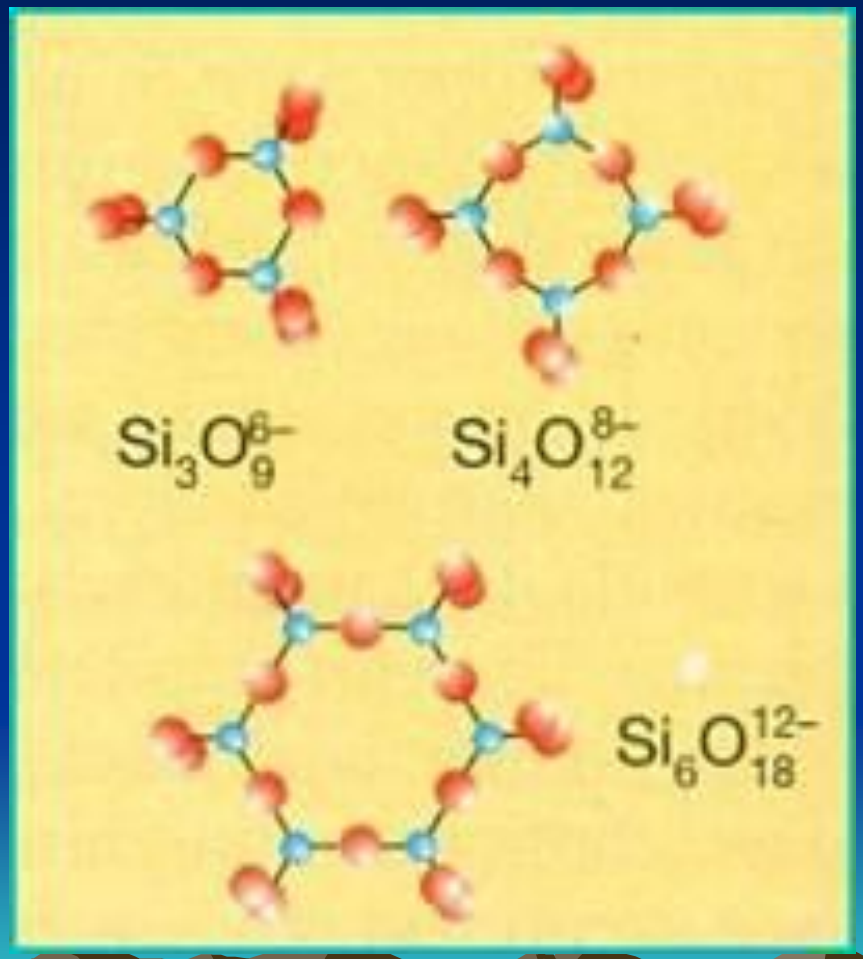
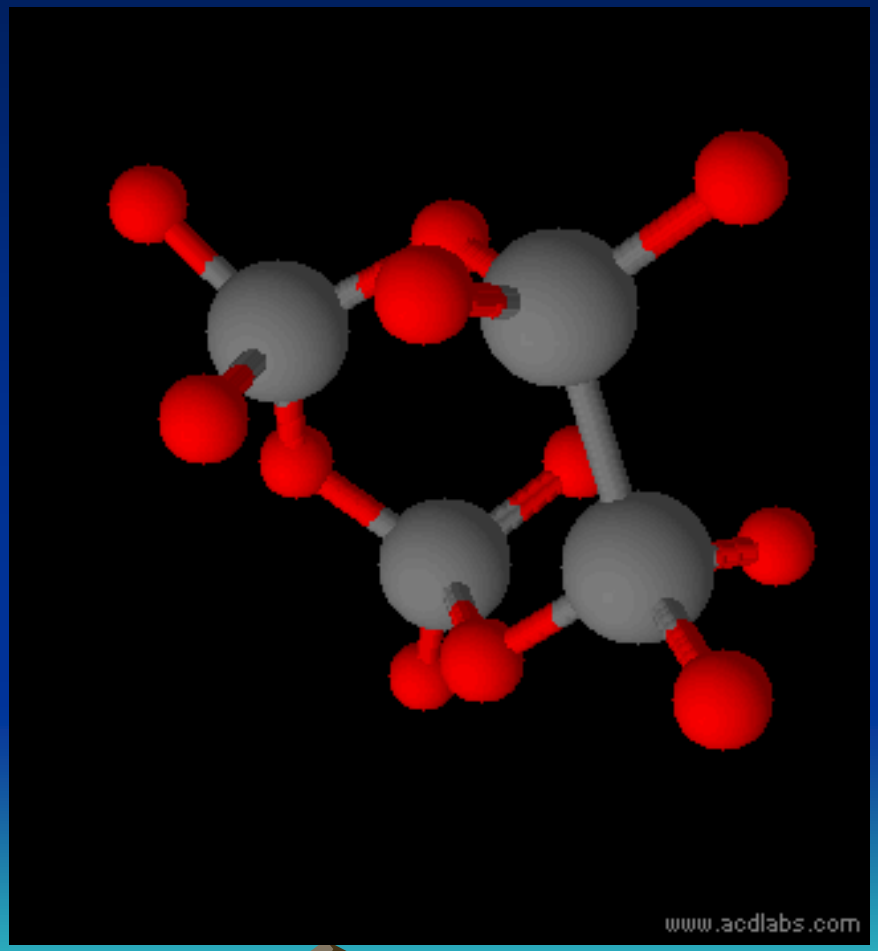
CICLOSILICAȚII





CLASIFICAREA SILICAȚILOR

Nesosilicați

Tetraedrii solitari

$[SiO_4]^{4-}$

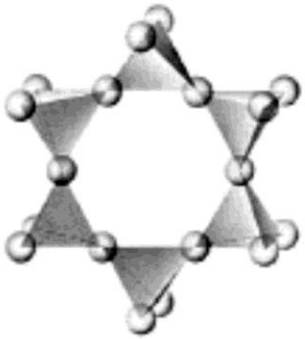
Sorosilicați

Doi tetraedrii solitari, cu un oxigen comun

$[Si_2O_7]^{6-}$

Ciclosilicați

Tetraedrii legați prin câte un anion comun de oxigen, formează bucle (inele) închise (3, 4, 6 tetraedrii).



$[Si_3O_9]^{6-}$

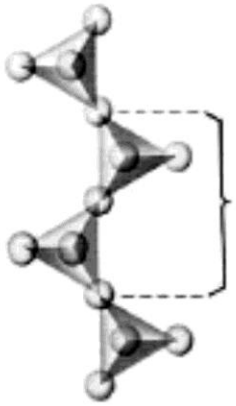
$[Si_4O_{12}]^{8-}$

$[Si_6O_{18}]^{12-}$

Inosilicați

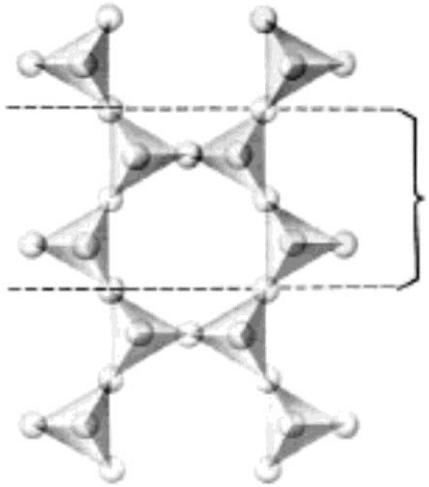
-piroxeni-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri simple, infinite.



$[Si_2O_3]^{2-}$

$[Si_2O_6]^{4-}$



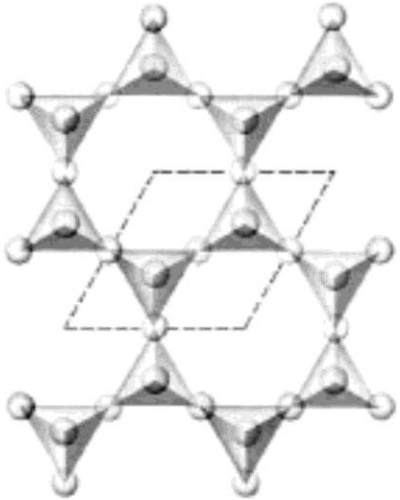
Ionosilicați

-amfiboli-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri duble, infinite.

$[Si_4O_{11}]^{6-}$

$[(Si_4O_{11})(OH)]^{7-}$



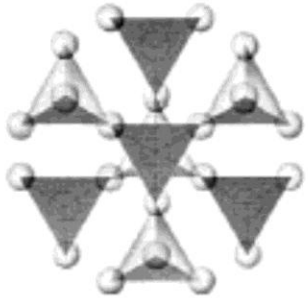
Filosilicați

Tetraedrii legați prin câte un anion comun de oxigen, formează lstructuri planare, infinite.

$[Si_4O_{10}]^{4-}$

$[AlSi_3O_{10}]^{5-}$

$[Al_2Si_2O_{10}]^{6-}$



Tectosilicați

Tetraedrii legați prin câte un anion comun de oxigen, prin toate cele 4 vîrfuri, formează rețele tridimensionale.

$[SiO_2]$, $[AlSiO_4]^-$

$[AlSi_3O_8]^-$, $[Al_2Si_2O_8]^{2-}$

TURMALINA

$(Na,Ca,K)(Mg,Fe^{2+},Li,Mn)_3(Al,Fe^{3+},Ti,Cr)_6(Si_6O_{18})(BO_3)(OH,F)_4$

https://www.google.ro/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=ciclosilicati&*

Beryl

Beryl (aquamarine) from
Jaqueto, Bahia, Brazil

GENERAL INFORMATION

$Be_3Al_2Si_6O_{18}$

Strunz number: 9.CC.1

Origin of Name: from Greek beryllos = a blue-green gem

Synonyms

Varieties: aquamarine (green-blue var.), emerald (green var.), goshenite (colorless var.), heliodor (yellow var.), morganite (pink var.), bixbite (red var.)

Beryl (aquamarine)

Gilgit, Northern Areas, Pakistan

1 cm

©Wendell Wilson

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Beryl (heliodor)

Fano mine, Cahuilla Mt., Riverside Co., California

1 cm

©Tony Kampf

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Beryl (emerald)

Muzo, Boyaca, Colombia

DIOPTAZ

$Cu_6[Si_6O_{18}].6H_2O$

https://www.google.ro/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=ciclosilicati&*

INOSILICAȚI

INOSILICAȚI-PIROXENI

CLASIFICAREA SILICAȚILOR

Nesosilicați

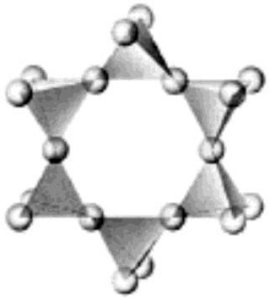
Tetraedrii solitari
$[SiO_4]^{4-}$

Sorosilicați

Doi tetraedrii solitari, cu un oxigen comun
$[Si_2O_7]^{6-}$

Ciclosilicați

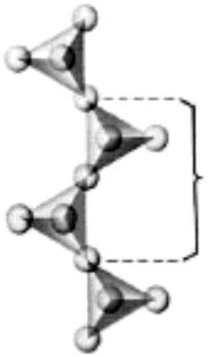
Tetraedrii legați prin câte un anion comun de oxigen, formează bucle (inele) închise (3, 4, 6 tetraedrii).



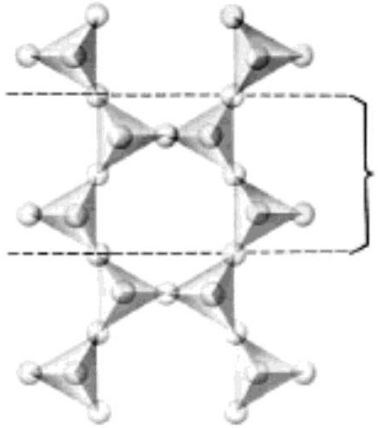
$[Si_3O_9]^{6-}$
$[Si_4O_{12}]^{8-}$
$[Si_6O_{18}]^{12-}$

Inosilicați
-piroxeni-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri simple, infinite.



$[Si_2O_3]^{2-}$
$[Si_2O_6]^{4-}$

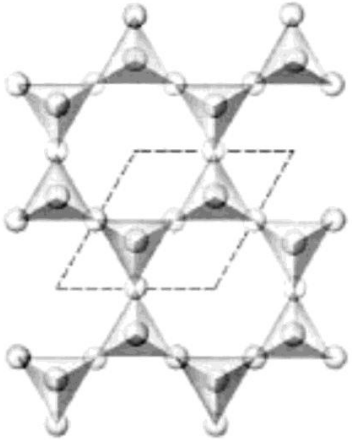


Ionosilicați
-amfiboli-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri duble, infinite.

$[Si_4O_{11}]^{6-}$

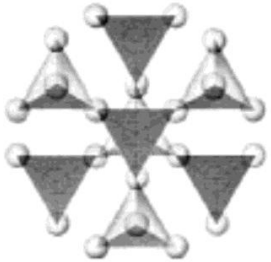
$[(Si_4O_{11})(OH)]^{7-}$



Filosilicați

Tetraedrii legați prin câte un anion comun de oxigen, formează Istructuri planare, infinite.

$[Si_4O_{10}]^{4-}$
$[AlSi_3O_{10}]^{5-}$
$[Al_2Si_2O_{10}]^{6-}$

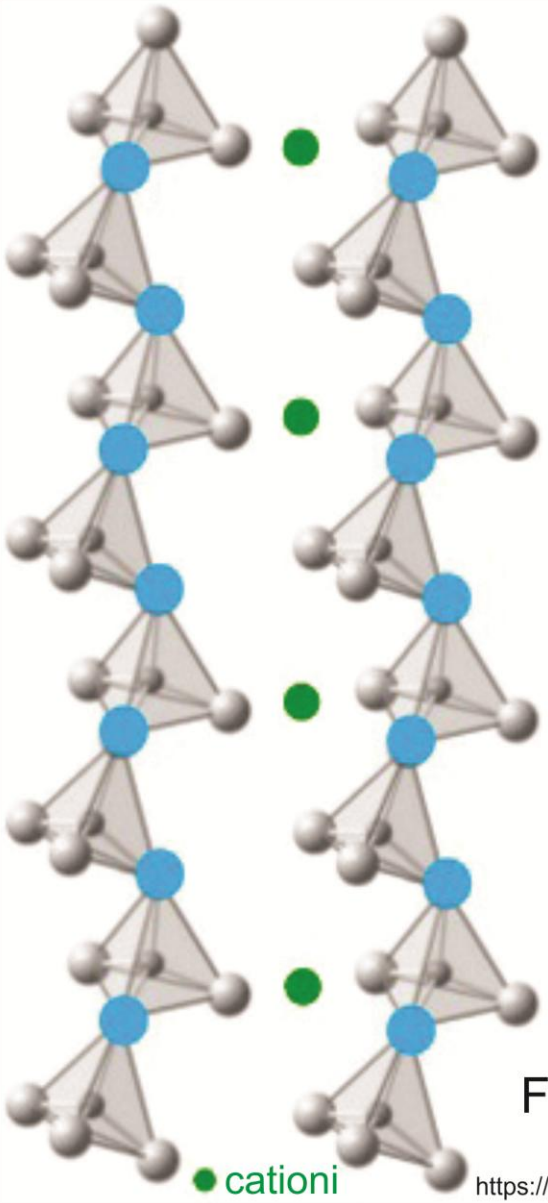


Tectosilicați

Tetraedrii legați prin câte un anion comun de oxigen, prin toate cele 4 vîrfuri, formează rețele tridimensionale.

$[SiO_2]$, $[AlSiO_4]^-$
$[AlSi_3O_8]^-$, $[Al_2Si_2O_8]^{2-}$

INOSILICAȚI



PIROXENI - *CATENE SMPLE*

Egirin (sin. Acmit)

$NaFeSi_2O_6$

Si : O
1 : 3

Augit

$Fe^{2+},Fe^{3+}(Ca,Mg,Fe^{2+},Fe^{3+},Ti,Al)_2[(Si,Al)_2O_6]$

https://www.google.ro/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=inosilicati&*

Jadeite

Jadeite from

Russian River, by Cloverdale, Mendocino Co., Ca.

GENERAL INFORMATION

$Na\ (Al, Fe)\ Si_2O_6$

Strunz number: 9.DD.1

Origin of Name: from Spanish, piedra de yjada = stone of the side

Synonyms Varieties: chloromelanite (compact dark green to black var.), feitsui, imperial jade (compact translucent emerald-green gem var.), jade (compact gem var.)

Diopside

Diopside from

Kunlun Mts., Xinjiang Uygur Zizhou, China

GENERAL INFORMATION

$Ca\,Mg\,Si_2\,O_6$

Strunz number: 9.DB.1

Origin of Name: from Greek dis = double and opsis = view

Synonyms

Varieties: fassite (Fe3+,Al-rich var.), jeffersonite (Mn,Zn,Fe in 1:1:1 ratio var.), lavrovite (V,Cr-rich var.), salite (Fe-rich var.), violan (Mn-rich, purple color)

Series with hedenbergite and with johannsenite

©Lou Perloff

Diopside on Grossular

Val d'Ala, Piedmont, Italy

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Rhodonite

Rhodonite in Calcite from
Franklin, Sussex Co., New Jersey

GENERAL INFORMATION

$(Mn, Fe, Mg, Ca)\ Si\ O_3$

Strunz number: 9.DP.1

Origin of Name: from Greek for rose

Synonyms Varieties: fowlerite (Zn-rich var.), bustamite (Ca-rich var.), manganamphibole, rhodoarsenian

©Lou Perloff

Rhodonite

Harstig mine, Pajsberg, Varmland, Sweden

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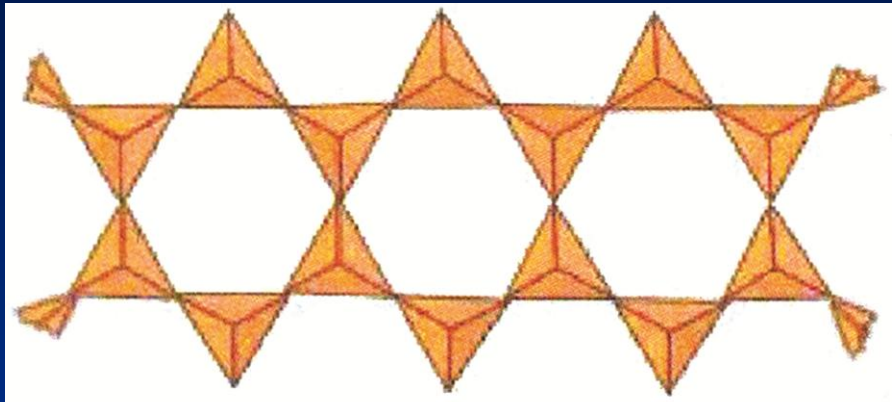
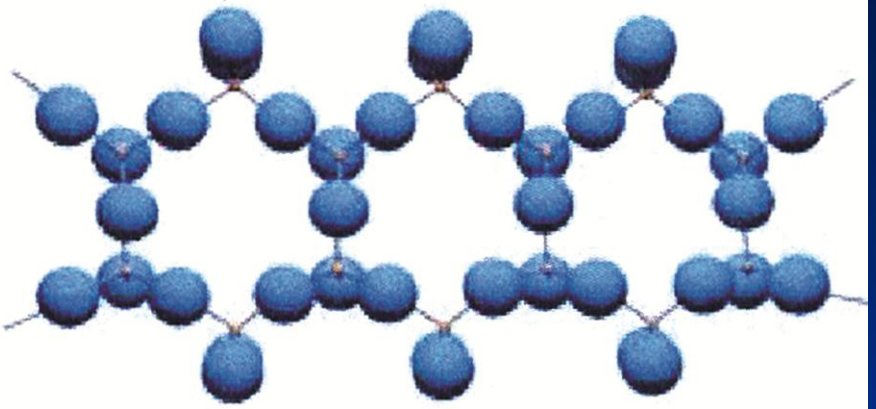
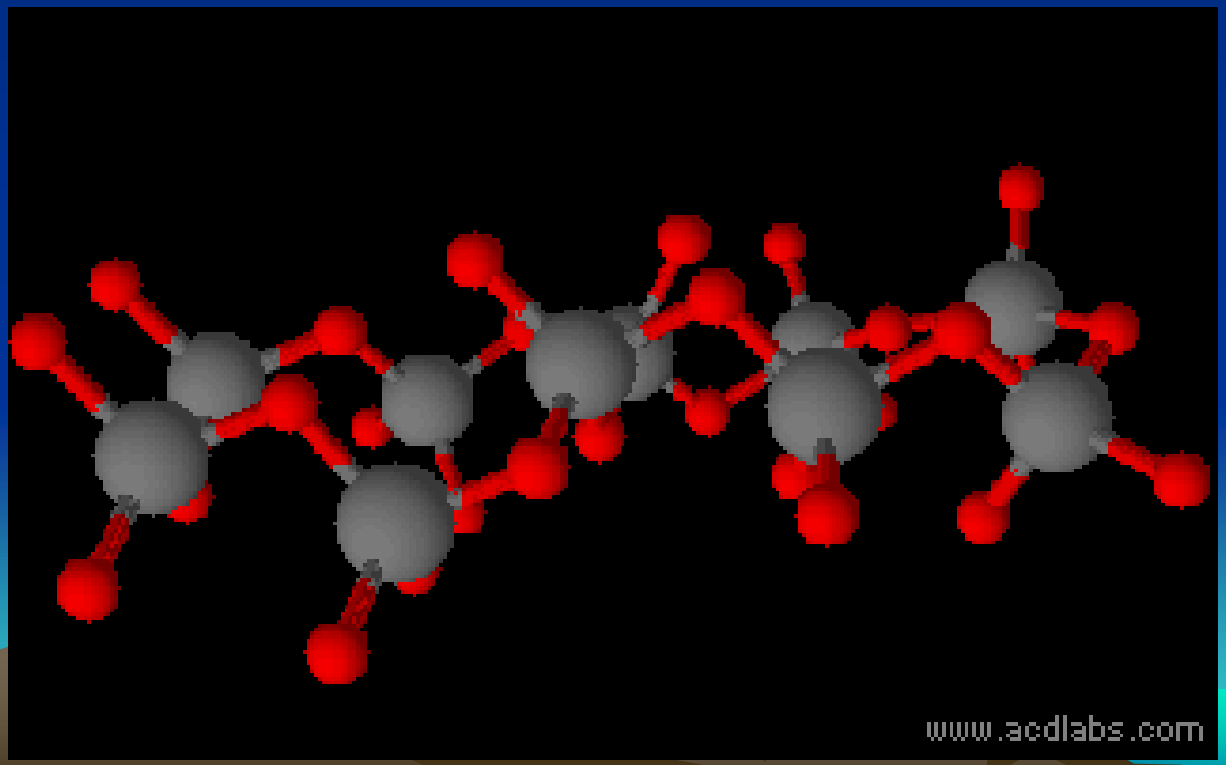
Rhodonite

Harstig mine, Pajsberg, Varmland, Sweden

INOSILICAȚI -AMFIBOLI







https://www.google.ro/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=inosilicate&*

CLASIFICAREA SILICAȚILOR

Nesosilicați

Tetraedrii solitari

$[SiO_4]^{4-}$

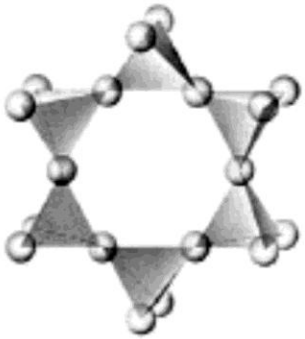
Sorosilicați

Doi tetraedrii solitari, cu un oxigen comun

$[Si_2O_7]^{6-}$

Ciclosilicați

Tetraedrii legați prin câte un anion comun de oxigen, formează bucle (inele) închise (3, 4, 6 tetraedrii).



$[Si_3O_9]^{6-}$

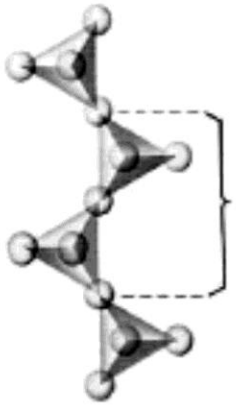
$[Si_4O_{12}]^{8-}$

$[Si_6O_{18}]^{12-}$

Inosilicați

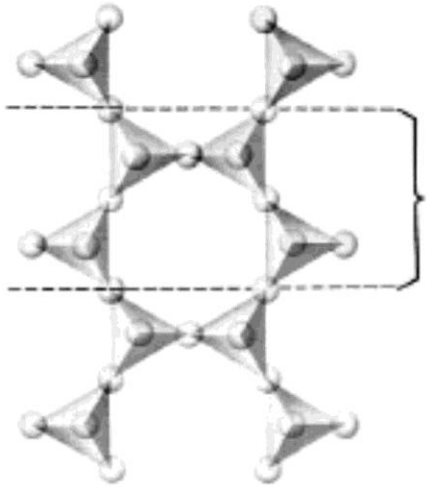
-piroxeni-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri simple, infinite.



$[Si_2O_3]^{2-}$

$[Si_2O_6]^{4-}$



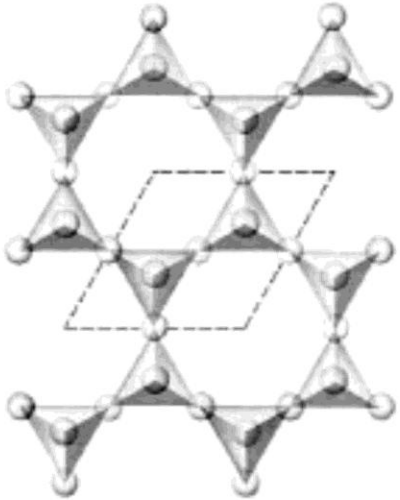
Ionosilicați

-amfiboli-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri duble, infinite.

$[Si_4O_{11}]^{6-}$

$[(Si_4O_{11})(OH)]^{7-}$



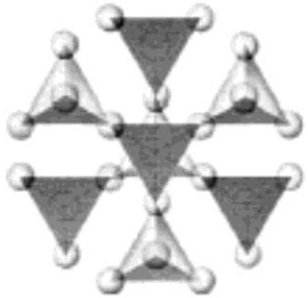
Filosilicați

Tetraedrii legați prin câte un anion comun de oxigen, formează lstructuri planare, infinite.

$[Si_4O_{10}]^{4-}$

$[AlSi_3O_{10}]^{5-}$

$[Al_2Si_2O_{10}]^{6-}$



Tectosilicați

Tetraedrii legați prin câte un anion comun de oxigen, prin toate cele 4 vîrfuri, formează rețele tridimensionale.

$[SiO_2]$, $[AlSiO_4]^-$

$[AlSi_3O_8]^-$, $[Al_2Si_2O_8]^{2-}$


Hornbledă
$Ca_2Na(Mg,Fe)_4(Al,Fe)[(Si,Al)_4O_{11}]_2.H_2O$
Apatit
$Ca_5(PO_4CO_3)(F, OH, Cl)$
Wikipedia.ro

Actinolite

Actinolite from

Gouverneur, St. Lawrence Co., New York

GENERAL INFORMATION

$Ca_2(Mg, Fe)_5Si_8O_{22}(OH)_2$

Strunz number: 9.DH.1

Origin of Name: from Greek for ray

Synonyms Varieties: jade (compact gem var.), nephrite (compact var.), byssolite (fibrous var.), smaragdite/uralite (replacing pyroxene), strahlstein, zillerite, zillerthite

Intermediate member of the series tremolite - ferro-actinolite

Actinot (termen intermediar din seria izomorfă Tremolit – Actinot – Feroactinot)

https://www.google.ro/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=inosilicate&*

5 cm

©Wendell Wilson

Actinolite (nephrite jade; rough and cut)

Washington, California (2), Wyoming

FILOSILICAȚII

CLASIFICAREA SILICAȚILOR

Nesosilicați

Tetraedrii solitari

$[SiO_4]^{4-}$

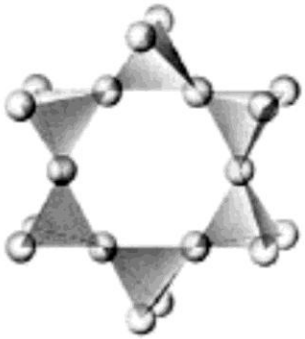
Sorosilicați

Doi tetraedrii solitari, cu un oxigen comun

$[Si_2O_7]^{6-}$

Ciclosilicați

Tetraedrii legați prin câte un anion comun de oxigen, formează bucle (inele) închise (3, 4, 6 tetraedrii).



$[Si_3O_9]^{6-}$

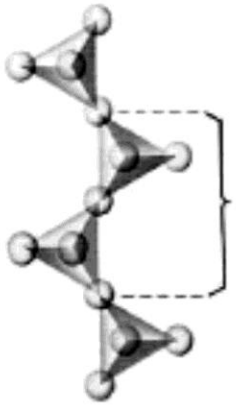
$[Si_4O_{12}]^{8-}$

$[Si_6O_{18}]^{12-}$

Inosilicați

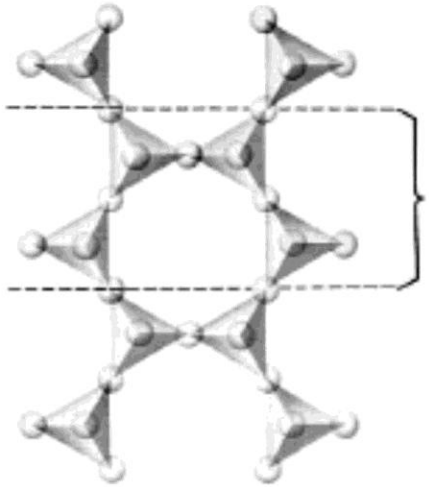
-piroxeni-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri simple, infinite.



$[Si_2O_3]^{2-}$

$[Si_2O_6]^{4-}$



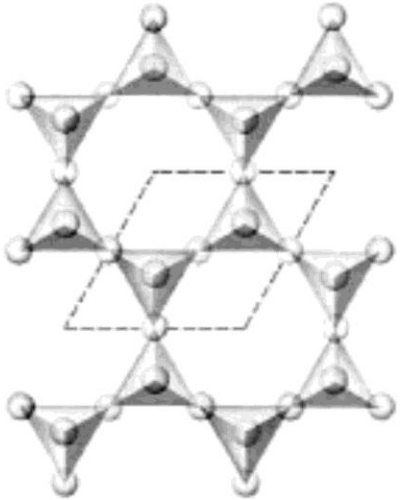
Ionosilicați

-amfiboli-

Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri duble, infinite.

$[Si_4O_{11}]^{6-}$

$[(Si_4O_{11})(OH)]^{7-}$



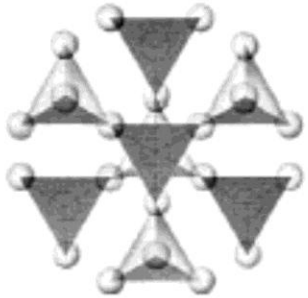
Filosilicați

Tetraedrii legați prin câte un anion comun de oxigen, formează lstructuri planare, infinite.

$[Si_4O_{10}]^{4-}$

$[AlSi_3O_{10}]^{5-}$

$[Al_2Si_2O_{10}]^{6-}$



Tectosilicați

Tetraedrii legați prin câte un anion comun de oxigen, prin toate cele 4 vîrfuri, formează rețele tridimensionale.

$[SiO_2]$, $[AlSiO_4]^-$

$[AlSi_3O_8]^-$, $[Al_2Si_2O_8]^{2-}$

Biotite

Biotite from

Bellerberg quarry, Laacher See, Rh.-Pal., Germany

GENERAL INFORMATION

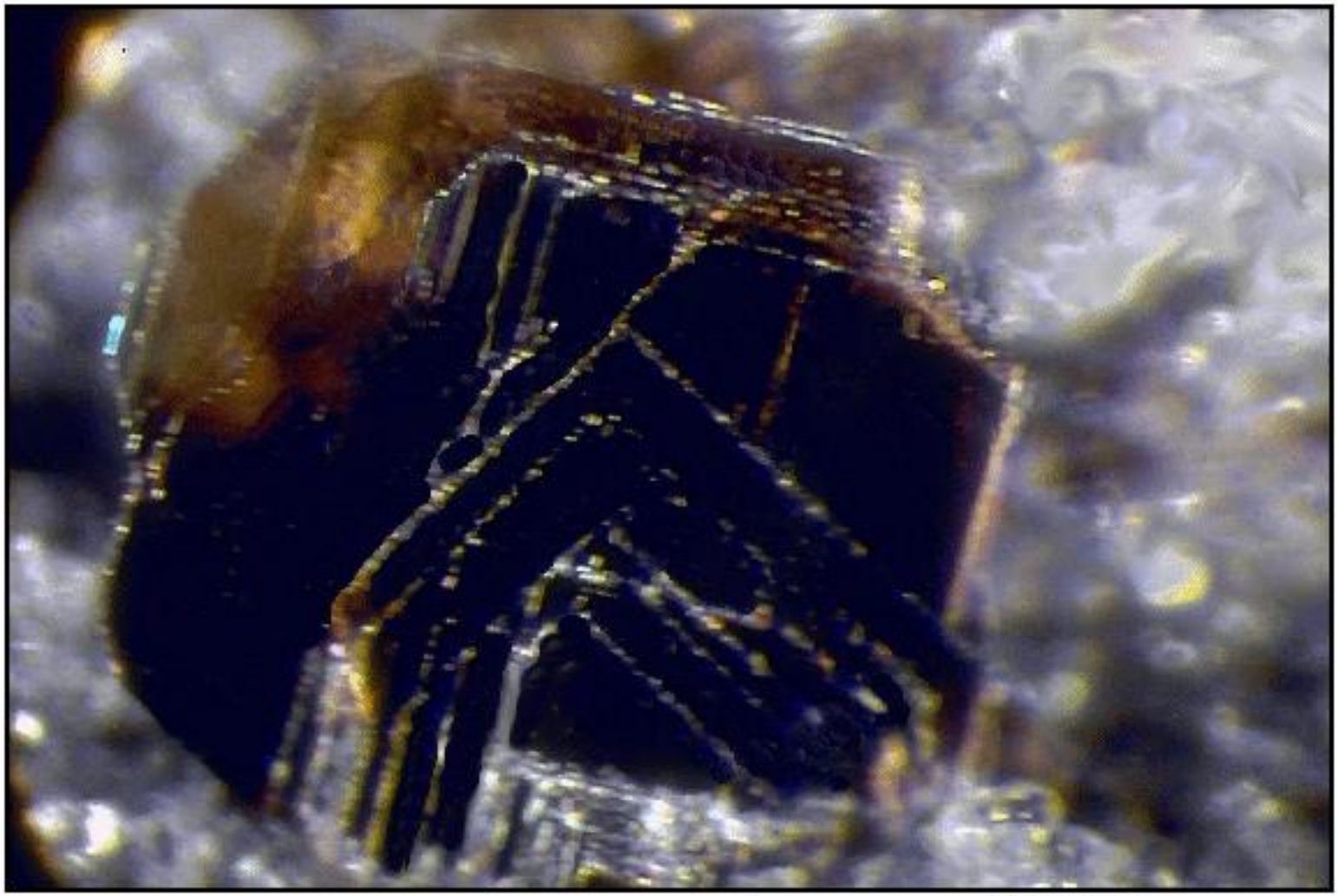
$K (Mg, Fe)_3 (Al, Fe) Si_3 O_{10} (OH, F)_2$

Strunz number: 9.ED.1

Origin of Name: for Jean Biot, French physicist

Synonyms Varieties: iron mica, lepidomelane (Fe3+-rich var.), manganophyllite (Mn-rich var.)

Series with phlogopite



©Lou Perloff

Biotite

Sattleberg, Laacher See, Rh.-Pal., Germany

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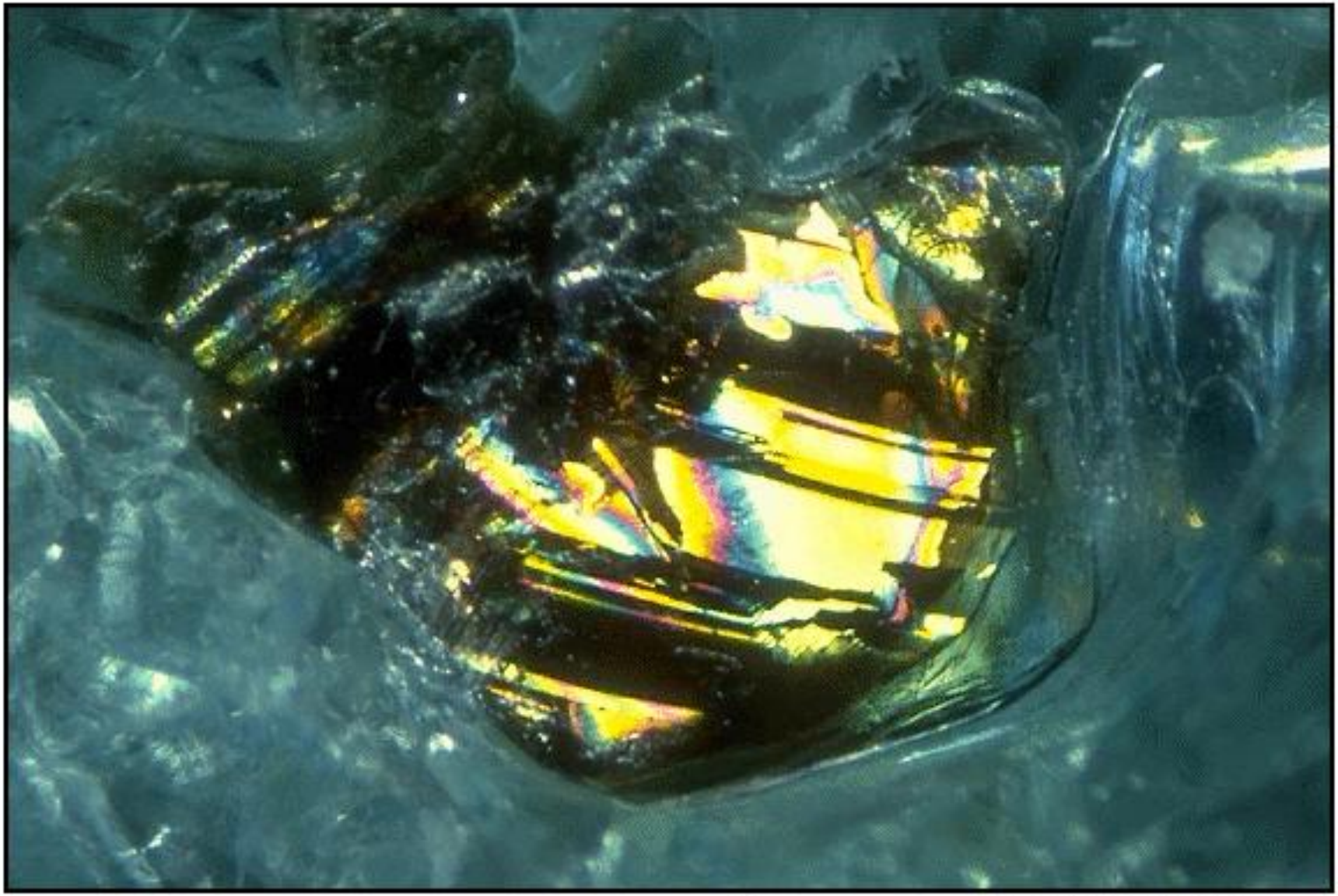


©Anthony de Goutière

Biotite in Beryl (emerald)

Brazil

Muscovite

Muscovite from

Goshen, Sullivan Co., New Hampshire

GENERAL INFORMATION

$K\,Al_2(Si_3\,Al)\,O_{10}\,(OH, F)$

Strunz number: 9.EC.2

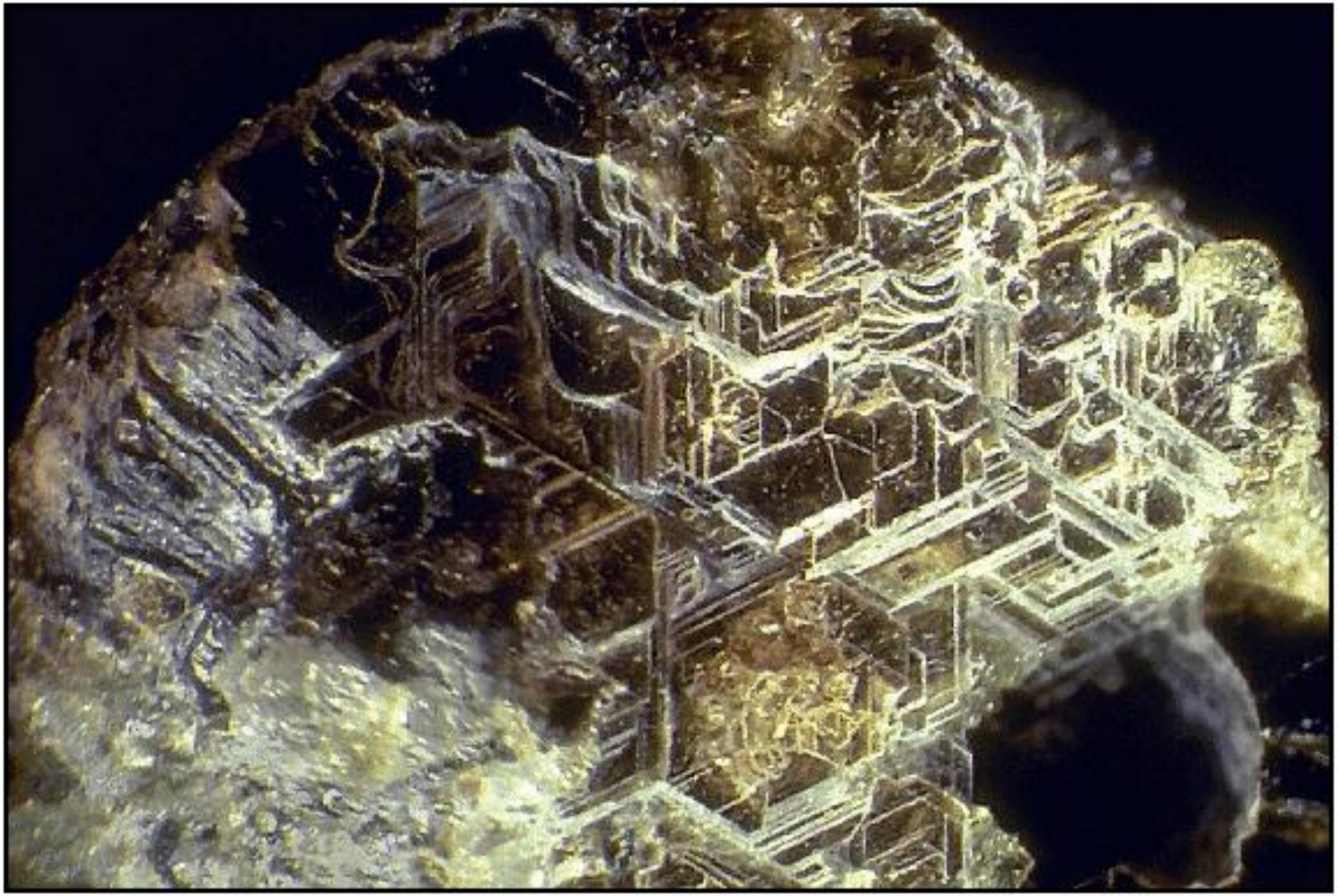
Origin of Name: from Russian name Muscovy glass

Synonyms Varieties: fuchsite/mariposite (Cr-rich var.), sericite (fine-grained var.), roscoelite (V-rich var.), phengite (Al-poor var.), alurgite (Mg,Fe,Mn-rich var.), astrolite

©Wendell Wilson

Muscovite

Templeton, Quebec, Canada



©Lou Perloff

Muscovite in Olivine

Monte Somma (Vesuvius), Campania, Italy

TECTOSILICAȚI

CLASIFICAREA SILICAȚILOR

Nesosilicați

Tetraedrii solitari

$[SiO_4]^{4-}$

Sorosilicați

Doi tetraedrii solitari, cu un oxigen comun

$[Si_2O_7]^{6-}$

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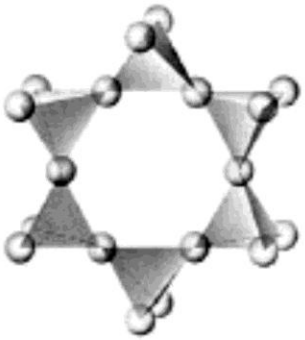

$[Si_3O_9]^{6-}$

$[Si_4O_{12}]^{8-}$

$[Si_6O_{18}]^{12-}$

Inosilicați

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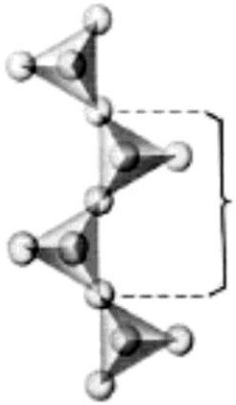
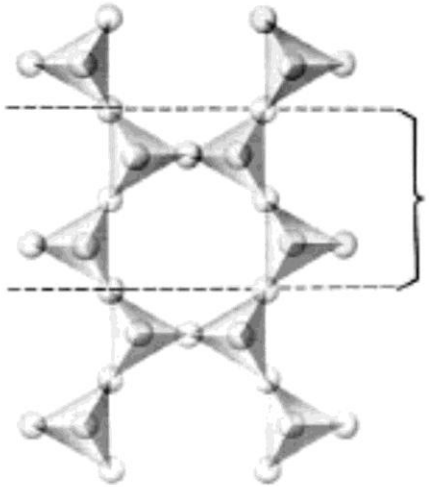
Tetraedrii legați prin câte un anion comun de oxigen, formează lanțuri simple, infinite.



$[Si_2O_3]^{2-}$

$[Si_2O_6]^{4-}$



Ionosilicați

-amfiboli-

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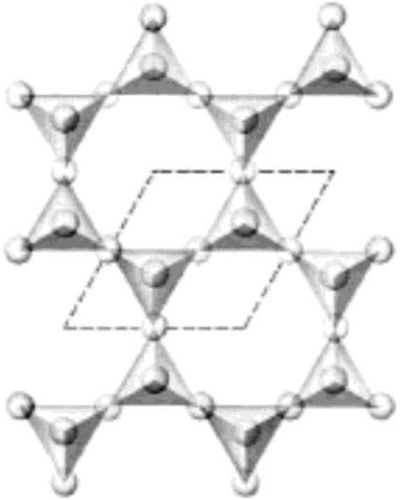

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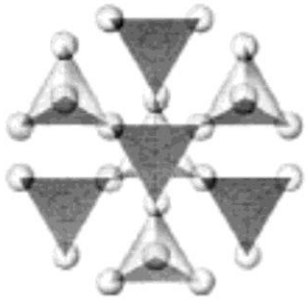

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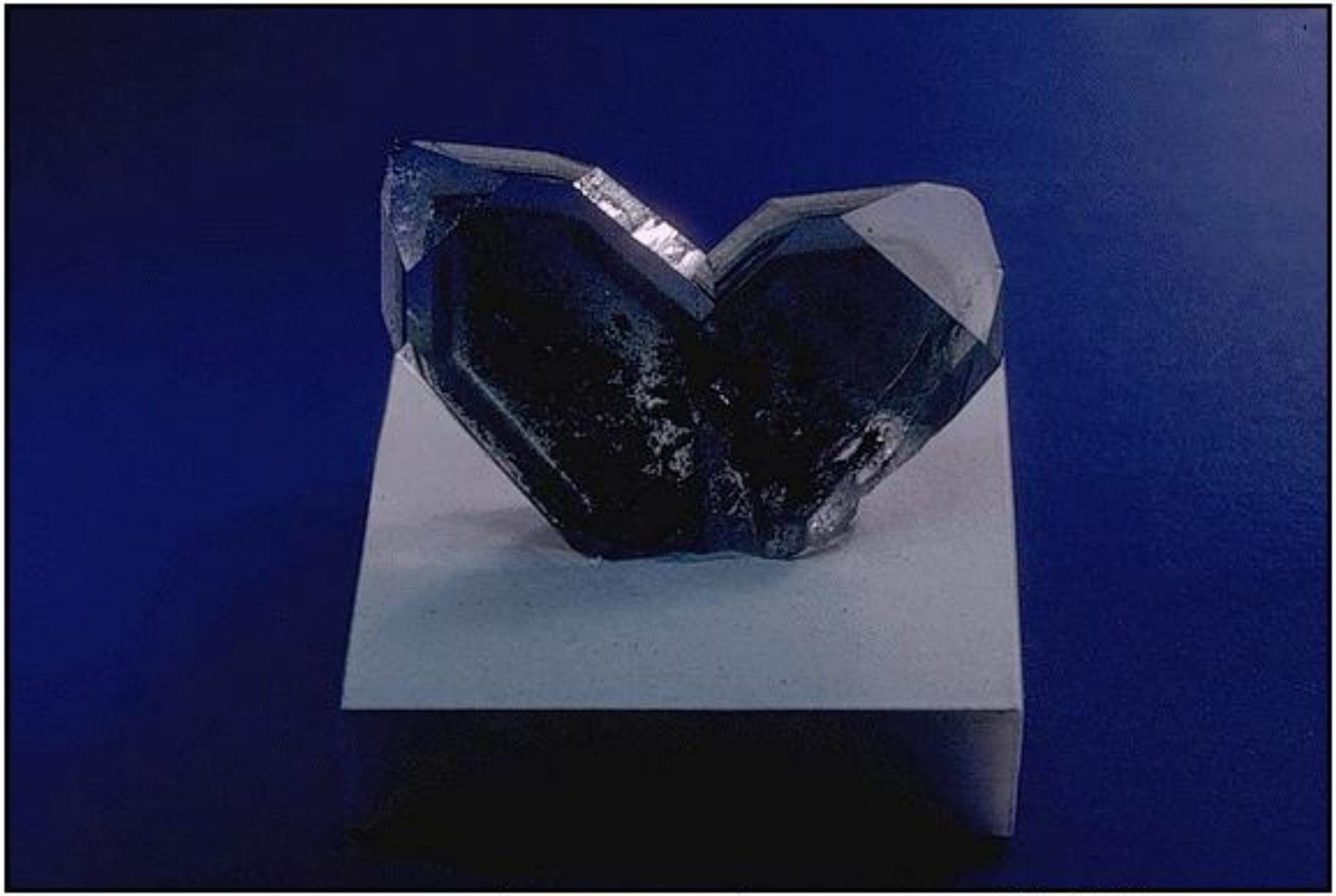
$[SiO_2]$, $[AlSiO_4]^-$

$[AlSi_3O_8]^-$, $[Al_2Si_2O_8]^{2-}$

GRUPA SILICEI

OPAL - CALCEDONIE - CUARŢ



1 cm

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Quartz (Japanese twin)

Prince of Wales Island, Alaska

Smoky Quartz (Japanese twin)

Mina Tiro Estrella, Capitan Mts., Lincoln Co., N.M.

1 cm

©Wendell Wilson

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1 cm

Quartz (amethyst scepter)

Crystal Park, Park Co., Montana

1 cm

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1 cm

1 cm

©Wendell Wilson

Quartz (amethyst)

Junction shaft, Bisbee, Cochise Co., Arizona

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1 cm

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Extra Images

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Quartz (amethyst)

Artigas, Uruguay

1 cm

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Extra Images

Quartz (citrine; rough and cut)

Brazil

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1 cm

©Wendell Wilson

Quartz (chrysoprase)

Kalgoorlie, Western Australia

1 cm

©Rick Dillhoff

Quartz (scepter) with Pyrite

Spruce claim, King Co., Washington


1 cm

1 cm

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Extra Images

Quartz on Calcite (manganoan)

Pachapaqui, Ancash Dept., Peru

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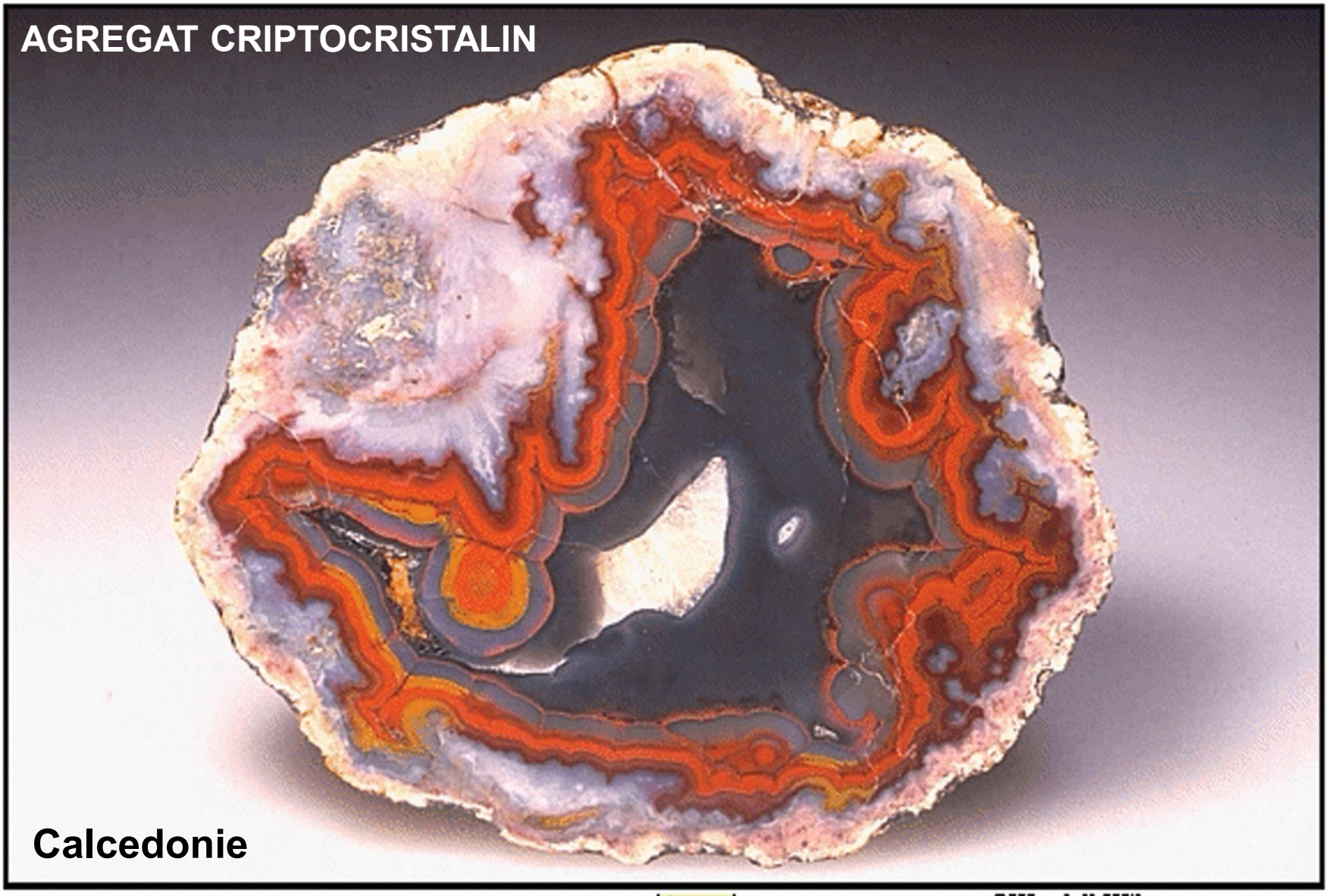
AGREGAT CRIPTOCRISTALIN



Quartz (agate)

Lexington, Fayette Co., Kentucky

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AGREGAT AMORF

1 cm

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Fire Opal (rough and cut)

Zimapan, Hidalgo, Mexico

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GRUPA FELDSPAŢILOR

**potasici (K)*

**plagioclazi (Na, Ca)*

Orthoclase

Orthoclase from

Goodsprings, Clark Co., Nevada

GENERAL INFORMATION

$K Al Si_3 O_8$

Strunz number: 9.FC.1

Origin of Name: from Greek orthos = right and klas = to fracture

Synonyms

Varieties: adularia (wedge-shaped var.), K-feldspar, potassium feldspar, potash feldspar; moonstone (adularescent gem var.)

Trimorphous with microcline and sanidine; series with celsian and hyalophane

Microcline

Microcline (amazonite), Quartz, Albite from Lake George, Park Co., Colorado

GENERAL INFORMATION

$K Al Si_3 O_8$

Strunz number: 9.FC.3

Origin of Name: from Greek for little and slanted

Synonyms Varieties: amazonite (blue-green var.), barbierite, K-feldspar, potassium feldspar, potash feldspar

Trimorphous with orthoclase and sanidine

Microcline (amazonite; rough and cut)

Pike's Peak, Colorado

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5 cm

©Wendell Wilson

Microcline (amazonite), Quartz, Albite

Crystal Peak, Park/Teller Co., Colorado

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Albite

Albite with Lepidolite on Quartz from Himalaya mine, Mesa Grande, San Diego Co., Cal.

GENERAL INFORMATION

$(Ca_x Na_{1-x})(Si_{3-x} Al_{1+x})_4 O_8$

(x = 0.0 - 0.1)

Strunz number: 9.FD.1

Origin of Name: from Latin, albus - white

Synonyms Varieties: cleavelandite (platy var.), soda feldspar, sodium feldspar, plagioclase [An 0-10]

Series with anorthite (plagioclase series) and with microcline

Oligoclase

Oligoclase from
Mitchell County, North Carolina

GENERAL INFORMATION

70 - 90% $(Na, Ca)\ Al\ (Al, Si)\ Si_2\ O_8$
10 - 30% $Ca\ Al_2 Si_2\ O_8$

Strunz number: 9.FD.1

Origin of Name: from Greek oligas = small and klan = to fracture

Synonyms

Varieties: plagioclase [An 10-30], sunstone (iridescent gem variety)

Intermediate member of the plagioclase series

Andesine

Andesine from
Baltimore, Baltimore Co., Maryland

Triclinic

GENERAL INFORMATION

$(Ca_xNa_{1-x})(Si_{3-x}Al_{1+x})_4O_8$
$(x = 0.3 - 0.5)$

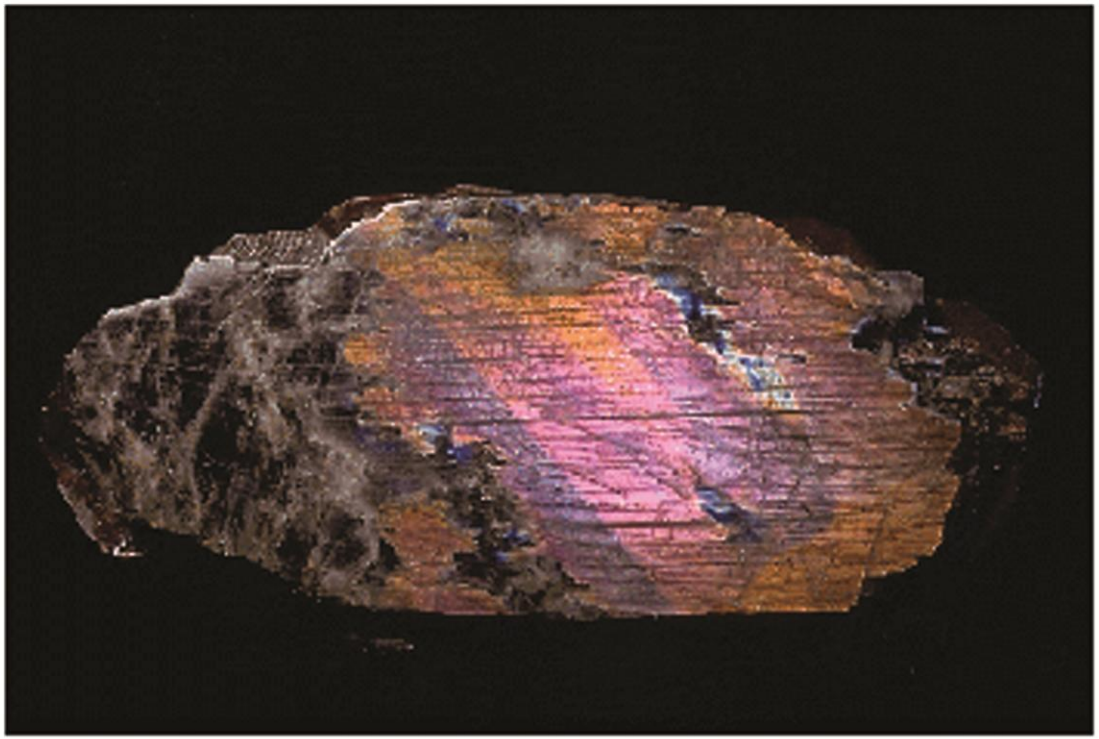
Strunz number: 9.FD.1

Origin of Name: after locality; in Andes Mountains

Synonyms
Varieties: plagioclase [An 30-50]

Intermediate member of plagioclase series

Labradorite



Labradorite (schiller effect) from Sweden

Triclinic

GENERAL INFORMATION

$Na_{.5-.3}\ Ca_{.5-.7}\ Al_{1.5-1.7}Si_{2.5-2.3}O_8$

Strunz number: 9.FD.1

Origin of Name: after locality; island off Labrador, Canada

Synonyms Varieties: plagioclase [An 50-70]

Intermediate member of plagioclase series

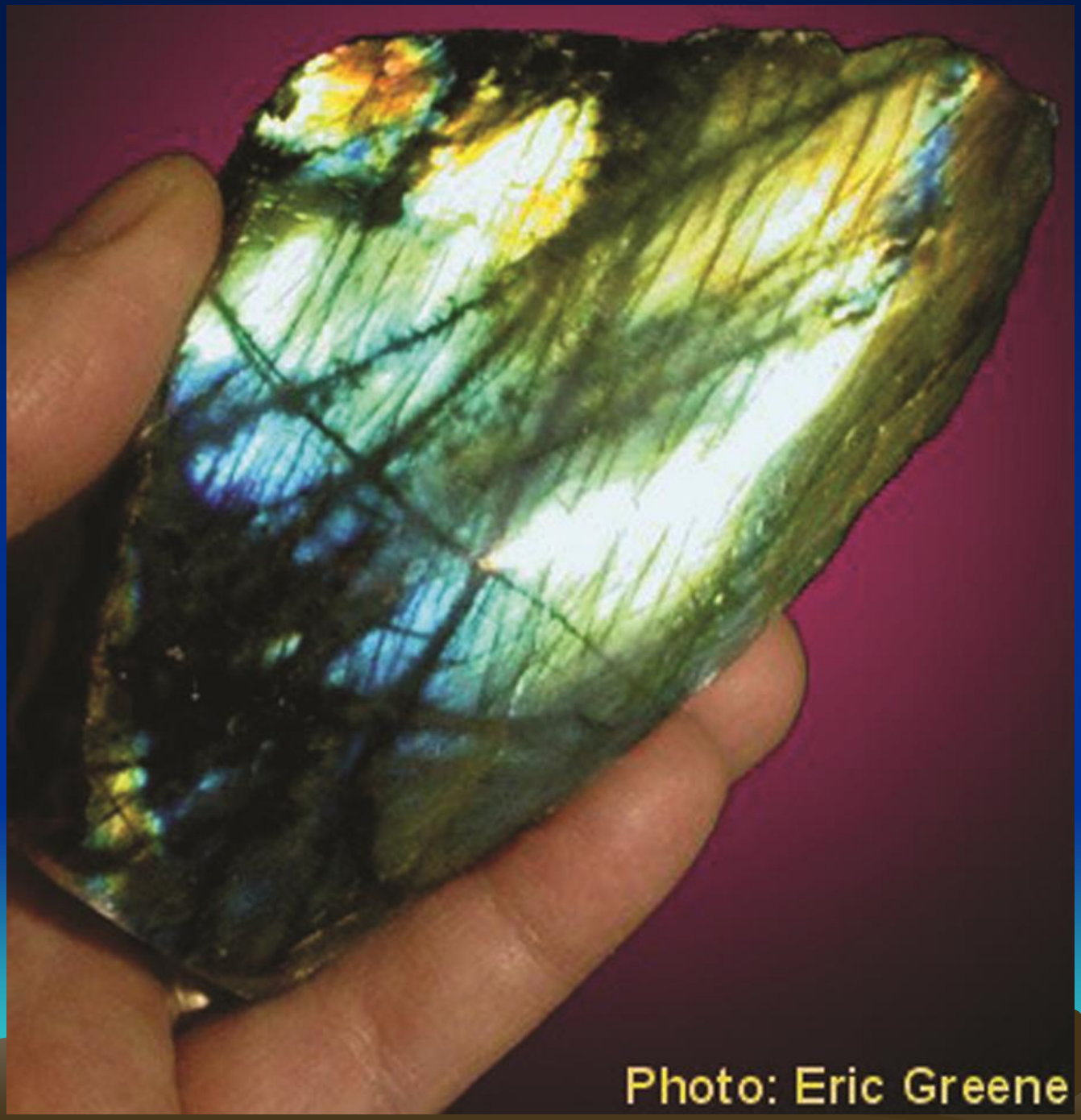
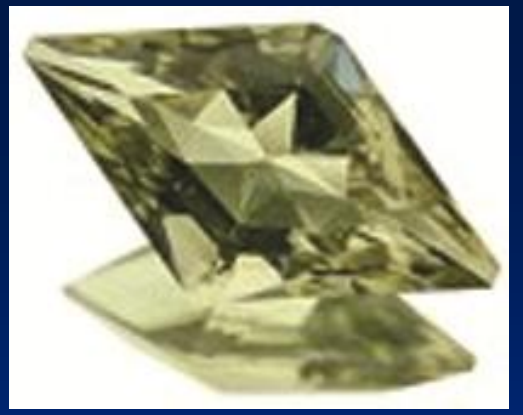
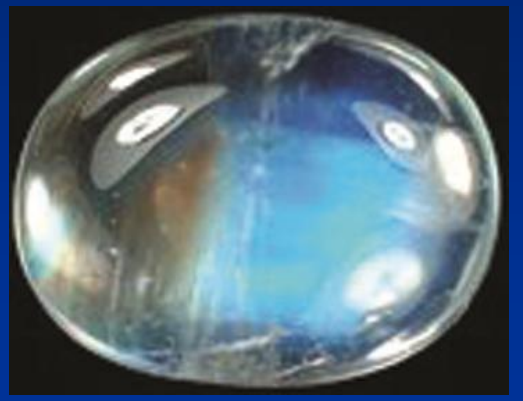


Photo: Eric Greene





Anorthite

Anorthite from

Monte Somma (Vesuvius), Campania, Italy

Triclinic

GENERAL INFORMATION

$(Ca_x\ Na_{1-x})\ (Si_{3-x}\ Al_{1+x})_4\ O_8$

(x = 0.9 - 1.0)

Strunz number: 9.FD.1

Origin of Name: from Greek an = not and orthos = right (angle)

Synonyms

Varieties: plagioclase [An 90-100]

End member of the plagioclase series

GRUPA FELDSPATOIZILOR

Lazurite

Lazurite (rough and cut) from
Cazadero River, Ovalle, Coquimbo, Chile

GENERAL INFORMATION

$(Na, Ca)_{7-8}\ (Al, Si)_{12}\ (O, S)_{24}\ [(SO_4), Cl_2, (OH)_2]$

Strunz number: 9.FF.3

Origin of Name: from Persian, lazhward = blue

Synonyms Varieties: cyanus, lapis lazuli, ultramarine

May also be monoclinic, triclinic or orthorhombic

1 cm

©Wendell Wilson

Lazurite with Pyrite on/in Calcite

Firgamu, Badakhshan Prov., Afghanistan

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50%
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2017 08 19


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SALE
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50%
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ANATOMIE
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