CONTENTS

Preface
Contents

CHAPTER I  INTRODUCTION  1 - 6
1.1  General  1
1.2  Total area Surveyed  1
1.3  Previous Work  1
1.4  Choice of this area  2
1.5  Methods Employed  3
1.6  Geology  4
1.7  Physiography  5
1.8  Climate  5
1.9  Soils  6
1.10  Vegetation  6

CHAPTER II  GEOLOGY  7 - 23
2.1  Introduction  7
2.2  Geology of the Region  7
  2.2.1  Banded Gneissic Complex  9
  2.2.2  The Aravalli System  9
  2.2.3  The Raisalo Series  10
  2.2.4  The Delhi System  10
2.2.5 The Intrusives 10
2.3 The Geology of the Study Area 11
2.3.1 The Banded Gneissic Complex 11
   (i) The Gneisses 11
   (ii) The Granites 12
2.3.2 The Delhi System of Rocks 12
   (i) The Alwar Series 13
   (ii) Limestones in the Delhi System 15
   (iii) The Ajabgarh Series 16
2.3.3 The Intrusive Rocks 17
2.3.4 Alluvium 20
2.4 The Geological Structures 20

CHAPTER III FORM AND CHARACTER OF THE LANDFORMS 24 - 72
3.1 Introduction 24
3.2 Geomorphic Regions 24
3.3 Land System Description 25
   (i) The Archaean Land System 26
   (ii) The Purana Land System 26
   (iii) The Recent Land System 27
3.4 Classification of the Landforms 28
3.5 Slope Analysis 29
   (i) Morphological Mapping 29
   (ii) Slope Profile Forms 30
   (iii) Slope Elements 31
   (iv) Average Slope 33
3.6 Relief Analysis 35
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.7</td>
<td>Drainage Analysis</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>(i) Drainage System</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>(ii) Drainage Pattern</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>(iii) Drainage Basin Morphometry</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>(a) Linear Aspects</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>(b) Areal Aspects</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>(c) Relief Aspects</td>
<td>53</td>
</tr>
<tr>
<td><strong>CHAPTER IV</strong></td>
<td>THE PROCESSES IN ACTION</td>
<td>73 - 89</td>
</tr>
<tr>
<td>4.1</td>
<td>Introduction</td>
<td>73</td>
</tr>
<tr>
<td>4.2</td>
<td>Climate</td>
<td>73</td>
</tr>
<tr>
<td>4.2.1</td>
<td>Regional</td>
<td>73</td>
</tr>
<tr>
<td>4.2.2</td>
<td>Local</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>(i) Rainfall</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>(ii) Temperature</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>(iii) Humidity</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>(iv) Winds</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>(v) Special Weather Phenomena</td>
<td>76</td>
</tr>
<tr>
<td>4.3</td>
<td>Type of Climate</td>
<td>76</td>
</tr>
<tr>
<td>4.4</td>
<td>Morphogenetic Classification</td>
<td>84</td>
</tr>
<tr>
<td>4.5</td>
<td>Processes</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>(i) Weathering</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>(ii) Mass-Wasting Movements</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>(iii) Erosion, Transportation and Deposition</td>
<td>89</td>
</tr>
<tr>
<td><strong>CHAPTER V</strong></td>
<td>THE GEOMORPHIC EVOLUTION OF THE STUDY AREA</td>
<td>91 - 103</td>
</tr>
<tr>
<td>5.1</td>
<td>Methods of Study</td>
<td>91</td>
</tr>
</tbody>
</table>
5.2 Results obtained 93
5.3 Discussion 94
Surface I 95
Surface II 96
5.4 Evolution of the Landforms 99
5.5 Evolution of the Hill-Slopes 101
5.6 Evolution of the Drainage 101

CHAPTER VI APPLIED ASPECTS 104-120

6.1 Relations 104
6.2 Soils 105
(1) Regional 105
(2) Local 105
(3) Soil Sequence 109
(4) Soil Formation 109
6.3 Vegetation 110
(1) Regional 110
(ii) Local 113
6.4 Applications 115
(i) To Geological Mapping 115
(ii) To Photo Interpretation 116
(iii) To Civil Engineering 116
(iv) To Groundwater Hydrology 117
(v) To Controlling Soil Erosion 118
(vi) To Land Use 119

SUMMARISED CONCLUSIONS 121-134

REFERENCES