

TEXTBOOKS ON RESERVE IN THE GEOLOGY LIBRARY FOR ECONOMIC ORE
PETROLOGY

Jensen, M.L., and A.M. Bateman, *Economic Mineral Deposits*

Below is the list of background readings for the lecture on economic ore petrology. Readings are listed as specific page numbers from the above textbook, which is on reserve in the Geology Library.

Lecture Title	Jensen/Bateman
Ore generation	81-92, 95-104, 312-322

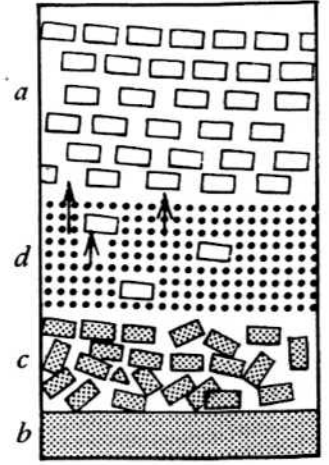
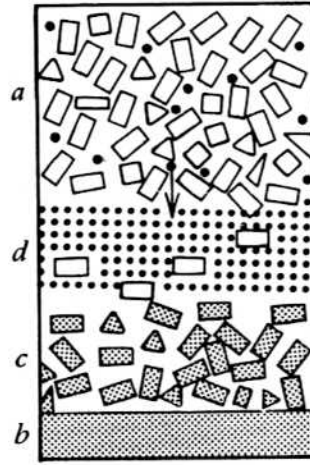
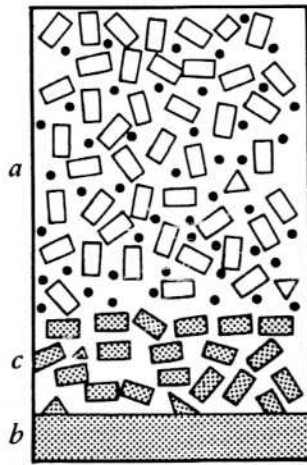
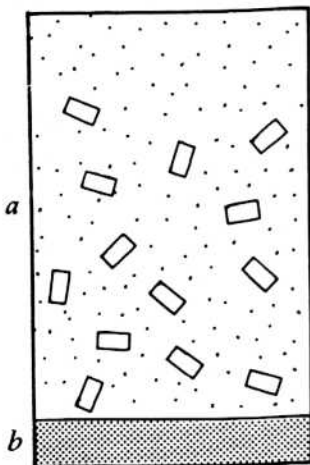
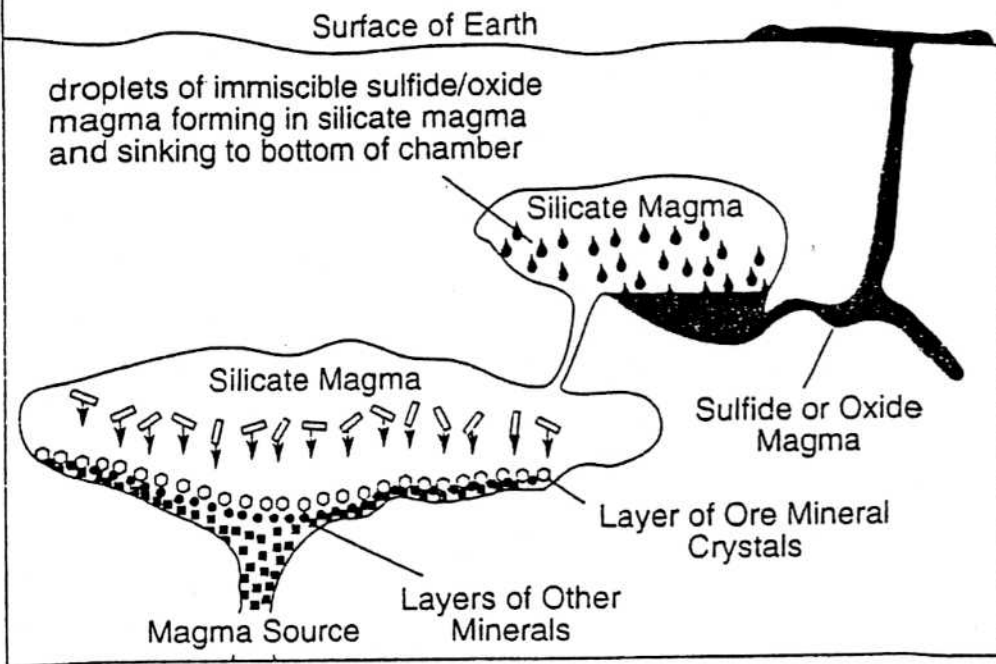
Table 3-3 List of the Common Ore Minerals

<i>Metal</i>	<i>Ore Mineral</i>	<i>Composition</i>	<i>Percent Metal</i>	
Gold	Native gold	Au	100	
	Calaverite	AuTe ₂	39	
	Sylvanite	(Au,Ag)Te ₂	—	
Silver	Native silver	Ag	100	
	Argentite	Ag ₂ S	87	
	Cerargyrite	AgCl	75	
Iron	Magnetite	FeO·Fe ₂ O ₃	72	
	Hematite	Fe ₂ O ₃	70	
	"Limonite"	Fe ₂ O ₃ ·H ₂ O	60	
	Siderite	FeCO ₃	48	
Copper	Native copper	Cu	100	
	Bornite	Cu ₅ FeS ₄	63	
	Brochantite	CuSO ₄ ·3Cu(OH) ₂	62	
	"Chalcocite"	Cu ₂ S	80	
	Chalcopyrite	CuFeS ₂	34	
	Covellite	CuS	66	
	Cuprite	Cu ₂ O	89	
	Digenite	Cu ₉ S ₅	78	
	Enargite	3Cu ₂ S·As ₂ S ₅	48	
	Malachite	CuCO ₃ ·Cu(OH) ₂	57	
	Azurite	2CuCO ₃ ·Cu(OH) ₂	55	
	Chrysocolla	CuSiO ₃ ·2H ₂ O	36	
	Lead	Galena	PbS	86
		Cerussite	PbCO ₃	77
Anglesite		PbSO ₄	68	
Zinc	Sphalerite	ZnS	67	
	Smithsonite	ZnCO ₃	52	
	Hemimorphite	H ₂ ZnSiO ₅	54	
	Zincite	ZnO	80	
Tin	Cassiterite	SnO ₂	78	
	Stannite	Cu ₂ S·FeS·SnS ₂	27	
Nickel	Pentlandite	(Fe,Ni)S	22	
	Garnierite	H ₂ (Ni,Mg)SiO ₃ ·H ₂ O	—	
Chromium	Chromite	FeO·Cr ₂ O ₃	68	
Manganese	Pyrolusite	MnO ₂	63	
	Psilomelane	Mn ₂ O ₃ ·xH ₂ O	45	
	Braunite	3Mn ₂ O ₃ ·MnSiO ₃	69	
	Manganite	Mn ₂ O ₃ ·H ₂ O	52	
Aluminum	Bauxite	Al ₂ O ₃ ·2H ₂ O	39	
Antimony	Stibnite	Sb ₂ S ₃	71	
Bismuth	Bismuthinite	Bi ₂ S ₃	81	
Cobalt	Smaltite	CoAs ₂	28	
	Cobaltite	CoAsS	35	
Mercury	Cinnabar	HgS	86	
Molybdenum	Molybdenite	MoS ₂	60	
	Wulfenite	PbMoO ₄	39	
Tungsten	Wolframite	(Fe,Mn)WO ₄	76	
	Huebnerite	MnWO ₄	76	
	Scheelite	CaWO ₄	80	
Uranium	Uraninite	Combined UO ₂	50–85	
	Pitchblend	and UO ₃		
	Coffinite	USiO ₄	75	
	Carnotite	K ₂ O·2U ₂ O ₅ ·V ₂ O ₅ ·7H ₂ O	60 U ₃ O ₈	

Table 3-2 Crustal Abundance of Economically Important Elements

<i>Name</i>	<i>Chemical Symbol</i>	<i>Atomic Number</i>	<i>Crustal Abundance (Percent by weight)</i>
Aluminum	Al	13	8.00
Iron	Fe	26	5.8
Magnesium	Mg	12	2.77
Potassium	K	19	1.68
Titanium	Ti	22	0.86
Hydrogen	H	1	0.14
Phosphorus	P	15	0.101
Manganese	Mn	25	0.100
Fluorine	F	9	0.0460
Sulfur	S	16	0.030
Chlorine	Cl	17	0.019
Vanadium	V	23	0.017
Chromium	Cr	24	0.0096
Zinc	Zn	30	0.0082
Nickel	Ni	28	0.0072
Copper	Cu	29	0.0058
Cobalt	Co	27	0.0028
Lead	Pb	82	0.00010
Boron	B	5	0.0007
Beryllium	Be	4	0.00020
Arsenic	As	33	0.00020
Tin	Sn	50	0.00015
Molybdenum	Mb	42	0.00012
Uranium	U	92	0.00016
Tungsten	W	74	0.00010
Silver	Ag	47	0.000008
Mercury	Hg	80	0.000002
Platinum	Pt	78	0.0000005
Gold	Au	79	0.0000002

Magmatic Ore-Forming Processes



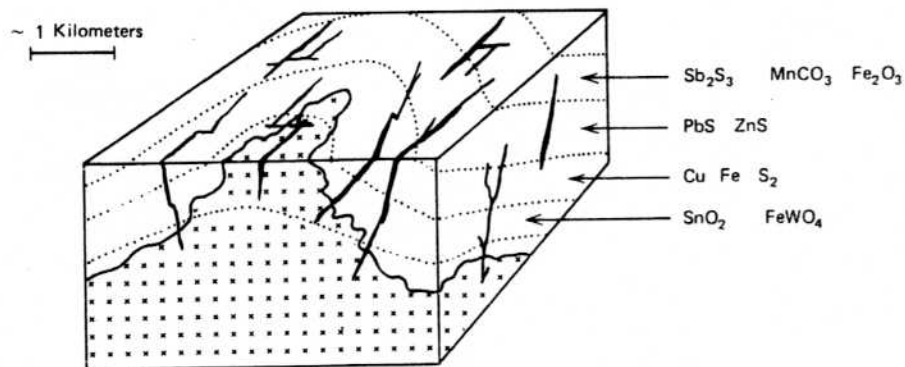
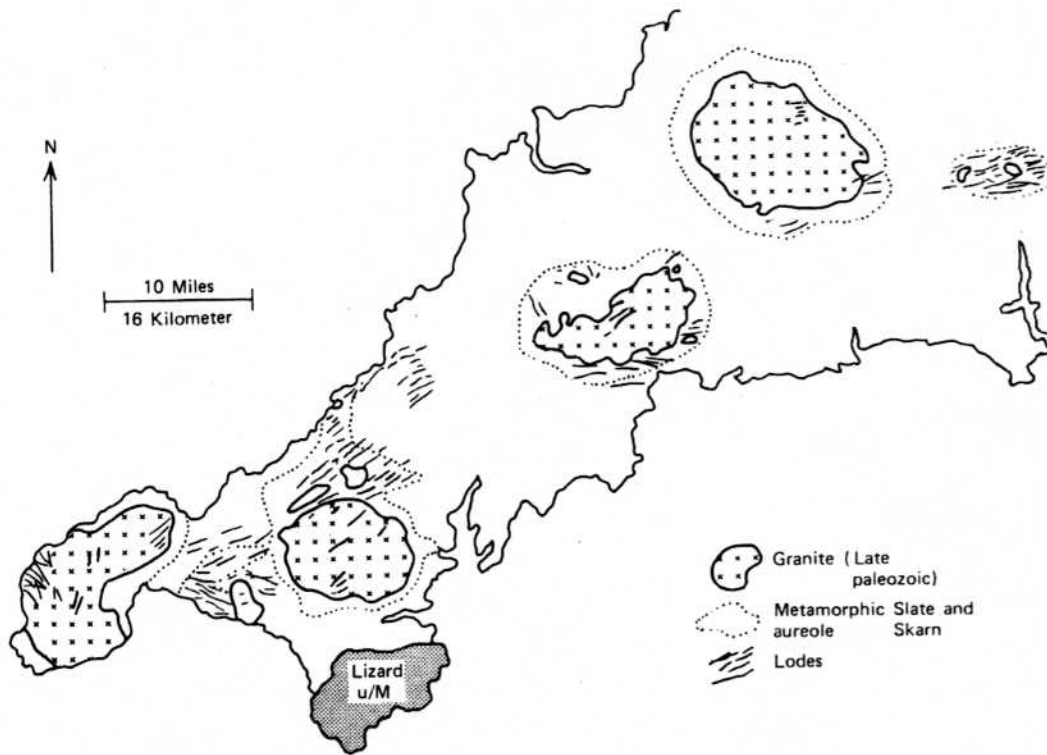


Figure 7-1 Block diagram showing ore zones relation to granite-stock contacts, Cornwall, England.
(From K. Hosking)