

Preface
Abstract
Kurzfassung
Acknowledgements

CHAPTER ONE

Introduction 1
Previous work 5

CHAPTER TWO

Infrastructure 10
Amphibolites-migmatite association 10
Petrography 12
Um Luseifa quartzofeldspathic gneiss 17
El Shush gneissic tonalite 19
Abu Markhat gneissic granodiorite 20
Um Luseifa porphyritic gneissic granite 22
El Mirifiya garnetiferous gneissic granite 24
Petrography 26
1) Um Luseifa quartzofeldspathic gneisses 26
A -Augen gneisses 26
B -Migmatized gneisses 27
C -Garnet-biotite hornfelses 30
2) El Shush gneissic tonalite 31
A -Gneissic tonalite 32
B -El Shush augen gneiss 33
C -El Shush banded mylonite 34
3) Abu Markhat gneissic granodiorite 34
A -Biotite-hornblende gneissic granodiorite 34
4) Um Luseifa porphyritic gneissic granite 35
5) El Mirifiya garnetiferous gneissic granite 38'

Petrochemistry of the infrastructural unit 40

1) Amphibolites 40

2) Granitoids 48

CHAPTER THREE

Suprastructure 65

Petrography 67

Metabasalt 68

Porphyritic meta-andesite 69

Porphyritic metadacite 70

Andesitic crystal tuffs 70

Laminated tuffs 71

Serpentinities 71

CHAPTER FOUR

Late Tectonic granites 73

1) El Dabbah late tectonic granite 73

2) El Sibai -Abu Tiyur late tectonic granites 74

A -Biotite granite 77

B -Leucocratic alkali feldspar granite 78

C -Riebeckite granite 78

Composition and Petrochemistry of the late tectonic granites 79

Trace elements and tectonic settings 85

CHAPTER FIVE

Structure 87

Phases of deformation 90

Metamorphism 97

Summary and conclusions 101

References 109