

2009-B

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
C	B	B	D	B	B	A	C	?	?	?	?	?	?	C	B	C	B	A	C	D	C	A	B	A	A	C	B	C	E

31.

(a) TRANSFORM FAULT

1. Offset remains constant

2. Connect two plate boundary Ridge-Ridge, Ridge – Trench, Trench-trench

3. It transform the motion of plate from one boundary end to other

4. The fault may or may not continue after the two end of the plate

TRANSCURRENT FAULT

1. Here increases

2. connect two ridges

3. Doesn't transform of motion

4. Fault most continue

(b) Isostasy defined as “Gravitational balance that has existed on the earth surface.”

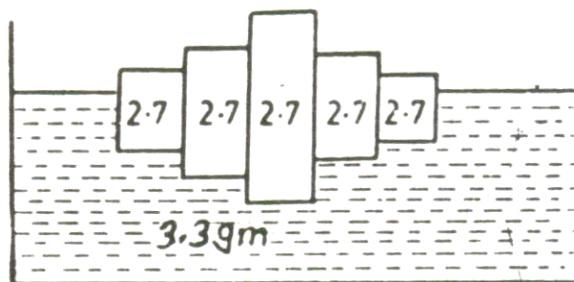
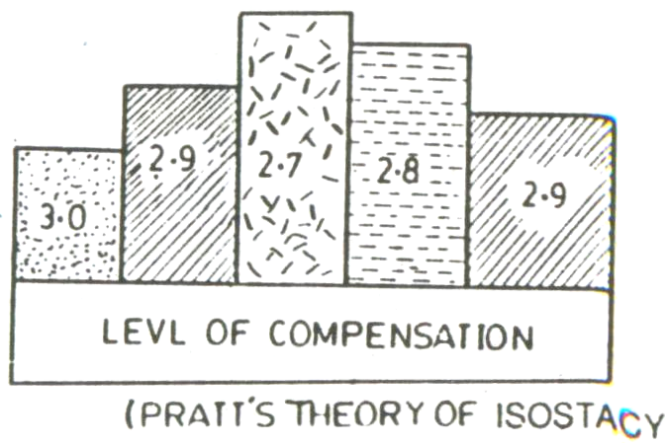
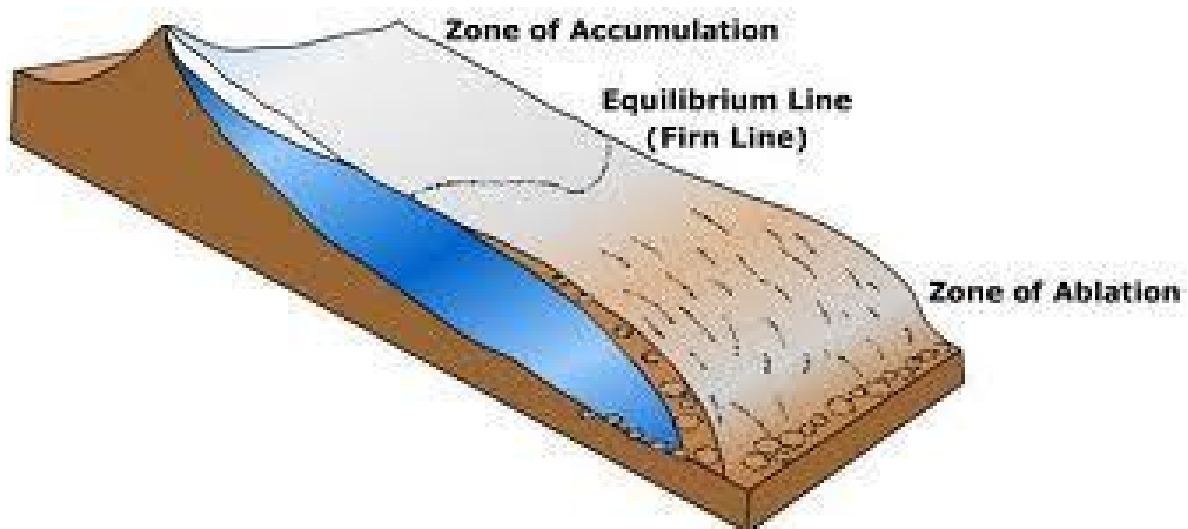


FIG.36. (AIRY'S THEORY OF ISOSTASY)



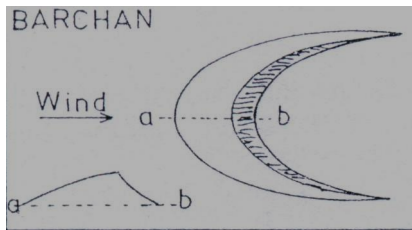
32.

(a)

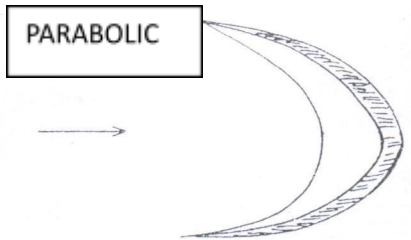


(b) Barchan dune;-Barchans are crescentic shaped dune in which wings are directed in the direction of wind

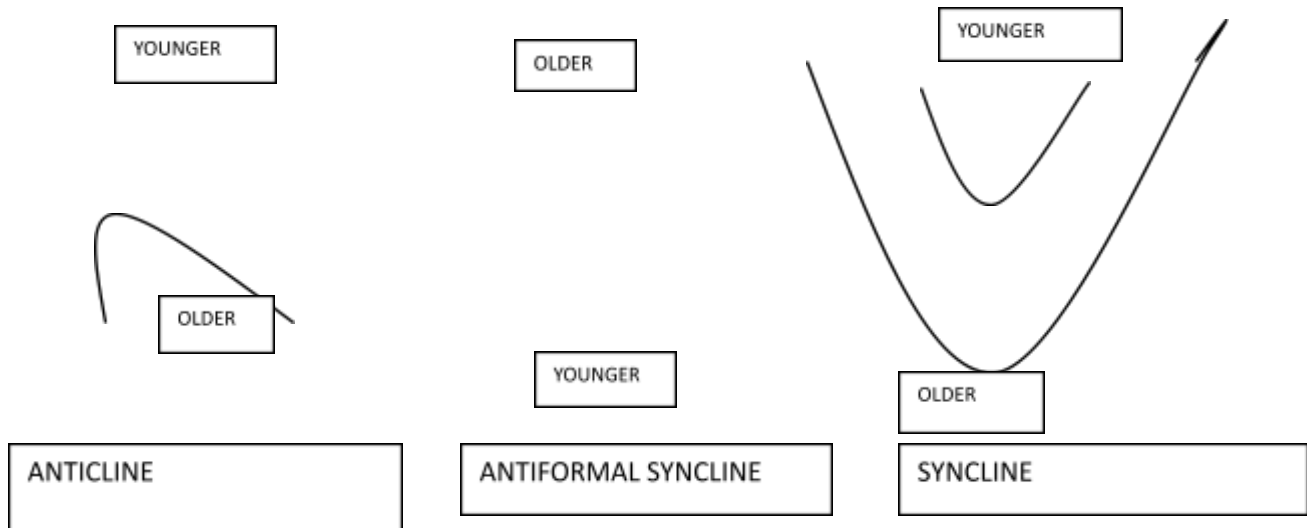
BARCHAN



Parabolic dune;- The dunes which are parabolic in shape in which wings are directed opposite to that of the wind direction.



33.(a)



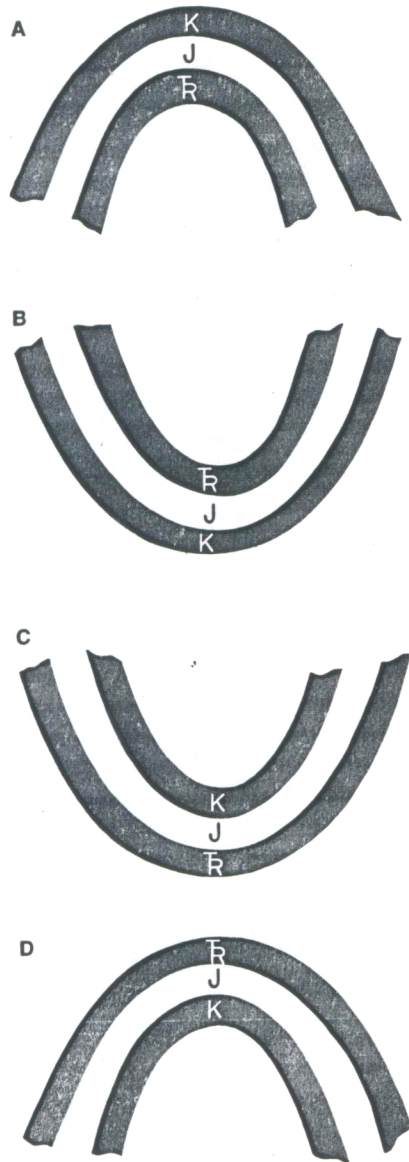


Figure 7.12 Anticlines and synclines, the cornerstones of fold terminology. Oldest layer is Triassic (R); youngest layer is Cretaceous (K); in-between is Jurassic (J). (A) Anticline. (B) Synformal anticline. (C) Syncline. (D) Antiformal syncline.

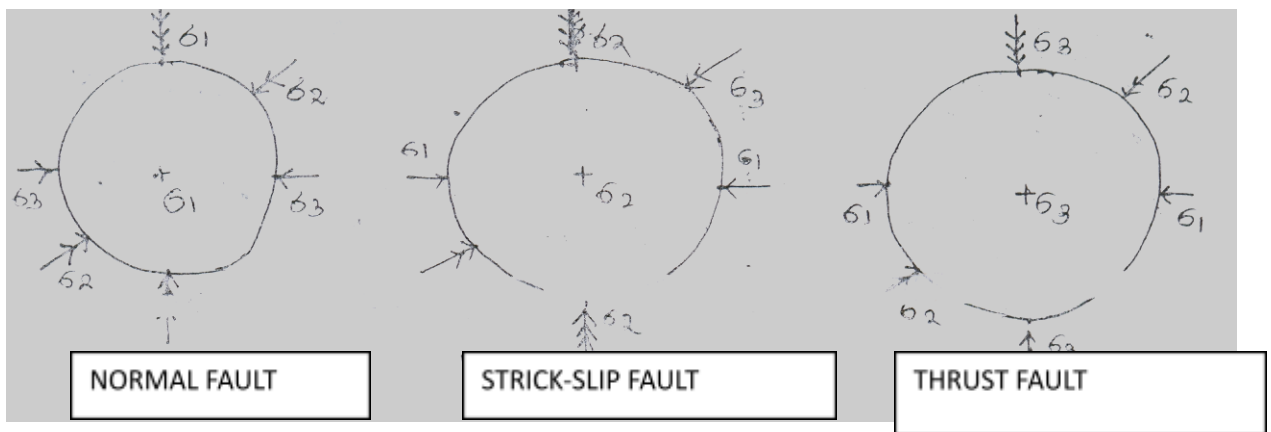
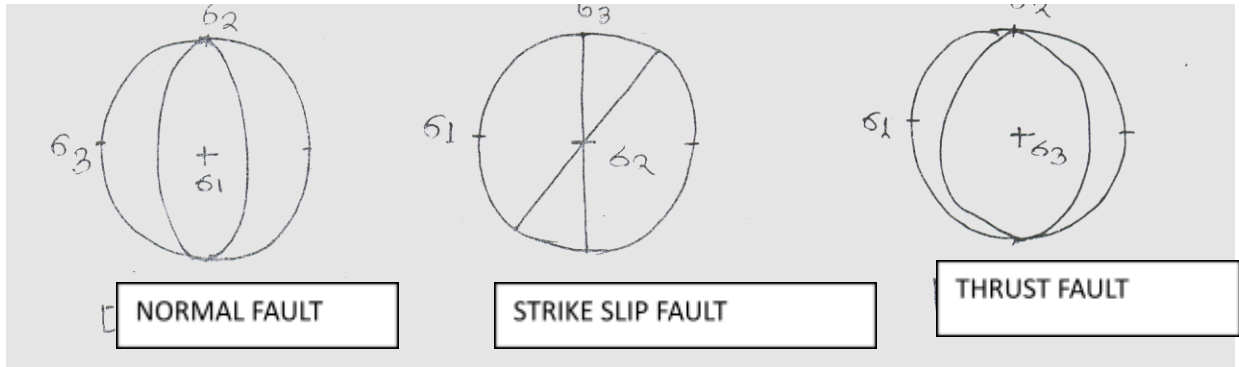
(b)

fig.1-upright fold

Fig.2-reclind fold

Fig.3-Inclined fold

34. (a)



(b)

35.(a)CLASS-1A

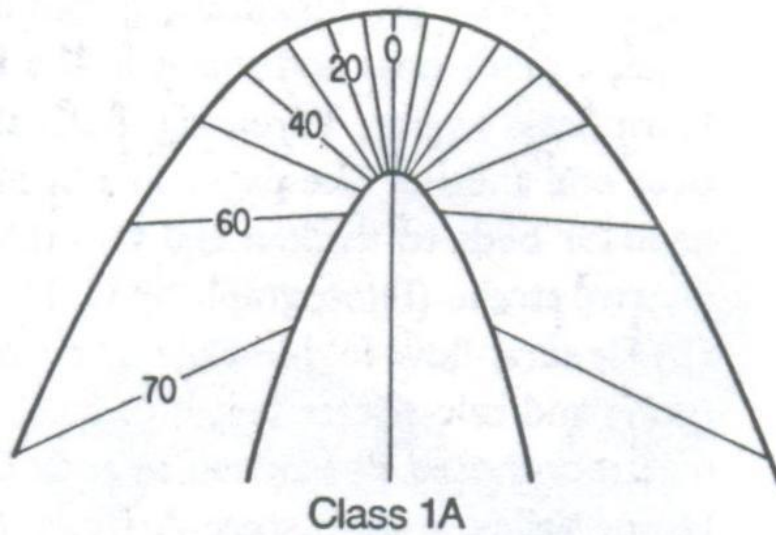
-- $C_i > C_o$

-- $t_\alpha < T_\alpha$

--Thickness increases towards the limb.

--dipisogon strongly converging

-- $\tau\alpha' = \tau\alpha / \tau_0 > 1$



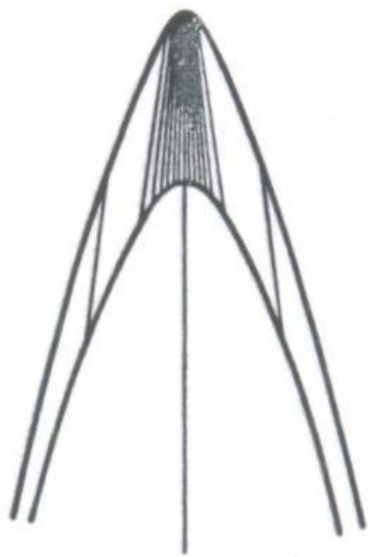
CLASS-3

$C_o > C_i$

--Dip isogons are strongly diverging

--Orthogonal thickness decreases and dip isogonal thickness increases.

-- $\tau\alpha' = \tau\alpha / \tau_0 > 1$



Class 3

(b)

(i) slaty cleavage

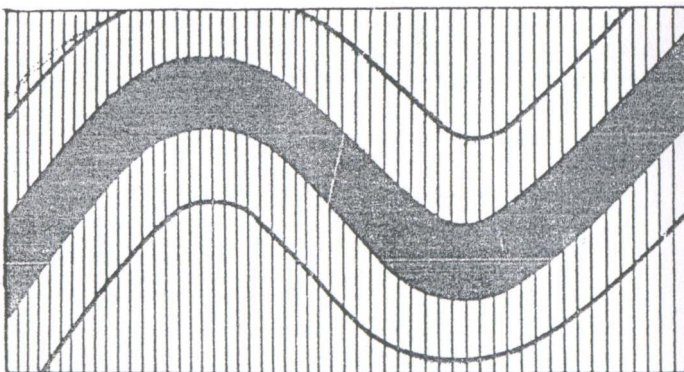
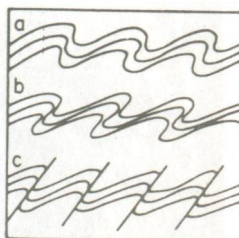


Fig. 11.5 Slaty cleavage

(ii) crenulation cleavage



D

(iii) pressure solution cleavage

36.

(a).i.Occular plate

ii.Gonatoparian

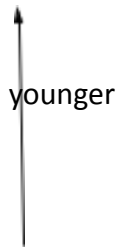
iii.ceratite type

(b) Kistna

Nallamalai

Cheyair

Papaghani



37.

(a)Jurassic of Kutch

Marine environment

Pelecypoda,cephalopoda

(b)

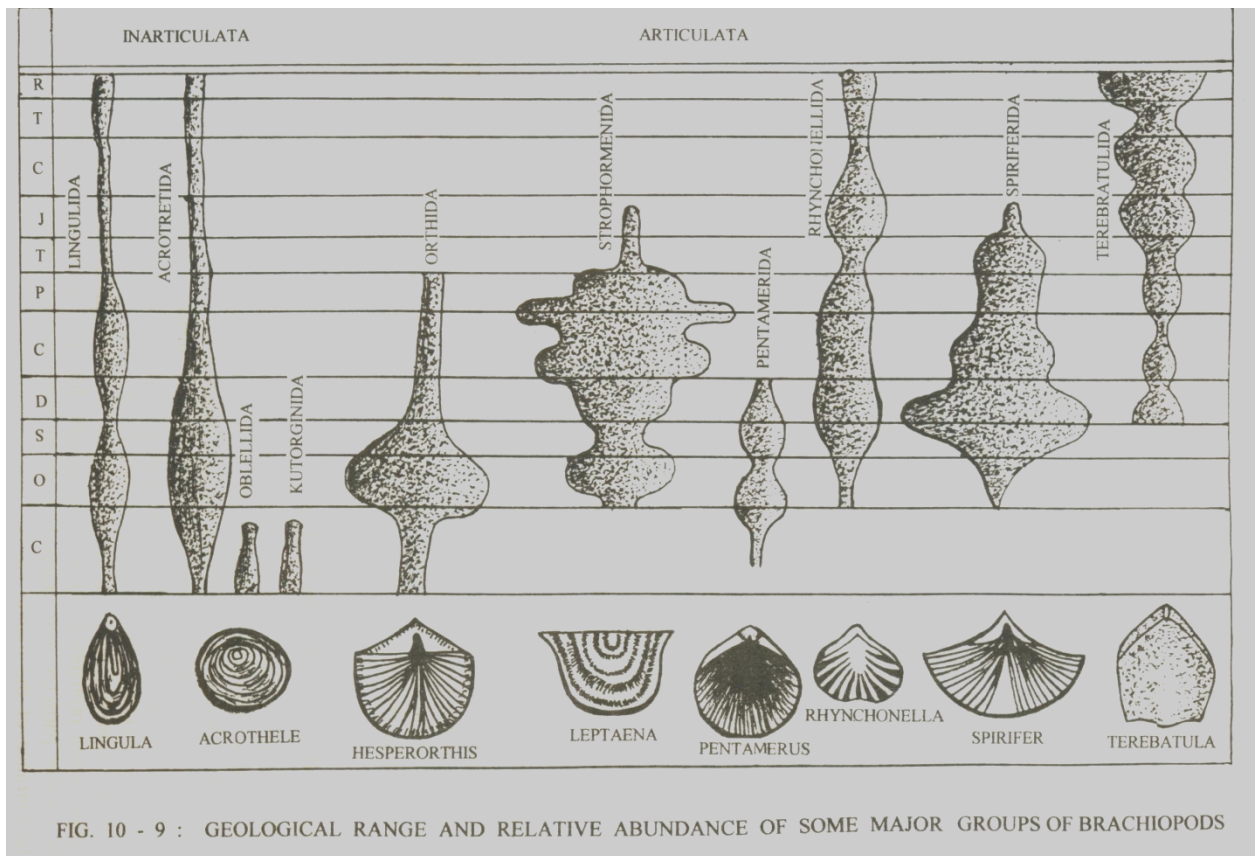


FIG. 10 - 9 : GEOLOGICAL RANGE AND RELATIVE ABUNDANCE OF SOME MAJOR GROUPS OF BRACHIOPODS

38.

(a)

(b)

39.

(a) 1. Isometric system

2. Tetragonal system

3. Hexagonal system

4. Orthogonal system

5. Monoclinic system

6. Triclinic system

ISOMETRIC SYSTEM

(a) Normal class—13 axes of symmetry

9 plane of symmetry

1 centre of symmetry

(b) Gyroidal class—13 axes of symmetry

No plane of symmetry

1 centre of symmetry

TRICLINIC SYSTEM

(a) Normal class—No plane of symmetry

No axes of symmetry

Centre of symmetry

(b) Pedial class—No symmetry

(b) Isomorphism:- Isomorphism is the phenomenon of minerals with analogous chemical composition and closely related crystal structure .

e.g.-smisthonite- ZnCO_3

Siderite --- FeCO_3

Polymorphism:- Polymorphism is the phenomenon of mineral of essential similar chemical composition to undergo one or more change in crystal structure or form, in response to various chemical, physical and environmental factors.

e.g;- Calcite- CaCO_3

Aragonite— CaCO_3

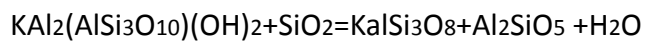
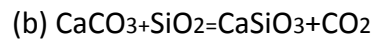
Factors for isomorphism : same size of cation & anion, same number of cation and anion, same coordination number

Factors for polymorphism: Similar chemical, physical, environment

40.

(a) Perthite intergrowth : It is a intergrowth between orthoclase and albite in which orthoclase dominant over albite

Antiperthite: It is a intergrowth between orthoclase and albite in which albite dominant over orthoclase.



41.

(a) A = oldest terrace

There are unpaired terrace

(b)

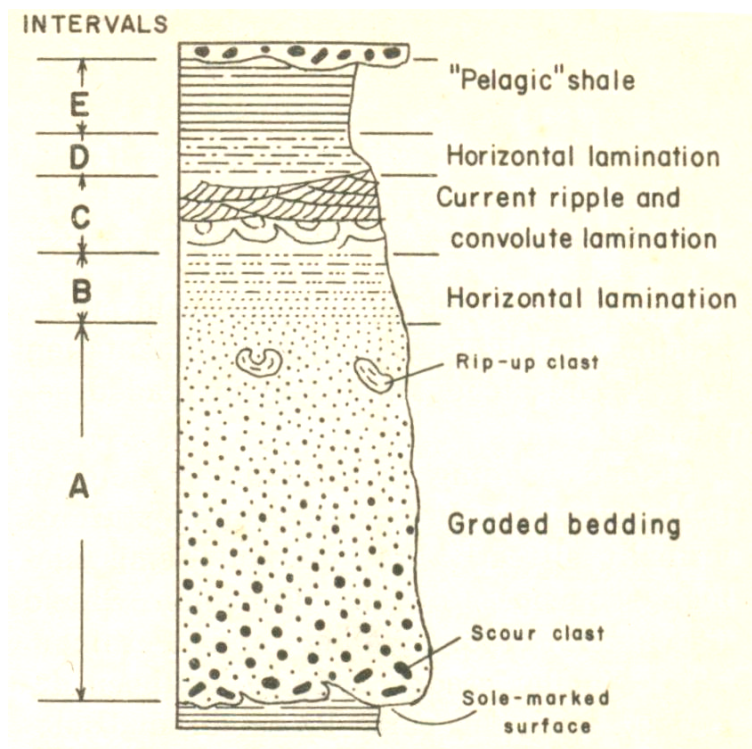
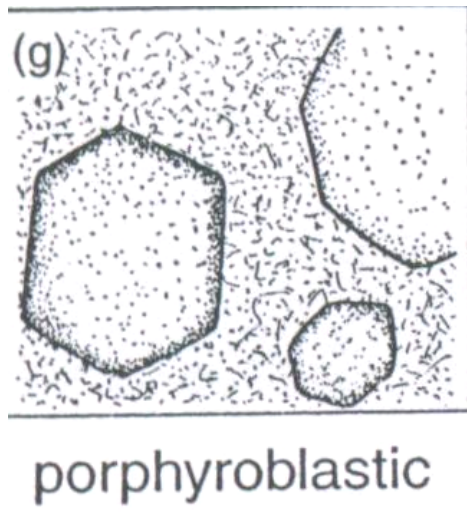


FIG. 4-20. Diagram showing ideal sequence of structures (Bouma cycle) in a graded bed. (After

42.

(a) Porphyroblast: Porphyroblast are large recrystallised well developed euhedral crystals surrounded by fine grained crystal produced by metamorphism.



Phenocrysts: These are the large crystals surrounded by fine matrix produce of due to igneous activities.

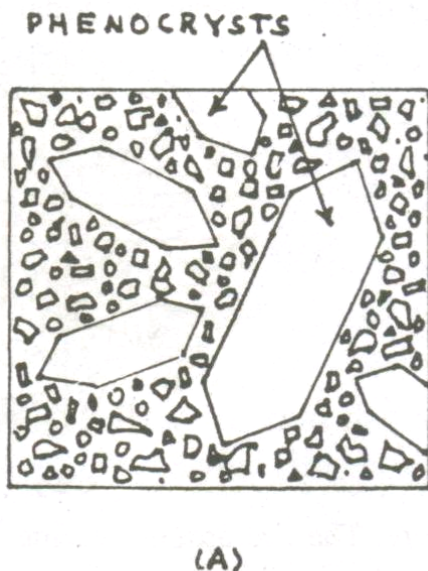


Fig. 5.2. (a) Porphyritic texture

- (b)(i) Tonallite: Quartz + Plagioclase + Hornblende + Biotite
- (ii) Khondalite: sillimanite + Garnet + Felspar + Quartz
- (iii) Dunite: Olivine

43.

(a) The conditions for the formation of hydrothermal deposits are (a) available mineralizing solutions capable of dissolving and transporting mineral matter.

- (b) Available opening in rocks through which the solution may be channeled
- c) Available site for the deposition of the mineral content.
- d) Chemical reaction that results in deposition.
- e) sufficient concentration of deposited mineral matter to constitute workable deposit.
- b) stockworks are mass of rocks traversed by a network of small ore bearing veins.

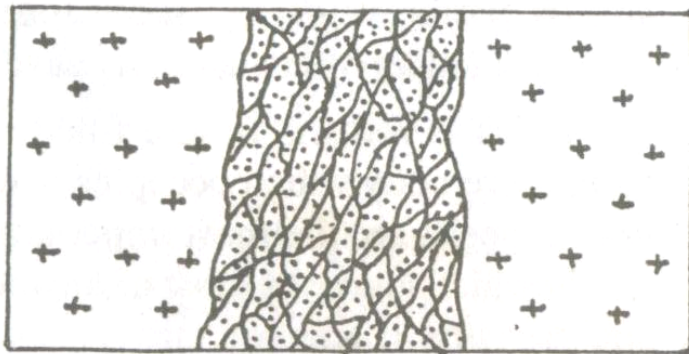


Fig. 9.7. Stockwork.

Each vein is about one centimeter width & few centimeter length.

Cause of Formation: When hydrothermal solution percolates through vertical zones to intense shattering which occurs in certain igneous rocks, stockworks are formed.

44.

a) Darcy gave the relation between porosity and permeability in form of a law known as Darcy's law, which states that "if Q is the rate of flow in cm^3/sec , A is the area of cross section in cm^2 , L is the length of flow in cm . P_1 , P_2 are the atmospheric pressure at the two ends of the path of flow in bars, then

$$Q \propto (P_1 - P_2) \times A$$

$$Q \propto 1/L$$

If viscosity of fluid (μ) in centipoises,

$$Q \propto (P_1 - P_2) \times A / \mu L$$

Now 'K' as a constant

$$Q = K(P_1 - P_2)A / \mu L$$

So, $K = Q\mu L / (P_1 - P_2)A$ (constant centipose/sec bar) or Darcy

Where K is used as symbol for permeability

b)

