# Table of Contents

Acknowledgements iv

Executive Summary viii

Table of Contents xii

List of Figures xvi

List of Tables xxii

1 Chapter 1: An Introduction to Megaliths ................................................. 1-33
   1.1 World prehistory in general 1
      1.1.1 The 3-Age system 2
      1.1.2 A rough chronology of world prehistory 5
      1.1.3 Architecture in the prehistoric world 7
      1.1.4 Stonehenge – a unique prehistoric monument 10
   1.2 Indian Prehistory – a brief overview 12
      1.2.1 The Phases of Prehistoric Human Occupation in India 13
      1.2.2 Architecture in prehistoric India 17
   1.3 The megaliths of the Indian subcontinent 22
      1.3.1 The megaliths of south India 23
      1.3.2 The distribution of megaliths in India 25
      1.3.3 Chronology of the Indian megaliths 28
      1.3.4 Settlement sites of the megalithic age 29
      1.3.5 Pottery 29
      1.3.6 Socio-economic basis for megalithic society 30
      1.3.7 The south Indian megalithic complex– outstanding issues 32

2 Chapter 2: Origins of astronomy ......................................................... (34-60)
   2.1 The sky as a cultural resource 34
   2.2 Naked-eye astronomy 36
      2.2.1 The celestial sphere 37
      2.2.2 The Solar cycle 39
      2.2.3 The Lunar cycle 40
      2.2.4 Stellar observations 42
   2.3 Origins of astronomy – the world perspective 43
      2.3.1 Astronomy in Babylon 45
      2.3.2 Egyptian astronomy 45
      2.3.3 Greek astronomy 46
      2.3.4 Prehistoric astronomy in the world 46
   2.4 Ancient Indian astronomy 49
2.4.1 Milestones in early Indian astronomy 49
2.4.2 Indian prehistoric astronomy 50
2.4.3 The issues of orienting markers 52

3 Chapter 3: Megaliths and Astronomy..............................................(61-85)
   3.1 Indian megaliths – classification and architecture 61
      3.1.1 Sepulchral Megalithic Monuments 63
      3.1.2 Non-sepulchral Megalithic Monuments 66
      3.1.3 Distribution of the various megalithic types in the Indian subcontinent 67
      3.1.4 Basic tenets of megalithic architecture 71
      3.1.5 Megaliths and later architecture 79
   3.2 Megaliths as direction and location markers 80
      3.2.1 Megaliths as possible calendar devices 82
      3.2.2 On what constitutes a reliable sightline 82

4 Chapter 4: Our Approach..............................................................(86-120)
   4.1 Background – megalithic knowledge systems and belief systems 86
   4.2 Aims and objectives of the current study 88
   4.3 Summary of aims and objectives 89
      4.3.1 Aim 89
      4.3.2 Objectives 89
   4.4 Methodology 90
      4.4.1 Astronomy in megaliths 94
      4.4.2 Astronomical sightlines at avenue sites 95
      4.4.3 Preferred orientation patterns at sepulchral sites 95
      4.4.4 Stylistic evaluation and possible chronology as deduced from the refinement of working, components, form and design 96
   4.5 Study areas 96
      4.5.1 The sites of north Karnataka 97
      4.5.2 The sites of south coastal Karnataka 104
      4.5.3 The site at Chikel Chetti 107
      4.5.4 The Kerala sites 107
      4.5.5 The sites of Vidarbha 109
      4.5.6 The site at Burzahoma, Kashmir Valley 111
      4.5.7 The site at Vadakkipatti, Tamil Nadu 111
   4.6 Study Methods 111
      4.6.1 Preliminary studies and pre-reconnaissance planning 111
      4.6.2 Reconnaissance visits and surveys 111
      4.6.3 Orientation survey methods 112
Chapter 5: Data and analysis ........................................................(121-176)

5.1 Brahmagiri 121
5.2 Marayoor 123
5.3 Burzahoma 124
5.4 Chikel Chetti 127
5.5 Hire Benakal 130
5.6 Onake Kindi 134
5.7 Nilaskal 136
5.8 Byse 139
5.9 Heragal 143
5.10 Mumbaru 145
5.11 Eyyal 146
5.12 Kudakkallu Parambu 146
5.13 Chowwannur 146
5.14 Kakkad 146
5.15 Kattankampal 147
5.16 Ariyannoor 148
5.17 Kandanasserry 148
5.18 Aihole 150
5.19 Bachinagudda 153
5.20 Hanamsagar 154
5.21 Kyaddigeri 156
5.22 Chik Benakal 157
5.23 Vibhutihalli 159
5.24 Bheemarayanagudi 161
5.25 Gudde Maradi 162
5.26 Konaje Kallu 162
5.27 Kakkunje 164
5.28 Rajan Koluru 165
5.29 Aaraga Gate 170
5.30 Vadakkipatti 171
5.31 Junapani 173
5.32 Nagbhid 173
5.33 Champa 175

Chapter 6: Analysis, discussion of findings and conclusions ..........(177-216)

6 Analysis 177
6.1 Points of celestial significance on the horizon 177
6.1.1 Analysis of the sepulchral and commemorative megalith types 179
6.1.3 Analysis of the avenue/alignment sites 181
6.2 Results and discussion 202
6.2.1 The sepulchral/commemorative megaliths.............................................202
6.2.2 The avenue/alignment sites.................................................................204

6.3 Conclusions.........................................................................................209
  6.3.1 The sepulchral architecture of the megalithic times.......................209
  6.3.2 Stone alignments and astronomy......................................................210

6.4 Perspectives for future research.......................................................211
  6.4.1 Inclinations of the stones at Nilaskal.............................................212
  6.4.2 Examination of the sepulchral megaliths at Byse.........................212
  6.4.3 Identification of source quarries.....................................................213
  6.4.4 Habitation sites for Nilaskal and Byse.............................................213
  6.4.5 Development of adequate statistical methods for testing ancient astronomical sites.................................................................213
  6.4.6 Study of similar megalithic types in differing contexts................214
  6.4.7 The relationship of megaliths with later religious traditions and architecture.................................................................215

7 References..............................................................................................(217-223)

8 Bibliography............................................................................................(224-236)