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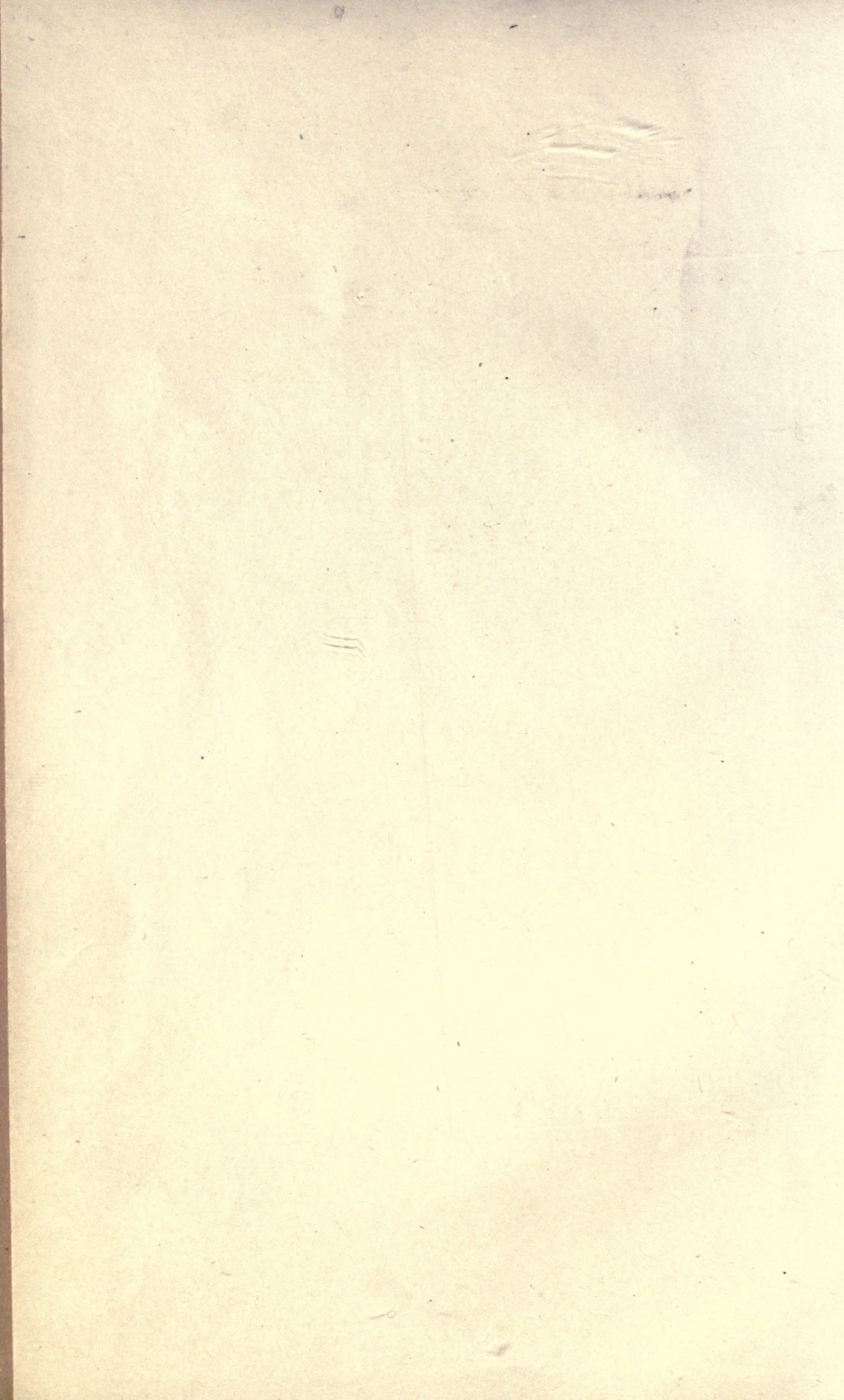
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CATALOGUE  
OF  
MINERALS,

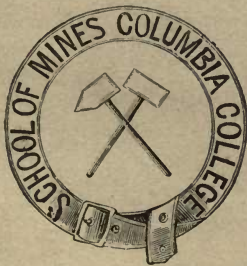
WITH THEIR  
FORMULÆ AND CRYSTALLINE SYSTEMS,

PREPARED FOR THE USE OF THE STUDENTS OF THE  
SCHOOL OF MINES,  
OF  
COLUMBIA COLLEGE.

BY  
THOMAS EGGLESTON,  
Professor of Mineralogy and Metallurgy.

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SECOND EDITION.



NEW YORK.

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1871.





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# INTRODUCTION

---

The following Catalogue of Minerals is intended to serve as a guide to the arrangement of the collection of Minerals of the School of Mines of Columbia College and also as a catalogue to private collections. To render it something more than a mere enumeration of names, the formulæ expressing the chemical composition of the mineral, and the system in which it crystallizes have been given. The classification of the Silicates is that adopted by Dana in the fifth edition of his Mineralogy. The other Minerals have been classified by their bases.

An alphabetical catalogue of the Minerals which crystallize in the different systems will be found on pp. vii—xii.

It has been found most convenient to refer to the systems of crystallization by numbers. A table explaining their meaning, and the names which have been used by different authors will be found on p. vi of the Catalogue.

In order to facilitate reference to collections, a blank column, headed No., has been left before the name of the species.

An asterisk following the name of a mineral, as Sulphur\*, p. 1, denotes that it has been found in the United States. A dagger, as Danburite†, p. 5, denotes that it has been found in the United States only. The other minerals, so far as is known, have not been found in this country. The doubtful species have generally been indicated by an interrogation point.

THOMAS EGGLESTON.

NEW YORK, JAN., 1871.

## SYSTEMS OF CRYSTALLIZATION.

No.	SIMPLE FORMS.	AXES.
1	Octahedron, or cube.	3 axes rectangular and equal.
2	Tetragonal pyramid, or right prism with a square base.	3 axes rectangular, 2 equal.
3	Rhombic pyramid, or right prism with a rhombic base.	3 axes rectangular and unequal.
4	Monoclinic pyramid, or inclined rhombic prism.	3 axes unequal, 2 rectangular.
5	Triclinic pyramid, or doubly inclined rhomboidal prism.	3 axes unequal and unequally inclined.
6	Hexagonal pyramid, hexagonal prism, or rhombohedron.	4 axes, 3 equal and equally inclined, 1 at right angles to the other 3.

### NAMES USED BY DIFFERENT AUTHORS.

No.	MOHS.	WEISS AND ROSE.	NAUMANN.
1	Tessular.	Regular.	Tesseral.
2	Pyramidal.	2 and 1 axial.	Tetragonal.
3	Orthotype.	1 and 1 axial.	Rhombic.
4	Hemiorthotype.	2 and 1 membered.	Monoclinohedric.*
5	Anorthotype.	1 and 1 membered.	Triclinohedric.*
6	Rhombohedral.	3 and 1 axial.	Hexagonal.

### NAMES USED BY DIFFERENT AUTHORS.

No.	PHILLIPS.	DELAFOSSÉ.	DANA, 1854.	DANA, 1869.
1	Cubic.	Cubic.	Monometric.	Isometric.
2	Pyramidal.	Tetragonal.	Dimetric.	Tetragonal.
3	Prismatic.	Orthorhombic.	Trimetric.	Orthorhombic.
4	Oblique.	Clinorhombic.	Monoclinic.	Monoclinic.
5	Anorthic.	Clinohedric.	Triclinic.	Triclinic.
6	Rhombohedral.	Hexagonal.	Hexagonal.	Hexagonal.

\* Now monoclinic and triclinic.



# MINERALS

ARRANGED ACCORDING TO THEIR

## SYSTEMS OF CRYSTALLIZATION

---

### 1. ISOMETRIC.

Alabandite.	Franklinite.	Pentlandite.
Altaite.	Gahnite.	Percylite.
Amalgam.	Galenite.	Periclasite.
Analcite.	Garnet.	Perovskite.
Argentite.	Gersdorffite.	Pettkoite.
Arquerite.	Gold.	Pharmacosiderite.
Arsenolite.	Grünauite.	Platiniridium.
Binnite.	Halite.	Platinum.
Boracite.	Hauerite.	Pollucite.
Bornite.	Häüynite.	Pyrite.
Bromyrite.	Helvite.	Pyrochlore.
Brongniardite.	Hercynite.	Pyrrhite.
Bunsenite.	Iron.	Rhodizite.
Carrollite.	Kalinite.	Sal ammoniac.
Cerargyrite.	Kremersite.	Senarmontite.
Cerite.?	Lapis Lazuli.	Silver.
Chromite.	Laurite.	Skutterudite.
Clausthalite.	Lead.	Smaltite.
Clayite.	Leucite.	Sodalite.
Cobaltite.	Linnæite.	Sphalerite.
Copper.	Magnesioferrite.	Spinel.
Corynite.	Magnetite.	Syivite.
Cubanite.	Melaconite.	Tennantite.
Cuprite.	Mercury.	Tetrahedrite.
Danalite.	Microlite.	Thorite.
Diamond.	Native iron.	Tritomite.
Embolite.	Naumannite.	Tschermigite.
Eulytite.	Nosite.	Ullmannite.
Faujasite.	Palladium.	Uraninite.
Fluorite.		Voltaite.

## 2. TETRAGONAL.

Adelpholite.  
 Apophyllite  
 Azorite.  
 Braunite.  
 Calomel.  
 Cassiterite.  
 Chalcopyrite.  
 Chiolite.  
 Dipyre.  
 Edingtonite.  
 Ekebergite.  
 Fergussonite.  
 Gehlenite.  
 Guarinite.

Hausmannite.  
 Lœweite.  
 Matlockite.  
 Marialite.  
 Meionite.  
 Mellite.  
 Mellite.  
 Mizzonite.  
 Monimolite.  
 Nagyagite.  
 Octahedrite.  
 Paranthite.  
 Phosgenite.  
 Romeite.

Rutile.  
 Sarcolite.  
 Scheelite.  
 Stannite. ?  
 Stolzite.  
 Tapiolite.  
 Tin.  
 Torbernite.  
 Wernerite.  
 Wulfenite.  
 Vesuvianite.  
 Xenotime.  
 Zircon.

## 3. ORTHORHOMBIC.

Acanthite.  
 Adamite.  
 Æschynite.  
 Aikinite.  
 Alloclasite.  
 Andalusite.  
 Anglesite.  
 Anhydrite.  
 Anthophyllite.  
 Aphthitalite.  
 Aragonite.  
 Arsenopyrite.  
 Astrophyllite.  
 Atacamite.  
 Autunite.  
 Barite.  
 Bismuthinite.  
 Bolivianite.  
 Bournonite.  
 Brochantite.  
 Bromlite.  
 Brookite.  
 Calamine.  
 Caledonite.  
 Carminite.  
 Carpholite.  
 Celestite.  
 Cerussite.  
 Cervantite.  
 Chalcocite.  
 Chalcostibite.  
 Childrenite.

Chondrodite.  
 Chrysoberyl.  
 Chrysolite.  
 Claudetite.  
 Columbite.  
 Cotunnite.  
 Cryophyllite.  
 Dalemintzite.  
 Descloizite.  
 Diaclasite.  
 Diaspore.  
 Dimorphite.  
 Dufrenite.  
 Dufrenoysite.  
 Dyscrasite.  
 Emplectite.  
 Enargite.  
 Enstatite.  
 Epistilbite.  
 Epsomite.  
 Euchroite.  
 Eudnophite.  
 Euxenite.  
 Fauserite.  
 Fayalite.  
 Felsobanyite.  
 Fischerite.  
 Fluellite.  
 Forsterite.  
 Gadolinite.  
 Geocronite.  
 Gismondite.

Glaucodot.  
 Goslarite.  
 Goethite.  
 Haidingerite.  
 Herderite.  
 Herschelie.  
 Hessite.  
 Hopeite.  
 Huebnerite.  
 Hypersthene.  
 Ivaite.  
 Iolite.  
 Jamesonite.  
 Jefferisite. ?  
 Kaolinite.  
 Kieserite.  
 Langite.  
 Lanthanite.  
 Leadhillite.  
 Lecontite.  
 Lepidolite.  
 Leucophanite.  
 Leucopyrite.  
 Libethenite.  
 Lindackerite.  
 Loellingite.  
 Manganite.  
 Manganocalcite. ?  
 Marcasite.  
 Margarite.



Margarodite.	Polybasite.	Struvite.
Mascagnite.	Polyhalite. ?	Succinellite.
Massicot.	Polycrase.	Sulphur.
Megabasite.	Polymignite.	Talc.
Mendipite.	Prehnite.	Tantalite.
Mengite.	Pseudomalachite.	Tauriscite.
Molybdite.	Pyrolusite.	Tephroite.
Monticellite.	Pyrophyllite.	Thenardite.
Mosandrite ?	Rammelsbergite.	Thermonatrite.
Muscovite.	Samarskite.	Thomsonite.
Naphthalin.	Sapphirine. ?	Topaz.
Natrolite.	Sartorite.	Triphylite.
Nitre.	Scorodite.	Triplite.
Okenite. ?	Serpentine. ?	Tyrolite.
Olivenite.	Seybertite.	Valentinite.
Orpiment.	Sloanite.	Villarsite.
Pacite.	Staurolite.	Wavellite.
Parathorite.	Stephanite.	Witherite.
Peganite.	Sternbergite.	Wittichenite.
Phillipsite.	Stibnite.	Wolframite.
Phlogopite.	Stilbite.	Yttrotantalite.
Phoenicochroite. ?	Stromeyerite.	Zinkenite.
Pholerite.	Strontianite.	Zoisite.
Picrosmine.	Stylotypite.	

#### 4. MONOCLINIC.

Acmite.	Epidote.	Malachite.
Ægirite.	Erythrite.	Melanterite.
Allanite.	Euclase.	Meneghinite.
Alunogen.	Fibrolite.	Metabrushite.
Amphibole.	Fichtelite.	Mirabilite.
Annabergite.	Freieslebenite.	Miargyrite.
Arfvedsonite. ?	Gay-Lussite.	Monazite.
Atelestite.	Glauberite.	Natron.
Azurite.	Gypsum.	Orthoclase.
Barytocalcite.	Harmotome.	Pachnolite.
Bieberite.	Hartite.	Partschinite.
Bobierite.	Hessenbergite.	Pectolite.
Borax.	Heulandite.	Petalite.
Bosjemanite. ?	Hoernesite.	Pharmacolite.
Botryogen.	Hureaulite.	Pickeringite. ?
Brewsterite.	Hyalophane.	Picromerite.
Brushite.	Hydromagnesite.	Piedmontite.
Cabrerite.	Johannite.	Plagionite.
Churchite. ?	Keilhauite.	Prosopite.
Clinoclasite.	Kermesite.	Pyrosclerite. ?
Conarite. ?	Koettigite.	Pyrostilpnite.
Corundophilite.	Kupfferite.	Pyroxene.
Crednerite.	Lanarkite.	Realgar.
Crocoite.	Laumontite.	Ripidolite.
Cyanochroite.	Lazulite.	Rittingerite.
Datolite.	Linarite.	Röemerite.
Durangite.	Liroconite.	Rutherfordite.

Scheererite.	Thomsenolite.	Wagnerite.
Scolecite.	Titanite.	Warwickite. ?
Spodumene.	Trona.	Whewellite.
Sylvanite.	Vauquelinite.	Woehlerite.
Symplesite.	Vivianite.	Wollastonite.
Tagilite.		

---

### 5. TRICLINIC.

Albite.	Babingtonite.	Labradorite.
Amblygonite.	Chalcantinite.	Mesolite. ?
Andesite.	Chloritoid. ?	Oligoclase.
Anorthite.	Cryolite.	Rhodonite.
Axinite.	Cyanite.	Sassolite.
	Danburite.	

---

### 6. HEXAGONAL.

Allemontite.	Eudialyte.	Prochlorite. ?
Allopalladium.	Fluocerite.	Proustite.
Alumian. ?	Gibbsite.	Pyroaurite.
Alunite.	Gmelinite.	Pyrargyrite.
Ankerite.	Graphite.	Pyromorphite.
Antimony.	Greenockite.	Pyrosmalite.
Apatite.	Hematite.	Pyrrhotite.
Arsenic.	Hydrotalcite.	Quartz.
Beryl.	Iodyrite.	Raimondite.
Beudantite.	Iridosmine.	Rhodochrosite.
Biotite.	Jarosite.	Schwartzembergite.
Bismuth.	Joseite.	Siderite.
Breithauptite.	Lepidomelane. ?	Smithsonite.
Brucite.	Leuchtenbergite.	Soda nitre.
Calcite.	Levynite.	Susannite.
Cancrinite.	Magnesite.	Svanbergite.
Catapleiite.	Meliphanite. ?	Tellurium.
Chabazite.	Menaccanite.	Tetradymite.
Chalcophyllite.	Mesitite.	Tourmaline.
Cinnabar.	Millerite.	Vanadinite.
Connellite.	Mimetite.	Volborthite.
Copiapite. ?	Molybdenite. ?	Water.
Coquimbite.	Nephelite.	Wehrlite.
Corundum.	Niccolite.	Willemite.
Covellite.	Parisite.	Wurtzite.
Cronstedtite.	Penninite.	Xanthoconite.
Diopase.	Phenacite.	Zinc.
Dolomite.	Pistomesite.	Zincite.
Dreelite.	Plattnerite. ?	

**Minerals which do not Crystallize or whose System is undetermined.**

Algodonite.	Chloropal.	Guyaquillite.
Allophane.	Chlorophæite.	Gummite.
Alpите.	Chodnéffite.	Gyrolite.
Aluminite.	Chondrasenite.	Halloysite.
Ambrite.	Chonicrite.	Halotrichite.
Ammiolite.	Chrismatite.	Hatchettite.
Anthosiderite.	Chrysocola.	Hielmite.
Anthracoxenite.	Cimolite.	Hircite.
Apatelite.	Cirrolite.	Hisingerite.
Aphrodite.	Coccinite.	Hovite.
Apjohnite.	Collyrite.	Howlite.
Arksutite.	Conichalcite.	Humboldtine.
Arseniosiderite.	Cookeite.	Hydroboracite.
Asphaltum.	Copalite.	Hydrodolomite.
Augelite.	Cornwallite.	Hydrophite.
Aurichalcite.	Crocidolite.	Hydrozincite.
Barrandite.	Crookesite.	Hypochlorite.
Barnhardtite.	Cryptolite.	Hypostilbite.
Bathvillite.	Cryptolinite.	Idrialite.
Bayldonite.	Cryptomorphite.	Isopyre.
Beauxite.	Cuproscheelite.	Jadeite.
Bechilite.	Cyanotrichite.	Jollyte.
Berlinite.	Damourite.	Kaneite.
Berthierite.	Dechenite.	Karelinité.
Berzelianite.	Deweylite.	Kischtimite.
Berzelite.	Diadochite.	Knebelite.
Biharite.	Domeykite.	Kobellite.
Bindheimite.	Dopplerite.	Könlite.
Bismite.	Dysodile.	Lagonite.
Bismutite.	Ekmannite.	Lamprophanite.
Bløedite.	Elaterite.	Larderellite.
Borickite.	Eliasite.	Lehrbachite.
Boulangerite.	Erdmannite.	Leucopetrite.
Brewsterlinite.	Erinite.	Liebigite.
Bruecknerellite.	Eucairite.	Limnite.
Butyrellite.	Euosmite.	Limonite.
Cacoxenite.	Euphyllite.	Löwigité.
Calaverite.	Evansite.	Medjidite.
Callainite.	Fahlunite.	Melanellite.
Carnallite.	Ferberite.	Mendozite.
Carphosiderite.	Fibroferrite.	Middletonite.
Castillite.	Gearsutite.	Mineral coal.
Cataspilite.	Genthite.	Minium.
Celadonite.	Geocerite.	Misenite.
Cerolite.	Geocerellite.	Molysite.
Chamoisite.	Geomyricite.	Montanite.
Chenevixite.	Gillingite.	Montmorillonite.
Chilenite.	Glauconite.	Mordenite.
Chiviatite.	Glockerite.	Morenosite.
Chlorastrolite.	Gold amalgam.	Muromontite.

Naphtha.	Schorlomite.	Troilite.
Neolite.	Schreibersite.	Trolleite.
Neotocite.	Schrötterite.	Tscheffkinité.
Nitrocalcite.	Scleretinite.	Tungstite.
Nitromagnesite.	Selensulphur.	Turgite.
Opal.	Sepiolite.	Turquois.
Öllacherite.	Smectite.	Ulexite.
Ozocerite.	Sordavalite.	Uraconite.
Palagonite.	Spadaite.	Uranochalcite.
Paragonite.	Sphærite.	Urpethite.
Paraluminite.	Stanekite.	Vanadic ochre.
Pencatite.	Stercorite.	Voglianite.
Pihlité.	Stibiconite.	Voglite.
Pimelite.	Stilpnomelane.	Voigtite.
Pinite.	Succinite.	Volgerite.
Pisanite.	Sulphatite.	Voltzite.
Pissophanite.	Sussexite.	Wad.
Pitticite.	Syepoorite.	Walchowite.
Pittolium.	Szaibelyite.	Whitneyite.
Plumbogummite.	Tachydrite.	Wichtisite.
Predazzite.	Tachylyte.	Wolchonskoite.
Psilomelane.	Tallingite.	Xanthosiderite.
Pyrochroite.	Tasmanite.	Xonaltite.
Pyroretinite.	Tavistockite.	Xyloretinite.
Remingtonite.	Taylorite.	Yttrocerite.
Retinellite.	Tengerite.	Zaratite.
Rochlederite.	Teschemacherite.	Zietrisikite.
Rösslerite.	Thrombolite.	Zinkosite.
Samoite.	Thuringite.	Zippeite.
Saponite.	Tiemannite.	Zorgite.
Schlanite.	Trichalcite.	

# ANALYTICAL TABLE.

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# CATALOGUE OF MINERALS.

No.	Name.	Formula.	System of crystallization.
-----	-------	----------	----------------------------

## HYDROGEN.

<b>Water*</b>	H	6
---------------	---	---

## SULPHUR.

<b>Sulphur*</b>	S	3
-----------------	---	---

<b>Selensulphur*</b>	S, Se	
----------------------	-------	--

<b>Sulphatite*</b>	H S	
--------------------	-----	--

## TELLURIUM.

<b>Tellurium</b>	Te	6
------------------	----	---

## CARBON.

<b>Diamond*</b>	C	1
-----------------	---	---

<b>Graphite*</b>	C	6
------------------	---	---

## BORON.

<b>Sassolite</b>	H <sup>3</sup> B	5
------------------	------------------	---

## SILICON.

<b>Quartz*</b>	Si	6
----------------	----	---

Chalcedony\*

Agate\*

Jasper\*

No.	Name.	Formula.	System of crystallization.
	<b>Opal</b>	Si	
	Precious opal		
	Semi-opal*		
	Fiorite		
	Tripolite		

## SILICATES.

## A. ANHYDROUS SILICATES.

## I. BISILICATES.

## I. AMPHIBOLE GROUP.

## 1.—Pyroxene Section.

<b>Enstatite*</b>	Mg Si	3
<b>Hypersthene</b>	(Mg, Fe) Si	3
<b>Diaclasite</b>	(Mg, Ca Fe) Si	3
<b>Wollastonite*</b>	Ca Si	4
<b>Pyroxene*</b>	R Si	4
Malacolite*	(Ca Mg) Si	
Sahlite*	(Ca Mg Fe) Si	
Hedenbergite*	(Ca Fe) Si	
Augite*	(Ca Mg Fe) (Si Al $\frac{3}{8}$ )	
<b>Ægirite</b>	( $\frac{1}{2}$ Ca Na Fe) $^2 + \frac{1}{2}$ Fe) Si $^3$	4
<b>Acmite</b>	( $\frac{1}{2}$ Na Fe) $^2 + \frac{3}{8}$ Fe) Si $^3$	4
<b>Rhodonite*</b>	Mn Si	5
<b>Babingtonite*</b>	( $\frac{3}{4}$ Ca Fe Mn) $^3 + \frac{1}{4}$ Fe) Si $^3$	5

## 2.—Spodumene Section.

<b>Spodumene*</b>	$\frac{1}{2}$ (Li Na) $^3 + \frac{1}{2}$ Al) Si $^3$	4
<b>Petalite*</b>	( $\frac{1}{2}$ (Li Na) $^3 + \frac{1}{2}$ Al) Si $^3 + 3$ Si	4

No.	Name.	Formula.	System of crystallization.
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3.—*Amphibole Section.*

<b>Kupfferite</b>	$\text{Mg Si}$	4
<b>Anthophyllite</b>	$(\frac{1}{2} \text{Fe} + \frac{1}{4} \text{Mg}) \text{Si}$	3
<b>Amphibole*</b>	$\text{R Si}$	4
Tremolite*	$(\text{Ca Mg}) \text{Si}$	
Actinolite*	$(\text{Ca Mg Fe}) \text{Si}$	
Hornblende*	$(\text{Mg Ca Fe}) (\text{Si Al})$	
<b>Arfvedsonite</b>	$(\frac{2}{3} (\frac{1}{2} \text{Fe} + \frac{1}{2} \text{Na})^2 + \frac{2}{3} \text{Fe}) \text{Si}^3$	4 ?
<b>Crocidolite</b>	$(\text{Na Mg Fe})^2 \text{Si}^5 + 2 \text{H}$	

*Appendix to Amphibole Section.*

<b>Wichtisit</b>	$(\frac{1}{2} (\text{Na Mg Ca Fe})^2 + \frac{1}{2} (\text{Al Fe})) \text{Si}^3$
<b>Sordavalite</b>	$(\frac{1}{2} (\text{Mg Fe})^2 + \frac{1}{2} \text{Al}) \text{Si}^3$
<b>Tachylite</b>	$\text{K, Na, Ca, Mg, Fe, Al, Si}$

## II. BERYL GROUP.

<b>Beryl*</b>	$(\frac{1}{3} \text{Be}^2 + \frac{1}{3} \text{Al}) \text{Si}^2$	6
<b>Eudialyte</b>	$2 (\text{Ca Na})^2 \text{Si}^2 + 2 \text{r Si}^2$	6

## III. POLLUCITE GROUP.

<b>Pollucite</b>	$(\text{Cs}^2 \text{Al}) \text{Si}^2 + \frac{1}{2} \text{H}$	1
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## II. UNISILICATES.

## I. CHRYSOLITE GROUP.

<b>Forsterite*</b>	$\text{Mg}^2 \text{Si}$	3
<b>Monticellite</b>	$(\frac{1}{2} \text{Ca} + \frac{1}{2} \text{Mg})^2 \text{Si}$	3
<b>Chrysolite*</b>	$(\text{Mg Fe})^2 \text{Si}$	3
<b>Fayalite</b>	$\text{Fe}^2 \text{Si}$	3
<b>Tephroite*</b>	$\text{Mn}^2 \text{Si}$	3
<b>Knebelite</b>	$(\frac{1}{2} \text{Fe} + \frac{1}{2} \text{Mn})^2 \text{Si}$	

No.	Name.	Formula.	System of crystallization.
	<b>Leucophanite</b>	$[\frac{1}{2}(\text{Ca Na}) + \frac{1}{2} \text{Be}]^2 \text{Si} + \frac{2}{3} \text{Si}$	3
	<b>Woehlerite</b>	$[\frac{2}{3}(\text{Na Ca})^2 + \frac{1}{3} \text{Zr}] \text{Si} [ + \frac{1}{10} (\text{Fe Mn}) \text{Cb} ]$	4
	II. PHENACITE GROUP.		
	<b>Willemite*</b>	$\text{Zn}^2 \text{Si}$	6
	<b>Phenacite</b>	$\text{Be}^2 \text{Si}$	6
	<b>Meliphanite</b>	$((\text{Ca Na Be})^2 \text{Al})^2 \text{Si}^3 + \frac{2}{3} \text{Si}$	6 ?
	III. HELVITE GROUP.		
	<b>Helvite</b>	$(\frac{1}{2}(\text{Mn Fe}) + \frac{1}{2} \text{Be})^2 \text{Si} + \frac{1}{3} \text{MnS}$	1
	<b>Danalite†</b>	$(\frac{1}{2}(\text{Fe Mn Zn}) + \frac{1}{2} \text{Be})^2 \text{Si} + \frac{1}{3} \text{ZnS}$	1
	IV. GARNET GROUP.		
	<b>Garnet*</b>	$(\frac{1}{2} \text{R}^3 + \frac{1}{2} \text{H})^2 \text{Si}^3$	1
	Pyrope*	$(\frac{1}{2}(\text{Ca Mg Fe Mn})^3 + \frac{1}{2} \text{Al})^2 \text{Si}^3$	
	Grossularite*	$(\frac{1}{2} \text{Ca}^3 + \frac{1}{2} \text{Al})^2 \text{Si}^3$	
	Almandite*	$(\frac{1}{2} \text{Fe}^3 + \frac{1}{2} \text{Al})^2 \text{Si}^3$	
	Spessartite*	$(\frac{1}{2}(\text{Mn Fe})^3 + \frac{1}{2} \text{Al})^2 \text{Si}^3$	
	Andradite*	$(\frac{1}{2} \text{Ca}^3 + \frac{1}{2}(\text{Fe Al}))^2 \text{Si}^3$	
	Ouvarovite	$(\frac{1}{2} \text{Ca}^3 + \frac{1}{2} \text{Cr})^2 \text{Si}^3$	
	V. VESUVIANITE GROUP.		
	<b>Zircon*</b>	$\text{Zr Si}$	2
	<b>Vesuvianite*</b>	$(\frac{2}{3}(\text{Ca Mg Fe})^2 + \frac{2}{3} \text{Al})^2 \text{Si}^3$	2
	<b>Melilite</b>	$(\frac{2}{3}(\text{Na Mg Ca})^2 + \frac{1}{3}(\text{Al Fe}))^2 \text{Si}^3$	2
	VI. EPIDOTE GROUP.		
	<b>Epidote*</b>	$(\frac{1}{2} \text{Ca}^3 + \frac{2}{3}(\text{Al Fe}))^2 \text{Si}^3$	4
	<b>Piedmontite</b>	$(\frac{1}{2} \text{Ca}^3 + \frac{2}{3}(\text{Al Fe Mn}))^2 \text{Si}^3$	4
	<b>Allanite*</b>	$(\frac{1}{2}(\text{Ce Fe La Di Y Ca})^3 + \frac{1}{2}(\text{Al Fe}))^2 \text{Si}^3$	4
	<b>Muromontite</b>	$\text{Ce, La, Y, Be, Fe, Al, Si}$	

No.	Name.	Formula.	System of crystallization.
	<b>Zoisite*</b>	$(\frac{1}{3} \text{Ca}^3 + \frac{2}{3} \text{Al})^2 \text{Si}^3$	3
	<b>Jadelite</b>	$(\frac{1}{3}(\frac{2}{3} \text{Na} + \frac{1}{3} \text{R})^3 + \frac{2}{3} \text{Al})^2 \text{Si}^3 + 3 \text{Si}$	
	<b>Partschinite</b>	$(\frac{1}{2}(\text{Mn Fe})^3 + \frac{1}{2} \text{Al})^2 \text{Si}^3$	4
	<b>Gadolinite</b>	$(\text{Be Y Ce Fe})^2 \text{Si}$	3
	<b>Mosandrite</b>	$(\frac{1}{3} \text{Ca}^3 + \frac{2}{3}(\text{Ti Ce La B}))^2 \text{Si}^3 + 1\frac{1}{2} \text{H}$	3 ?
	<b>Ilvaite*</b>	$(\frac{2}{3}(\text{Ca Fe})^3 + \frac{2}{3}(\text{Fe Al}))^2 \text{Si}^3$	3
VII. AXINITE GROUP.			
	<b>Axinite*</b>	$(\text{Ca}^3 \text{H B})^2 \text{Si}^3$	5
	<b>Danburite†</b>	$(\frac{1}{4} \text{Ca}^3 + \frac{3}{4} \text{B})^2 \text{Si}^3$	5
VIII. IOLITE GROUP.			
	<b>Iolite*</b>	$2(\text{Fe Mg}) \text{Si} + \text{Al}^2 \text{Si}^3$	3
IX. MICA GROUP.			
	<b>Phlogopite*</b>	$(\frac{7}{11}(\text{K Mg})^3 + \frac{4}{11} \text{Al})^2 \text{Si}^3$	3
	<b>Biotite*</b>	$(\frac{1}{2}(\text{K Mg Fe})^3 + \frac{1}{2}(\text{Al Fe}))^2 \text{Si}^3$	6
	<b>Lepidomelane*</b>	$(\frac{1}{4}(\text{K Mg Fe})^3 + \frac{3}{4}(\text{Al Fe}))^2 \text{Si}^3$	6 ?
	<b>Astrophyllite</b>	$[(\text{Ti Zr}) \frac{2}{3}(\text{K Fe Mn})^3 (\text{Al Fe})]^2 \text{Si}^3$	3
	<b>Muscovite*</b>	$\frac{1}{3}(\text{R}^3 \text{H})^2 \text{Si}^3 + 2(\text{R}^3 \text{H}) \text{Si}^3$	3
	<b>Lepidolite*</b>	$\frac{2}{3}(\text{R}^3 \text{H})^2 \text{Si}^3 + 2(\text{R}^3 \text{H}) \text{Si}^3$	3
	<b>Cryophyllite†</b>	$[(\frac{2}{3} \text{R}^3 + \frac{1}{3} \text{H})^2 \text{Si}^3 + 3 \text{Si}]$	3
X. SCAPOLITE GROUP.			
Tetragonal, R : H 1 : 1. 1 : 2 & 1 : 3			
	<b>Sarcolite</b>	$(\frac{1}{3}(\frac{9}{10} \text{Ca} + \frac{1}{10} \text{Na})^3 + \frac{1}{3} \text{Al})^2 \text{Si}^3$	2
	<b>Meionite</b>	$(\frac{1}{3}(\frac{11}{11} \text{Ca} + \frac{1}{11} \text{Na})^3 + \frac{2}{3} \text{Al})^2 \text{Si}^3$	2
	<b>Paranthite</b>	$(\frac{1}{3} \text{Ca}^3 + \frac{2}{3} \text{Al})^2 \text{Si}^3$	2

† R=K, Na, Mg H=Fe, Al § R=Li, K H=Al, Fe  
 | R=Li, K, Fe H=Al, Fe, Mn



No.	Name.	Formula.	System of crystallization.
	<b>Wernerite*</b>	$(\frac{1}{4}(\dot{C}a \dot{N}a)^3 + \frac{3}{8} \dot{A}l)^2 \dot{S}i^2 + \dot{S}i$	2
	<b>Ekebergite*</b>	$(\frac{1}{4}(\dot{C}a \dot{N}a)^3 + \frac{3}{8} \dot{A}l)^2 \dot{S}i^2 + 3 \dot{S}i$	2
	<b>Mizzonite</b>	$(\frac{1}{4}(\dot{C}a \dot{N}a)^3 + \frac{3}{8} \dot{A}l)^2 \dot{S}i^2 + 2\frac{1}{2} \dot{S}i$	2
	<b>Dipyre</b>	$(\frac{1}{4}(\frac{1}{2} \dot{N}a + \frac{1}{2} \dot{C}a)^3 + \frac{3}{8} \dot{A}l)^2 \dot{S}i^2 + 6 \dot{S}i$	2
	<b>Marialite</b>	$(\frac{1}{4}(\dot{N}a \dot{C}a)^3 + \frac{3}{8} \dot{A}l)^2 \dot{S}i + 3 \dot{S}i$	2

## XI. NEPHELITE GROUP.

Hexagonal, R: H: 1: 3

<b>Nephelite</b>	$(\frac{1}{4}(\dot{N}a \dot{K} \dot{C}a)^3 + \frac{3}{4} \dot{A}l)^2 \dot{S}i^3 + \frac{3}{4} \dot{S}i$	6
<b>Cancrinite*</b>	$(\frac{1}{4}(\dot{N}a \dot{K} \dot{C}a)^3 + \frac{3}{4} \dot{A}l)^2 \dot{S}i^3 + \frac{3}{4} \dot{S}i + \dot{N}a \dot{C}l$	6

## XII. LEUCITE GROUP.

Monometric, R: H: 1: 3

<b>Sodalite*</b>	$(\dot{N}a^3)^2 \dot{S}i^3 + 3 \dot{A}l^2 \dot{S}i^3 + 2 \dot{N}a \dot{C}l$	1
<b>Lapis Lazuli</b>	$\dot{N}a, \dot{C}a, \dot{A}l, \dot{F}e, \dot{S}i, \dot{S}, \dot{S}$	1
<b>Häüynite</b>	$(\dot{N}a^3)^2 \dot{S}i^3 + 3 \dot{A}l^2 \dot{S}i^3 + 4 \dot{C}a \dot{S}$	1
<b>Nosite</b>	$(\dot{N}a^3)^2 \dot{S}i^3 + 3 \dot{A}l^2 \dot{S}i^3 + 2 \dot{N}a \dot{S}$	1
<b>Leucite</b>	$(\frac{1}{4} \dot{K}^3 + \frac{3}{4} \dot{A}l)^2 \dot{S}i^3 + 3 \dot{S}i$	1

## XIII. FELDSPAR GROUP.

Monoclinic or Triclinic, R: H: 1: 3

<b>Anorthite</b>	$(\frac{1}{4} \dot{C}a^3 + \frac{3}{4} \dot{A}l)^2 \dot{S}i^3$	5
<b>Labradorite*</b>	$(\frac{1}{4}(\dot{C}a \dot{N}a)^3 + \frac{3}{4} \dot{A}l)^2 \dot{S}i^3 + \frac{3}{4} \dot{S}i$	5
<b>Andesite</b>	$(\frac{1}{4}(\dot{N}a \dot{C}a)^3 + \frac{3}{4} \dot{A}l)^2 \dot{S}i^3 + 3 \dot{S}i$	5
<b>Hyalophane</b>	$(\frac{1}{4}(\dot{K} \dot{B}a)^3 + \frac{3}{4} \dot{A}l)^2 \dot{S}i^3 + 3 \dot{S}i$	4
<b>Oligoclase*</b>	$(\frac{1}{4}(\dot{N}a \dot{C}a)^3 + \frac{3}{4} \dot{A}l)^2 \dot{S}i^3 + 3\frac{3}{4} \dot{S}i$	5
<b>Albite*</b>	$(\frac{1}{4} \dot{N}a^3 + \frac{3}{4} \dot{A}l)^2 \dot{S}i^3 + 6 \dot{S}i$	5
<b>Orthoclase*</b>	$(\frac{1}{4} \dot{K}^3 + \frac{3}{4} \dot{A}l)^2 \dot{S}i^3 + 6 \dot{S}i$	4

No.	Name.	Formula.	System of crystallization.
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## III. SUBSILICATES.

Oxygen ratio of Bases and Silica, 4 : 3

<b>Chondrodite*</b>	$\text{Mg}^3 \text{Si}^3$	3
<b>Tourmaline*</b>	$\dagger(\text{R}^3 \text{R} \text{B})^3 \text{Si}^3$	6

Oxygen ratio of Bases to Silica, 3 : 2

Containing no Ti

<b>Gehlenite</b>	$(\frac{1}{2}(\text{Mg Fe Ca})^3 + \frac{1}{2}(\text{Al Fe}))^2 \text{Si}$	2
<b>Andalusite*</b>	$\text{Al Si}$	3
<b>Fibrolite*</b>	$\text{Al Si}$	4
<b>Cyanite*</b>	$\text{Al Si}$	5
<b>Topaz*</b>	$\text{Al Si}$ , with F repl. $\frac{1}{2}$ of O	3
<b>Euclase</b>	$(\frac{1}{6} \text{H}^3 + \frac{2}{6} \text{Be}^3 + \frac{3}{6} \text{Al}) \text{Si}$	4
<b>Datolite*</b>	$(\text{Ca}^3 \text{H}^3 \text{B}) \text{Si}$	4

Containing Ti

<b>Guarinite</b>	$(\text{Ca} + \text{Ti}) \text{Si}$	2
<b>Titanite*</b>	$(\text{Ca} + \text{Ti}) \text{Si}$	4
<b>Keilhauite</b>	$\S(\text{R}^3 \text{R}_3 \text{R}) \text{Si}$	4
<b>Tschefkinite</b>	$\parallel(\text{R}^3 \text{R}_3 \text{R}) \text{Si}$	

Oxygen ratio of Bases to Silica, 2 : 1

<b>Staurolite*</b>	$\Uparrow(\frac{1}{3} \text{R}^3 + \frac{1}{3} \text{Al})^4 \text{Si}^3$	3
<b>Schorlomite*</b>	$(\frac{4}{11} \text{Ca}^3 + \frac{3}{11} \text{Fe} + \frac{4}{11} \text{Ti}_3)^4 \text{Si}^3$	
<b>Sapphirine</b>	$(3 \text{Mg} + 4 \text{Al} + 1 \frac{1}{2} \text{Si})$	3 ?

 $\dagger \text{R} = \text{Na}, \text{Ca}, \text{Mg}, \text{Fe} \quad \text{H} = \text{Al}, \text{Fe}$  $\S \text{R} = \text{Ca}, \text{Y} \quad \text{R} = \text{Ti} \quad \text{H} = \text{Al}, \text{Fe}$  $\parallel \text{R} = \text{Ca}, \text{Mg}, \text{Ce}, \text{La}, \text{Di}, \text{Y}, \text{Ti}, \text{Ni} \quad \text{R} = \text{Th}, \text{Ti} \quad \text{H} = \text{Fe}$  $\Uparrow \text{R} = \text{Fe}, \text{Mg} \quad \text{H} = \text{Al}, \text{Mn}, \text{Fe}$

No.	Name.	Formula.	System of crystallization.
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*Appendix to Anhydrous Silicates.*

<b>Eulytite</b>	$\text{Bi}^4 \text{Si}^2$	1
<b>Atelestite</b>	$\text{Bi, Si}$	4
<b>Hypochlorite</b>	$\text{Al, Fe, Bi, Si, P}$	
<b>Isopyre</b>	$\text{Ca, Al, Fe, Cu, Si}$	
<b>Hessenbergite</b>		4

## B. HYDROUS SILICATES.

## I. GENERAL SECTION OF HYDROUS SILICATES.

## I. BISILICATES.

## I. PECTOLITE GROUP.

<b>Pectolite*</b>	$(\frac{1}{2} \text{Ca} + \frac{1}{6} \text{Na} + \frac{1}{6} \text{H}) \text{Si}$	4
<b>Xonaltite</b>	$\text{Ca Si} + \frac{1}{2} \text{H}$	
<b>Okenite</b>	$(\frac{1}{2} \text{Ca} + \frac{1}{2} \text{H}) \text{Si} + \frac{1}{2} \text{H}$	3 ?
<b>Gyrolite</b>	$(\frac{2}{3} \text{Ca} + \frac{1}{3} \text{H}) \text{Si} + \text{H}$	
<b>Laumontite*</b>	$(\frac{1}{2} \text{Ca}^2 + \frac{2}{3} \text{Al}) \text{Si}^2 + 3 \text{H}$	4

## II. DIOPHASE GROUP.

<b>Catapleiite</b>	$((\frac{1}{2} \text{Na Ca})^2 + \frac{2}{3} \text{Zr}) \text{Si}^2 + 1 \frac{1}{2} \text{H}$	6
<b>Diophtase</b>	$\text{Cu Si} + \text{H}$	6
<b>Chrysocolla*</b>	$\text{Cu Si} + 2 \text{H}$	
<b>Alipite</b>	$(\frac{1}{2} \text{H} + \frac{2}{3} (\text{Mg Ni})) \text{Si}$	
<b>Conarite</b>	$(\frac{1}{2} \text{H} + \frac{2}{3} \text{Ni}) \text{Si} + \frac{2}{3} \text{Ni}$	4 ?

## III. PICROSMINE GROUP.

<b>Picrosmine</b>	$\text{Mg Si} + \frac{1}{2} \text{H}$	2
<b>Spadaite</b>	$(\frac{2}{3} \text{Mg} + \frac{1}{3} \text{H}) \text{Si} + \frac{1}{2} \text{H}$	

*Appendix to Hydrous Silicates.*

<b>Neolite</b>	$\dagger (\text{R}^2 \text{Al H}^2) \text{Si}^2$
<b>Anthosiderite</b>	$\text{Fe}^2 \text{Si}^2 + 2 \text{H}$
	$\dagger \text{R} = \text{Ca, Mg, Fe}$



No.	Name.	Formula.	System of crystallog- raphy.
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## II. UNISILICATES.

## I. CALAMINE GROUP.

<b>Calamine*</b>	$Zn^2 \text{Si} + \text{H}$	3
<b>Villarsite</b>	$(\frac{1}{2} \text{Mg} + \frac{1}{2} \text{Fe})^2 \text{Si} + \frac{1}{2} \text{H}$	3
<b>Prehnite*</b>	$(\frac{1}{6} \text{H}^3 + \frac{2}{3} \text{Ca} + \frac{2}{3} \text{Al})^2 \text{Si}^3$	3
<b>Chlorastrolite †</b>	$(\text{Ca}^3 \text{Na}^3)^2 \text{Si}^3 + 2(\text{Al Fe})^2 \text{Si}^3 + 6 \text{H}$	

## II. THORITE GROUP.

<b>Tritomite</b>	$\text{Ce, La, Ca, W, Al, Si, H}$	1
<b>Thorite</b>	$\text{Th Si} + i \frac{1}{2} \text{H}$	1
<b>Cerite</b>	$(\text{Ce La Di})^2 \text{Si} + \text{H}$	1 ?
<b>Erdmannite</b>	$\text{Ce, La, Fe, Mn, Y, Ca, Al, Si, H}$	

## III. PYROSMALITE GROUP.

<b>Pyrosmalite</b>	$(\frac{1}{2} \text{H} + \frac{2}{3} (\text{Fe Mn, FeCl}))^2 \text{Si}$	6
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## IV. APOPHYLLITE GROUP.

<b>Apophyllite*</b>	$(\text{H K Ca})^2 \text{Si} + \text{H Si}$	2
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## V. GISMONDITE GROUP.

<b>Edingtonite</b>	$(\frac{2}{3} \text{H} + \frac{1}{3} \text{Ba})^2 + \frac{1}{2} \text{Al})^2 \text{Si}^3 + 1 \frac{1}{2} \text{H}$	2
<b>Gismondite</b>	$(\frac{2}{3} \text{Ca} + \frac{1}{3} \text{K}) + \text{Al}, 2 \frac{1}{2} \text{Si}, 4 \frac{1}{2} \text{H}$	3

## VI. CARPHOLITE GROUP.

<b>Carpholite</b>	$(\text{Al Mn Fe})^2 \text{Si}^3 + 3 \text{H}$	3
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## III. SUBSILICATES.

<b>Allophane*</b>	$\text{Al Si} + 6 \text{H}$
<b>Collyrite</b>	$\text{Al}^2 \text{Si} + 9 \text{H}$
<b>Schroetterite</b>	$\text{Al}^6 \text{Si}^3 + 30 \text{H}$

No.	Name.	Formula.	System of crystal. z. atom.
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## II. ZEOLITE SECTION.

## I. UNISILICATES.

<b>Thomsonite*</b>	$(\frac{1}{2} \text{Ca} + \frac{1}{2} \text{Na}), \text{Al}, 2 \text{Si}, 2\frac{1}{2} \text{H}$	3
<b>Natrolite*</b>	$\text{Na}, \text{Al}, 3 \text{Si}, 2 \text{H}$	3
<b>Scolecite</b>	$\text{Ca}, \text{Al}, 3 \text{Si}, 3 \text{H}$	4
<b>Mesolite</b>	$(\frac{2}{3} \text{Ca} + \frac{1}{3} \text{Na}), \text{Al}, 3 \text{Si}, 3 \text{H}$	5?
<b>Levynite</b>	$(\text{Ca Na K}), \text{Al}, 3 \text{Si}, 4 \text{H}$	6

## II. BISILICATES.

<b>Analcite*</b>	$\text{Na}, \text{Al}, 4 \text{Si}, 2 \text{H}$	1
<b>Eudnophite</b>	$\text{Na}, \text{Al}, 4 \text{Si}, 2 \text{H}$	3
<b>Faujasite</b>	$(\frac{1}{2} \text{Ca} + \frac{1}{2} \text{Na}), \text{Al}, 4\frac{1}{2} \text{Si}, 9 \text{H}$	1
<b>Chabazite*</b>	$(\frac{1}{2} \text{Ca} + \frac{1}{2} (\text{Na K})), \text{Al}, 4 \text{Si}, 6 \text{H}$	6
<b>Gmelinite</b>	$(\frac{1}{2} \text{Ca} + \frac{2}{3} (\text{Na K})), \text{Al}, 4 \text{Si}, 6 \text{H}$	6
<b>Herschelite</b>	$(\frac{1}{2} \text{Na} + \frac{1}{2} \text{K}), \text{Al}, 4 \text{Si}, 5 \text{H}$	3
<b>Phillipsite</b>	$(\frac{2}{3} \text{Ca} + \frac{1}{3} \text{K}), \text{Al}, 4 \text{Si}, 5 \text{H}$	3
<b>Harmotome</b>	$\text{Ba}, \text{Al}, 5 \text{Si}, 5 \text{H}$	4
<b>Hypostilbite</b>	$(\frac{1}{2} \text{Ca} + \frac{2}{3} \text{Na}), \text{Al}, 4\frac{1}{2} \text{Si}, 6 \text{H}$	
<b>Stilbite*</b>	$\text{Ca}, \text{Al}, 6 \text{Si}, 6 \text{H}$	3
<b>Epistilbite</b>	$(\frac{1}{2} \text{Ca} + \frac{1}{2} \text{Na}), \text{Al}, 6 \text{Si}, 5 \text{H}$	3
<b>Heulandite*</b>	$\text{Ca}, \text{Al}, 6 \text{Si}, 5 \text{H}$	4
<b>Brewsterite</b>	$(\frac{2}{3} \text{Sr} + \frac{1}{3} \text{Ba}), \text{Al}, 6 \text{Si}, 5 \text{H}$	4
<b>Mordenite</b>	$(\frac{2}{3} \text{Ca} + \frac{1}{3} \text{Na}), \text{Al}, 9 \text{Si}, 6 \text{H}$	
<b>Sloanite</b>	$\text{Ca}, \text{Mg}, \text{Al}, \text{Si}, \text{H}$	3

## III. MARGAROPHYLLITE SECTION.

## I. BISILICATES.

## I. TALC GROUP.

<b>Talc*</b>	$(\frac{1}{2} \text{H} + \frac{2}{3} \text{Mg}) \text{Si}$	3
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No.	Name.	Formula.	System of crystallization.
	<b>Pyrophyllite*</b>	$(\frac{1}{2} \text{H}^3 + \frac{1}{2} \text{Al}) \text{Si}^3 + \frac{1}{2} \text{H}$	3
	<b>Pihlilite*</b>	$(\frac{1}{2}(\frac{1}{2} \text{H} + \frac{1}{2} \text{K})^2 + \frac{1}{2} \text{Al}) \text{Si}^3$	
	II. SEPIOLITE GROUP.		
	<b>Sepiolite</b>	$(\frac{2}{3} \text{Mg} + \frac{1}{3} \text{H}) \text{Si} + \frac{1}{3} \text{H}$	
	<b>Aphrodite</b>	$\text{Mg} \text{Si} + \frac{2}{3} \text{H}$	
	<b>Cimolite</b>	$\text{Al}^2 \text{Si}^2 + 3 \text{H}$	
	<b>Smectite*</b>	$(\frac{1}{2} \text{H}^3 + \frac{1}{2} \text{Al}) \text{Si}^3 + 4\frac{1}{2} \text{H}$	
	<b>Montmorillonite</b>	$(\frac{2}{3} \text{Al}^2 + \frac{1}{3} \text{H}^3) \text{Si}^3 + 5 \text{H}$	
	III. CHLOROPAL GROUP.		
	<b>Stilpnomelane*</b>	$((\text{Fe}, \text{Mg})^2 (\text{Al}, \text{Fe})) \text{Si}^2 + 2 \text{H}$	
	<b>Chloropal</b>	$(\text{Fe}^2 \text{Fe}) \text{Si}^2 + 4\frac{1}{2} \text{H}$	
	<b>Glaucönite*</b>	$(\frac{1}{2} \text{Fe} + \frac{1}{2} \text{K})^2 \text{Si}^2 + 2 (\frac{2}{3} \text{Fe} + \frac{1}{3} \text{Al}) \text{Si}^2 + 6 \text{H}$	
	<b>Celadonite</b>	$\text{K}, \text{Mg}, \text{Fe}, \text{Si}, \text{H}$	
	II. UNISILICATES.		
	IV. SERPENTINE GROUP.		
	<b>Serpentine*</b>	$(\frac{1}{2} \text{H} + \frac{2}{3} \text{Mg})^2 \text{Si} + \frac{1}{2} \text{H}$	3 ?
	<b>Deweylite*</b>	$(\frac{1}{2} \text{H} + \frac{2}{3} \text{Mg}) \text{Si} + \frac{1}{2} \text{H}$	
	<b>Cerolite*</b>	$(\frac{1}{2} \text{H} + \frac{1}{2} \text{Mg}) \text{Si} + \frac{1}{2} \text{H}$	
	<b>Hydrophite*</b>	$[\frac{1}{2} \text{H} + \frac{2}{3} (\text{Mg} \text{Fe})]^2 \text{Si} + \frac{1}{2} \text{H}$	
	<b>Genthlite*</b>	$(\frac{1}{2} \text{H} + \frac{2}{3} (\text{Ni} \text{Mg}))^2 \text{Si} + \frac{1}{2} \text{H}$	
	<b>Saponite*</b>	$\text{Mg}, \text{Al}, \text{Fe}, \text{Si}, \text{H}$	
	V. KAOLINITE GROUP.		
	<b>Pholerite*</b>	$\text{Al}^2 \text{Si}^2 + 4 \text{H}$	3
	<b>Kaolinite*</b>	$(\frac{1}{2} \text{H}^3 + \frac{2}{3} \text{Al})^2 \text{Si}^2$	3
	<b>Halloysite*</b>	$\text{Al} \text{Si}^2 + 3 \text{H}$	
	<b>Samoite</b>	$\text{Al}^2 \text{Si}^2 + 10 \text{H}$	

No.	Name.	Formula.	System of crystallization.
<b>VI. PINITE GROUP.</b>			
	<b>Pinite*</b>	$(\frac{1}{2} \text{H}^2 + \frac{1}{2} (\text{K}^2 \text{Al}))^2 \text{Si}^2$	
	<b>Cataspilite</b>	$(\frac{2}{3} (\text{Na K Ca Mg})^2 + \frac{1}{3} \text{Al})^2 \text{Si}^2 + \frac{1}{2} \text{H}$	
	<b>Biharite</b>	$(\frac{2}{3} (\text{Mg Ca})^2 + \frac{1}{3} \text{Al})^2 \text{Si}^2 + 1 \frac{1}{2} \text{H}$	
	<b>Palagonite*</b>	$(\frac{1}{2} \text{H}^2 + \frac{1}{2} (\text{Ca Mg})^2 + (\text{Fe Al}))^2 \text{Si}^2 + n \text{H}$	
<b>VII. MARGARODITE GROUP.</b>			
	<b>Fahlunite*</b>	$(\frac{2}{3} (\text{H Mg Fe})^2 + \frac{1}{3} (\text{Al Fe}))^2 \text{Si}^2$	
	<b>Voigtite</b>	$(\frac{1}{2} (\text{Fe Mg})^2 + \frac{1}{2} (\text{Al Fe}))^2 \text{Si}^2 + 3 \text{H}$	
	<b>Margarodite*</b>	$(\frac{1}{2} (\text{H}^2 \text{K}^2) + \frac{1}{2} \text{Al})^2 \text{Si}^2$	3
	<b>Damourite</b>	$(\frac{1}{2} (\frac{2}{3} \text{H} + \frac{1}{3} \text{K})^2 + \frac{1}{2} (\text{Al Fe}))^2 \text{Si}^2$	
	<b>Paragonite</b>	$(\frac{1}{2} (\text{H}^2 \text{Na}^2) + \frac{1}{2} \text{Al})^2 \text{Si}^2$	
	<b>Euphyllite†</b>	$(\frac{1}{2} (\text{K Na})^2 + \frac{1}{2} \text{Al})^2 \text{Si}^2 + \frac{1}{2} \text{H}$	
	<b>Ollacherite</b>	$(\frac{1}{2} (\text{H}^2 (\text{K Ba Mg})^2) + \frac{1}{2} \text{Al})^2 \text{Si}^2$	
	<b>Cookeite †</b>	Li, K, Al, Si, H	
<b>VIII. HISINGERITE GROUP.</b>			
	<b>Hisingerite</b>	$[(\text{Mg Fe})^2 (\text{Al Fe})]^2 \text{Si}^2 + 4 \text{H}$	
	<b>Ekmannite</b>	$(\frac{1}{2} \text{H}^2 + \frac{2}{3} (\text{Fe Mn})^2)^2 \text{Si}^2 + \frac{1}{2} \text{H}$	
	<b>Neotocite</b>	$(\frac{1}{2} \text{H}^2 + \frac{2}{3} (\text{Mg}^2 \text{Mn}^2 \text{Fe}))^2 \text{Si}^2 + 3 \text{H}$	
	<b>Gillingite</b>	$[(\text{Ca Mg Fe})^2 \text{Fe}]^2 \text{Si}^2 + 6 \text{H}$	
	<b>Jollyte</b>	$(\frac{1}{2} (\text{Fe Mg})^2 + \frac{2}{3} \text{Al})^2 \text{Si}^2 + 4 \text{H}$	
<b>III. SUBSILICATES.</b>			
<b>I. CHLORITE GROUP.</b>			
	<b>Pyrosclerite</b>	$(\frac{2}{3} \text{Mg}^2 + \frac{1}{3} \text{Al})^2 \text{Si}^2 + 3 \text{H}$	4 ?
	<b>Chonierite</b>	$(\frac{2}{3} (\text{Ca, Mg})^2 + \frac{1}{3} \text{Al})^2 \text{Si}^2 + 3 \text{H}$	
	<b>Jefferisite †</b>	$(\frac{2}{3} \text{Mg}^2 + \frac{2}{3} (\text{Al Fe}))^2 \text{Si}^2 + 3 \text{H}$	3 ?
	<b>Penninite*</b>	8 (Mg <sup>2</sup> Al), 9 Si, 12 H	6

No.	Name.	Formula.	System of crystallization.
	<b>Ripidolite*</b>	$5 \text{ Mg, Al, } 3 \text{ Si, } 4 \text{ H}$	4
	<b>Leuchtenbergite</b>	$(\frac{3}{2} \text{ Mg}^3 + \frac{3}{2} \text{ Al}) \text{ Si} + 1\frac{1}{2} \text{ H}$	6
	<b>Prochlorite*</b>	$(\frac{4}{7} (\text{Mg Fe})^3 + \frac{3}{7} \text{ Al}) \text{ Si} + \frac{4}{7} \text{ H}$	6 ?
	<b>Cronstedtite</b>	$(\frac{1}{2} (\text{Fe Mn})^2 + \frac{1}{2} \text{ Fe}) \text{ Si} + \frac{3}{2} \text{ H}$	6
	II. CHLORITOID GROUP.		
	<b>Corundophilite†</b>	$(\frac{1}{2} (\text{Mg Fe})^2 + \frac{1}{2} \text{ Al})^4 \text{ Si}^3 + 5 \text{ H}$	4
	<b>Chloritoid*</b>	$(\frac{1}{4} (\text{Fe Mg})^3 + \frac{3}{4} \text{ Al})^4 \text{ Si}^3 + 3 \text{ H}$	5 ?
	<b>Margarite*</b>	$(\frac{1}{4} (\text{Ca H})^3 + \frac{3}{4} \text{ Al})^4 \text{ Si}^3$	3
	<b>Thuringite*</b>	$(\frac{1}{2} (\text{Fe H})^3 + \frac{1}{2} (\text{Al Fe}))^4 \text{ Si}^3 + 4 \text{ H}$	
	III. SEYBERTITE GROUP.		
	<b>Seybertite*</b>	$(\frac{2}{3} (\text{Ca Mg Fe})^3 + \frac{2}{3} \text{ Al})^3 \text{ Si} + \frac{1}{3} \text{ H}$	3
	<i>Appendix.</i>		
	<b>Wolchonskoite</b>	$\text{Mg, Al, Cr, Fe, Si, H}$	
	<b>Pimelite</b>	$\text{Ni, Al, Fe, Si, H}$	
	<b>Chlorophæite</b>	$\text{Fe Si} + 6 \text{ H} ?$	
	<b>Chamoisite</b>	$\text{Fe, Al, Si, H}$	
	POTASSIUM		
	<b>Nitre*</b>	$\text{K N}$	3
	<b>Aphthitalite</b>	$\text{K S}$	3
	<b>Misenite</b>	$\text{K S} + \text{H S}$	
	<b>Taylorite</b>	$(\frac{5}{6} \text{ K} + \frac{1}{6} \text{ NH}^+) \text{ S}$	
	<b>Picromerite</b>	$\text{K S} + \text{Mg S} + 6 \text{ H}$	4
	<b>Cyanochroite</b>	$(\frac{1}{2} \text{ K} + \frac{1}{2} \text{ Cu}) \text{ S} + 3 \text{ H}$	4
	<b>Sylvite</b>	$\text{KCl}$	1
	SODIUM.		
	<b>Soda nitre</b>	$\text{Na N}$	6

No.	Name.	Formula.	System of crystallization.
	<b>Thenardite</b>	$\text{Na S}$	3
	<b>Mirabilite*</b>	$\text{Na S} + 10 \text{H}$	4
	<b>Lecontite</b>	$(\text{K Na NH}^4) \text{S} + 2 \text{H}$	3
	<b>Glauberite*</b>	$(\frac{1}{2} \text{Na} + \frac{1}{2} \text{Ca}) \text{S}$	4
	<b>Læwelite</b>	$(\frac{1}{2} \text{Na} + \frac{1}{2} \text{Mg}) \text{S} + 1\frac{1}{4} \text{H}$	2
	<b>Halite*</b>	$\text{NaCl}$	1
	<b>Stercorite</b>	$\text{Na NH}^4 \text{P} + 9 \text{H}$	
	<b>Borax*</b>	$\text{Na B}^3 + 10 \text{H}$	4
	<b>Thermonatrite*</b>	$\text{Na C} + \text{H}$	3
	<b>Natron*</b>	$\text{Na C} + 10 \text{H}$	4
	<b>Trona*</b>	$\text{Na}^2 \text{C}^3 + 4 \text{H}$	4
	<b>Gay-Lussite*</b>	$\text{Na C} + \text{Ca C} + 5 \text{H}$	4
		AMMONIUM.	
	<b>Mascagnite*</b>	$\text{NH}^4 \text{S} + \text{H}$	3
	<b>Sal ammoniac</b>	$\text{NH}^4 \text{Cl}$	1
	<b>Struvite</b>	$\text{NH}^4 \text{Mg}^2 \text{P} + 12 \text{H}$	3
	<b>Larderellite</b>	$\text{NH}^4 \text{B}^4 + 4 \text{H}$	
	<b>Teschemacherite</b>	$(\frac{1}{2} \text{NH}^4 + \frac{1}{2} \text{H}) \text{C}$	
		BARIUM.	
	<b>Barite*</b>	$\text{Ba S}$	3
	<b>Dreclite</b>	$\text{Ca S} + 3 \text{Ba S}$	6
	<b>Witherite*</b>	$\text{Ba C}$	3
	<b>Bromlite</b>	$\text{Ba C} + \text{Ca C}$	3
	<b>Barytocalcite</b>	$\text{Ba C} + \text{Ca C}$	4
		STRONTIUM.	
	<b>Celestite*</b>	$\text{Sr S}$	3

No.	Name.	Formula.	System of crystallization.
	<b>Strontianite*</b>	$\text{Sr } \ddot{\text{O}}$	3
		CALCIUM.	
	<b>Nitrocalcite*</b>	$\dot{\text{C}}\text{a } \ddot{\text{N}} + \ddot{\text{H}}$	
	<b>Anhydrite*</b>	$\dot{\text{C}}\text{a } \ddot{\text{S}}$	3
	<b>Gypsum*</b>	$\dot{\text{C}}\text{a } \ddot{\text{S}} + 2 \text{ H}$	4
	<b>Polyhalite</b>	$(\text{K Mg } \dot{\text{C}}\text{a}) \ddot{\text{S}} + \frac{1}{2} \text{ H}$	3 ?
	<b>Fluorite*</b>	$\text{Ca F}$	1
	<b>Apatite*</b>	$\dot{\text{C}}\text{a}^2 \ddot{\text{P}} + \frac{1}{2} \text{ Ca (Cl, F)}$	6
	<b>Brushite</b>	$(\frac{1}{2} \text{ H} + \frac{2}{3} \dot{\text{O}}\text{a})^2 \ddot{\text{P}} + 4 \text{ H}$	4
	<b>Metabrushite</b>	$(\frac{1}{2} \text{ H} + \frac{2}{3} \dot{\text{C}}\text{a})^2 \ddot{\text{P}} + 3 \text{ H}$	4
	<b>Tavistockite</b>	$(\frac{1}{2} \dot{\text{C}}\text{a}^2 + \frac{1}{2} \ddot{\text{Al}})^2 \ddot{\text{P}} + 3 \text{ H}$	
	<b>Haidingerite</b>	$(\frac{1}{2} \text{ H} + \frac{2}{3} \dot{\text{C}}\text{a})^2 \ddot{\text{As}} + 3 \text{ H}$	3
	<b>Pharmacolite</b>	$(\frac{1}{2} \text{ H} + \frac{2}{3} \dot{\text{C}}\text{a})^2 \ddot{\text{As}} + 5 \text{ H}$	4
	<b>Berzeliite</b>	$(\dot{\text{C}}\text{a Mg Mn})^{10} \ddot{\text{As}}^3$	
	<b>Rhodizite</b>	$\dot{\text{C}}\text{a}^2 \text{ B}^4 ?$	1
	<b>Hydroboracite</b>	$\dot{\text{C}}\text{a}^2 \text{ B}^4 + \text{Mg}^2 \text{ B}^4 + 18 \text{ H}$	
	<b>Bechillite</b>	$(\frac{1}{2} \dot{\text{C}}\text{a} + \frac{1}{2} \text{ H}) \ddot{\text{B}} + 1\frac{1}{2} \text{ H}$	
	<b>Howlite</b>	$2(\dot{\text{C}}\text{a } \ddot{\text{B}}^2 + \text{H}) + \text{H}^2 \ddot{\text{B}} + 2 \dot{\text{C}}\text{a } \ddot{\text{Si}}$	
	<b>Ulexite*</b>	$(\frac{1}{2}(\ddot{\text{N}}\text{a}, \dot{\text{C}}\text{a}) + \frac{1}{2} \text{ H}) \ddot{\text{B}} + \frac{5}{2} \text{ H}$	
	<b>Cryptomorphite</b>	$(\frac{1}{2}(\ddot{\text{N}}\text{a}, \dot{\text{C}}\text{a}) + \frac{1}{2} \text{ H}) \ddot{\text{B}} + \text{H} ?$	
	<b>Aragonite*</b>	$\dot{\text{C}}\text{a } \ddot{\text{O}}$	3
	<b>Calcite*</b>	$\dot{\text{C}}\text{a } \ddot{\text{O}}$	6
	<b>Dolomite*</b>	$\dot{\text{C}}\text{a } \ddot{\text{O}} + \text{Mg } \ddot{\text{O}}$	6
	<b>Ankerite</b>	$\dot{\text{C}}\text{a } \ddot{\text{O}} + (\text{Mg Fe Mn}) \ddot{\text{O}}$	6
	<b>Hydrodolomite*</b>	$(\dot{\text{C}}\text{a Mg}) \ddot{\text{O}} + \frac{1}{2} \text{ H}$	
	<b>Predazzite</b>	$2 \dot{\text{C}}\text{a } \ddot{\text{O}} + \text{Mg } \ddot{\text{H}}$	

No.	Name.	Formula.	System of crystalliz- ation.
	<b>Pencatite</b>	$\dot{C}a \ddot{O} + \dot{M}g \dot{H}$	
	<b>Hovite</b>	$(\frac{1}{3} \dot{C}a + \frac{1}{3} \dot{H}) \ddot{O} + \Delta q$	
	<b>Whewellite</b>	$\dot{C}a \ddot{O}$	4
	<b>Perovskite</b>	$\dot{O}a \dot{T}i$	1
	<b>Azorite*</b>	$\dot{C}a \ddot{O}b$	2
	<b>Scheelite</b>	$\dot{C}a \dot{W}$	2
	<b>Microlite †</b>	$\dot{C}a, \ddot{O}b (\dot{T}i ?)$	1
	<b>Cuproscheelite*</b>	$\dot{C}u \dot{W} + 2 \dot{C}a \dot{W}$	
	<b>Romeite</b>	$\dot{C}a^3, \ddot{S}b, \ddot{S}b$	2
		MAGNESIUM.	
	<b>Periclasite</b>	$\dot{M}g$	1
	<b>Bruceite*</b>	$\dot{M}g \dot{H}$	6
	<b>Pyroaurite</b>	$(\frac{3}{8} \dot{M}g^2 + \frac{1}{8} \dot{F}e) \dot{H}^3 + 2 \dot{H}$	6
	<b>Hydrotalcite*</b>	$6 \dot{M}g \dot{H} + \dot{A}l \dot{H}^3 + 6 \dot{H}$	6
	<b>Nitromagnesite ?</b>	$\dot{M}g \dot{N} + n \dot{H}$	
	<b>Kieserite</b>	$\dot{M}g \ddot{S} + \dot{H}$	3
	<b>Epsomite*</b>	$\dot{M}g \ddot{S} + 7 \dot{H}$	3
	<b>Blædite</b>	$(\frac{1}{2} \dot{N}a + \frac{1}{2} \dot{M}g) \ddot{S} + 2 \dot{H}$	
	<b>Carnallite</b>	$K \dot{C}l + 2 \dot{M}g \dot{C}l + 12 \dot{H}$	
	<b>Tachydrite</b>	$\dot{C}a \dot{C}l + 2 \dot{M}g \dot{C}l + 12 \dot{H}$	
	<b>Wagnerite</b>	$\dot{M}g^3 \dot{P} + \dot{M}g \dot{F}$	4
	<b>Bobierite</b>	$\dot{M}g^3 \dot{P} + a \dot{q}$	4
	<b>Hørnesite</b>	$\dot{M}g^3 \dot{A}s + 3 \dot{H}$	4
	<b>Ræsslerite</b>	$(\frac{3}{8} \dot{M}g + \frac{1}{8} \dot{H})^3 \dot{A}s + 12 \dot{H}$	
	<b>Boracite</b>	$\dot{M}g^3 \dot{B}^4 + \frac{1}{2} \dot{M}g \dot{C}l$	1
	<b>Szaibelyite</b>	$3 \dot{M}g^3 \dot{B}^2 + 4 \dot{H}$	
	<b>Warwickite †</b>	$\dot{M}g, \dot{F}e, \dot{T}i, \dot{B}$	4 ?
	<b>Magnesite*</b>	$\dot{M}g \ddot{O}$	6



No.	Name.	Formula.	System of crystallization.
	<b>Mesitite</b>	$2 \text{Mg } \bar{\text{C}} + \text{Fe } \bar{\text{C}}$	6
	<b>Hydromagnesite*</b>	$3(\text{Mg } \bar{\text{O}} + \text{H}) + \text{Mg } \bar{\text{H}}$	4
ALUMINIUM.			
	<b>Corundum*</b>	$\bar{\text{Al}}$	6
	<b>Diaspore*</b>	$\bar{\text{Al}} \bar{\text{H}}$	3
	<b>Gibbsite*</b>	$\bar{\text{Al}} \bar{\text{H}}^3$	6
	<b>Beauxite</b>	$(\bar{\text{Al}} \text{Fe}) \bar{\text{H}}^2$	
	<b>Spinel*</b>	$\text{Mg } \bar{\text{Al}}$	1
	<b>Hercynite</b>	$\text{Fe } \bar{\text{Al}}$	1
	<b>Gahnite*</b>	$\text{Zn } \bar{\text{Al}}$	1
	<b>Chrysoberyl*</b>	$\text{Be } \bar{\text{Al}}$	3
	<b>Alumian</b>	$\bar{\text{Al}} \bar{\text{S}}^2 ?$	6 ?
	<b>Alunogen*</b>	$\bar{\text{Al}} \bar{\text{S}}^2 + 18 \text{H}$	4
	<b>Tschermigite</b>	$\text{NH}^4 \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 24 \text{H}$	1 ?
	<b>Kalinite*</b>	$\bar{\text{K}} \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 24 \text{H}$	1
	<b>Mendozite</b>	$\bar{\text{Na}} \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 22 \text{H}$	
	<b>Pickeringite</b>	$\text{Mg } \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 22 \text{H}$	4 ?
	<b>Apjohnite</b>	$\bar{\text{Mn}} \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 24 \text{H}$	
	<b>Bosjemanite*</b>	$(\text{Mg } \bar{\text{Mn}}) \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 22 \text{H}$	4 ?
	<b>Halotrichite*</b>	$\text{Fe } \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 22 \text{H}$	
	<b>Aluminite</b>	$\bar{\text{Al}} \bar{\text{S}} + 9 \text{H}$	
	<b>Alunite</b>	$\bar{\text{K}} \bar{\text{S}} + 3 \bar{\text{Al}} \bar{\text{S}} + 6 \text{H}$	6
	<b>Loewigite</b>	$\bar{\text{K}} \bar{\text{S}} + 3 \bar{\text{Al}} \bar{\text{S}} + 9 \text{H}$	
	<b>Paraluminite</b>	$\bar{\text{Al}}^2 \bar{\text{S}} + 15 \text{H}$	
	<b>Pissophanite</b>	$(\bar{\text{Al}}, \text{Fe})^5 \bar{\text{S}}^2 + 30 \text{H}$	
	<b>Felsobanyite</b>	$\bar{\text{Al}}^2 \bar{\text{S}} + 10 \text{H}$	3

No.	Name.	Formula.	System of crystallization.
	<b>Fluellite</b>	Al, F,	3
	<b>Cryolite</b>	3 Na F + Al <sup>2</sup> F <sup>3</sup>	5
	<b>Arksutite</b>	(Na Ca) <sup>2</sup> F + Al <sup>2</sup> F <sup>3</sup>	
	<b>Chiolite</b>	3 Na F + 2 Al <sup>2</sup> F <sup>3</sup>	2
	<b>Chodneffite</b>	2 Na F + Al <sup>2</sup> F <sup>3</sup>	
	<b>Pachnolite</b>	3(Na Ca) F + Al <sup>2</sup> F <sup>3</sup> + 2 H	4
	<b>Thomsenolite</b>	2(Na Ca) F + Al <sup>2</sup> F <sup>3</sup> + 2 H	4
	<b>Gearksutite</b>	Ca <sup>2</sup> F + Al <sup>2</sup> F <sup>3</sup> + 4 H	
	<b>Prosopite</b>	$\frac{3}{2}$ Si F <sup>2</sup> , Al F <sup>3</sup> , 5 Al, 2 Ca F, 4 Ca, 12 H	4
	<b>Amblygonite*</b>	$[\frac{1}{2}(\text{Li, Na})^2 + \frac{3}{4} \text{Al}]^2 \text{P}$	5
	<b>Herderite</b>	Ca, Al, P, F	3
	<b>Berlinite</b>	Al P + $\frac{1}{2}$ H	
	<b>Callainite</b>	Al P + 5 H	
	<b>Angelite</b>	Al <sup>2</sup> P + 3 H	
	<b>Lazulite*</b>	Al P + Mg H	4
	<b>Barrandite</b>	( $\frac{1}{2}$ Fe + $\frac{3}{4}$ Al) P + 4 H	
	<b>Trolleite</b>	Al P + $\frac{1}{2}$ Al H <sup>3</sup>	
	<b>Cirrolite</b>	Al <sup>2</sup> P + 2 Ca <sup>2</sup> P + 3 H	
	<b>Turquoise*</b>	Al <sup>2</sup> P + 5 H	
	<b>Peganite</b>	Al <sup>2</sup> P + 6 H	3
	<b>Fischerite*</b>	Al <sup>2</sup> P + 8 H	3
	<b>Evansite</b>	Al <sup>2</sup> P + Al H <sup>3</sup> + 15 H	
	<b>Wavellite*</b>	Al <sup>2</sup> P <sup>2</sup> + 12 H	3
	<b>Sphærite</b>	Al <sup>2</sup> P <sup>2</sup> + 16 H	
	<b>Svanbergite</b>	3( $\frac{1}{2}$ Ca <sup>2</sup> + $\frac{1}{2}$ Al) <sup>2</sup> P + 5 Al S + Al H <sup>3</sup> + 15 H	6
	<b>Durangite</b>	$[\frac{1}{2}(\text{Li, Na})^2 + \frac{1}{4}(\text{Al, Fe})] \text{As}$	4
	<b>Mellite</b>	Al M <sup>2</sup> + 18 H	2

No.	Name.	Formula.	System of crystallization.
<b>ZIRCONIUM.</b>			
<b>Polymignite</b>	Ti, Ca, Y, Zr, Th, Fe, Mn		3
<b>Pyrrhite</b>	Zr, Th?		1
<b>YTTRIUM.</b>			
<b>Xenotime*</b>	Y <sup>2</sup> P		2
<b>Tengerite</b>	Y O		
<b>Yttrotantalite</b>	(Ca Y Fe U) <sup>10</sup> Ta <sup>2</sup>		3
<b>Euxenite</b>	Ca, Y, Ce, La, U, Ti, Ta, Th		3
<b>Fergusonite</b>	[(Ca Fe U Ce Y) <sup>2</sup> (Sn Zr)] <sup>2</sup> Th <sup>2</sup>		2
<b>CERIUM.</b>			
<b>Yttrocerite*</b>	Ca F, Ce F, Y F		
<b>Fluocerite</b>	Ce F + Ce <sup>2</sup> F <sup>2</sup>		6
<b>Cryptolite</b>	Ue <sup>3</sup> P		
<b>Monazite*</b>	(Ue La Di Th) <sup>3</sup> P		4
<b>Churchite</b>	( $\frac{5}{6}$ Ce + $\frac{1}{6}$ Ua) <sup>2</sup> P + 4 H		4?
<b>Rutherfordite †</b>	Ca, Ce, Ti?		4
<b>Pyrochlore</b>	(Ua Ce) <sup>2</sup> Th?		1
<b>Æschynite</b>	Ue, La, Y, Fe, Ti, Ta, Th		3
<b>LANTHANUM.</b>			
<b>Parisite</b>	(Ue La Di) Th + $\frac{1}{3}$ (Ca Ce) F		6
<b>Kischtimite</b>	6 La Th + Ue + Ce <sup>2</sup> F <sup>2</sup> + 2 H		
<b>Lanthanite*</b>	La Th + 3 H		3
<b>IRON.</b>			
<b>Native Iron*</b>	Fe		1
<b>Magnetite*</b>	Fe Fe		1
<b>Magnesioferrite</b>	Mg Fe		1

No.	Name.	Formula.	System of crystallization.
	<b>Hematite*</b>	Fe	6
	<b>Franklinite*</b>	(Fe Zn Mn) (Fe Mn)	1
	<b>Turgite*</b>	Fe <sup>2</sup> H	
	<b>Goethite*</b>	Fe H	3
	<b>Limonite*</b>	Fe <sup>2</sup> H <sup>3</sup>	
	<b>Xanthosiderite</b>	Fe H <sup>2</sup>	
	<b>Limnite</b>	Fe H <sup>3</sup>	
	<b>Troilite</b>	Fe S	
	<b>Pyrrhotite*</b>	Fe <sup>7</sup> S <sup>9</sup>	6
	<b>Pyrite*</b>	Fe S <sup>2</sup>	1,
	<b>Marcasite*</b>	Fe S <sup>2</sup>	3
	<b>Pentlandite</b>	( $\frac{1}{3}$ Ni + $\frac{2}{3}$ Fe) S	1
	<b>Pettkoite</b>	(Fe <sup>3</sup> Fe) S <sup>2</sup>	1
	<b>Tauriscite</b>	Fe S + 7 H ?	3
	<b>Melanterite*</b>	Fe S + 7 H	4
	<b>Pisanite</b>	(Fe Cu) S + 7 H	
	<b>Coquimbite</b>	Fe S <sup>3</sup> + 9 H	6
	<b>Voltaite</b>	Fe S + Fe S <sup>2</sup> + 24 H	1
	<b>Rømerite</b>	Fe S + Fe S <sup>3</sup> + 12 H	4
	<b>Copiapite</b>	Fe <sup>2</sup> S <sup>5</sup> + 18 H	6 ?
	<b>Raimondite</b>	Fe <sup>2</sup> S <sup>3</sup> + 7 H	6
	<b>Fibroferrite</b>	Fe <sup>3</sup> S <sup>2</sup> + 27 H	
	<b>Apatelite</b>	Fe <sup>3</sup> S <sup>5</sup> + 2 H	
	<b>Botryogen</b>	Fe <sup>3</sup> S <sup>2</sup> + 3 Fe S <sup>2</sup> + 36 H	4
	<b>Jarosite*</b>	(K, Na) S + 4 Fe S + 9 H	6
	<b>Carphosiderite</b>	( $\frac{1}{2}$ Fe + $\frac{1}{2}$ H <sup>3</sup> ) S + 2 H	

No.	Name.	Formula.	System of crystallization.
	<b>Glockerite</b>	$\text{Fe}^2 \text{S} + 6 \text{H}$	
	<b>Schreibersite*</b>	$\text{Fe, Ni, P}$	
	<b>Triphylite*</b>	$(\text{Fe Mn Li})^3 \text{P}$	3
	<b>Vivianite*</b>	$\text{Fe}^3 \text{P} + 8 \text{H}$	4
	<b>Childrenite</b>	$2 (\text{Fe Mn})^4 \text{P} + \text{K}^2 \text{P} + 15 \text{H}$	3
	<b>Dufrenite</b>	$\text{Fe}^2 \text{P} + 3 \text{H}$	3
	<b>Cacoxenite</b>	$\text{Fe}^2 \text{P} + 12 \text{H}$	
	<b>Borickite</b>	$(\text{Ca}^2 \text{Fe})^5 \text{P}^2 + 15 \text{H}$	
	<b>Diadochite</b>	$\text{Fe}^3 \text{P}^2 + 2 \text{Fe S}^2 + 32 \text{H}$	
	<b>Beudantite</b>	$\text{Fe, Pb, Cu, H, S, P, As}$	6
	<b>Leucopyrite*</b>	$\text{Fe As}^2$	3
	<b>Loellingite</b>	$\text{Fe As} + \text{Fe As}^2$	3
	<b>Arsenopyrite*</b>	$\text{Fe S}^2 + \text{Fe As}^2$	3
	<b>Pacite</b>	$\text{Fe S}^2 + 4 \text{Fe As}^2$	3
	<b>Carminite</b>	$5 \text{Fe As}^2 + \text{Pb}^3 \text{As}$	3
	<b>Symplesite</b>	$\text{Fe}^3 \text{As} + 8 \text{H}$	4
	<b>Scorodite*</b>	$\text{Fe As}^2 + 4 \text{H}$	3
	<b>Pharmacosiderite</b>	$3 \text{Fe As}^2 + \text{Fe H}^3 + 12 \text{H}$	1
	<b>Arsenosiderite</b>	$\text{Ca}^5 \text{As} + 4 \text{Fe}^2 \text{As} + 15 \text{H}$	
	<b>Pitticite</b>	$\text{Fe As}^2 + \text{Fe S} + 15 \text{H}$	
	<b>Molybite</b>	$\text{Fe}^2 \text{Cl}^2$	
	<b>Kremersite</b>	$\text{K Cl} + \text{NH}^4 \text{Cl} + \text{Fe}^2 \text{Cl}^2 + 3 \text{H}$	1
	<b>Siderite*</b>	$\text{Fe O}$	6
	<b>Pistomesite</b>	$\text{Mg O} + \text{Fe O}$	6
	<b>Chromite*</b>	$\text{Fe Cr}$	1
	<b>Lagonite</b>	$\text{Fe B}^2 + 3 \text{H}$	

No.	Name.	Formula.	system of crystallogr. al. c.
	<b>Menaccanite*</b>	(Fe, Mn, Mg) Ti+n Fe	6
	<b>Mengite</b>	Fe, Ti, Zr	3
	<b>Parathorite<sub>1</sub></b>	Fe, Ti ?	3
	<b>Tantalite</b>	(Fe Mn) Ta	3
	<b>Columbite</b>	(Fe Mn) (Cb Ta)	3
	<b>Tapiolite</b>	Fe <sup>5</sup> Ta <sup>4</sup>	2
	<b>Hielmitz</b>	Ca, Y, Mg, Fe, U, Sn, Ta, W, Mn, H	
	<b>Adelpholite</b>	Fe, Mn, Cb, H	2
	<b>Wolframite*</b>	(Fe Mn) W	3
	<b>Ferberite</b>	(Fe Mn) <sup>4</sup> W <sup>3</sup>	
	<b>Humboldtine</b>	2 Fe U + 3 H	
		MANGANESE.	
	<b>Hausmannite*</b>	Mn <sup>2</sup> Mn	2
	<b>Braunite*</b>	2 Mn <sup>2</sup> Mn + Mn Si	2
	<b>Pyrolusite*</b>	Mn	3
	<b>Manganite</b>	Mn H	3
	<b>Pyrochroite</b>	(Mn, Mg) H	
	<b>Psilomelane*</b>	(Ba Mn) Mn <sup>2</sup> + H	
	<b>Wad*</b>	(Fe Ba Co Cu) Mn + H	
	<b>Crednerite</b>	Cu <sup>3</sup> Mn <sup>2</sup>	4
	<b>Alabandite</b>	Mn S	1
	<b>Hauerite</b>	Mn S <sup>2</sup>	1
	<b>Fauserite</b>	Mg S + 2 Mn S + 15 H	3
	<b>Hureaulite</b>	(Fe Mn) <sup>5</sup> P <sup>2</sup> + 5 H	4
	<b>Triplite</b>	(Fe Mn) <sup>3</sup> P + (Ca Mg Fe) F	3
	<b>Kancite</b>	Mn As	

No	Name.	Formula.	System of crystallization.
	<b>Chondrarsenite</b>	$\text{Mn}^5 \ddot{\text{A}}\text{s} + 2\frac{1}{2} \text{H}$	
	<b>Rhodochrosite</b>	$\text{Mn } \ddot{\text{O}}$	6
	<b>Manganocalcite</b>	$(\ddot{\text{O}}\text{a } \text{Mg}) \ddot{\text{O}} + 2 \text{Mn } \ddot{\text{O}}$	3 ?
	<b>Sussexite†</b>	$(\text{Mg } \text{Mn})^2 \ddot{\text{B}} + \text{H}$	
	<b>Huebnerite†</b>	$\text{Mn } \ddot{\text{W}}$	3
	<b>Megabasite</b>	$(\text{Mn } \text{Fe } \ddot{\text{O}}\text{a})^4 \ddot{\text{W}}^3$	3
COBALT.			
	<b>Sycpoorite</b>	$\text{Co } \text{S}$	
	<b>Linnæite*</b>	$2 \text{Co } \text{S} + \text{Co } \text{S}^2$	1
	<b>Carrollite</b>	$\text{Co}^2 \text{S}^2 + \text{Cu } \text{S}$	1
	<b>Bieberite</b>	$\ddot{\text{O}} \ddot{\text{S}} + 7 \text{H}$	4
	<b>Skutterudite</b>	$\text{Co } \text{As}^3$	1
	<b>Smaltite*</b>	$(\text{Co } \text{Fe } \text{Ni}) \text{As}^2$	1
	<b>Cobaltite</b>	$\text{Co } \text{S}^2 + \text{Co } \text{As}^2$	1
	<b>Glaucodot</b>	$(\text{Co } \text{Fe}) \text{S}^2 + (\text{Co } \text{Fe}) \text{As}^2$	3
	<b>Erythrite*</b>	$\ddot{\text{O}}^3 \ddot{\text{A}}\text{s} + 8 \text{H}$	4
	<b>Remingtonite†</b>	$\ddot{\text{O}}\text{, } \ddot{\text{C}}\text{, } \text{H}$	
NICKEL.			
	<b>Bunsenite</b>	$\text{Ni}$	1
	<b>Millerite*</b>	$\text{Ni } \text{S}$	6
	<b>Gruenauite</b>	$\text{S, Ni, Bi, Fe, Co, Cu, Pb}$	1
	<b>Morenosite*</b>	$\text{Ni } \ddot{\text{S}} + 7 \text{H}$	
	<b>Niccolite*</b>	$\text{Ni } \text{As}$	6
	<b>Rammelsbergite</b>	$\text{Ni } \text{As}^2$	3
	<b>Gersdorffite*</b>	$\text{Ni } \text{S}^2 + \text{Ni } \text{As}^2$	1
	<b>Ullmannite</b>	$\text{Ni } \text{S}^2 + \text{Ni } (\text{Sb } \text{As})^2$	1

No.	Name.	Formula.	System of crystallization.
	<b>Corynite</b>	$\text{Ni S}^2 + \text{Ni (Sb, As) S}^2$	1
	<b>Annabergite*</b>	$\text{Ni}^3 \ddot{\text{A}}\text{s} + 8 \text{H}$	4
	<b>Cabrerite</b>	$(\text{Mg Ni Co})^3 \ddot{\text{A}}\text{s} + 8 \text{H}$	4
	<b>Breithauptite*</b>	$\text{Ni Sb}$	6
	<b>Zaratite</b>	$\text{Ni O} + 2 \text{Ni H} + 4 \text{H}$	
ZINC.			
	<b>Zinc</b>	$\text{Zn}$	6
	<b>Zincite*</b>	$\dot{\text{Zn}}$	6
	<b>Sphalerite*</b>	$\text{Zn S}$	1
	<b>Wurtzite</b>	$\text{Zn S}$	6
	<b>Voltzite</b>	$4 \text{Zn S} + \dot{\text{Zn}}$	
	<b>Zinkosite?</b>	$\dot{\text{Zn}} \ddot{\text{S}}?$	
	<b>Goslarite</b>	$\dot{\text{Zn}} \ddot{\text{S}} + 7 \text{H}$	3
	<b>Hopeite</b>	$\dot{\text{Zn}}, \ddot{\text{O}}\text{d}, \ddot{\text{P}}, \text{H}$	3
	<b>Koettigite</b>	$(\dot{\text{Zn}} \ddot{\text{O}} \text{Ni})^3 \ddot{\text{A}}\text{s} + 8 \text{H}$	4
	<b>Adamite</b>	$\dot{\text{Zn}}^3 \ddot{\text{A}}\text{s} + \dot{\text{Zn}} \text{H}$	3
	<b>Smithsonite*</b>	$\dot{\text{Zn}} \ddot{\text{O}}$	6
	<b>Hydrozincite*</b>	$\dot{\text{Zn}} \ddot{\text{O}} + 2 \dot{\text{Zn}} \text{H}$	
	<b>Aurichalcite*</b>	$3 \dot{\text{Zn}} \text{H} + 2 \ddot{\text{O}}\text{u} \ddot{\text{O}}$	
CADMIUM.			
	<b>Greenockite*</b>	$\text{Cd S}$	6
TIN.			
	<b>Tin</b>	$\text{Sn}$	2
	<b>Cassiterite*</b>	$\dot{\text{S}}\text{n}$	2
	<b>Stannite</b>	$2(\text{Cu Fe Zn}) \text{S} + \text{Sn S}^2$	2?



No.	Name.	Formula.	System of crystallization.
TITANIUM.			
	<b>Rutile*</b>	Ti	2
	<b>Octahedrite*</b>	Ti	2
	<b>Brookite*</b>	Ti	3
LEAD.			
	<b>Lead*</b>	Pb	1
	<b>Massicot*</b>	Pb	3
	<b>Minium*</b>	$\text{Pb}+2 \text{Pb}$	
	<b>Plattnerite ?</b>	$\ddot{\text{Pb}}$	6 ?
	<b>Galenite*</b>	Pb S	1
	<b>Sartorite</b>	Pb S+As <sup>2</sup> S <sup>2</sup>	3
	<b>Geocronite*</b>	5 Pb S+(Sb As) <sup>2</sup> S <sup>2</sup>	3
	<b>Dufrenoyite</b>	2 Pb S+As <sup>2</sup> S <sup>2</sup>	3
	<b>Zinkenite</b>	Pb S+Sb <sup>2</sup> S <sup>2</sup>	3
	<b>Boulangerite</b>	3 Pb S+Sb <sup>2</sup> S <sup>2</sup>	
	<b>Plagionite</b>	Pb S+Sb <sup>2</sup> S <sup>2</sup> + $\frac{1}{2}$ Pb S	4
	<b>Jamesonite</b>	2 (Fe Pb) S+Sb <sup>2</sup> S <sup>2</sup>	3
	<b>Bournonite</b>	3(Pb Cu) S+Sb <sup>2</sup> S <sup>2</sup>	3
	<b>Kobellite</b>	3 Pb S+(Bi Sb) <sup>2</sup> S <sup>2</sup>	
	<b>Meneghinite</b>	4 Pb S+Sb <sup>2</sup> S <sup>2</sup>	4
	<b>Clayite ?</b>	Cu, Pb, S, As, Sb	1
	<b>Anglesite*</b>	$\text{Pb S}$	3
	<b>Leadhillite*</b>	$\text{Pb S}+3 \text{Pb O}$	3
	<b>Lanarkite</b>	$\text{Pb S}+\text{Pb O}$	4
	<b>Susannite</b>	$\text{Pb S}+3 \text{Pb O}$	6
	<b>Caledonite*</b>	3 Pb S+2 Pb O+Cu O	3

No.	Name.	Formula.	System of crystallization.
	<b>Linarite</b>	$\text{Pb } \bar{\text{S}} + \bar{\text{C}}_{\text{u}} \bar{\text{H}}$	4
	<b>Lamprophanite</b>	$\bar{\text{N}}_{\text{a}}, \bar{\text{K}}, \bar{\text{C}}_{\text{a}}, \bar{\text{M}}_{\text{g}}, \bar{\text{M}}_{\text{n}}, \bar{\text{P}}_{\text{b}}, \bar{\text{S}}, \bar{\text{H}}$	
	<b>Clausthalite</b>	$\text{Pb Se}$	1
	<b>Zorgite</b>	$\text{Pb Se} + \text{Cu Se}$	
	<b>Lehrbachite</b>	$\text{Pb, Hg, Se}$	
	<b>Altaite</b>	$\text{Pb Te}$	1
	<b>Nagyagite</b>	$2 (\text{Pb Au}) + 3 (\text{Te Sb S})$	2
	<b>Cotunnite</b>	$\text{Pb Cl}$	3
	<b>Matlockite</b>	$\text{Pb Cl} + \bar{\text{P}}_{\text{b}}$	2
	<b>Mendipite</b>	$\text{Pb Cl} + 2 \bar{\text{P}}_{\text{b}}$	3
	<b>Schwartzembergite</b>	$\text{Pb I} + 2 \bar{\text{P}}_{\text{b}}$	6
	<b>Percylite</b>	$(\text{Pb Cl} + \bar{\text{P}}_{\text{b}}) + (\text{Cu Cl} + \bar{\text{C}}_{\text{u}}) + \bar{\text{H}}$	1
	<b>Pyromorphite*</b>	$3 \bar{\text{P}}_{\text{b}}^3 \bar{\text{P}} + \text{Pb Cl}$	6
	<b>Plumbogummite</b>	$\bar{\text{P}}_{\text{b}}^3 \bar{\text{P}} + 6 \bar{\text{A}}\bar{\text{l}} \bar{\text{H}}^3$	
	<b>Mimetite*</b>	$3 \bar{\text{P}}_{\text{b}}^3 \bar{\text{A}}\bar{\text{s}} + \text{Pb Cl}$	6
	<b>Monimolite</b>	$(\bar{\text{O}}_{\text{a}} \bar{\text{M}}_{\text{g}} \bar{\text{F}}_{\text{e}} \bar{\text{M}}_{\text{n}} \bar{\text{P}}_{\text{b}})^4 \bar{\text{S}}_{\text{b}}$	2
	<b>Bindheimite</b>	$\bar{\text{P}}_{\text{b}}^3 \bar{\text{S}}_{\text{b}} + 4 \bar{\text{H}}$	
	<b>Cerussite*</b>	$\bar{\text{P}}_{\text{b}} \bar{\text{C}}$	3
	<b>Phosgenite</b>	$\bar{\text{P}}_{\text{b}} \bar{\text{C}} + \text{Pb Cl}$	2
	<b>Crocoite</b>	$\bar{\text{P}}_{\text{b}} \bar{\text{C}}_{\text{r}}$	4
	<b>Phœnicochroite</b>	$\bar{\text{P}}_{\text{b}}^3 \bar{\text{C}}_{\text{r}}^2$	3?
	<b>Vauquelinite</b>	$\bar{\text{C}}_{\text{u}}^3 \bar{\text{C}}_{\text{r}}^2 + 2 \bar{\text{P}}_{\text{b}}^3 \bar{\text{C}}_{\text{r}}^2$	4
	<b>Stolzite*</b>	$\bar{\text{P}}_{\text{b}} \bar{\text{W}}$	2
	<b>Wulfenite*</b>	$\bar{\text{P}}_{\text{b}} \bar{\text{M}}_{\text{o}}$	2
	<b>Dechenite</b>	$\bar{\text{P}}_{\text{b}} \bar{\text{V}}$	
	<b>Descloizite*</b>	$\bar{\text{P}}_{\text{b}}^2 \bar{\text{V}}$	3

No.	Name.	Formula.	System of crystallization.
	<b>Vanadinite</b>	$\text{Pb}^3 \text{V} + \frac{1}{3} \text{Pb Cl}$	6
		BISMUTH.	
	<b>Bismuth*</b>	Bi	6
	<b>Bismite</b>	$\bar{\text{B}}\text{i}$	.
	<b>Karelinite</b>	$\bar{\text{B}}\text{i}$ with Bi S	
	<b>Bismuthinite*</b>	$\text{Bi}^2 \text{S}^3$	3
	<b>Emplectite</b>	$\text{Cu S} + \text{Bi}^2 \text{S}^3$	3
	<b>Chiviatite</b>	$(\text{Cu Pb}) \text{S} + \frac{3}{2} \text{Bi}^2 \text{S}^3$	
	<b>Wittichenite</b>	$3 \text{Cu S} + \text{Bi}^2 \text{S}^3$	3
	<b>Aikinite*</b>	$(3 \text{Cu S} + \text{Bi}^2 \text{S}^3) + 2 (3 \text{Pb S} + \text{Bi}^2 \text{S}^3)$	3
	<b>Tetradymite*</b>	$\text{Bi}^2 (\text{Te S})^3$	6
	<b>Joseite</b>	$\text{Bi}^3 (\frac{1}{3} \text{Te} + \frac{1}{3} (\text{S Se}))^4$	6
	<b>Wehrlite</b>	Bi (Te S)	6
	<b>Montanite*</b>	$\bar{\text{B}}\text{i Te} + 2 \text{H}$	
	<b>Alloclasite</b>	$2 \text{Co S}^2 + \text{Co As}^2 + 4 \text{Bi As}$	3
	<b>Bismutite*</b>	$3 (\bar{\text{B}}\text{i } \bar{\text{C}} + \text{H}) + \bar{\text{B}}\text{i H}$	
		ARSENIC.	
	<b>Arsenic*</b>	As	6
	<b>Arsenolite*</b>	$\bar{\text{A}}\text{s}$	1
	<b>Claudetite</b>	$\bar{\text{A}}\text{s}$	3
	<b>Realgar</b>	As S	4
	<b>Orpiment*</b>	$\text{As}^2 \text{S}^3$	3
	<b>Dimorphite</b>	$\text{As}^4 \text{S}^3$	3
		ANTIMONY.	
	<b>Antimony*</b>	Sb	6
	<b>Senarmonite</b>	$\bar{\text{S}}\text{b}$	1
	<b>Valentinite</b>	$\bar{\text{S}}\text{b}$	3

No.	Name.	Formula.	System of crystallization.
	<b>Cervantite*</b>	$\text{Sb} + \text{Sb}$	3
	<b>Stibiconite*</b>	$\text{Sb} + \text{H}$	
	<b>Volgerite</b>	$\text{Sb} + 5 \text{H}$	
	<b>Stibnite*</b>	$\text{Sb}^2 \text{S}^2$	3
	<b>Kermesite</b>	$\text{Sb} + 2 \text{SbS}^2$	4
	<b>Berthierite*</b>	$\text{Fe S} + \text{Sb}^2 \text{S}^2$	
	<b>Allemontite</b>	$\text{Sb As}^2$	6
URANIUM.			
	<b>Uraninite</b>	$\text{U U}$	1
	<b>Eliasite</b>	$(\text{Fe U}) \text{H}^2$	
	<b>Gummite</b>	$(\text{Fe U}) \text{H}^2$	
	<b>Johannite*</b>	$[\frac{2}{3} (\text{U}^3 \text{U}) + \frac{1}{3} \text{Cu}^2] \text{S} + 1\frac{1}{2} \text{H}$	4
	<b>Uranochalcite</b>	$[\frac{2}{3} (\text{U}^3 \text{U}) + \frac{1}{3} \text{Ca}^2] \text{S} + \frac{1}{2} \text{Cu S} + 9 \text{H}$	
	<b>Medjidite</b>	$(\frac{1}{2} \text{U} + \frac{1}{2} \text{Ca}^2) \text{S} + 7\frac{1}{2} \text{H}$	
	<b>Zippeite</b>	$(\text{U Cu}^2)^2 \text{S}^2 + 8 \text{H}$	
	<b>Voglianite</b>	$4 (\text{U}^3 \text{U})^2 \text{S} + (\text{Ca Cu}) \text{S} + 10 \text{H}$	
	<b>Uraconite</b>	$\text{U}^3 \text{S} + 14 \text{H}$	
	<b>Torbernite</b>	$\text{U}^2 \text{P} + \text{Cu H} + 7 \text{H}$	2
	<b>Autunite*</b>	$\text{U}^2 \text{P} + \text{Ca H} + 7 \text{H}$	3
	<b>Liebigite</b>	$\text{U C} + \text{Ca C} + 20 \text{H}$	
	<b>Voglite</b>	$2 \text{U C} + 2 \text{Ca C} + \text{Cu}^2 \text{C} + 14 \text{H}$	
	<b>Polycrase</b>	$\text{Y, U, Ti, Zr, Fe, Ce, Pb}$	3
	<b>Samarskite</b>	$((\text{Fe Y Ce})^2 \text{U} (\text{Zr Th} \frac{2}{3}))^2 \text{Pb}_2$	3
TUNGSTEN.			
	<b>Tungstite*</b>	$\text{W}$	

No.	Name.	Formula.	System of crystallization.
<b>MOLYBDENUM.</b>			
	<b>Molybdite*</b>	$\text{Mo}$	3
	<b>Molybdenite*</b>	$\text{Mo S}^2$	6 ?
<b>VANADIUM.</b>			
	<b>Vanadic Ochre† ?</b>	$\text{V}$	
<b>COPPER.</b>			
	<b>Copper*</b>	$\text{Cu}$	1
	<b>Cuprite*</b>	$\text{Cu}$	1
	<b>Melaconite*</b>	$\text{Cu}$	1
	<b>Chalcocite*</b>	$\text{Cu S}$	3
	<b>Cubanite.</b>	$\text{Cu S} + \text{Fe S} + 3\text{Fe S}^2$	1
	<b>Chalcopyrite*</b>	$\text{Cu S} + \text{Fe S} + \text{Fe S}^2$	2
	<b>Barnhardtite*</b>	$2 \text{Cu S} + \text{Fe S} + \text{Fe S}^2$	
	<b>Covellite</b>	$\text{Cu S}^2$	6
	<b>Chalcostibite</b>	$\text{Cu S} + \text{Sb}^2 \text{S}^2$	3
	<b>Binnite</b>	$\frac{3}{2} \text{Cu S} + \text{As}^2 \text{S}^2$	1
	<b>Stylopyrite</b>	$3 (\text{Fe Cu Ag}) \text{S} + \text{Sb}^2 \text{S}^2$	3
	<b>Tetrahedrite<sup>1</sup></b>	$4 \text{Cu S} + \text{Sb}^2 \text{S}^2$	1
	<b>Tennantite</b>	$4 (\text{Fe Cu}) \text{S} + \text{As}^2 \text{S}^2$	1
	<b>Enargite*</b>	$3 \text{Cu S} + \text{As}^2 \text{S}^2$	3
	<b>Bornite*</b>	$(\text{Fe Cu}) \text{S}$	1
	<b>Castillite</b>	$(\text{Cu Ag})^2 \text{S} + 2 (\text{Fe Zn Pb Cu}) \text{S}$	
	<b>Chalcanthite</b>	$\text{Cu S} + 5 \text{H}$	5
	<b>Brochantite</b>	$\text{Cu S} + 2\frac{1}{2} \text{Cu H}$	3
	<b>Langite</b>	$\text{Cu S} + 3 \text{Cu H} + \text{H}$	3
	<b>Cyanotrichite</b>	$3 \text{Cu}^2 \text{S} + 2 \text{Al H}^2 + 15 \text{H} ?$	

No.	Name.	Formula.	System of crystallization.
	<b>Connellite</b>	$\text{Cu, S, Cl}$	6
	<b>Berzelianite</b>	$\text{Cu Se}$	
	<b>Eucairite</b>	$(\text{Cu Ag}) \text{Se}$	
	<b>Crookesite</b>	$(\text{Cu Tl Ag}) \text{Se}$	
	<b>Atacamite</b>	$3 \text{Cu H} + \text{Cu Cl H}$	3
	<b>Tallingite</b>	$4 \text{Cu H} + \text{Cu Cl H} + 3 \text{aq}$	
	<b>Thrombolite</b>	$\text{Cu}^3 \text{P}^2 + 6 \text{H} ?$	
	<b>Libethenite</b>	$\text{Cu}^4 \text{P} + \text{H}$	3
	<b>Olivenite</b>	$\text{Cu}^4 (\text{As P}) + \text{H}$	3
	<b>Conichalcite</b>	$(\text{Cu Cu})^3 (\text{As P}) + \text{Cu H} + \frac{1}{2} \text{H}$	
	<b>Tagilite</b>	$\text{Cu}^4 \text{P} + 3 \text{H}$	4
	<b>Liroconite</b>	$\text{Cu}^3 (\text{As, P}) + (\frac{2}{3} \text{Al} + \frac{1}{3} \text{Cu}^2) \text{H}^2 + 9 \text{H}$	4
	<b>Pseudomalachite*</b>	$\text{Cu}^5 \text{P} + 3 \text{H}$	3
	<b>Domeykite*</b>	$\text{Cu}^3 \text{As}^2$	
	<b>Algodonite*</b>	$\text{Cu}^6 \text{As}^2$	
	<b>Whitneyite*</b>	$\text{Cu}^9 \text{As}^2$	
	<b>Trichalcite</b>	$\text{Cu}^2 \text{As}^3 + 5 \text{H}$	
	<b>Bayldonite</b>	$(\text{Pb Cu})^4 \text{As} + 2 \text{H}$	
	<b>Euchroite</b>	$\text{Cu}^4 \text{As} + 7 \text{H}$	3
	<b>Erinite</b>	$\text{Cu}^5 \text{As} + 2 \text{H}$	
	<b>Cornwallite</b>	$\text{Cu}^5 \text{As} + 5 \text{H}$	
	<b>Tyrolite</b>	$\text{Cu}^5 \text{As} + 9 \text{H}$	3
	<b>Clinoclasite</b>	$\text{Cu}^6 \text{As} + 3 \text{H}$	4
	<b>Chalcophyllite</b>	$\text{Cu}^5 \text{As} + 12 \text{H}$	6
	<b>Chénevixite</b>	$(\text{Fe Cu})^2 \text{As} + 3 \text{H}$	
	<b>Lindackerite</b>	$2 \text{Cu}^3 \text{As} + \text{Ni}^3 \text{S} + 7 \text{H}$	3

No.	Name.	Formula.	System of crystallization.
	<b>Malachite*</b>	$\text{Cu}^2 \text{O} + \text{H}$	4
	<b>Azurite*</b>	$2 \text{Cu} \text{O} + \text{Cu} \text{H}$	4
	<b>Volborthite*</b>	$\text{Cu}, \text{V}, \text{H}$	6
		MERCURY.	
	<b>Mercury*</b>	Hg	1
	<b>Amalgam</b>	Ag Hg <sup>2</sup> and Ag Hg <sup>3</sup>	1
	<b>Cinnabar*</b>	Hg S	6
	<b>Tiemannite</b>	Hg Se	
	<b>Ammiolite</b>	Fe, Sb, Cu, Hg, S	
	<b>Calomel</b>	Hg <sup>2</sup> Cl	2
	<b>Coccinite</b>	Hg I	
		SILVER.	
	<b>Silver*</b>	Ag	1
	<b>Chilenite</b>	Bi Ag <sup>6</sup>	
	<b>Arquerite</b>	Ag <sup>6</sup> Hg	1
	<b>Argentite*</b>	Ag S	1
	<b>Daleminzite</b>	Ag S	3
	<b>Acanthite</b>	Ag S	3
	<b>Stromeyerite*</b>	(Cu Ag) S	3
	<b>Sternbergite</b>	$4 (\frac{3}{4} \text{Fe} + \frac{1}{4} \text{Ag}) \text{S} + \text{Fe} \text{S}^2$	3
	<b>Miargyrite</b>	Ag S + Sb <sup>2</sup> S <sup>2</sup>	4
	<b>Brongniardite</b>	Pb S + Ag S + Sb <sup>2</sup> S <sup>2</sup>	1
	<b>Freieslebenite</b>	$5 (\text{Pb Ag}) \text{S} + 2 \text{Sb}^2 \text{S}^2$	4
	<b>Pyrostilpnite</b>	Ag, S, Sb	4
	<b>Rittingerite</b>	Ag, S, Sb	4
	<b>Pyrargyrite*</b>	$3 \text{Ag S} + \text{Sb}^2 \text{S}^2$	6
	<b>Proustite*</b>	$3 \text{Ag S} + \text{As}^2 \text{S}^2$	6

No.	Name.	Formula.	System of crystalliza- tion.
	<b>Stephanite*</b>	$5 \text{ Ag S} + \text{Sb}^2 \text{ S}^3$	3
	<b>Polybasite*</b>	$9 (\text{Cu Ag}) \text{ S} + (\text{Sb As})^2 \text{ S}^3$	3
	<b>Xanthoconite</b>	$(3 \text{ Ag S} + \text{As}^2 \text{ S}^3) + 2 (3 \text{ Ag S} + \text{As}^2 \text{ S}^3)$	6
	<b>Bolivianite ?</b>	Ag, S, Sb,	3
	<b>Naumannite</b>	$(\text{Ag Pb}) \text{ Se}$	1
	<b>Hessite*</b>	Ag Te	3
	<b>Cerargyrite*</b>	Ag Cl	1
	<b>Embolite</b>	Ag (Cl Br)	1
	<b>Bromyrite</b>	Ag Br	1
	<b>Iodyrite*</b>	Ag I	6
	<b>Dyserasite</b>	$\text{Ag}^2 \text{ Sb}$	3
		GOLD.	
	<b>Gold*</b>	Au	1
	<b>Gold Amalgam*</b>	$(\text{Ag Au})^3 \text{ Hg}^5$	
	<b>Sylvanite</b>	$(\text{Au Ag}) \text{ Te}^3$	4
	<b>Calaverite*</b>	$\text{Au Te}^4$	
		PLATINUM.	
	<b>Platinum*</b>	Pt	1
		IRIDIUM.	
	<b>Platiniridium*</b>	Ir, Pt, Rd	1
	<b>Iridosmine*</b>	Ir Os	6
		PALLADIUM.	
	<b>Palladium</b>	Pd	1
	<b>Allopalladium</b>	Pd	6



No.	Name.	Formula.	System of crystallization.
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## RUTHENIUM.

<b>Laurite</b>	$\text{Ru}^{\text{II}} \text{S}^{\text{II}} + \text{Os}^{\text{II}} \text{S}^{\text{II}}$		1
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## RESINS AND ORGANIC COMPOUNDS.

## I. SIMPLE HYDROCARBONS.

<b>Naphtha*</b>			
<b>Scheererite</b>			4
<b>Chrismatite</b>	$\text{C}^{\text{II}} \text{H}^{\text{I}}$		
<b>Pittolium*</b>			
<b>Urpethite</b>			
<b>Hatchettite</b>			
<b>Ozocerite*</b>			
<b>Zietrisikite</b>			
<b>Elaterite*</b>			
<b>Fichtelite</b>	$\text{C}^{\text{V}} \text{H}^{\text{I}}$		4
<b>Hartite</b>			4
<b>Koenlite</b>	$\text{C}^{\text{III}} \text{H}^{\text{III}}$		
<b>Naphthalin</b>	$\text{C}^{\text{II}} \text{H}^{\text{I}}$		3
<b>Idrialite</b>			

## II. OXYGENATED HYDROCARBONS.

<b>Geocerite</b>	$\text{C}^{\text{III}} \text{H}^{\text{III}} \text{O}^{\text{I}}$		
<b>Geomyricite</b>	$\text{C}^{\text{III}} \text{H}^{\text{III}} \text{O}^{\text{I}}$		
<b>Copalite</b>			
<b>Succinite</b>			
<b>Walchowite</b>			

No.	Name.	Formula.	System of crystallization.
	<b>Ambrite</b>		
	<b>Bathvillite</b>		
	<b>Xyloretinite</b>		
	<b>Leucopetrite</b>	$C^{50} H^{84} O^3$	
	<b>Euosmite</b>		
	<b>Scleretinite</b>		
	<b>Pyroretinite</b>		
	<b>Rochlederite</b>		
	<b>Schlanite</b>		
	<b>Guyaquillite</b>		
	<b>Middletonite</b>		
	<b>Stanekite</b>		
	<b>Anthracoxenite</b>		
	<b>Tasmanite</b>		
	<b>Dysodile</b>		
	<b>Hircite</b>		

*III ACID OXYGENATED HYDROCARBONS.*

<b>Butyrellite</b>	$C^{52} H^{64} O^4$
<b>Geocerellite</b>	$C^{23} H^{56} O^4$
<b>Bruecknerellite</b>	$C^{24} H^{44} O^3$
<b>Succinellite</b>	$C^4 H^6 O^4$
<b>Retinellite</b>	
<b>Dopplerite</b>	
<b>Melanellite</b>	

No.	Name.	Formula.	System of crystallization.
<i>IV. NITROGENOUS HYDROCARBONS.</i>			

**Asphaltum****Mineral Coal**

Anthracite\*

Native Coke\*

Bituminous Coal\*

Jet

Lignite\*

## APPENDIX.

**Brewsterlinite****Cryptolinite**



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