CONTENTS

CHAPTER 1

GENERAL 1-14
Introduction 1, Location and accessibility 2, Physiography, drainage, climate and vegetation 3, Nature and frequency of the outcrops 5, Review of the previous work 5, General geology 8, Present study 10, Methods of investigation: Field investigation 10, Laboratory investigations 11: Microscopic study, Specific gravity determination, X-ray study, Mineral analyses, Chemical analyses.

CHAPTER 2

THE ASSOCIATED LITHOLOGIES 15-33
Introduction 15, Channagiri area 15: Granitic gneisses, schistose rocks quartzites, mafic and ultramafic rocks, dolerites. Devaranarsipur area 29, Mulemane area 31.

CHAPTER 3

V-Ti-Fe ORES 34-39
Introduction 34, Description of individual ore deposits: Tavarekere deposit 35, Masanikere deposit 36, Ubrani deposit 36, Magyatahalli deposit 37, Devaranarsipur deposit 38, Mulemane deposit 39.

CHAPTER 4

MINERALOGY AND TEXTURES 40-52
CHAPTER 5
MINERAL CHEMISTRY 53-60
Introduction 53, Magnetite 54, Titanomagnetite/titanomaghemite 54, Ilmenite 55, Hogbomite 56, Spinel 58, Chlorite 59, Kaolinite 60, Diaspore 60, Pyrite and chalcopyrite 60.

CHAPTER 6
GEOCHEMISTRY 61-69
Introduction 61, Silica 62, Titania 63, Alumina 63, Iron 64, Manganese 64, Magnesia 64, Calcium 65, Soda 65, Potash 65, Vanadium 65, Chromium 66, Nickel 67, Cobalt 67, Zinc 68, Lithium 68, Rubidium 68, Strontium 69.

CHAPTER 7
GENETIC INTERPRETATION AND DISCUSSION 70-84
Introduction 70, Genetic models for V-Ti-Fe ores 71, Review of the previous views on the genesis of Channagiri, Devaranarsipur and Mulemane deposits 72, Gradational relationship of the V-Ti-Fe bodies with the host rocks 74, Consistent association of magnetite and ilmenite 74, Occurrence of a wide range of intergrowths 75, Widespread occurrence of hogbomite 75, Occurrence of chlorites of different composition 76, Occurrence of diasporc and kaolinite 76, Significant variation in the major and trace element geochemistry amongst different V-Ti-Fe deposits 77, Absence of separate vanadium minerals 77, Composition of magnetite and ilmenite 78, Partitioning of minor and trace elements between magnetite and ilmenite 78, The high chromium content of Magystahalli deposit 79, Genesis of V-Ti-Fe deposits of the present study 80, Crystallization conditions 81, Deuteric readjustments and autometamorphism 83, Secondary alteration 83.

CHAPTER 8
SUMMARY AND CONCLUSION 85-91
REFERENCES 92-103
APPENDIX