

ORDOVICIAN LIMESTONES IN THE VICINITY OF  
HOGES STORE, GILES COUNTY, VIRGINIA

by

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The contents of this thesis are to be held in confidence for a period of six months, beginning September 1955, in consideration of the interests of the supervisor.

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Project 220

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### Abstract

In the vicinity of Huges Store, Giles County, Virginia, certain portions of the Five Oaks and Elway limestones containing more than 97 per cent calcium carbonate crop out near the crest of the Thessalia anticline and John's Creek syncline and underlie an extensive area where dips probably are less than 20 degrees. Locally, part of the Benbolt, Gratton, and Witten are also high-calcium limestone.

Sites for core drilling and possible subsequent mining or quarrying are inferred from study of exposed rocks, by chemical analyses of channel samples of selected zones of high-calcium limestones and by detailed geologic mapping. The report includes columnar sections showing the character and thickness of the limestone units.

One large deposit of chemical-grade limestone was found about 1.5 miles northeast of Huges Store, which is believed to underlie a large area wherein dips of the minable strata are less than 15 degrees. The amount of recoverable stone is estimated to be 80 million tons. Suggested locations for core drilling are shown.

An anticline, two synclines and an imbricate structure are the structural features of the area of study. The major structural features of Giles County are delineated on a sketch map.

### Introduction

This investigation involved the detailed mapping and stratigraphic study of Middle Ordovician limestone formations in the

vicinity of Huges Store, Giles County, Virginia. The chief purpose was to expand the studies of the high-calcium limestones of this area initiated by B. N. Cooper (1944).

The principal purpose of the study was to obtain information concerning changes in lithology and thickness within the different formation units in order to locate suitable sites for core drilling and possible subsequent mining or quarrying operations in the high-calcium limestones. Ranges in thickness of each formation were determined by measurement. Channel samples were collected in areas thought to be representative of the limestones. Chemical analyses were made for each channel sample.

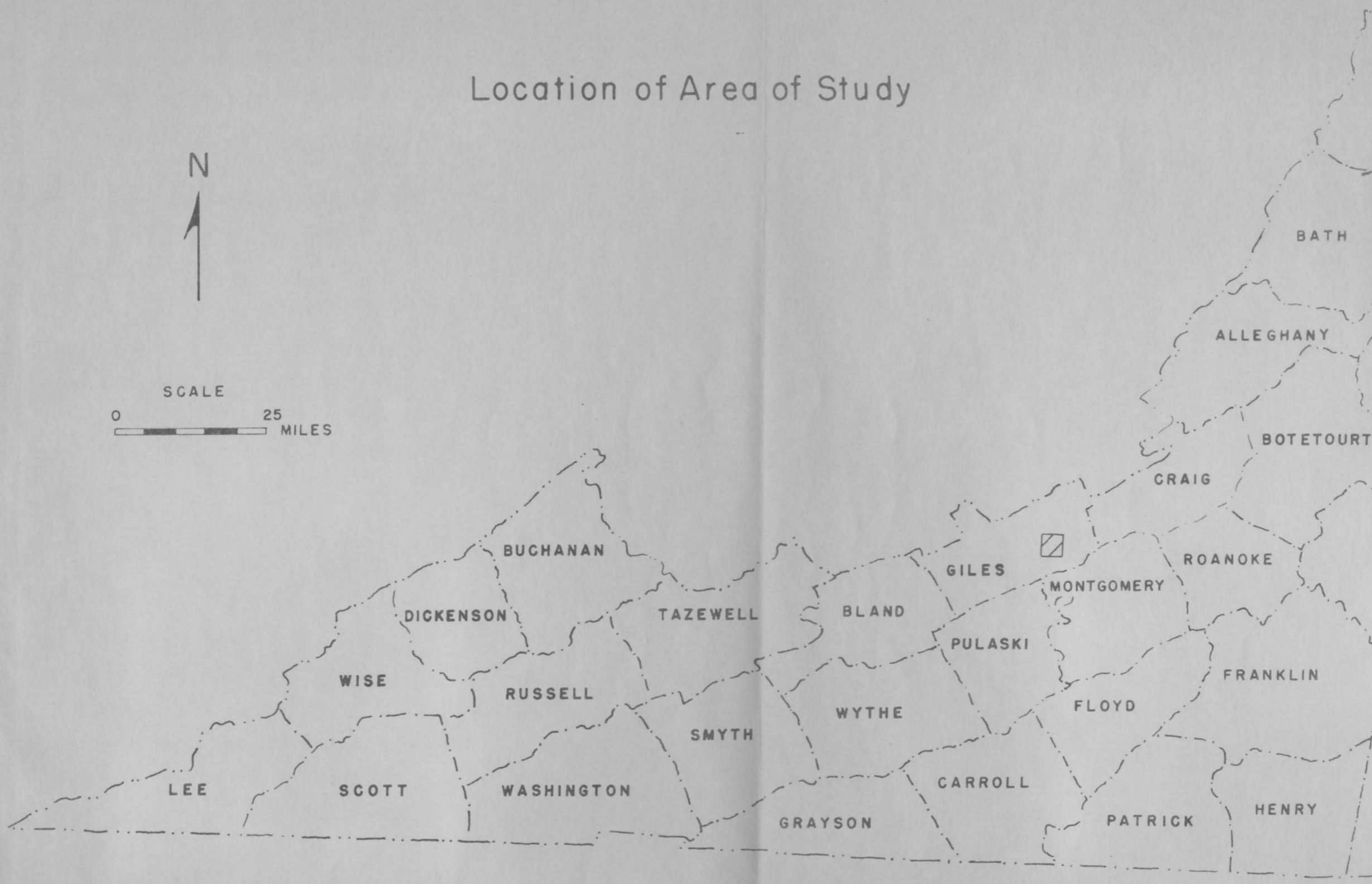
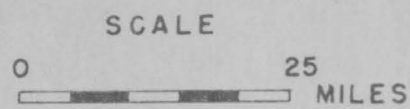
The general lithology of each formation is sufficiently consistent so that detailed mapping was possible without the use of fossils. Biostromal beds proved helpful and were utilized for determining the top boundary of the Benbolt limestone in many localities.

The geologic mapping was done with the aid of United States Forest Service 1:7920 air photographs and photo-enlargements of a part of the Pearisburg quadrangle of the United States Geological Survey.

#### Methods of Collection and Preparation of Limestone Samples

Channel samples were collected across the outcrops of limestone. A sample weighing approximately 300 grams was collected for each foot of thickness of strata. Larger samples were collected for thin beds

# Location of Area of Study



of questionable purity. The weathered surface was removed from the specimens. The samples were reduced to about pea size with a jaw crusher and quartered with a Jones sample splitter.

#### Acknowledgments

The writer expresses his appreciation to those who have aided in this investigation. The writer is especially indebted to Dr. B. N. Cooper who supervised the study and gave helpful suggestions in the field and read and criticized the manuscript. Dr. R. V. Dietrich and Dr. W. D. Lowry read and criticized the manuscript and gave aid concerning special problems. Professors C. E. Sears, Jr. and W. E. Moore gave valuable suggestions during the course of the field work. The investigation was financed by the Norfolk and Western Railway Company.

#### Previous Work

Mathews (1934) made a sketch map showing the distribution of rocks and major structural features in Giles County and discussed the economic possibilities of the marble. B. N. Cooper (1944) published a report of the industrial limestones and dolomites of the New River-Roanoke River District, Virginia. The purpose of this study was to obtain information concerning the location, character, thickness and chemical composition of deposits of limestone and dolomite. A sketch map was included showing the general distribution of Cambrian and Ordovician limestones in Giles County.



## Stratigraphy

General. The Middle Ordovician limestones in the vicinity of Huges Store, Giles County, Virginia, comprise 10 lithologic units with a total thickness averaging about 800 feet. These formation units consist mainly of cherty, nodular, impure limestones that differ in thickness and minor characteristics within short distances. Calcilutite zones of variable purity are also present.

The basal Middle Ordovician unit is the Blackford which lies unconformably on the Beekmantown dolomite of Canadian age. The Middle Ordovician limestones are overlain by shale, limestone, and sandstone of middle and late Ordovician age.

### Elway Limestone

Name. - The Elway limestone was named by Cooper (1945) for a settlement near Lebanon, Russell County, Virginia.

Character and distribution. - The Elway limestone is commonly a dark-gray, fine-grained limestone with numerous layers and nodules of black chert. The Elway weathers light bluish-gray. Freshly broken rock commonly has a petroliferous odor. Locally, the Elway is composed in part of chemical-grade calcilutite identical to the Five Oaks limestone. About 1.5 miles northeast of Huges Store (locality 7) this portion is about 50 feet thick. The top of this zone in the Elway limestone occurs 67 feet below the base of the Five Oaks limestone. This member of the Elway thins to the southwest and is covered to the

north along Doe Creek. Another local thickening of the high-calcium limestone member of the Elway is present 1.25 miles northwest of Hoges Store (locality 2). A similar limestone in the Elway is exposed about 0.25 mile north of Lucas Memorial Church (locality 13) but it is not as low in silica and magnesia as the high-calcium beds at locality 7.

#### Five Oaks Limestone

Name. - The Five Oaks limestone was named by Cooper and Frouy (1944) for its occurrence at Five Oaks, Tazewell County, Virginia.

Character and distribution. - The Five Oaks limestone is a dove-gray to brownish-gray, thick-bedded calcilutite that weathers with a light-gray chalky crust. The Five Oaks limestone contains widely spaced stylolitic seams, and fresh surfaces show clear calcite insets giving the rock a glittering appearance. The Five Oaks limestone is exposed best along the southwest base of Doe Mountain and about 1.5 miles northeast of Hoges Store. The Five Oaks reaches a maximum thickness of about 75 feet along the southwest base of Doe Mountain about 1.5 miles northwest of Hoges Store (locality 1), and the limestone is not less than 60 feet thick 1.25 miles to the east (locality 4). The Five Oaks limestone is over 50 feet thick 1.5 miles northeast of Hoges Store (locality 7). About 0.20 mile to the north (locality 6) the Five Oaks calcilutite is 30 feet thick and contains a thin layer of chert in the middle. The Five Oaks thins south of locality 7 and is mostly covered except along Sinking

Creek, where the thickness is less than 35 feet.

#### Lincolnshire Limestone

Name. - The Lincolnshire limestone was named by Cooper and Prouty (1944) from Lincolnshire Branch west of Five Oaks, Tazewell County, Virginia.

Character and distribution. - The Lincolnshire limestone is a dark bluish-gray, fine grained limestone with nodules of black chert and a "worm eaten" appearance. The Lincolnshire limestone is about 60 feet thick 1.5 miles northwest of Hoges Store (locality 1). About 0.75 mile to the east (locality 3) the Lincolnshire is 45 feet thick, and 1 mile farther to the east (locality 5) the Lincolnshire thickens to 60 feet. The Lincolnshire limestone is 60 feet thick 0.50 mile to the southeast (locality 7). The Lincolnshire reaches a maximum thickness of about 75 feet along the northwest base of Spruce Run Mountain.

#### Ward Cove Limestone

Name. - The Ward Cove limestone was named by Cooper and Prouty (1944) from Ward Cove, Tazewell County, Virginia.

Character and distribution. - The Ward Cove limestone is a medium-to dark-gray, coarse-grained limestone with an abundance of crinoids and bryozoans. Locally, the Ward Cove contains nodules of black chert, in which case the limestone is generally finer grained.

The Ward Cove is about 27 feet thick along the southwest base of Doe Mountain, and there it contains nodules of black chert. About 1.5 miles northeast of Hoges Store (locality 7) the Ward Cove is 27 feet thick and free of chert. The Ward Cove limestone attains a maximum thickness of 45 feet along the northwest base of Spruce Run Mountain (locality 14).

#### Peery Limestone

Name. - The Peery limestone was named by Cooper and Prouty (1944) for the Peery Limestone Company's quarry in Tazewell, Tazewell County, Virginia.

Character and distribution. - The Peery limestone is a dark bluish-gray limestone that contains nodules of black chert. The Peery is generally thicker than the Lincolnshire, but the two have similar lithologies. About 1.5 miles northwest of Hoges Store (locality 1) the Peery is 75 feet thick, and about 0.75 mile to the east it thickens to 93 feet. The Peery is about 125 feet thick 1.25 miles northeast of Hoges Store (locality 5). The section 1.5 miles northeast of Hoges Store (locality 7) contains 102 feet of cherty, dark bluish-gray limestone. A maximum thickness of about 175 feet of Peery limestone was noted along the northwest base of Spruce Run Mountain (locality 14).

### Benbolt Limestone

Name. - The Benbolt limestone was named by Cooper and Prouty (1944) for a historic homestead in Tazewell, Tazewell County, Virginia.

Character and distribution. - The Benbolt limestone is a dark-gray, fine-to coarse-grained limestone of variable lithology. Typically, the Benbolt limestone has many argillaceous seams and weathers with a nodular appearance. The Benbolt is very fossiliferous and commonly contains biostromal beds. It is only 120 feet thick 1.5 miles northwest of Hoges Store (locality 1), but the limestone thickens to 186 feet 0.75 mile to east of Hoges Store (locality 7). The Benbolt limestone is about 175 feet along the northwest base of Spruce Run Mountain. About 0.50 mile northwest of Boyd Chapel the top of the Benbolt contains 70 feet of light-gray, very coarse-grained limestone that can be traced more than 1500 feet along the strike. This deposit probably represents a bank of indurated shell sand, where myriads of invertebrate tests were ground up and deposited by wave and current action.

### Gratton Limestone

Name. - The Gratton limestone was named by Cooper and Prouty (1944) from Gratton, Tazewell County, Virginia.

Character and distribution. - The Gratton limestone is a dove-gray calcilutite that crops out prominently because of its purity and thick-bedded nature. The Gratton commonly contains at the bottom

beds of fine-grained magnesian limestone. About 1.5 miles northwest of Hoges Store (locality 1) the calcilutite zone of the Gratton is 30 feet thick and is underlain by about 20 feet of dolomitic rock. About 0.75 mile to the east (locality 3) the calcilutite zone is 51 feet thick and underlain by 13 feet of dolomitic beds. About 1.5 miles northeast of Hoges Store (locality 7) the calcilutite beds are 45 feet thick and are overlain by four feet of light-gray, coarse-grained limestone. The calcilutite zone is about 60 feet and has dolomitic beds at both top and bottom 1.25 miles east of Hoges Store (locality 10). About 0.50 mile to the southeast (locality 11) the calcilutite layers are 43 feet thick and are underlain by dolomitic beds. About 0.60 mile to the northeast (locality 12) the calcilutite zone is 50 feet thick and is underlain by 30 feet of argillaceous, dolomitic limestones. Along the northwest base of Spruce Run Mountain the Gratton is 35 to 40 feet thick and does not contain dolomitic beds.

#### Witten Limestone

Name. - The Witten limestone was named by Cooper and Prouty (1944) from Witten Valley, Tazewell County, Virginia.

Character and distribution. - The Witten limestone is a light-gray, fine-grained limestone that commonly contains argillaceous, dolomitic seams at the base. The Witten limestone contains 60 feet of argillaceous beds overlain by 43 feet of high-calcium limestone. In Geologic Section 2 about 1.25 miles northeast of Hoges Store

(locality 5) the Witten is composed of 70 feet of argillaceous layers. About 1 mile to the southeast (locality 7) the Witten contains 15 feet of argillaceous beds overlain by 38 feet of high-calcium limestone. The Witten is an argillaceous, dolomitic limestone 80 feet thick about 1.25 miles east of Huges Store (locality 10). About 0.50 mile to the southeast (locality 11) the Witten contains more than 25 feet of clayey beds overlain by 40 feet of high-calcium limestone, and 0.60 mile to the east (locality 12) the lower ten feet are very dolomitic beds and the upper 35 feet are high-calcium limestone. Along the base of Spruce Run Mountain the Witten is commonly a clayey, slightly magnesian limestone not more than 60 feet thick.

#### Moccasin Formation

Name. - The Moccasin formation was named by Campbell (1894) from Moccasin Creek, near Moccasin Gap, Scott County, Virginia.

Character and distribution. - The Moccasin is mainly a red mudstone with well developed fracture cleavage. It is about 75 to 100 feet thick. Several feet of mottled red and green marble underlying the mudrock forms the basal member of the Moccasin. The Moccasin is the first impermeable formation above the Ordovician limestones, and it probably forms together with the higher formations a protective roof under which the high-calcium limestones are relatively free of solution cavities.

### Eggleston Formation

Name. - The Eggleston formation was named by Mathews (1934) for Eggleston, Giles County, Virginia.

Character and distribution. - The lower part of the Eggleston is composed of a bluish-gray shale with a basal sandy layer. The Eggleston formation only was mapped south of Sinking Creek.

### Structure

In the area mapped the structural features are an anticline, two synclines and an imbricate structure. The Thessalia anticline plunges about  $10^{\circ}$  to the northeast, and the axial trace tends to follow Doe Creek in the vicinity of Hoges Store and to the northeast. The Little Meadows syncline lies northwest of the anticline, and the John's Creek syncline is southeast with its axial trace between Hoges Store and Lucas Memorial Church. The area along the northwest base of Spruce Run Mountain has an imbricate structure that includes several thrust faults and drag folds associated with the Saltville fault to the southeast. The fault zone consists of three essentially strike faults trending about  $N 80^{\circ} E$  and dipping  $60-80^{\circ}$  to the southeast.

### Occurrences of Limestone of Chemical Grade

The area in the vicinity of locality 8 about 1.5 miles northeast of Hoges Store is believed to be a favorable site for future



mining zones of high-calcium limestone. The beds lie near the crest of a major anticline and dip about  $8^{\circ}$  northeast. At this locality the Elway contains 29 feet of chemical-grade limestone which is separated from a 20-foot thickness of high-calcium Five Oaks limestone by 100 feet of impure beds. The 100 feet of rock between the two calcilutite zones would necessitate quarrying or mining on two levels. The high-calcium Five Oaks limestone does not crop out far to the southwest of locality 9. At locality 6, the Five Oaks contains at least 30 feet of calcilutite with impure beds in the middle. The abnormally thick development of calcilutite in the Elway was exposed completely only in the vicinity of locality 8. Test drilling will have to be done to determine the character and thickness of the Five Oaks and Elway calcilutites beneath the cover of over-lying beds. Suggested locations for core drilling are indicated on Plate 4. Assuming persistence of the quality of limestone indicated from surface samples, the amount of recoverable limestone is estimated to be 80 million tons; the estimate based on the assumption that the total thickness of the two calcilutite zones averages 50 feet and that only 50 per cent of the good stone could be recovered.

About 0.50 mile northwest of Boyd Chapel (locality 12), 70 feet of coarse-grained, high-calcium limestone occurs in the upper part of the Benbolt formation. The beds dip about  $15^{\circ}$  northwest, and they can be traced more than 1500 feet along the strike. Assuming

persistence of the coarse-grained Benbolt for 150 feet down dips, more than 800 tons could be mined for every foot it maintains 70 feet of thickness along the strike. Only by test drilling will it be possible to determine the extent of the coarse-grained limestone along the strike and down the dip.

A body of high-calcium limestone occurs about 1 mile north of Huges Store (locality 4) previously described by Cooper (1944). There is at least 60 feet of limestone, but much of the interval is covered and only core drilling will reveal its true character.

Table 1 - Analyses of limestones in the vicinity of Hoges Store, Giles County, Virginia

Locality	Location	Formation and Rock Character	Thickness Feet	Chemical Composition							
				CaCO <sub>3</sub>	MgCO <sub>3</sub>	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	P <sub>2</sub> O <sub>5</sub>	TiO <sub>2</sub>	Total
6	Giles County; 1.5 miles northeast of Hoges Store	Five Oaks limestone; very fine grained, compact, dove-gray	14	97.58	1.59	0.52	0.24	0.08	0.012	trace	100.02
			3	93.56	3.39	1.36	0.57	0.35	0.017	trace	99.73
			3	88.33	9.72	1.20	0.51	0.35	0.012	trace	100.12
			10	96.74	1.61	0.84	0.32	0.28	0.017	trace	99.79
8	Giles County; 1.5 miles northeast of Hoges Store	Elway limestone; very fine grained, compact dove-gray	10	97.35	1.44	1.10	nil	0.16	0.005	trace	100.05
			1	96.24	1.46	1.48	nil	0.40	0.006	trace	99.58
			18	97.08	1.32	1.02	nil	0.48	0.004	trace	99.89
			1	95.40	1.61	1.90	nil	0.40	0.011	trace	99.31
9	Giles County; 1.5 miles northeast of Hoges Store	Five Oaks limestone; very fine grained, compact, dove-gray	20	97.67	1.63	0.28	0.17	0.29	0.015	trace	100.00
			2	90.67	6.06	1.50	0.67	0.43	0.048	trace	99.34
			5	94.99	2.47	1.34	0.22	0.46	0.018	trace	99.48
12	Giles County; 0.5 mile northwest of Boyd Chapel	Witten limestone									
		Gray limestone; fine grained, clayey seams	35	91.60	4.03	3.04	1.11	0.31	0.12	trace	100.06
		Bluish-gray limestone, dolomitic	12	83.98	5.69	6.74	1.82	0.62	0.025	trace	99.85
		Gratton limestone									
		Dove-gray limestone, fine grained	55	95.03	2.55	1.40	0.59	0.29	0.012	trace	99.68
		Gray limestone, nodular, clayey	15	80.07	7.70	7.80	2.12	0.36	0.028	trace	99.86
		Gray limestone, fine grained	15	95.28	2.21	1.40	0.45	0.29	0.014	trace	99.66
Benbolt limestone; gray, coarse grained	70	95.03	3.59	0.40	0.77	0.27	0.023	trace	100.07		

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Appendix I<sup>1</sup>  
Geologic Sections

Geologic Section 1.- Ordovician limestones along the southwest base of Doe Mountain, at locality 3, about 1 mile northwest of Hores Store, Giles County, Virginia.

	Thickness Feet
Moccasin formation	
Witten formation (64 feet)	
11. Limestone, light-gray, fine grained, thin bedded	43
10. Limestone, light-gray, fine grained, dolomitic seams	21
Gratton limestone (64 feet)	
9. Calcilutite, dove-gray, thick bedded	51
8. Limestone, medium-gray, fine grained, thin bedded, dolomitic	13
Benbolt limestone (186 feet)	
7. Limestone, dark-gray, fine grained, dolomitic seams	56
6. Limestone, dark-gray, fine grained, nodular, argillaceous, very fossiliferous	24

<sup>1</sup>Described intervals in italics indicate beds where chemical compositions are shown on Table 1.

	Thickness Feet
5. Limestone, medium- to dark-gray, fine grained with intercalation of coarse grained limestone	31
4. Limestone, gray, nodular, argillaceous seams	75
Peery limestone (93 feet)	
3. Limestone, dark bluish-gray, fine grained, cherty	93
Ward Cove limestone (27 feet)	
2. Limestone, dark-gray, medium to coarse grained, cherty	27
Lincolnshire limestone (45 feet)	
1. Limestone, dark bluish-gray, fine to medium grained, cherty	45
Five Oaks limestone	
<u>Geologic Section 2.- Ordovician limestone along the southwest base of Doe Mountain, at locality 5, about 1.4 miles northeast of Hagan Store, Giles County, Virginia.</u>	
Nocassin formation	
Witten limestone (70 feet)	
9. Limestone, light-gray, fine grained, thin bedded, buff dolomitic seams	70
8. Calcilutite, dove-gray, thick bedded	51
7. Limestone, medium-gray, fine grained, dolomitic	11
Benbolt limestone (174 feet)	
6. Limestone, gray, nodular, argillaceous	174

	Thickness Feet
Peery limestone (125 feet)	
5. Limestone, dark bluish-gray, fine grained, cherty	125
Ward Cove limestone (27 feet)	
4. Limestone, dark-gray, coarse grained, cherty	27
Lincolnshire limestone (60 feet)	
3. Limestone, dark bluish-gray, fine grained, cherty	60
Five Oaks limestone (35 feet)	
2. Calcilutite, dove-gray, calcite insets, widely spaced stylolitic seams	35
1. Limestone, dove- and dark-gray, fine grained, cherty; base not exposed	200
 <u>Geologic Section 3.- Ordovician limestone at locality 7, about 1.5 miles northeast of Ross Store, Giles County, Virginia.</u>	
Meccasin formation	
Witten limestone, (53 feet)	
14. Limestone, light-gray, fine grained, medium bedded	38
13. Limestone, medium-gray, fine grained, buff dolomitic stringers	15
Gratten limestone (49.5 feet)	

	Thickness Feet
12. Limestone, light-gray, coarse grained, very fossiliferous	4.5
11. Calcilutite, medium-gray, medium bedded, somewhat argillaceous	45
Benbolt limestone (200 feet)	
10. Limestone, medium-gray, fine grained, argillaceous	80
9. Limestone, dark bluish-gray, fine grained, cherty	75
8. Limestone, gray, nodular, argillaceous	45
Peery limestone (102 feet)	
7. Limestone, dark bluish-gray, fine grained, cherty	102
Ward Cove limestone (27 feet)	
6. Limestone, medium-gray, coarse grained	27
Lincolnshire limestone (52 feet)	
5. Limestone, dark bluish-gray, medium bedded, cherty	52
Five Oaks limestone (51 feet)	
4. Calcilutite, dove-gray, calcite insets, widely spaced stylolitic seams	51
Elway limestone (126 feet, base not exposed)	
3. Limestone, dove- to dark-gray, fine grained cherty	67



	Thickness Feet
2. Calcilutite, dove-gray, calcite insets widely spaced stylolitic seams	49
1. Limestone, dark-gray, fine grained, cherty; base not exposed	10

Geologic Section 4.- Ordovician limestone at locality 11, about 0.75 miles northwest of Boyd Chapel, Giles County, Virginia.

Moccasin formation

Witten limestone (67 feet)

5. Limestone, light-gray, fine grained, nodular, argillaceous seams	16
4. Limestone, light- to dove-gray, medium to thick bedded, a few argillaceous seams	35
3. Limestone, medium-gray, thin bedded, nodular, argillaceous stringers	26

Gratton limestone (55 feet)

2. Calcilutite, dove-gray, thick bedded	43
1. Limestone, medium-gray, medium bedded, somewhat argillaceous	12

Benbolt limestone

Geologic Section 5.- Ordovician limestone at locality 8, about 1.5 miles northeast of Hoges Store, Giles County, Virginia.

Five Oaks limestone

Thickness  
Feet

Elway limestone (106+ feet, base not exposed)

- |  |     |
|--|-----|
| 3. Limestone, dove- to dark-gray, fine grained,<br>cherty                            | 67  |
| 2. <u>Calcilutite, dove-gray, calcite insets, widely<br/>spaced stylolitic seams</u> | 29  |
| 1. Limestone, dark-gray, fine grained, cherty;<br>base not exposed                   | 10+ |

Geologic Section 6.- Ordovician limestone at locality 6, about 1.75  
miles northeast of Hogen Store, Giles County, Virginia.

Lincolnshire limestone

Five Oaks limestone (30+ feet, base not exposed)

- |  |    |
|--|----|
| 4. Calcilutite, dove-gray, calcite insets, widely<br>spaced stylolitic seams | 14 |
| 3. Limestone, dark- to dove-gray, small calcite<br>insets                    | 3  |
| 2. Limestone, dark- to dark gray, dolomitic                                  | 3  |
| 1. Calcilutite, dove-gray, calcite insets, widely<br>spaced stylolitic seams | 10 |

Geologic Section 7.- Ordovician limestone at locality 9, about 1.5  
miles northeast of Hogen Store, Giles County, Virginia.

Lincolnshire limestone

Five Oaks limestone (27 feet)

	Thickness Feet
3. Calcilutite, dove-gray, calcite insets widely spaced stylolitic seams	20
2. Limestone, dark-gray, colomitic seams	2
1. Calcilutite, dove-gray, calcite insets, widely spaced stylolitic seams	5

Geologic Section 8.- Ordovician limestone at locality 12, about 0.50 mile northwest of Boyd Chapel, Giles County, Virginia.

Moccasin formation

Witten limestone (47 feet)

66. Limestone, gray, fine grained, dolomitic and clayey seams	35
5. Limestone, bluish-gray, dolomitic, clayey	12

Gratton limestone (85 feet)

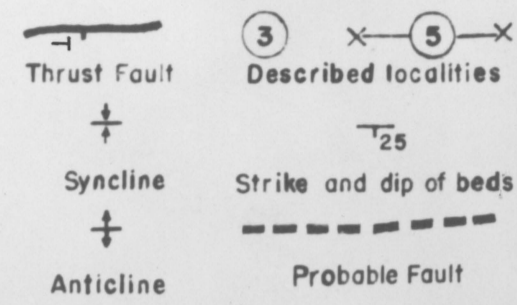
4. Limestone, dove-gray, fine grained, thick bedded	55
3. Limestone, gray, nodular, clayey, dolomitic	15
2. Limestone, gray, fine grained	15

Benbolt limestone (70+ feet)

1. Limestone, gray, coarse grained	70
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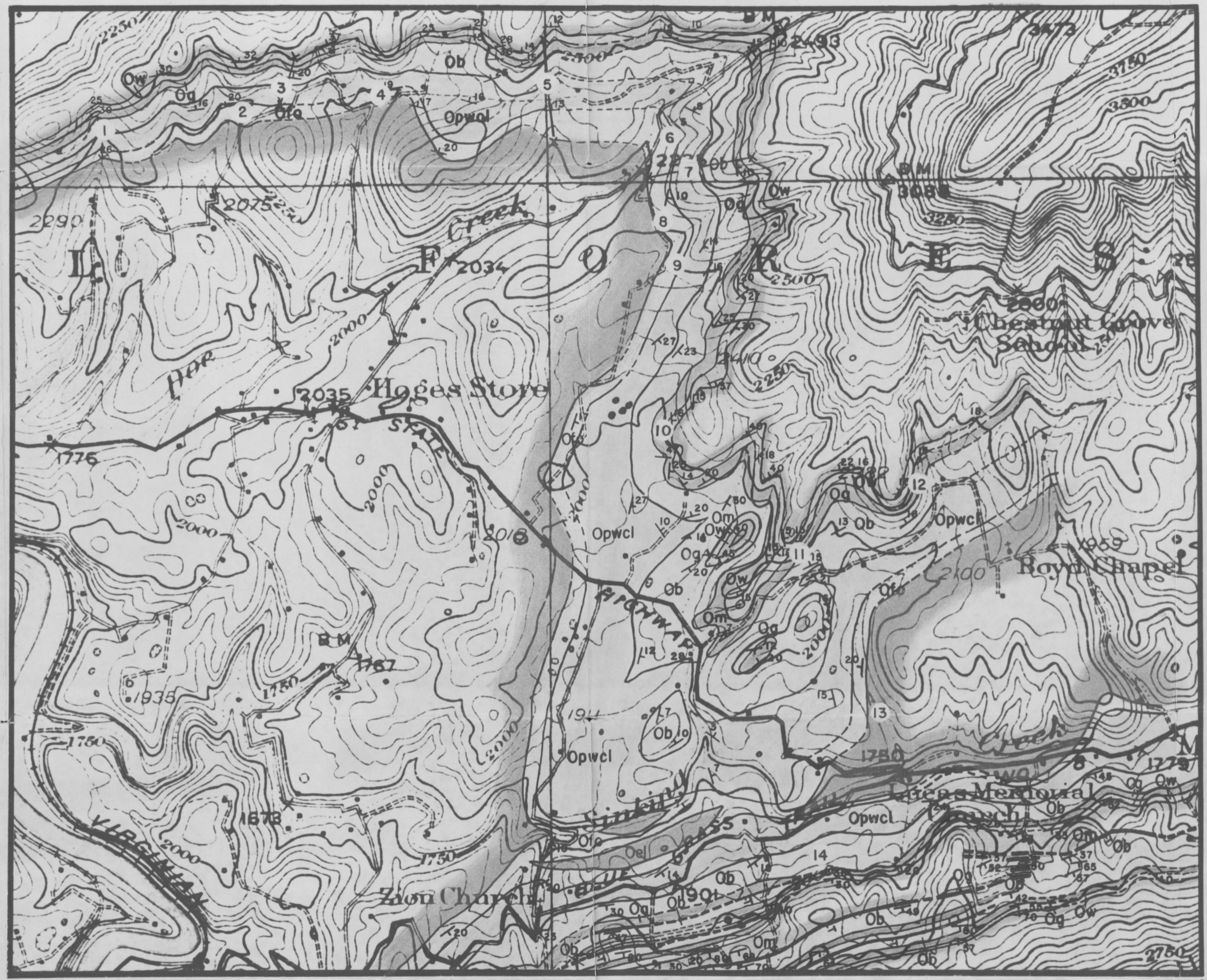
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the scanned document**

# ORDOVICIAN LIMESTONES IN THE VICINITY OF HOGES STORE, GILES COUNTY, VIRGINIA



## EXPLANATION

- Oe
- Eggleston formation  
(Only mapped south of Sinking Creek)
- Om
- Moccasin formation
- Ow
- Witten formation
- Og
- Gratton formation
- Ob
- Benbolt formation
- Opwcl
- Peery, Ward Cove  
and Lincolnshire  
limestones
- Ofo
- Five Oaks limestone
- Oel
- Elway limestone

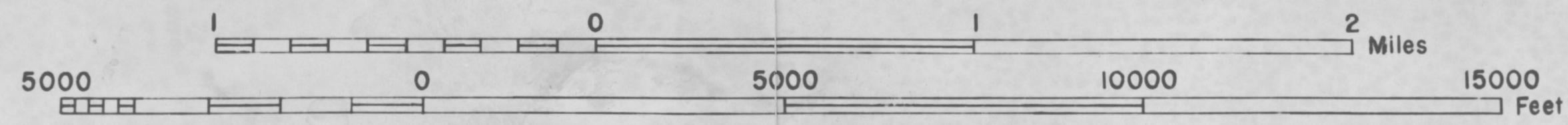


Base from Pearisburg Quadrangle  
U.S. Geological Survey (1937)

Geology by W.H. Shanholtz

37°15'  
80°30'

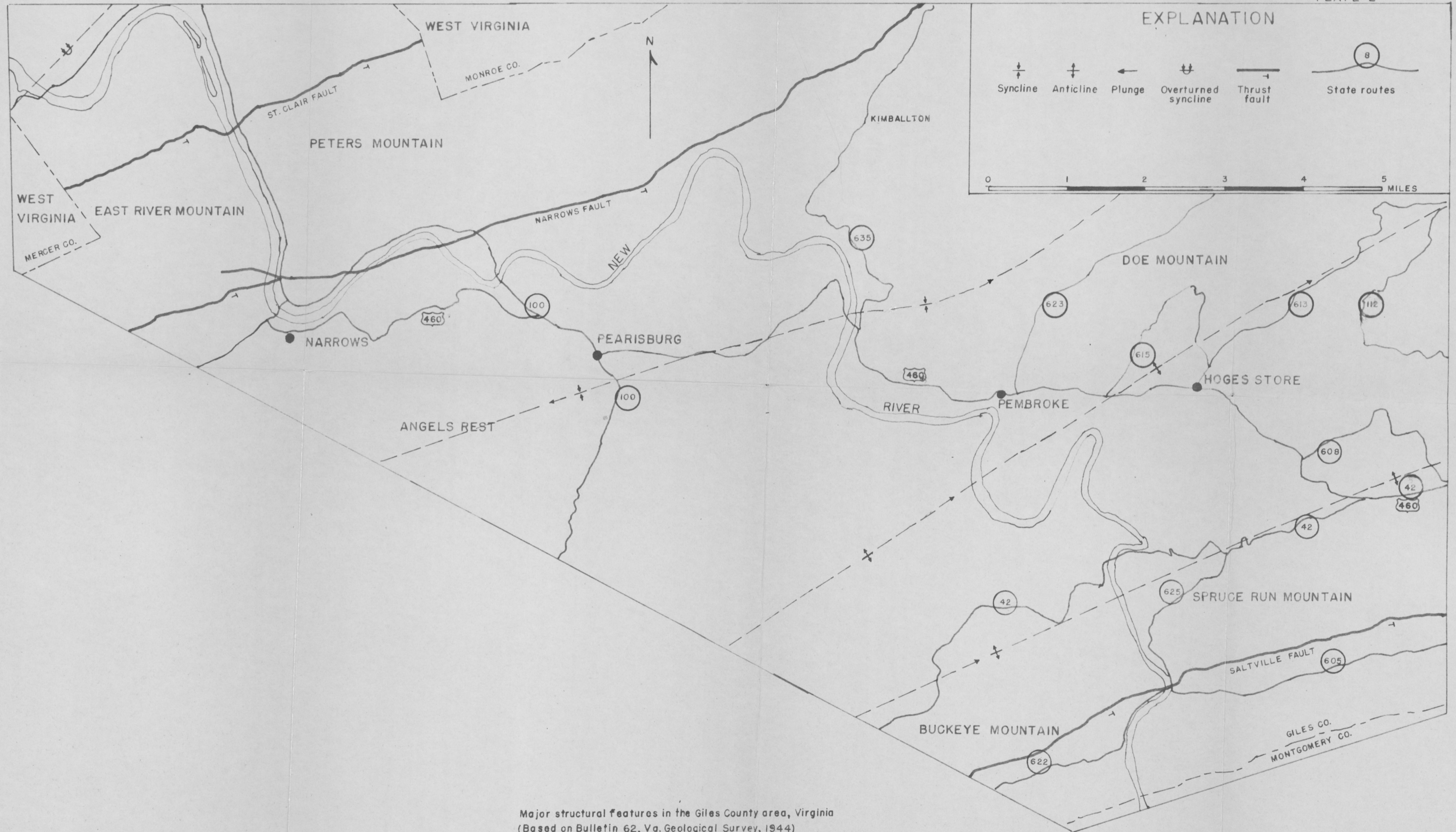
### SCALE



Contour interval 50feet

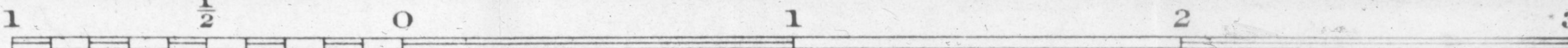
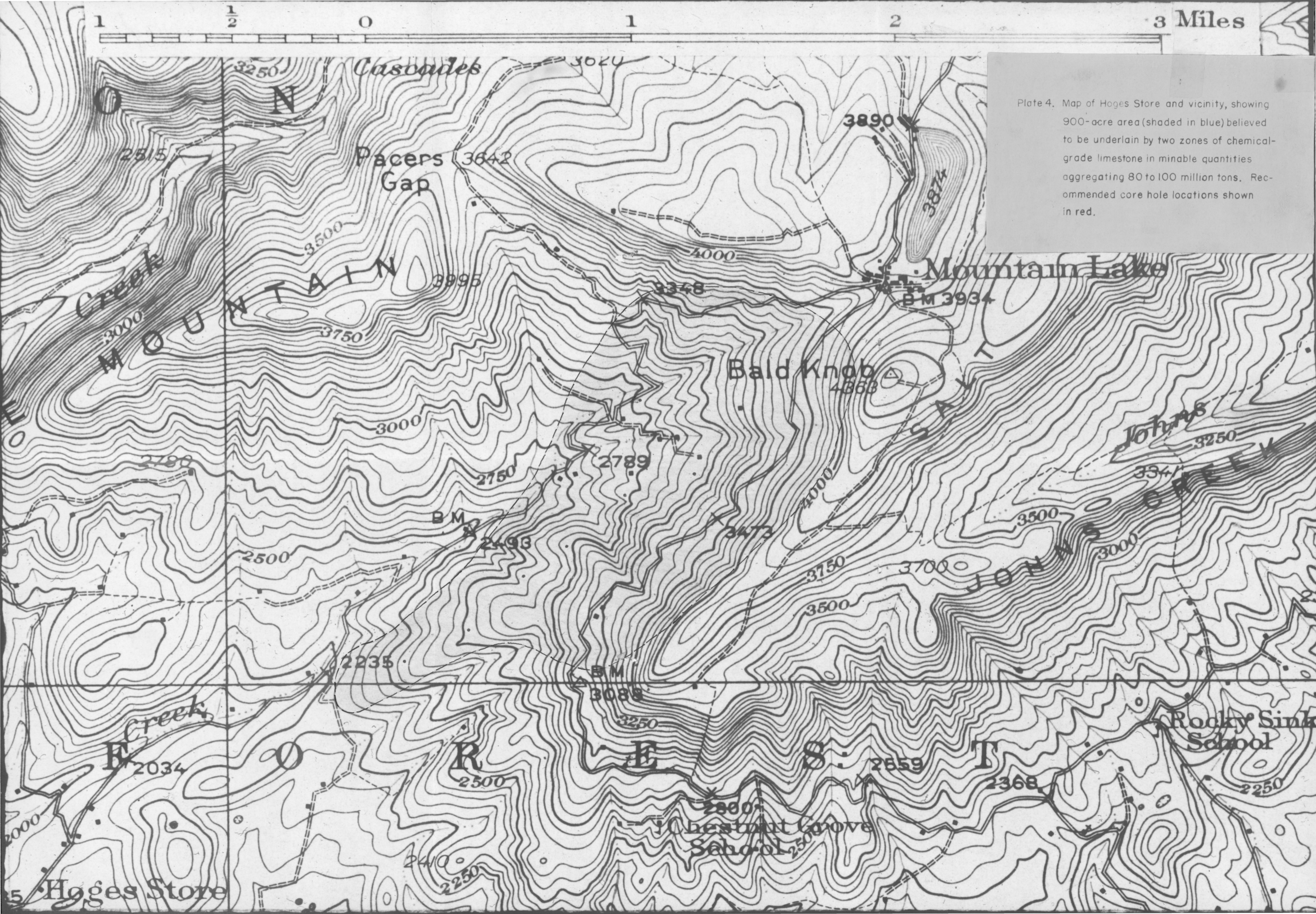
# GILES COUNTY

PLATE 2



Major structural features in the Giles County area, Virginia  
(Based on Bulletin 62, Va. Geological Survey, 1944)

Plate 4. Map of Hoges Store and vicinity, showing 900-acre area (shaded in blue) believed to be underlain by two zones of chemical-grade limestone in minable quantities aggregating 80 to 100 million tons. Recommended core hole locations shown in red.



Cascades

Pacers Gap

3890

3874

Mountain Lake

BM 3934

Bald Knob  
4850

Johns

3250

3341

3500

3000

JONNS

3700

3500

3750

3473

2789

2750

BM 2493

2500

2235

BM 3088

3250

2500

2559

2368

Rocky Sink  
School

2250

Chestnut Grove  
School

2410

2250

Hoges Store

Creek

3000

2515

3250

N

MOUNTAIN

3020

3995

3348

3750

3000

2780

2034

O

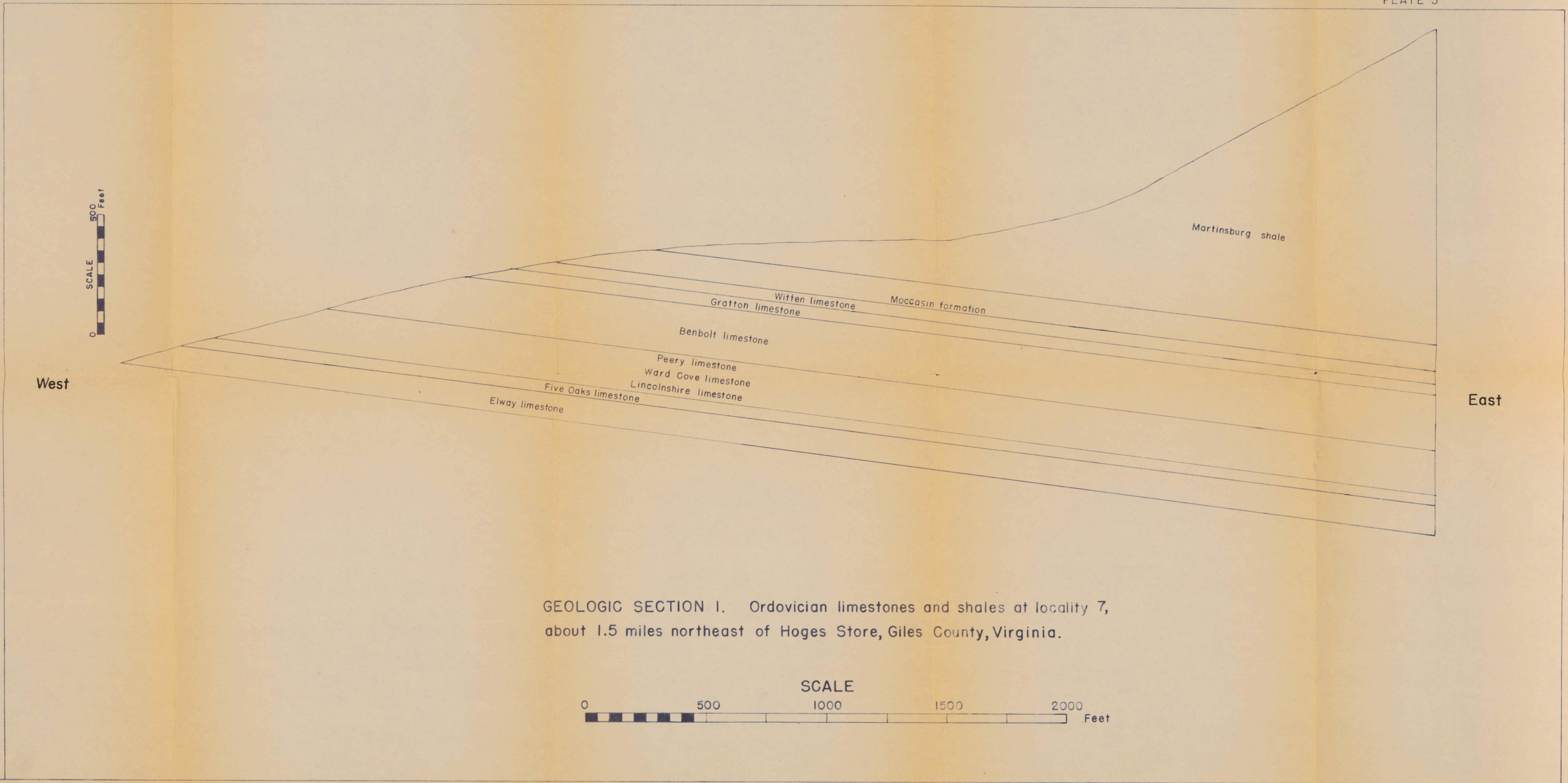
R

E

S

T

5



GEOLOGIC SECTION I. Ordovician limestones and shales at locality 7, about 1.5 miles northeast of Hoges Store, Giles County, Virginia.

