# TABLE OF CONTENTS

Abstract 1
Introduction 1
Problems 2
Nature of the Transect 4
Southern Appalachians: E5 Transect Western Portion 4
Tectonic Framework of the Southern and Central Appalachians 4
Concepts and Broad Framework 4
Stable Interior and Foreland Fold-thrust Belt 9
Blue Ridge 12
Western Blue Ridge 12
Stratigraphy 12
Structure 16
Eastern Blue Ridge 18
Stratigraphy 19
Basement Rocks 19
Tailulah Falls Formation 19
Coweeta Group 20
Rocks of the Shope Fork and Soque River Thrust Sheets 20
Rocks of the Dahlonega Gold Belt 21
Igneous Rocks 21
Paleozoic Gneisses 21
Whitewater Granite 21
Rabun Granite 22
Persimmon Creek Gneiss 22
Pegmatite and Trondhjemite Dikes 22
Mafic and Ultramafic Rocks 22
Lake Chatuge Mafic-Ultramafic Complex 23
Complexes in the Shope Fork Thrust Sheet 23
Laurel Creek Complex 23
Mafic Rocks of the Dahlonega Gold Belt 23
Mesozoic Diabase 24
Structure 24
Hayesville Fault 24
Tallulah Falls Dome 25
Metamorphism 25
Piedmont 26
Chauga Belt 26
Introduction 26
Chauga River Formation 26
Carbonate Slices 27
Poor Mountain Formation 27
Henderson Gneiss 31
Inner Piedmont 31
Amphibolite 31
Biotite Gneiss 32
Pelitic Schist 32
Quartzite 32
Alto Allochthon 32
Igneous Rocks 32
Granitoid Gneiss 32
Ultramafic Rocks 32
Mesozoic Diabase 32
Inner Piedmont Structure 33
Chauga Belt—Brevard Fault Zone 33
Chauga Belt and Inner Piedmont Structure 33
Carolina Terrane 34
Stratigraphy 34
Metamorphism 34
Structure 34
Central and Eastern Piedmont Alleghanian Faults 34
Kiokee Belt and Adjacent Lithotectonic Belts, South Carolina-Georgia 36
Coastal Plain Stratigraphy and Structure Along E5 38
E5 Transect Geologic Map 38
Continent-Ocean Transect E5 Cross Section 40
Stratigraphy 40
Structure and Tectonics 41
Offshore Region of Transect E5 42
Basement Geology (Beneath the Postrift Unconformity) 42
Geology of the Sedimentary Section (Above the Postrift Unconformity) 43
Interpretation of Seismic Reflection Profile TD4 43
Acknowledgments 44
References Cited 44