Mineralogy

Class. Compound Oxides

1 Quartz. SiO_2.
2 Opal. SiO_2. with from 4 to 10 p/. of H_2O.
3 Flint. SiO_2
4 Agate. Alternate layers of Quartz & Chalcedony.
5 Onyx. is more perfect Agate.
6 Hyalite. colourless opal.
7. Chalcedony. opaque quartz.
8 Cornelian. Red Chalcedony.
9 Catseye. translucent chalcedony with filaments of Asbestus
10 Amethyst. violet quartz
11 Jasper. opaque quartz col- with Fe_2O_3.
12. Bloodstone, or Heliotrope op- quartz col with Chlorite.
13. Corundum. Al_2O_3. Cont Cr_2O. Emery stone.
14. Sapphire. Blue corundum
15 Ruby. Red " cont Cr_2O.
16 Red Hematite. Iron Ore. (Fe_2O_3.
17. Brown " " $2(Fe_2O_3 + 3H_2O)$
18. Specula Iron Ore. Fe_2O_3 oligiste or Iron glass

Compound oxides cont.

19. Magnetic Iron Ore or Loadstone or Magnetite ($FeO+Fe_2O_3$)
20. Micaceous Iron Ore.
21. Lemonite. Hydrated oxide Iron.
22. Bauxite. Aluminicous peroxide of Iron.
23 Tenorite. or Blk. Copper Ore. CuO
24. Chrysocolla. Hydrated silicated Copper.
25. Red Copper Ore. Cu_2O or Ruby ore.
26 Tinstone. SnO_2.
27. Pyrosulite. MnO_2. B_2O_3 Bismuth oclire.
28. Psilomelane. is pyrosulite con H_2O as MnO_2+H_2O
29 Varocate. crystalline Hydrate $Mn_2O_3+2MnO_2+H_2O$
30. Wad.. is also a hydrate.
31. Braunite. MnO. $-Mn_2O_3$.
32. Manganite. $Mn_2O_3+H_2O$
33. Hausmannite. Red oxide Mn
34. Spinelle $FeO.Fe_2O_3$ $Mg_2O_3.Al_2O_3$.
35 Rutile or Nigrine TiO_2. Sb_2O_3. White antimony.
36 Anatase TiO_2. Cr_2O_3 Chrome Iron Ore.
37. Arkansite. TiO
38. Brookite TiO

Compound oxides cont.

39. Diaspore. Native Alumina $Al_2O_3 + H_2O$.
40 Thorina. Protoxide of Thorium
41 Ceria. pro & sesquioxide of Cerium.
42. Tutty. impure oxide of Zinc.
43 Zaffre. impure CoO
44 Litharge. Pb-O
45 Massicot Yellow form of Litharge.
46 Melanchroite. $3Pb_2O\ 2Cu_2O_3$.

Class. Silicates

Family. Felspar.

Labradorite. Felspar. $2Si + Al_2O_3 + Ca$.
Anorthite. " $3Si + 2Al_2O_3 + 2Ca$.
Orthoclase. } or Potash Felspar. Si Al. K
Andularia } " white variety from Mt. Adula.
Moonstone } opalescent variety of Orthoclase.
Aventurine Felspar cont: minute scales of Specular Iron.
Kaolin. is decomposed. Felspar.
Albite. is Sod Felspar. Si Al. Na.
Oligoclase. $3Si + Al_2O_3 + Na + Ca$.
Leucite } Felspar of volcanic lava.
Nepheline } " " "
Scapolite $4Si + 2Al + Ca$.

Orthoclase. Potash Felspar. $(K_2 Al_2O_4 Si_6 O_{12})$.
Albite. Soda " $(Na_2 Al_2O_4 Si_6 O_{12})$

Analysis

	Orthoclase	Albite
Silica.	64·76	67·62
Alumina	17·60	16·39
Ferric oxide	·50	2·30
Lime	·65	·85
Magnesia	·30	1·46
Potash	14·18	·51
Soda	1·76	10·24
Loss on Ignition	0·65	
	100·39.	99·57.

q. See Thorpe.

Silicates

Family Hornblende.

Hornblende. $3Si + 4MgCaFeO$ (dark color).
Tremolite. long white crystals light "
Actinolite cont 6 to 8 % Fe_2O_3. light green color.
Dolomite. $MgCa(CO_3)_2$
Billy spar. similar comp. as above.
Conite " " " "
Asbestos. is Hornblende in slender crystals.
Mountain Leather. } are Varieties of Asbestos.
" Cork }
Wollastonite $CaSiO$
Augite. } $(CaMg)^3SiO_3$
Pyroxene }

Silicates

Family Mica.

Muscovite $5Si + 4Al_2O_3 + K$ White Mica
Margarodite " " contains 1 atom of H_2O
Lepidolite or Lithia Mica Si, Al, L. contains Caesium
Biotite or Blk Mica Mg principal constituent
Lepidomelane " " 1½% of Mn jet Black.
Triphane } $Si. Al. L$.
Petalite }

Silicates

Family Talc. $3SiO_2$

Steatite or Soapstone or French Chalk. $3MgO.SiO_2.2MgO$

white yellow or Green. color.

Saponite. is above cont more H_2O

Chlorite $2Si + Al_2O_3 + 5Mg + 3H_2O$ green pearly lustr

Talc. $5Si + 6Mg + 1H_2O$.

Serpentine $4Si + 9Mg + 6H_2O$

Periclase MgO

Silicates.

Family Zeolites

Zeolites. cont Si Al. Alkali + H_2O

Analcime. $8Si + 3Al + 3Na + 6H_2O$

Apophillite $10Si + 8Ca + K + 16H_2O$.

Natrolite. Hydrated double Silicate of Al + Na.

Scolezite. as above with Lime base (from Giants Causeway).

Prehnite. cont. FeO pale Green.

Thomsonite. snow white. $4Si + 3Al + 2Ca + Na + 7H_2O$.

Harmatone. Twin Crystals $3Si + Al. + Ba. + 5H_2O$.

Phillipsite. " " $3Si + Al. + Ca + K + 5H_2O$.

Heulandite of Epistilbite has 1 atom less H_2O than Stilbite

Stilbite a double dydrated Silicate of Al + Ca.

Brewsterite. Ca is replaced by Ba & Sr.

Chabazite.

Hypostilbites

Laumonite.

Silicates

Family. Andalusite.

Andalusite 2Si + 3Al.
Chiastolite. crystals of above.
Staurotide. twin Crystals - dk Brown or Blk. Crystals in forms (of Cross
Kanite. same comp. as Andalusite. Light Blue.
Opal. nearly pure SiO_2
Quartz. SiO_2.
Amethyst. violet quartz.
Hyalite colorless opal.
Topaz. similar Comp. to Andalusite. but 1/6th of O is replaced by F. it is a fluosilicate of Alumina
Oriental Topaz. is a yellow sapphire
Lapis Lazzuli - Si of Al + Na + $CaSO_4$ + FeCl.
Berzl.
Aquamarine is Berzl. tinted Green.
Emerald. tinted Green by CrO. Conts Glucineum.
Euclase. closely allied to Emerald.
Chrysoberzl. " " " "
Zircon red silicate Zirconia, when transparent. is called Hyacinth.
Jargon. sold as impure diamonds.

Silicates.

Family. Garnets.

Essonite or Cinnamonstone
Topazolite (variety of Essonite.) } Lime. Garnets.
Succinite.
Romanzolite.

Almandine or Carbuncle of Precious Stones. Garnet
Melanlite. cont Mn. Blk Garnet.
Colophonite. resinous lustre.

Tourmaline conts Boracic Acid.
School. Blk. variety of Tourmaline.
Rubellite. Red " "
Indicolite Blue. " "
Achroite. transparent " "

Axinite. conts. Boracic Acid.

Epidote. Green.
Pistacite Bright Green.
Zoisite Grey.

Manganesian Epidote 14 Mn + 3 Si + 2 Al. + 3 Ca. dark Red
Iolite or Dichroite Si + Al. + Mg + Fe Blue & in two Colors

Crysolite.
Olivine.
Peridote.
Idocrase. } 2 (Mg Fe.) O + SiO_2.

Sulphates.

Gypsum. $CaSO_4 = Ca + SO_3 + 2H_2O$.
Selenite or Satin spar. crystallized transparent $CaSO_4$.
Heavy Spar. $BaSO_4$.
Celestine $SrSO_4$.
Anglesite. $Pb\text{-}SO_4$
Anhydrite. $CaSO_4$. cont H_2O
Alum.
Salt Cake. an impure $NaSO_4$.
Turpeth. $SHgO\ 2HgO$.
Alabaster. $CaSO_4$

Nitrates.

Salt Petre. KNO_3.
Chili saltpetre $NaNO_3$.

Carbonates.

Spathic Iron Ore. or protocarbonate $FeCO_3$. Siderite.
Clay " Stone impure carbonate "
Black Band. " " "
Dialogite. $MnCO_3$.
Manganese. Spar. "
Manganspath. or Brown spar $MnCO_3$.
Malachite. $CuCO_3$.
Chessylite. $CuO\,H_2O.2CuCO_3$ Blue hydrated (Carbonate) oxy.
Azurite. $2CuCO_3.Cu\,H_2O_2$. Blue carb. Copper.
Calc. spar. $CaCO_3$.
Iceland spar. $CaCO_3$. transparent Crystals of Calc spar.
Stalactites "
Stalagmites "
Marble "
Oolite "
Portland Stone
Aragonite. "
Cerussite. $PbCO_3$.
Trona or Natron sesquicarbonate Soda.
$(2Na_2CO_3 + H_2CO_3 + 3H_2O)$

Carbonates

Strontianite $SrCO_3$.
Witherite $BaCO_3$.
Calamine $ZnCO_3$
Zinc Spar. $ZnCO_2$.
Emerald Nickel is a native carbonate.
Magnesite. $MgCO_3$. 98 p.c.
Calcite. $Ba.Ca.2CO_3$.
Dolomite. $Mg.Ca\ 2CO_3$

Phosphates –

Apatite	$Ca_3 2PO_4$	supposed organic origin
Moroxite.	"	
Phosphorite	"	
Coprolites.	"	
Asparagus Stone	"	
Wavellite.	hydrated. phosphate of Al. greenish	
Lazulite.	"	"
Ambligonite.	"	"
Gibbsite.	"	"
Turquoise or Calaite	"	"
Vivianite.	phosphate Iron. Hydrated. found in Bog Iron Ore.	

Borates.

Tincal or Borax. Hydrated Borate of Soda.
Boracite " " Mg.

Tungstates

Wolfram. Tungstate Fe & Mn.
Scheelite. " Ca.

Tantalates.

Tantalate or Columbite. Tantalate Fe & Mn.
cont Niobium.

Titanates.

Sphene or Titanite. Silico titanate of Ca.

Sulphides

Realgar. or Red Orpiment. AsS & AsS_2.
Orpiment. AsS.
Greenockite. CdS.
Stibnite or Grey Antimony. Sb-S. cheap ore of Sb-
Berthierite. Sb & Fe. antimony ore.
Jamesonite. Sb-. Pb. Fe. Cu. Bi. Zn.
Boivenonite Sb-Pb. Cu & Fe.
Zinkenite Sb. Pb & Cu.
Antimonial. lead glance. Sb- & Pb-
Melan. glance. Sb.-Ag. & Cu.
Miargyrite. Sb-Ag. Cu. & Fe.
Rhombohedral. ruby Blende. Sb- & Ag. in dark Ruby (Ag.
Weissgiltigery or Grangiltigger Sb-Ag. Cu. Fe & Zn
Antimonial Copper Glance. Sb. Cu. & Ag Sb_2S_3.
Kupper blende. Sb-Fe. Cu. Ag & As.
Red Antimonl Ore. $Sb-S_3$
Brittle Silver Ore. Ag. Sb.-S Blk.
Silver glance. Ag_2S.
Light Red Silver. Ore., Brittle. when As & Res place of Sb-
Galena Pb.

Sulphides. Cont. —

Bismuth Glance. Bi_2S_3

Zinc Blende. ZnS.

Cinnabar HgS. Bright red or Grey red.

Silvery Fahlery Grey Copper ore with 1 to 6% of Ag.

Argentiferous Grey Copper ore. 30% of Ag.

Millerite capillary pyrite. or Hair Nickel NiS.

Erubescite or Horseflesh Copper ore. Dual sulphide of Cu & Fe

$3S + 4Cu + Fe$.

Nickel Glance. or white Nickel $As.Ni.S$.

Copper Nickel $As + 2Ni + S$

Smaltine or. Grey Cobalt $As + Co$.

Cobalt Glance. $CoS_2.CoAs_2$.

Cobaltine. } ores of Co. Co_2S_3.
Cobalt Pyrites }

Mispickel Arsenical Iron pyrites $FeAs + S$.

Iron Pyrites. FeS_2

Manganese Blende. MnS.

Domeykite or Indigo Copper or Blue Copper, Cu_3S.

Vitrous Cu. or Cu Glance Cu_2S.

Tin Pyrites or Bell metal ore. SnS_2.

Molybdenite. cont Mn

— Sulphides — cont.

Vanadinite. also. Swedish Iron ores. cont V.

Pitch Blende $2UO \cdot U_2O$

Uranite. $Ca_2(U_2O_2)_2PO_4 + 8H_2O$.

Chalcolite. $Cu_2(U_2O_2)_2PO_4 + 8H_2O$

Hatchetine. or Mineral tallow.

Itacolumite.

Fluorides & Chlorides -

Fluorspar. CaF_2.
Cryolite or Ice Stone. $3NaF + AlF_3$. double fluoride.
Rock Salt $NaCl$. melt in flame of candle.
Mendipite. Pb_2OCl_2.
Calomel. Hg_2Cl_2.
Corrosive Sublimate. $HgCl_2$.
Hornsilver $AgCl$.

Jena Glasses.

No 1