EXPLANATION OF THE PLATES

Plate I, Fig.1 An outcrop of phyllite at Sukra.
Fig.2 Massive sandstone in 'Parsoi phyllite'.
Locality: Railway cutting, one-half km. east of Magardaha.
Fig.3 Massive sandstone. Same sandstone beds as in Fig.2. Locality: 500 feet east of the above locality.

Plate II, Fig.1 Banded argillite showing alternating bands of silt and clayey material. Note the quartz-veins are running parallel to the bedding planes. Locality: Chulia.
Fig.2 Agglomeratic trap. Locality: Kunwar.
Fig.3 Agglomeratic trap, a close up view at the same locality as that of Fig.2.

Plate III, Fig.1 Axial plane cleavage in phyllite. Note the splitting of rock along cleavage planes.
Locality: one-half km. south of Sukra.
Fig.2 Axial plane cleavage in phyllite. Note axial plane cleavage (parallel to the pen) cuts the bedding at high angles. Locality: Khairahi nala cutting, 1 km. north of Magardaha.
Fig.3 Outcrop of phyllite with thin intercalated metasandstone. Bedding and cleavage planes are more or less parallel to each other.
Locality: Railway cutting, one-half km. south of Magardaha.

Plate IV, Fig.1 Slip cleavage in Banded argillite. Affine deformation of bedding plane by movement on parallel shear planes.
Locality: Bijul nala cutting at Satichura.
Fig.2 Concentric folding in interbedded sandstone and phyllite unit.
Locality: Arangi.
Fig.3 Folding in Banded Haematite-quartzite. Locality: Bijul nala cutting, west of Parsoi.

Plate V, Fig.1 Joints in Banded argillite. Locality: Bijul nala cutting, at Satichura.
Fig.2 Photograph of internal sedimentary structures in Banded argillite (base cut-out and truncated sequences). Lower division of parallel lamination (b), ripple-cross-lamination with convolute laminae (c), upper division of parallel lamination (d). Symmetrical isolated silty
ripples are present in the centre of the photograph. Note that the axes of the convolutional folds point towards the downcurrent direction. Locality: one-half km. south of Karamsar in a nala cutting.

Fig. 3 Parallel lamination in Banded argillite. Note distinct uneven laminae. Locality: Kaspani.

Plate VI, Fig. 1 Truncated turbidite sequence. Internal structures are massive division (a), lower division of parallel lamination (b), and ripple-cross-laminated division (c). Locality: near Karamsar.

Fig. 2 Beaded structure in argillite. Locality: Kunwar.

Plate VII, Fig. 1 Hand specimen of Banded-haematite-jasper-quartzite. Note step-like faults. Locality: north of Pipra.

Fig. 2 Tectonic breccia from the Vindhyan-Bijawar contact near Kauria.

Fig. 3 Hand specimen of brecciated quartzite. Locality: east of Chulia.

Fig. 4 Hand specimen of amygdaloidal metabasalt. The vesicles are filled with calcitic material. Locality: Parsoi.

Plate VIII, Fig. 1 Hand specimen of quartz wacke sandstone showing graded bedding. Four graded sedimentation units are seen in the specimen. Locality: 1 km. south of Karamsar.

Fig. 2 Hand specimen of base cut-out and truncated sequence. Convolute laminae are seen to be developed from oversteepened ripple. Locality: Bijul nala cutting near Chanchalía.

Fig. 3 Hand specimen of Type 1 or Type A ripple-drift cross-laminations. The lee-side laminae are comparatively thicker than the toss-side laminae and the bounding planes separating the ripple sets dipping in upcurrent direction. Locality: Kaspani.

Fig. 4 Underside of the quartz wacke sandstone showing flute casts. The hand specimen is obtained from a railway cutting at Magardaha.
Plate IX, Fig. 1  Ripple-drift Cross-laminations. The toss-side laminae are not preserved. Note pinch-and-swell cross-laminae above ripple-cross-laminations. Locality: Railway cutting, Adarakudar.

Fig. 2  Hand specimen of ripple-drift cross-lamination showing three dimensional view. It resembles Kappa-cross-stratification of Allen. Locality: Pipra.

Fig. 3  Type 3 or Type C ripple-drift-cross-lamination, showing well preserved toss-side laminae. Locality: Nala cutting Pipra.

Plate X, Fig. 1  Asymmetrical ripple marks in fine-grained quartz wacke sandstone. Locality: Sukra.

Fig. 2  Asymmetrical ripple marks in fine-grained quartz wacke sandstone. Locality: 1 km. east of Kaspani.

Fig. 3  Flute casts. Photograph of the under side of the quartz wacke sandstone. Locality: Bakia.

Microphotographs

Plate XI, Fig. 1  Banded argillite. Bedding is defined by alternating laminae of siltstone and claystone with different grain sizes. X 100 crossed Nicols.

Fig. 2  Phyllite showing S2-cleavage parallel to the axial plane of the micro-folds on S1 X 36 crossed Nicols.

Fig. 3  Slip-cleavage in phyllite. The crenulations of axial plane cleavage have been dragged along the planes of the slip-cleavage. X 40 Plane Polarized Light.

Fig. 4  Axial plane cleavage in phyllite. X 40 crossed Nicols.

Plate XII, Fig. 1  Medium-grained dolerite dyke (central part) with part of a plagioclase crystal intensely sericitized and kaolinized X 100 crossed Nicols.

Fig. 2  Medium-grained altered dolerite showing sub-ophitic texture X 100 Plane polarized Light.
Fig. 3 Medium-grained altered dolerite showing typical ophitic texture. A number of plagioclase prisms are subradially arranged within a pyroxene grain. X 100 Plane Polarized Light.

Fig. 4 Quartz-dolerite dyke (from the border zone), showing enhedral phenocrysts of plagioclase and pyroxene in a very fine-grained groundmass. X 36 crossed Nicols.

Plate XIII, Fig. 1 Quartz-dolerite. Needle-like crystals of apatite enclosed within the plagioclase feldspars. X 100 Plane Polarized Light.

Fig. 2 Quartz-dolerite showing micropegmatite occupying the interstitial spaces X 100 Crossed Nicols.

Fig. 3 Epidiorite showing blasto-ophitic texture. Chlorite (prochlorite) encloses prismatic crystals of epidote and some plagioclase. X 100 Plane Polarized Light.

Fig. 4 Epidiorite showing relict ophitic texture. Hornblende crystal encloses epidote and sphene. X 100 Plane Polarized Light.

Plate XIV, Fig. 1 Metabasite showing schistose texture. X 40 crossed Nicols.

Fig. 2 Metabasite showing nematoblastic texture. X 40 crossed Nicols.

Fig. 3 Metabasite showing blasto-porphyritic texture. X 40 crossed Nicols.

Fig. 4 Agglomeratic trap showing varying sizes of fragments with typical basaltic textures. X 100 Plane Polarized Light.

Plate XV, Fig. 1 Poorly sorted quartz wacke sandstone. Subrounded to subangular grains of quartz of widely varying sizes set in a matrix of mica and cryptocrystalline quartz. X 100 crossed Nicols.

Fig. 2 Quartz wacke sandstone showing fresh plagioclase feldspar and film perthite. The boundaries of some of the quartz grains are corroded by micaceous matrix. X 100 crossed Nicols.
Fig. 3 Poorly sorted quartz wacke sandstone showing quartzitic rock fragment set in a micaceous matrix. X 100 crossed Nicols.

Fig. 4 Quartz wacke sandstone showing quartz, phyllitic and quartzitic fragments in a micaceous matrix. The phyllitic rock fragment showing indistinct out-line and merging into micaceous matrix. Note high content of micaceous matrix. X 100 crossed Nicols.

Plate XVI, Fig. 1 Quartz wacke sandstone showing fragments of chert (angular, dotted), phyllite (dark) and angular to subangular quartz. X 100 crossed Nicols.

Fig. 2 Schistose quartz wacke. Quartz and mica showing preferred orientation. Porphyroblast of biotite is oriented at right angles to the plane of schistosity. X 100 crossed Nicols.

Fig. 3 Argillite, fine-grained. X 40 crossed Nicols.

Fig. 4 Argillite, fine-grained. X 100 crossed Nicols.

Plate XVII, Fig. 1 Cataclastic texture in phyllite. X 40 Plane polarized Light.

Fig. 2 Interlaminated phyllite and metaquartz wacke. Quartz grain more elongated in phyllitic lamination than in metaquartz wacke. Note the variation in the grain size from fine quartz at the bottom to cryptocrystalline quartz-higher up. There is also an increase in amount of argillaceous matrix in the upper portion. This feature is referred here as 'content graded bedding'. X 40 crossed Nicols.

Fig. 3 Micro-cross-laminations in interlaminated metaquartz wacke X 40 Plane Polarized Light.

Fig. 4 Phyllite showing porphyroblasts of biotite with well-developed lineation. X 40 Plane Polarized Light.
Plate XVIII, Heavy minerals. a-1-I0 "ourmaline
b-Rutile, c Garnet, d 1-6 Zircon,
e-1-6 Opalescent. X Plane Polarized Light.

Plate XIX, Fig. 1 Partly recrystallised limestone. Fine
micritic calcitic in less affected portion
and relatively coarse-grained calcite in the
recrystallised portion of the limestone.
X 100 Plane Polarized Light.

Fig. 2 Brucite marble. X 32 Plane Polarized Light.
Fig. 3 Calcitic marble showing granoblastic texture.
X 32 crossed Nicols.

Plate XX, Fig. 1 Plagioclase feldspars in calcitic marble.
X 32 crossed Nicols.

Fig. 2 Banded-haematite-quartzite showing banded
structure. X 40 crossed Nicols.

Fig. 3 Micro-graded bedding in siliceous band of
Banded-haematite-quartzite. X 40 crossed
Nicols.

Fig. 4 Brecciated quartzite. Varying sizes of
angular grains of quartz and quartzite
fragments are embedded in haematite cement.
X 40 Plane Polarized Light.