

LIST OF PLATES

After Page

- Plate : 1.1 Panoramic view of the study area as viewed from the top of Katrol Hill Range. In the foreground is the rocky plain around Bhuj. The Varar hill, Jhura dome and Habo dome mark the sky line in the background. The isolated hill near Bhuj town is the Bhujia hill. 3
- Plate 1.2: North facing Panoramic view of the Habo dome. Note the steeply dipping northern limb marking the Kachchh Mainland Fault. The flat area in the background is the Banni Plain. On the right at the far end is the Kas Hill scarp. 4
- Plate 3.1 Photograph of the central part of Jhura dome to the south of the mainland fault. The steeply dipping resistant rock on the left is the hard grey nodular limestone. (Loc. near Badi village). 36
- Plate 3.2 Grey coloured limestone of Jhura formation exposed on the eastern flank of the Jhura dome. (Loc. Jhura village). 36
- Plate 3.3. Photograph of southward dipping rocks of Jumara Formation to the south of Katrol Hill Fault forming Cuesta cliffs (Loc. Near Tapkadevi Mandir). 37
- Plate 3.4 Thinly bedded sandstone and gypseous shales (calcareous) of Jumara Formation exposed in a road cutting (Loc. 7 km south of Bhuj on Bhuj-Mundra road). 37
- Plate 3.5 Steeply dipping Dhosa Oolite beds (upper member of Jumara Formation) on the eastern flank of Jhura dome. 38

Plate 3.6	Massive ferruginous sandstone showing huge channel fill structures and occurring over black shales of Jhuran Formation at the base.(Loc. 6 km north of Bhuj along Khari river).	38
Plate 3.7	ENE-WSW trending Kas Hill Scarp exhibiting typical morphologic expression of Jhuran Formation.(Loc. 12 km NE of Bhuj on Bhuj-Lodai road).	39
Plate 3.8	Buff, yellow coloured gypseous shales with intercalated thinly bedded calcareous sandstones of Jhuran Formation exposed in Gunawari river.(Loc. 2 km south of Gangeshwar Mahadev in Gunawari river).	40
Plate 3.9	Photograph showing alternation of ferruginous sandstone and carbonaceous shales of Bhuj Formation cut by a NW-SE trending fault. (Loc. 7 km east of Bhuj on Bhuj-Kodki road).	40
Plate 3.10	NW-SE trending dolerite dyke cutting across Bhuj Formation. (Loc. 8 km east of Bhuj on Bhuj-Kodki road).	41
Plate 3.11	Photograph of Katrol Hill Fault scarp showing gullies and colluvial fans at the base. (Loc. 4 km SE of Kukma village).	41
Plate 3.12	Close up view of colluvial deposits showing unsorted, angular to sub-angular pebbly to bouldery clasts embedded in a gravelly matrix. (Loc. 5 km SE of Kukma village).	44
Plate 3.13	Photograph of a section in a gully at the base of Katrol Hill Fault showing Miliolites resting over colluvial material. (Loc. 4 km SE of Kukma village).	44

Plate 3.14	Valley fill sheet Miliolites forming vertical cliffs along a stream in Katrol Hill. Small mounds in the background are of Mesozoic rocks. (Loc. 11 km SW of Bhuj on Bhuj-Mandvi road).	44
Plate 3.15	Quarry section showing pebbles and cobbles of Mesozoic rocks in Miliolites indicating their fluvial origin. (Loc. 11 km SW of Bhuj on Bhuj-Mandvi road).	44
Plate 3.16	Aeolian Miliolites occurring as obstacle dunes on the southern slopes of Katrol Hills. (Loc. 11 km SW of Bhuj on Bhuj-Mandvi road).	45
Plate 3.17	Vertical cliff of Quaternary fluvial deposits unconformably overlaying the Jhuran shales in Gunawari river (Loc. 2 km south of Gangeshwar Mahadev in Gunawari river).	45
Plate 3.18	Quaternary fluvial deposits show N-S trend, faulted contact with the Jhuran shales near Bhata Talav.	45
Plate 4.1a	Close-up view of hematite nodules developed along the fault plane of Katrol Hill fault due to the effect of heat during movement along the fault. (Loc. 2 km SE of Kukma village).	48
Plate 4.1b	Photograph showing reverse movement in close vicinity of Katrol Hill fault. (Loc. Near Hamadra lake).	48
Plate 4.2	Photograph showing reverse movement in Jhuran shales in the vicinity of the Katrol Hill Fault.	48
Plate 4.3	East facing view of the Katrol Hill Fault taken from Tapakadevi Mandir 6 km south of Bhuj. Note the lateral	48

displacement of Katrol Hill Fault Scarp and the various domes to the south of the fault (K- Katrol Hill Fault, 1 Khatrod dome, 2 Ler dome, 3 Gangeshwar dome).

- | | | |
|-------------|--|----|
| Plate 4.4 | North facing view of Khatrod dome. Note the steeply dipping northern flank and the gently dipping southern flank. The northern face of the northern flank marks the Katrol Hill Fault. | 49 |
| Plate 4.5 | Photograph of a minor flexure south of the Katrol Hill Fault. Note the steep southward dip of the overturned limb. (Loc. 8 km south of Bhuj on Bhuj-Mundra road). | 49 |
| Plate 4.6 | Photograph of Khatrod dome truncating against a transverse fault in the east. The straight scarp in the background is the Katrol Hill Fault. | 49 |
| Plate 4.7 | Distant view of Gangeshwar dome. The scarp in the foreground marks a N-S trending transverse fault. | 50 |
| Plate 4.8 | Photograph of a part of Chadwa dome. | 50 |
| Plate 4.9 | Photograph of the northward dipping northern flank of the Gangeshwar dome. The rocks belong to the Jumara Formation. | 52 |
| Plate 4.10 | Northward view of Marutonk Dungar Fault truncating the Gangeshwar dome. | 52 |
| Plate 4.11 | Complicated joint pattern produced by E-W and transverse faults (Loc. Near Chadwa dome). | 53 |
| Plate 4.12a | Photograph of an anticlinal flexure south of Katrol Hill Fault (Loc. Near Hamadra lake). | 53 |

Plate 4.12b	E-W trending anticlinal flexure near Bharapar. Note the gently dipping southern limb and the almost vertical northern limb.	53
Plate 4.13	Photograph showing drag effect adjacent to Katrol Hill Fault (Loc. Near Hamadra lake).	53
Plate 4.14	Photograph of an anticlinal flexure near Bharapar. Note the overriding of the almost horizontal southern limb over the vertical northern limb along the fault plane in the hinge portion.	53
Plate 4.15	Inverted yellow and buff coloured sandstones with grey shales in the sheared zone (Loc.Near Hamadra lake).	53
Plate 4.16a	Photograph of N-S trending transverse fault to the west of Khatrod dome. Note the steeply dipping slickensided fault plane.	55
Plate 4.16b	N-S trending transverse fault at the eastern fringe of Chadwa dome.	55
Plate 4.16c	NW-SE trending transverse fault in Bhuj Formation (Loc. 8 km from Bhuj on Bhuj- Kodki road).	55
Plate 4.16d	Tilted sheet miliolites in the vicinity of Marutonk Dungar Fault (Loc.Near Gangeshwar temple).	55
Plate 4.16e	Quaternary deposits showing NW-SE trending faulted contact with the rocks of Jumara Formation in the vicinity of the Marutonk Dungar Fault (Loc. Gunawari river).	55
Plate 4.17	Photograph showing the youthful nature of NW-SE trending Marutonk Dungar Fault Scarp. A dyke runs	55

parallel to the fault plane

Plate 4.18	Close view of the igneous dyke along the Marutonk Dungar Fault.	55
Plate 5.1	Photograph of Katrol Hill Fault Scarp. Note the degradation of fault scarp in the form of gullies and colluvial material at the base.	59
Plate 5.2	Photograph of the colluvial fans and the overlying miliolite (see Plate 3.13) along Katrol Hill Fault . Photograph taken from the Khatrod Hill.	59
Plate 5.3	Photograph showing the general topography of the central rocky plain. In the foreground is the colluvial material associated with the Katrol Hill Fault (Photograph taken from Satpura Dungar).	60
Plate 5.4	Downstream view of gorge cut by Khari river in Bhuj sandstone. A weathered dyke cuts across the gorge along which the subsurface water has seeped on to the surface (Loc. 4 km from west of Bhuj on Bhuj- Kodki road).	60
Plate 5.5	Photograph showing deep gullies developed in Jhuran shales (Loc. Palara Mahadev).	60
Plate 5.6a	Incised cliffs of Jumara Formation along Pat. river (Loc. near Palara Mahadev).	60
Plate 5.6b	Photograph showing pot holes near the gorge in Khari river (Loc 4 km west of Bhuj on Bhuj- Kodki road).	62
Plate 5.7	Photograph showing incised cliffs of Jhuran Formation along Khari river (Loc. 4 km NW of Bhuj Air Port) .	62

Plate 5.8 Unstable rocky cliff attributed to periodic seismic activity in the area (Loc. 4 km NW of Bhuj Air Port) .	62
Plate 5.9 Randomly oriented blocks of Bhuj Formation in Khari river attributed to cliff destruction during earthquake activity in the area (Loc. 4 km west of Bhuj on Bhuj-Kodki road).	62
Plate 5.10 West facing view of Katrol hill range showing the various erosional surfaces. Note the consistent southern tilt of all the surfaces.	64
Plate 5.11 Photograph showing erosional surfaces E4 and E5 (Loc. Near Ler).	65
Plate 5.12 Upstream view of the narrow gorge cut by Khari river in Bhuj Formation. Note the four levels of rocky terraces (Loc. 4km from west of Bhuj on Bhuj- Kodki road).	65
Plate 5.13 Photograph showing erosional surface (E ₆) in the Katrol hill range (Loc. Gunawari river near Gangeshwar temple).	67
Plate 5.14 South facing view of the NW-SE trending Marutonk Dungar Fault . Note the fresh nature of the fault scarp.	67
Plate 5.15 Photograph of the E-W trending Bharapar Fault Scarp.	67
Plate 5.16 Photograph showing E-W trending Habo Hill Scarp which marks the Kachchh Mainland Fault .	67