COMMONWEALTH OF VIRGINIA

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT

DIVISION OF MINERAL RESOURCES

CHARACTERISTICS OF THE EVERONA FORMATION IN VIRGINIA

TINSLEY MACK

INFORMATION CIRCULAR 10

VIRGINIA DIVISION OF MINERAL RESOURCES

James L. Calver
Commissioner of Mineral Resources and State Geologist

CHARLOTTESVILLE, VIRGINIA
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DEPARTMENT OF PURCHASES AND SUPPLY

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1. Distribution of the Everona Formation between the Rockfish and Potomac rivers ..... In pocket

CHARACTERISTICS OF THE EVERONA FORMATION IN VIRGINIA[1]

By

Tinsley Mack[2]

INTRODUCTION

The Everona Formation, generally considered Upper Cambrian in age, extends northeastward from the Rockfish River across parts of Albemarle, Louisa, Orange, Culpeper, Fauquier, and Loudoun counties to the Potomac River, a distance of approximately 120 miles. Because of the deep weathering in the Piedmont area, outcrops of carbonate strata are difficult to locate and generally are well exposed only along stream beds. The six major rock types in the Everona Formation and the relative percentages of each are: (1) banded limestone, 60 percent; (2) massive limestone, 10 percent; (3) slaty limestone, 8 percent; (4) ferruginous limestone, 4 percent; (5) marble, 9 percent; and (6) black slate, 9 percent. Quarries and prospects where the Everona is exposed are described, and chemical analyses of representative samples from each of the quarries and prospects are reported.

LITHOLOGY

The Everona was named by Jonas (1927) for exposures of limestone and slate in the vicinity of Everona, Orange County, Virginia. The formation has been correlated with the Frederick Limestone in Maryland (Jonas, 1927) and the Arch Marble in the Lynchburg area (Brown, 1951).

1 From unpublished M. A. thesis, "Geology of the Everona Formation," submitted to the University of Virginia in 1957.

2 U. S. Department of Agriculture, Richmond, Virginia.

BANDED LIMESTONE

The banded limestone is thin to thick bedded and is dark blue to light grayish blue. Weathered surfaces are light to dark gray. The bands are zones of concentration of bluish-black graphite or organic matter along bedding planes. They have a wavy appearance where there are minor folds. Veins of white calcite, some more than 1 inch wide, intersect the bedding planes; many of these calcite veins are perpendicular to the bedding. Scattered grains of gray quartz are present in this limestone, and in some places quartz grains constitute up to 25 percent of the rock. Impure banded limestone has flakes of sericite and chlorite that occur along bedding-plane surfaces. Cube-shaped limonite pseudomorphs after pyrite, which are up to 0.25 inch on a side, are also present.

MASSIVE LIMESTONE

The massive limestone is fine grained and dull bluish black on fresh surfaces; it weathers to a bluish gray. The dark color of the limestone is caused by the presence of graphite and carbonaceous material. Calcite is the predominant mineral, and dolomite is present in minor amounts. Grains of gray quartz, up to 0.25 inch in size, occur in veins of white calcite. Scattered grains of magnetite and pyrite are also present.

SLATY LIMESTONE

The color of the slaty limestone is related to the presence of non-carbonates. The gray rocks have sericite as the predominant non-carbonate; the dark-blue or black ones have graphite. Calcite makes up 45 to 65 percent of the rock, and dolomite forms less than 3 percent; these minerals make up the bands between the slaty planes. Small rounded quartz grains, that constitute 20 to 45 percent of this lithologic type, tend to be aligned along the slaty planes. Sericite occurs as flake-like wisps; graphite is present in fine thread-like patches and wavy lines.

FERRUGINOUS LIMESTONE

The ferruginous limestone is generally composed of bands of red and pink ferruginous material interlayered with bands of gray carbonate. In some areas this type occurs as a massive brown limonitic limestone containing narrow veins of secondary calcite which are perpendicular to the bedding planes. Calcite forms 45 to 70 percent of the rock; iron-bearing minerals (hematite or limonite) constitute 10 to 30 percent. Fine-grained quartz, which is generally dispersed throughout this rock type, makes up 15 to 35 percent of it. Sericite is generally associated with the ferruginous material.

MARBLE

The marble is predominantly white and light blue, although some of it is pink and light green; these various colors are due to the presence of hematite, chlorite, and graphite. Calcite and dolomite are the main mineral components. In some localities dolomite forms up to 90 percent of this rock type; where dolomite predominates, the calcite grains occur in scattered patches. Quartz is present in only minor amounts.

BLACK SLATE

Sericite is the main constituent of the black slate; the color is due to the presence of graphite. Quartz and calcite veins, commonly at right angles to each other, are present in the slate. Quartz also occurs as scattered rounded grains. In some areas the black slate grades into a slaty limestone.

QUARRIES AND PROSPECTS

The locations of quarries and prospects are indicated on Plate 1, and strikes and dips are given in areas where accurate measurements could be made. These locations are described in geographic sequence, starting near the Rockfish River (southern Albemarle County) and continuing northward to the Potomac River.

ALBEMARLE COUNTY

Dawson Mill Prospect

Dark-blue limestone of the Everona Formation crops out along a small tributary of Ballinger Creek near Dawson Mill, about 2 miles southwest of Porters on State Road 725 (Plate 1, No. 1). Thickness of the limestone here is 38 feet; the lower 21 feet consists of dark-blue, thin-bedded, fine-grained limestone, and the upper 17 feet is dark-blue, massive, crystalline limestone. Dip of the formation is 62° SE. A chemical analysis made by the Virginia Division of Chemistry of a composite sample representing the total 38 feet of limestone indicated: $CaCO_3$, 87.8 percent; $MgCO_3$, 4.4 percent; impurities, 7.8 percent.

Farm and Home Quarry

The abandoned Farm and Home quarry is on the Mount Pleasant Farm east of State Road 795, approximately 5 miles east of Keene (Plate 1, No. 2). The quarry is situated on the north bluff of the Hardware River. A total of 54 feet of limestone is exposed in the quarry. The lower 16 feet consists of medium-bedded, dove-gray, shaly limestone interlayered with thin laminae of red and pink ferruginous clay. The upper 38 feet is composed of massive blue limestone with white calcite stringers. Interbedded with this massive limestone are several layers of dark-blue, crinkled, slaty limestone which are 1 to 2 feet thick. The rocks have a dip of 86° SE. Chemical analysis of a composite sample representing the total thickness of limestone exposed at the quarry indicated: $CaCO_3$, 63.3 percent; $MgCO_3$, 16.4 percent; impurities, 18.4 percent.

Bishop Quarry

The Bishop quarry is located about 0.2 mile southwest of State Road 620 and 1.5 miles northwest of Woodridge (Plate 1, No. 3). This quarry was operated prior to the middle 1800's to obtain stone for the manufacture of burnt lime that was used in the construction of many of the early buildings in Charlottesville and Scottsville. Thickness of the Everona Formation

as measured along a brook below the abandoned quarry is 148 feet. The lower 100 feet of the formation is composed of blue slaty limestone; the upper part is more massive and appears to have a greater carbonate content. Stringers of white calcite are present throughout the limestone. Dip of the beds is 61° SE. A chemical analysis of a composite sample taken across the formation exposed along the brook showed: $CaCO_3$, 73.8 percent; $MgCO_3$, 5.4 percent; impurities, 19.2 percent.

Hart Quarry

The Hart quarry is located on one of the western tributaries of Buck Island Creek, 0.25 mile southwest of State Road 620 and 2 miles northwest of Woodridge (Plate 1, No. 4). This quarry was operated from 1850 to 1860. The massive blue limestone is highly fractured; a few stringers of white calcite and stringers of gray quartz are present. East of the quarry the Everona Formation is cut by a fault, and drag folds associated with the fault are present. Average dip of the formation is 44° NW. Chemical analysis of a composite sample representative of the 20 feet of limestone exposed in the quarry indicated: $CaCO_3$, 54.2 percent; $MgCO_3$, 8.8 percent; impurities, 37.0 percent.

Shackelford Quarry

The abandoned Shackelford quarry, operated prior to the middle 1800's, is located 2.5 miles northeast of Woodridge (Plate 1, No. 5). The quarry site is 300 yards south of State Road 728, about 0.8 mile southwest of the junction of State Roads 728 and 729. Thickness of the Everona Formation as measured along a small brook 150 yards southwest of the quarry is 136 feet. The dip is 31° SE. The lower 20 feet of the formation is black, slightly calcareous slate; the middle 76 feet is slaty, banded, blue limestone; and the upper 40 feet is dark-blue massive limestone. A composite sample taken from a series of outcrops across the carbonate portion of the formation yielded the following chemical analysis: $CaCO_3$, 58.8 percent; $MgCO_3$, 4.2 percent; impurities, 39.9 percent.

Garland Quarry

Approximately 2 miles southeast of Nix on the southwest side of State Highway 53, 400 yards south of where it crosses Buck Island Creek (Plate 1, No. 6) is the abandoned Garland quarry that was operated prior to the middle 1800's. During 1947-48, Moore Brothers of Staunton, Virginia, operated a limestone quarry located about 50 yards south of the old Garland quarry. The lower part of the Everona Formation at this locality consists of thin-bedded, dark-blue, shaly limestone interbedded with thin layers of sericitic and micaceous material which contain limonite pseudomorphs after pyrite. The middle portion of this exposure is composed of limestone interlayered with bands of dark graphitic material and bands of dove-gray dolomite which average 0.25 inch in thickness. The upper part of the exposure consists of massive blue limestone. Average dip of the beds is 38° SE. A chemical analysis of a composite sample representing the entire exposure showed: $CaCO_3$, 66.1 percent; $MgCO_3$, 4.1 percent; impurities, 30.2 percent.

Blaettermann Quarry

Along U. S. Highway 250 about 1 mile northwest of Boyd Tavern (Plate 1, No. 7) is the abandoned Blaettermann quarry that was operated prior to the middle 1800's. Exposed in this quarry is 80 feet of light-blue, fine-grained, thin- to medium-bedded limestone. It contains slightly crinkled layers of dark-blue graphitic material and veins of calcite. The average dip is 20° SE. A composite sample taken across the width of the exposure just south of U. S. Highway 250 yielded the following chemical analysis: $CaCO_3$, 74.8 percent; $MgCO_3$, 4.5 percent; impurities, 19.1 percent.

Campbell Quarries

Three abandoned quarries that were operated prior to the middle 1800's are located just northwest of Campbell (Plate 1, No. 8). One of these quarries is 20 yards south of State Road 600; the others are located approximately 300 yards to the northeast. Exposed in the southernmost quarry is an impure,

dark-blue, slaty limestone. The two quarries to the north are in medium-bedded blue limestone that contains numerous veins of white calcite. This limestone is less slaty than that exposed to the south. Dip of the formation is 72° SE. Thickness of the formation 1 mile north of Campbell is 85 feet. A chemical analysis made by the Virginia Division of Chemistry of a composite sample collected in and around the southernmost quarry indicated the following: $CaCO_3$, 67.4 percent; $MgCO_3$, 3.7 percent; impurities, 28.5 percent. A chemical analysis made by the same organization on a sample representative of the limestone in the two northern quarries showed: $CaCO_3$, 73.8 percent; $MgCO_3$, 5.5 percent; impurities, 20.7 percent.

Arbogast Farm Prospect

Dark-blue, medium- to thin-bedded limestone crops out along Mechunk Creek 1 mile northeast of Cobham (Plate 1, No. 9). Average dip of the Everona Formation is 71° SE. Approximately 150 feet of limestone is present in this area. A chemical analysis by the Virginia Division of Chemistry showed that a composite sample from the area contained: $CaCO_3$, 77.8 percent; $MgCO_3$, 3.1 percent; impurities, 19.1 percent.

LOUISA COUNTY

Meadows Prospect

Four miles southwest of Gordonsville and 1 mile east of State Highway 231 (Plate 1, No. 10), the Everona Formation is exposed along a tributary of the South Anna River. Here the formation is about 450 feet thick and consists of light-blue, thin- to medium-bedded limestone that contains numerous veins of white calcite. Dip of the beds is 78° SE. The Virginia Division of Chemistry analyzed a composite sample from this area and reported: $CaCO_3$, 74.1 percent; $MgCO_3$, 4.3 percent; impurities, 21.6 percent.

Superior Stone Company Quarry

The limestone quarry of the Superior Stone Company is located 1.5 miles southwest of Gordonsville on the south side

of the Chesapeake and Ohio Railway and 0.5 mile east of State Highway 231 (Plate 1, No. 11). The quarry, which has a production rate of 120 tons per hour, is about 500 feet long, 500 feet wide, and 40 feet deep. In this area the Everona Formation is 1100 feet thick and is composed of dark-blue, thin-bedded, crinkled, slaty limestone. Veins of white calcite that contain inclusions of light-gray quartz are generally present. Dip of the rocks is 74° SE. A sample taken from the quarry yielded the following chemical analysis: $CaCO_3$, 69.8 percent; $MgCO_3$, 7.1 percent; impurities, 22.8 percent.

ORANGE COUNTY

Prospect Northeast of Gordonsville

Banded, thin- to medium-bedded, blue limestone that contains veins of white calcite is exposed for a distance of more than 1.5 miles along the Chesapeake and Ohio Railway northeast of Gordonsville (Plate 1, No. 12). The rock strata are vertical in this area. Near the intersection of the railroad and State Road 690, about 130 feet of the Everona Formation is exposed. Chemical analysis of a composite sample taken from a ditch along the railroad showed: $CaCO_3$, 78.1 percent; $MgCO_3$, 5.5 percent; impurities, 16.0 percent.

Cowherd Quarry

About 2.5 miles northeast of Gordonsville, near the Chesapeake and Ohio Railway (Plate 1, No. 13) is the abandoned Cowherd quarry that was operated prior to the middle 1800's. The old kiln that was used to fire the limestone is still standing. About 180 feet of dark-blue, thin-bedded, slaty limestone that contains stringers of white calcite is exposed at this locality. Concentrations of graphite along bedding planes produce a black, shiny appearance. The rocks have a dip of 74° SE. A chemical analysis of a composite sample from this area gave the following results: $CaCO_3$, 72.5 percent; $MgCO_3$, 1.3 percent; impurities, 20.8 percent.

Higginbotham Prospect

About 1 mile east of the intersection of State Roads 637 and 647 and 3 miles southeast of Orange (Plate 1, No. 14), the Everona Formation crops out for a distance of more than 1 mile along a branch of Pamunkey Creek. The limestone is dark blue, fine to medium grained, and contains veins of white calcite. The dip is 84° SE. Estimated thickness of the formation in this area is 200 feet. A chemical analysis by the Virginia Division of Chemistry of a composite sample from outcrops along Pamunkey Creek on the Higginbotham farm showed the following: $CaCO_3$, 78.5 percent; $MgCO_3$, 4.5 percent; impurities, 17.0 percent.

Meadow Farm Prospect

The Everona Formation crops out on Meadow Farm along Pamunkey Creek 2 miles southeast of Orange and 300 yards north of where State Road 612 crosses Pamunkey Creek (Plate 1, No. 15). Several outcrops of blue, thin-bedded, crinkly, slaty limestone are present at this locality. Thickness of the Everona Formation in this area is estimated to be 250 feet. Average dip of the rocks is 82° SE. Results of a chemical analysis made by the Virginia Division of Chemistry of a composite sample collected along the creek were: $CaCO_3$, 75.9 percent; $MgCO_3$, 6.3 percent; impurities, 18.8 percent.

Quarries Near Everona

East of Everona is the type area for the Everona Formation (Plate 1, No. 16). In the abandoned Campbell and Cooper quarries northeast of Everona, 130 feet of the lower part of the formation is exposed. Both of these quarries contain dark-blue, thin-bedded, slaty limestone that has concentrations of black graphitic, material along the bedding planes. Chemical analysis of a sample from the Campbell quarry showed: $CaCO_3$, 71.2 perecent; $MgCO_3$, 1.2 percent; impurities, 28.6 percent. A sample from the Cooper quarry yielded the following chemical analysis: $CaCO_3$, 73.2 percent; $MgCO_3$, 1.0 percent; impurities, 25.8 percent.

Approximately 70 feet of the middle part of the formation is exposed in the Walker quarry located 200 yards east of the intersection of State Roads 627 and 617. This part of the Everona consists of dark-blue massive limestone that contains irregularly shaped particles of quartz and stringers of white calcite. Dip of the beds is 86° SE. Chemical analysis of a composite sample from this quarry indicated: $CaCO_3$, 75.6 percent; $MgCO_3$, 5.8 percent; impurities, 18.1 percent.

South of Everona on Hawfield Farm, about 200 feet of the upper part of the formation is exposed. Outcrops of thin- to medium-bedded, blue to dark-gray limestone are present along Mountain Run for a distance of 1.5 miles. Dark bands of graphitic material occur parallel to bedding planes, and veins of white calcite intersect the bedding planes. Chemical analysis of a composite sample taken along Mountain Run on Hawfield Farm showed: $CaCO_3$, 66.8 percent; $MgCO_3$, 5.5 percent; impurities, 28.7 percent.

East of U. S. Highway 522 and approximately 1 mile northeast of Everona, a transverse fault having right-lateral movement displaces the formation a distance of 300 yards. Northeast of this fault and about 0.75 mile east of U. S. Highway 522, is a prospect in the Everona Formation which was worked during the first half of the nineteenth century. Exposed in and around the prospect is thin- to medium-bedded blue limestone that contains beds of pink limestone which are a few feet thick.

Gibson Quarry

The abandoned Gibson quarry (Plate 1, No. 17) is located near the south bank of the Rapidan River, 0.3 mile north of State Road 681 and 1.8 miles south of Batna (Culpeper County). Conglomerates of Triassic age are present a short distance west of the quarry. The Everona Formation in this area is a medium-bedded, light-blue to grayish-blue limestone containing layers of pink limestone which are a few inches thick. Here the beds are vertical. In some places the limestone has been

altered to a light-gray marble. A composite sample from outcrops in this area gave the following chemical analysis: $CaCO_3$, 95.8 percent; $MgCO_3$, 0.5 percent; impurities, 3.4 percent.

Limestone outcrops of the Everona Formation are present along the Rapidan River a short distance east of the Gibson quarry. These exposures consist of dull-blue, banded, crinkly limestone that has concentrations of graphitic material along the bedding planes. Thickness of the formation along the Rapidan River is 448 feet. A chemical analysis of the limestone in this area showed: $CaCO_3$, 79.4 percent; $MgCO_3$, 3.7 percent; impurities, 17.9 percent.

CULPEPER COUNTY

Roberts Quarry

The abandoned Roberts quarry is located along Mountain Run 0.75 mile southwest of the junction of State Roads 620 and 670 and 1.5 miles northwest of Edwards Shop (Plate 1, No. 18). In recent years limestone from this quarry has been used as ground agricultural stone by the owner of the farm on which the quarry is located. The following geologic section shows the varied lithology of the Everona Formation in this area:

Section — Along Mountain Run, 0.75 mile southwest of junction of State Roads 620 and 670.

	Approximate Thickness Feet
EVERONA FORMATION (Incomplete, 74 + feet)	
Limestone, reddish-brown, thin-bedded	3
Limestone, dark-blue, massive, fractured	3
Limestone, red to reddish-brown, thin-bedded	?
Limestone, dark-blue, thin-bedded	5
Limestone, dark-blue, massive	6
Limestone, dark-blue, thin-bedded	32
Limestone, dark-blue, slaty, fissile	15
Limestone, dull-blue, thin-bedded, partly slaty; has flakes of gray sericite along bedding planes. Brown cubes of pseudomorphic limonite after pyrite, from 0.12 to 0.5 inch on a side, occur along the bedding planes	10

Dip of the formation at this locality is 87° SE. A composite sample of the formation exposed along Mountain Run gave the following chemical analysis: $CaCO_3$, 60.4 percent; $MgCO_3$, 5.2 percent; impurities, 33.0 percent.

FAUQUIER COUNTY

Wheatley Quarry

Along Walsh Run, 0.5 mile west of the intersection of State Roads 651 and 789 (Mount Holly Church) (Plate 1, No. 19) is the abandoned Wheatley quarry that was operated prior to the middle 1800's. Exposed in the quarry is bluish-gray, medium-bedded, banded limestone that contains interbedded layers of pink sericitic limestone, 0.5 to 2 inches thick. Veins of white calcite are present throughout the exposure. The dip is 58° SE. Following are the results of a chemical analysis of limestone from the Wheatley quarry made by William B. Rogers in 1840: $CaCO_3$, 75.6 percent; $MgCO_3$, 12.4 percent; impurities, 11.0 percent.

North Wales Farm Prospect

The Everona Formation is exposed 0.3 mile east of State Road 802 and 1 mile northeast of Fauquier White Sulphur Springs (Plate 1, No. 20). The formation at this locality consists of dull-brown to dark-gray, massive, highly siliceous marble that has a rough, gritty surface. Megascopic minerals that are present in the marble include calcite, quartz, biotite, and muscovite. Cubic pseudomorphs of limonite after pyrite occur throughout the rock. The dip is 11° SE. An analysis made by the Virginia Division of Chemistry of a sample taken from outcrops at this locality showed: $CaCO_3$, 42.2 percent; $MgCO_3$, 4.3 percent; impurities, 53.5 percent.

Grigsby Quarry

On the west slope of Rappahannock Mountain, 100 feet east of State Road 691 and 4.3 miles southwest of Old Tavern (Plate 1, No. 21) is the abandoned Grigsby quarry. Here the Everona

Formation is composed of massive to medium-bedded, light-gray to light-blue, crystalline marble. Thickness of the formation is 83 feet; the dip is 67° E. The Virginia Division of Chemistry reported the following analysis for a composite sample taken in the quarry: $CaCO_3$, 53.8 percent; $MgCO_3$, 40.8 percent; impurities, 5.4 percent.

Baker Quarry

The abandoned Baker quarry is located on the northwest flank of Watery Mountain, 0.75 mile east of State Road 691 and 2 miles southwest of Old Tavern (Plate 1, No. 22). At this locality massive, light-blue, crystalline limestone, interbedded with layers of dark-blue banded limestone up to 3 feet thick, is exposed. Approximate thickness of the formation at this quarry is 75 feet. The dip is 82° SE. To the east there is a 15-foot-thick intraformational conglomerate that contains angular fragments of light-blue limestone in a matrix of gray to white granular marble. The limestone fragments average 7 x 15 x 35 mm in size. A chemical analysis of a composite sample taken from the quarry revealed the following: $CaCO_3$, 57.6 percent; $MgCO_3$, 35.1 percent; impurities, 7.3 percent.

Horner Quarry

At the north end of Watery Mountain, 450 yards south of State Road 703 and 1.5 miles southwest of Old Tavern (Plate 1, No. 23), is the abandoned Horner quarry. This quarry was operated during the first half of the nineteenth century. The Everona Formation in this area consists of medium-bedded to massive, dark-blue, saccharoidal, dolomitic limestone. Dip of the rocks is 14° S. Chemical analysis of a composite sample from the quarry showed: $CaCO_3$, 47.1 percent; $MgCO_3$, 34.8 percent; impurities, 18.4 percent.

LOUDOUN COUNTY

Luckett Quarry

The abandoned Luckett quarry is located on the west flank of Catoctin Mountain about 0.5 mile northeast of State Road 734 and 2 miles northwest of Stoke (Plate 1, No. 24). Here

the Everona Formation consists of approximately 30 feet of massive, blue and gray, fractured marble. Faint bedding planes indicate that the dip is about 52° NE. An analysis made by the Virginia Division of Chemistry of a composite sample taken from outcrops in this area showed: $CaCO_3$, 60.3 percent; $MgCO_3$, 26.7 percent; impurities, 11.9 percent.

Weathered Quarry

On the south bank of Goose Creek, 0.75 mile northeast of State Road 734 and 2.6 miles northwest of Stoke (Plate 1, No. 25), is the abandoned Weathered quarry. Two stone kilns are still standing near the quarry. Thickness of the Everona as measured along Goose Creek near the Weathered quarry is about 95 feet. The lower 45 feet of the formation is composed of massive, white, crystalline marble; rhombohedral calcite crystals in the marble range from 0.25 to 0.5 mm in size. Interstratified with this marble are layers of massive, green, talcose marble; massive, light-blue, graphitic marble; and white schistose marble. The upper 50 feet of the formation is composed of massive light-blue to dove-colored marble. Dip of the rocks is approximately 52° NE. From a composite sample collected along Goose Creek, the Virginia Division of Chemistry reported the following analysis: $CaCO_3$, 56.8 percent; $MgCO_3$, 40.2 percent; impurities, 3.0 percent.

Loudoun Marble Company and Goose Creek Lime Company Quarries

The abandoned Loudoun Marble Company quarry is located along Goose Creek near State Road 733 approximately 3.5 miles northwest of Stoke (Plate 1, No. 26). The Goose Creek Lime Company quarry is 0.5 mile north of it (Plate 1, No. 27). The Everona Formation is very similar in each of these quarries and consists predominantly of massive white crystalline marble that contains small lens-shaped areas of light-blue, light-green, and pale-pink marble. Dip of the formation is approximately 80° E. The thickness is 60 feet. Chemical analysis of a composite sample taken in the Loudoun Marble Company quarry showed: $CaCO_3$, 56.2 percent; $MgCO_3$, 41.0 percent; impurities,

2.8 percent. A composite sample collected in the Goose Creek Lime Company quarry gave the following analysis: $CaCO_3$, 65.3 percent; $MgCO_3$, 26.4 percent; impurities, 7.4 percent.

Shumate Quarry

The Shumate quarry is located 0.25 mile northwest of the junction of State Roads 704 and 662, and 3.25 miles southwest of Paeonian Springs (Plate 1, No. 28). This quarry was operated prior to the middle 1800's. The Everona Formation is 25 feet thick here and is composed of massive to medium-bedded white and gray marble. Some of the white marble is fine grained and has a pearly luster; the gray marble generally has a dull luster, and in some places muscovite flakes are concentrated along the bedding planes. The dip is 59° SE. The Virginia Division of Chemistry reported the following analysis for a composite sample collected from outcrops at this locality: $CaCO_3$, 56.6 percent; $MgCO_3$, 40.2 percent; impurities, 3.2 percent.

Marshall Quarry

The abandoned Marshall quarry is located 0.5 mile southwest of Taylorstown and 250 yards east of State Road 665 (Plate 1, No. 29). The Everona Formation is 16 feet thick here and consists of massive to medium-bedded, dull-lustered, gray to white marble. Muscovite flakes are concentrated along the bedding planes. The dip is approximately 11° SE. A chemical analysis by the Virginia Division of Chemistry of a composite sample taken from exposures and float in this quarry showed: $CaCO_3$, 57.4 percent; $MgCO_3$, 0.3 percent; impurities, 3.2 percent.

Taylor Quarry

The abandoned Taylor quarry is located 20 yards west of Catoctin Creek, 450 yards northeast of State Road 669 and 0.25 mile north of Taylorstown (Plate 1, No. 30). The unconformable contact between the Everona Formation and the underlying Catoctin Formation is exposed on the east side of the

quarry. The formation is 14 feet thick at this locality and is composed of massive, fine-grained, pearly-lustered, white marble that contains lens-shaped areas in which flakes of muscovite are abundant. The Virginia Division of Chemistry reported the following analysis for a composite sample that was collected in the quarry: $CaCO_3$, 57.2 percent; $MgCO_3$, 42.4 percent; impurities, 1.4 percent.

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COMMONWEALTH OF VIRGINIA
DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT
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James L. Calver
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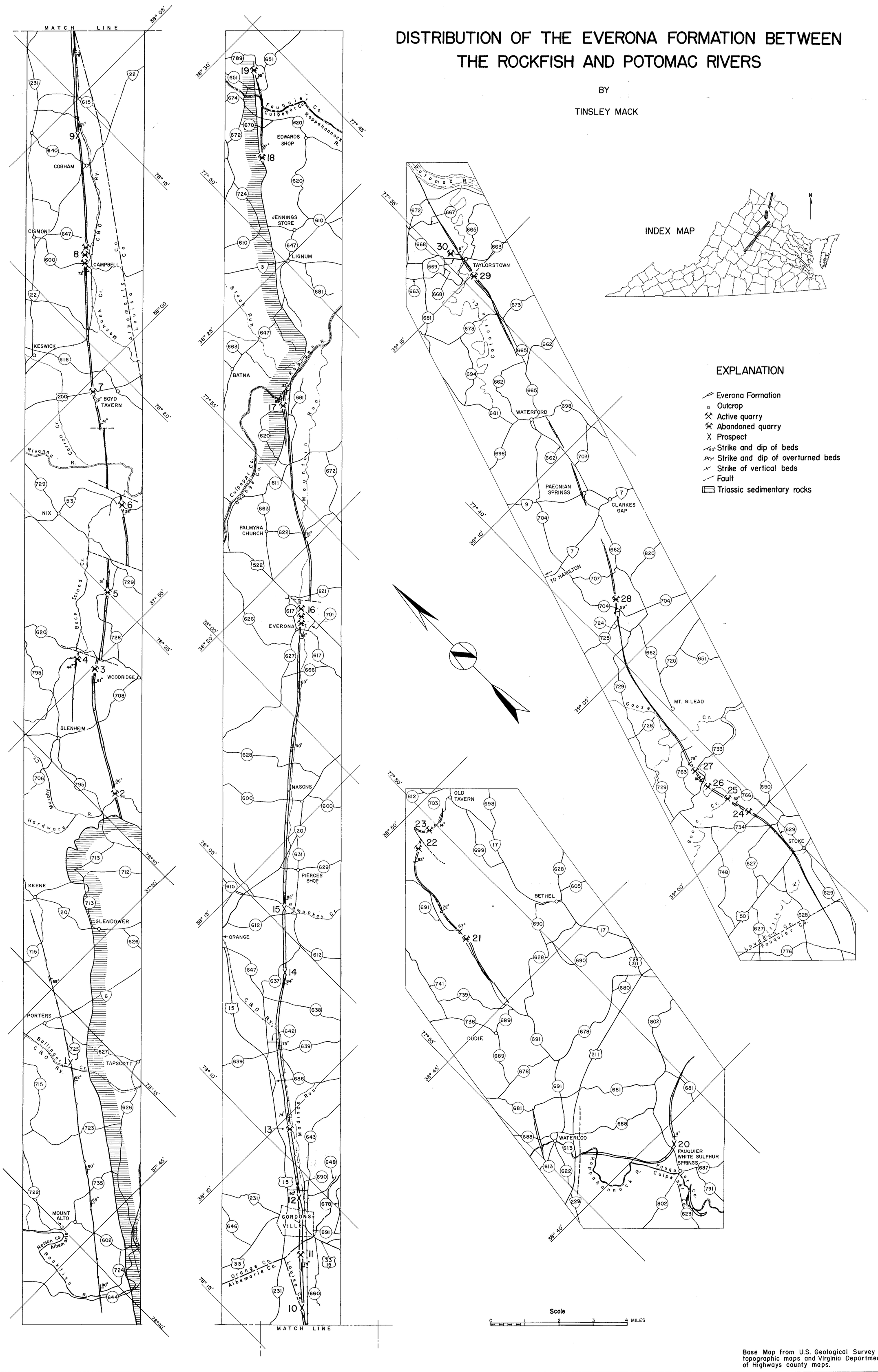
DISTRIBUTION OF THE EVERONA FORMATION BETWEEN THE ROCKFISH AND POTOMAC RIVERS

BY

TINSLEY MACK



Base Map from U.S. Geological Survey topographic maps and Virginia Department of Highways county maps.