

VIRGINIA

MINERALS



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No.1

VIRGINIA MINERAL LOCALITY INDEX

D. Allen Penick, Jr.

This Virginia mineral locality index is intended to list the best known and most significant mineral occurrences in the State. In line with a project begun by the Colorado Friends of Mineralogy in 1976, the list is intended to assist amateur mineral collectors as well as professional mineralogists and economic geologists. The eventual goal of this project is to develop a mineral locality index for each state followed by a world-wide locality index.

The localities are listed by county, followed by a listing of the most prominent minerals. Additional information, such as fee localities and areas which are known to be closed to collecting, is shown by identification letters at the beginning of the report.

Unlike a field guide, the index is not intended to give exact directions to the locality. For convenience, the name of the nearest town or prominent geographic feature is given. It should be stressed that almost all localities listed in the index are located on private property, and permission from the landowner must be granted before entering the property.

The major source of information in this Virginia index was *Minerals of Virginia* (1970) by R. V. Dietrich. Although many sources were used, only those references used repeatedly are in the list of references at the end of the index.

Some of the famous localities in Virginia, such

as the Rutherford pegmatite in Amelia County and the Lynch Station locality (turquoise crystals) in Campbell County, are now closed to collectors. However, landowners change from time to time, and someday properites like these may be reopened. Current information on fee collecting sites can be obtained by contacting the Division of Mineral Resources, P.O. Box 3667, Charlottesville, Virginia 22903.

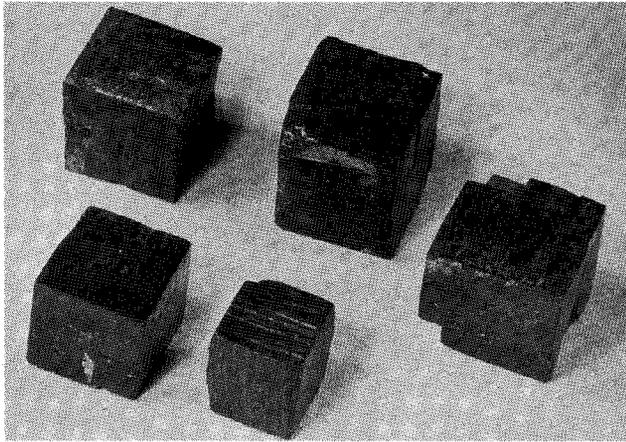
It is hoped that most of the well-known mineral localities in Virginia have been listed in this index. The writer welcomes any suggestions as to additions or deletions of localities which have been listed in the index. The data given in this report will certainly be revised and expanded as more information is forthcoming.

(f) = fee locality

(c) = currently closed to collecting

ALBEMARLE COUNTY

- Alberene soapstone quarry**—Alberene actinolite-tremolite, apatite, ferroan dolomite, erythrite, galena, ilmenite, magnetite, talc
- Briar Fork**—near Schuyler (excavation on Rt. 6) goethite pseudomorphs after pyrite
- Esmont slate quarry**—Esmont dolomite, limonite pseudomorphs after pyrite, siderite
- Faber lead mine**—near Faber cerussite, chalcopyrite, fluorite, argentiferous galena, sphalerite, pyromorphite



Crystals of goethite pseudomorphs after pyrite; largest, 1 inch across; found near Briar Fork, Albemarle County (photograph by T. M. Gathright, II; W. F. Giannini specimen).

Martin Marietta quarry—near Charlottesville
epidote, muscovite crystals, pyrite, quartz

Old Dominion soapstone quarry—near Old Dominion

actinolite-tremolite, apatite, chalcopyrite, chlorite, cobaltite, dolomite, erythrite, galena, ilmenite, magnesite, magnetite, pyrite, talc

Stony Point mine—near Charlottesville
chalcopyrite, cuprite, goethite, malachite, siderite

ALLEGHANY COUNTY

Peters Mountain—(roadcut outcrops) near Jordan mines

barite, hematite (botryoidal and stalactitic), hematite incrustation pseudomorphs after barite

AMELIA COUNTY

Beryl pegmatite mine (f)—near Amelia
beryl, muscovite (rum colored), quartz

Champion and Jefferson pegmatite mines—near Amelia

cleavelandite, columbite-tantalite, orthoclase, perthite, pyrochlore, rhabdophane, tourmaline

Ligon No. 1 pegmatite prospect (f)—near Chula
albite, beryl, muscovite crystals, quartz (rose), tourmaline

Morefield pegmatite mine (f)—near Amelia
beryl, cleavelandite, columbite-tantalite, microcline (amazonite), microlite, monazite, muscovite, phenakite, spessartine, topaz, zircon

Rutherford pegmatite mines (c)—near Amelia
allanite, apatite, bavenite, bertrandite, beryl, cassiterite, cleavelandite, columbite-tantalite, fergusonite, fluorite, helvite, microcline (var. amazonite), microlite, monazite, muscovite, phenakite, rutile, spessartine, topaz, tourmaline, triplite

Trueheart pegmatite mine (f)—near Amelia
beryl (var. aquamarine), microcline crystals, muscovite crystals, tourmaline

AMHERST COUNTY

Buck Mountain mine—near Forks of Buffalo
arsenopyrite, fluoroite, gold, scorodite, silver

Burley farm prospect (pegmatite)—near Amherst

cerianite, perrierite, rhabdophane, zircon

Christian tract mine (copper)—near Sweet Briar
actinolite-tremolite, bornite, chalcopyrite, chlorite group minerals, chrysocolla, ferroan dolomite, malachite

Dominion Stone Plant quarry—near Piney River
albite, apatite, chalcopyrite, clinozoisite, galena, garnet, sphalerite, sphene, zoisite

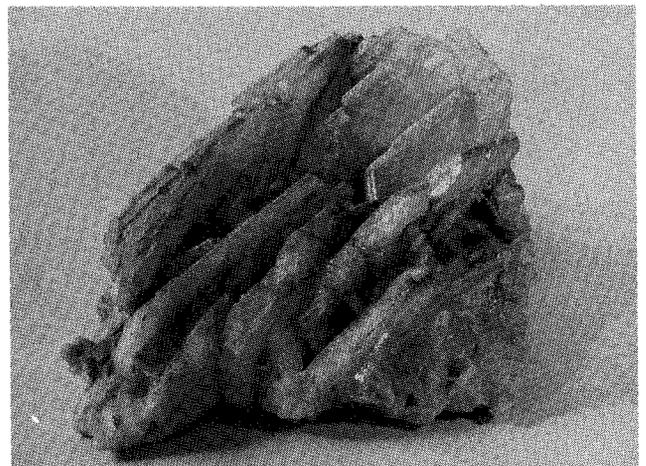
Little Friar Mountain pegmatite prospect—near Massies Mill

allanite, fergusonite (sipylite), zircon

Lynchburg Reservoir pegmatite prospect—Old Bunker Trail near Buena Vista

allanite, bastnaesite, cerianite, monazite, zircon

Schaars farm (f)—near Amherst
amethyst



Cleavelandite from Amelia County; largest dimension approximately 12 inches; photograph courtesy of the Smithsonian Institution.

Snowden site—near Snowden (Route 130 along James River)
amethyst

APPOMATTOX COUNTY

Enterprise mines (manganese)—near Beckham
cryptomelane (gem quality), manganite, quartz
crystals

Appomattox Lime Co. quarry—near Bent Creek
bornite, calcite, chalcopyrite, dolomite, pyrite,
sphalerite

AUGUSTA COUNTY

Belmont limestone quarry—Staunton
calcite crystals (some with pyrite inclusions)

Crimora mine (manganese)—near Waynesboro
cryptomelane, psilomelane, pyrolusite

Simons limestone quarry (Valley stone quarry)—Staunton

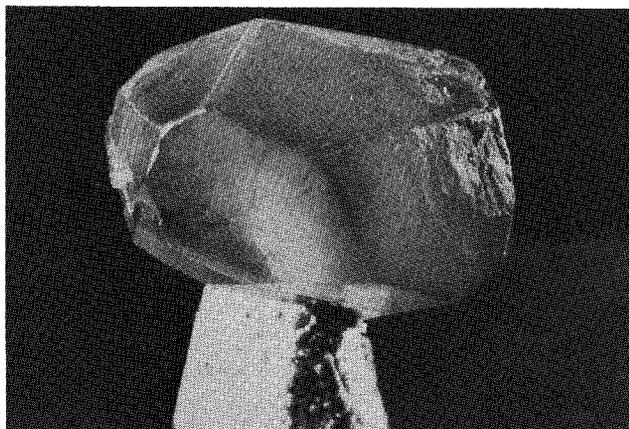
argonite, barite, calcite crystals, onyx

Franks Mill quarry—near Staunton
calcite crystals

Gay quarry—near Craigsville
calcite, crinoids (pink), dolomite, quartz crystals
(smoky and clear)

Spottswood bauxite district (includes Allen, Harris, and Lightner mines, Lott prospect, Berry and Yago farm prospect)—near Spottswood

boehmite, diaspore, gibbsite, kaolinitic clay



Calcite scalenohedron topped by calcite rhombohedron with mutual *c* axis; one inch long; Belmont Rock Company quarry, Augusta County (photograph by W. C. Sherwood).

Staunton lime quarry (Old State quarry)—Near Staunton

calcite crystals (rarely with inclusions of manganese minerals)

BATH COUNTY

Chestnut Ridge (f)—near Deerfield
quartz crystals (rarely with ruby sphalerite inclusions)

BEDFORD COUNTY

Mitchell pegmatite mine—near Otter Hill
almandine, biotite, columbite-tantalite, muscovite, oligoclase (moonstone), perthite, quartz, samarskite

Nance pegmatite mine (Big Harris)—near Moneta

albite, columbite-tantalite, microcline, muscovite, orthoclase, perthite, quartz

Seaboard Feldspar mine—near Moneta
microcline (some extremely large crystals), muscovite, pyrite, spessartine, zoisite (thulite)

Wheatly pegmatite mine (Big Hicks)—near Moneta

albite, columbite-tantalite, fergusonite muscovite, orthoclase, perthite, quartz (blue), zoisite (thulite)

Young feldspar mine—near Moneta
albite, garnet, muscovite crystals, orthoclase, perthite, zoisite

BOTETOURT COUNTY

James River Hydrate quarries—(two sites) near Buchanan

argonite, barite, calcite, opaline silica

BUCKINGHAM COUNTY

Anaconda mine (Eldredge Mill)—near Dillwyn
azurite, bornite, chalcopyrite, epidote, hornblende, malachite, magnetite, pyrite, quartz

Morrow gold mine (placer) (c)—near Sprouses Corner

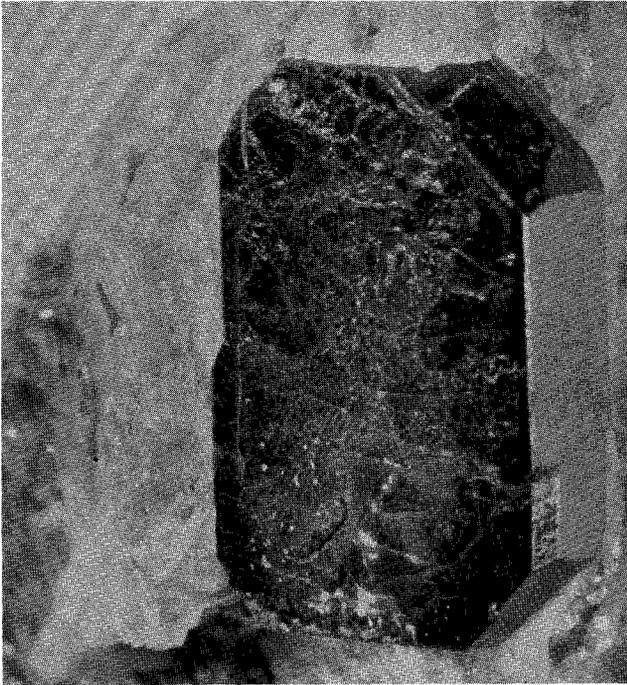
placer gold

New Canton mines (includes Hudgins, Johnson, Margaret, and McKenna mines)—near New Canton

chalcopyrite, gahnite, galena, gold, pyrite, pyrrhotite, silver, sphalerite

Slate River site—roadcuts near Buckingham Court House

chalcopyrite, covellite, pyrite



Columbite-tantalite crystal; $1\frac{1}{2}$ by 1 by $\frac{3}{4}$ inch; Mitchell mine, Bedford County. Photograph by G. K. McCauley; John Tweedy specimen.

Tourmaline site (float)—near Andersonville
tourmaline (schorl) crystals in quartz

Willis Mountain Kyanite mine (includes East Ridge operation)—near Sprouses Corner
apatite, crandallite-florencite, hematite, kyanite, lazulite, limonite (iridescent), muscovite, pyrite, rutile, tourmaline, trolleite

CAMPBELL COUNTY

Bennett farm—near Red House
amethyst crystals

Bishop mine (c)—near Lynch Station
turquoise crystals (on quartz and schist), minor pseudomalachite

Colbert Elder property (weathered saprolite)—near Brookneal
amethyst crystals

Hewitt mine—near Evington
barite

Old Woman Creek site (intersection with Staunton River)—near Motley
pseudomorphs of paragonite and kyanite after andalusite

Route 43 roadcut—Leesville
chromian muscovite, magnetite, monazite, tourmaline (schorl)

CAROLINE COUNTY

Last Mile pegmatite mine—near Ladysmith
beryl (green), garnet, tourmaline

CARROLL COUNTY

Gossan Howard mine—near Galax
apatite, chalcopyrite, pyrite, pyrrhotite, rutile, selenite, siderite, vivianite

Iron Ridge mine (includes Chestnut Yard, Gossan, Great Outburst mines)—Gossan Lead district near Fries

actinolite, biotite, epidote, hematite (specular), magnetite, pyrite, pyrrhotite, rutile, spessartine

Pipers Gap—near Galax
hornblende, serpentine, talc

Robinson farm—near Woodlawn
ilmenite, kyanite, rutile

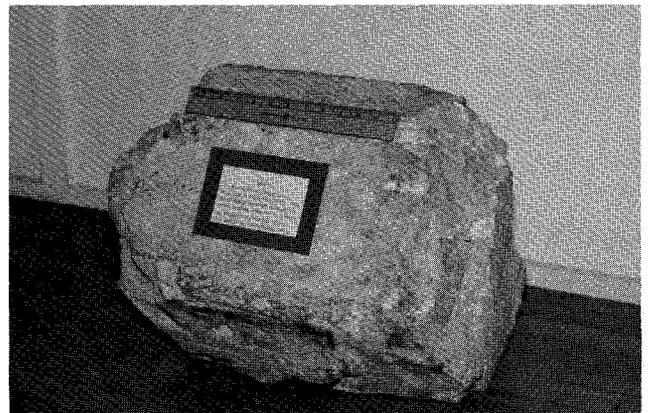
CHARLOTTE COUNTY

Crews No. 1 pegmatite—near Cullen
beryl (aquamarine, green, yellow), spessartine, tourmaline

Donald Plantation—near Charlotte Court House
amethyst

CHESTERFIELD COUNTY

Dale quarry—near Chester
apatite, beryl (some gem quality), garnet, microcline, molybdenite



A beryl crystal, weighing approximately 300 pounds, is currently on display at the Division office in Charlottesville (photograph by Howard Free-land).

CULPEPER COUNTY

Culpeper mine—near Richardsville
gold-bearing pyrite

Quarry (abandoned) on Rapidan River—near Rapidan

hyalite (opal), prehnite, stilbite

Virginia Granite Co. quarry—near Rapidan
chromian dravite

FAIRFAX COUNTY

Fairfax quarry—near Centreville
actinolite (byssolite), apophyllite, babingtonite, chabazite, chlorapatite, datolite, epidote, laumontite, natrolite, okenite, prehnite, quartz, stilbite, thaumasite, wurtzite

Theodora Copper mine—near Herndon
azurite, chrysocolla, epidote, libethenite, malachite

FAUQUIER COUNTY

Franklin mine (Deep Run)—near Morrisville
gold

FLOYD COUNTY

Laurel Fork site—near Laurel Fork
quartz crystals (some over 100 pounds)

Moles farm—near Willis
quartz crystals

Webbs Mill—near Floyd
rutile

FLUVANNA COUNTY

Kidds Store (f)—near Central Plain
jasper, rhodonite, pyrolusite

FRANKLIN COUNTY

Simms (Center Ridge)—near Sydnorsville
beryl (some gem quality), muscovite, tourmaline

FREDERICK COUNTY

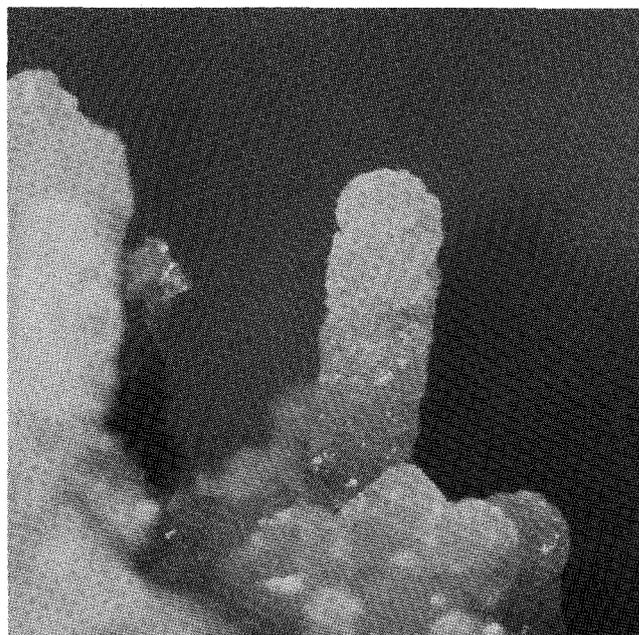
Glass Sand Corporation quarry—near Gore
crandallite, wavellite

Mineral Ridge—near Lebanon Church
manganese minerals, wavellite

Rosenberger and Stodler limestone quarries—near Hayfield
anhydrite, celestite, gypsum

GOOCHLAND COUNTY

Moss gold mine (c)—near Tabscott



Prehnite; stalactite 4 cm; Fairfax quarry, Fairfax County. John Medici specimen and photograph.

chalcopyrite, galena, gold, marcasite, pyrite, pyromorphite, sphalerite, tetradymite, vanadinite
Nichols farm prospects—near Centerville
ilmenite, rutile

GRAYSON COUNTY

John Gentry property—old Greek Post Office near Independence
staurolite (red-brown twinned crystals)

Hampton mine—New River at Hampton Ford
garnet, kyanite, staurolite (some clear yellow), tourmaline

Iron Ridge mine—(Gossan Lead) near Fries
epidote, hematite (specular), hornblende, magnetite, pyrite, pyrrhotite, rutile, spessartine

Nuckols prospect—near Galax
kyanite

GREEN COUNTY

Hightop mine—near Stanardsville
bornite, chalcopyrite, copper (native), cuprite, malachite

HALIFAX COUNTY

High Hill mine—near Virgilina
bornite, chalcocite, chalcopyrite, malachite

Pontiac mine—near Virgilina
azurite, bornite, calcite, chalcopyrite, chlorite,

covellite, cuprite, epidote, malachite, quartz

Wall mine—near Virgilina

bornite, calcite, chalcocite, chlorite, epidote, malachite

HANOVER COUNTY

Feldspar Corporation quarry—near Montpelier
amphibole, andesine, garnet, ilmenite, orthopyroxene, prehnite, quartz (blue), rutile

Harris pegmatite mine (c)—near Hewlett
almandine, kyanite, muscovite, orthoclase (moonstone), rutile

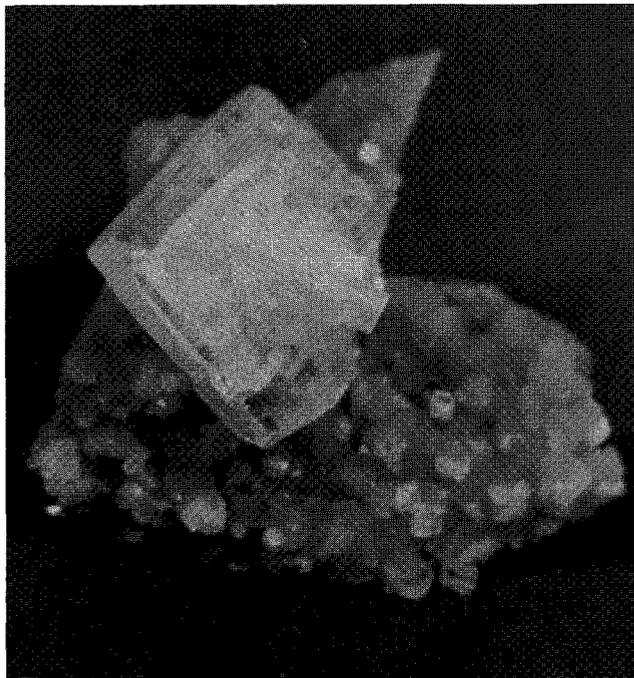
HENRY COUNTY

Ridgeway pegmatite mines (includes DeShajo, Eanes No. 2, Garrett, and Coleman mines)—near Ridgeway

epidote, garnet, hornblende, ilmenite, magnetite, microcline, muscovite, rutile, sphene, tourmaline, zircon

Route 57 site (roadcut)—near Bassett
staurolite (some are pseudomorphs of sericite after staurolite)

Smith River site—near Axton
pseudomorphs of sericite after staurolite



Apophyllite on prehnite; crystal $3\frac{1}{2}$ cm across; Chantilly quarry, Loudoun County. John Medici specimen and photograph.

HIGHLAND COUNTY

Route 609 (roadcut)—near Williamsville
concretion in shale with barite, pyrite, and other minerals

LOUDOUN COUNTY

Bull Run quarry—near Conklin
actinolite-tremolite, apophyllite, calcite, chabazite, chlorapatite, datolite, gyrolite, laumontite, pectolite, prehnite, sphalerite, sphene

Chantilly quarry—near Chantilly
apatite, apophyllite, augite, chabazite, prehnite, stilbite

Goose Creek quarry (Arlington quarry)—near Belmont Station

augite, apophyllite, datolite, diopside, goosecreekite, hornblende, laumontite, loudounite, thomsonite

LOUISA COUNTY

Allah Copper mine (Valcooper)—near Mineral
chalcopyrite, galena, gold, magnetite, pyrite, silver, sphalerite

Arminius mine—near Mineral
chalcopyrite, galena, gold, magnetite, pyrite, pyrrhotite, scheelite, silver, sphalerite

Sulphur mine (Crenshaw, Victoria Furnace)—near Mineral

almandine, chalcopyrite, copper (native), gahnite, hornblende, magnetite, pyrite, pyrrhotite, sphalerite, tremolite, tourmaline (schorl)

MADISON COUNTY

Dark Hollow mine (c) (Blue Ridge Copper Company)—near Fishers Gap

azurite, chalcopyrite, copper (native), cuprite, epidote, malachite, serpentine

Rose River unakite area—near Syria

epidote, orthoclase, quartz

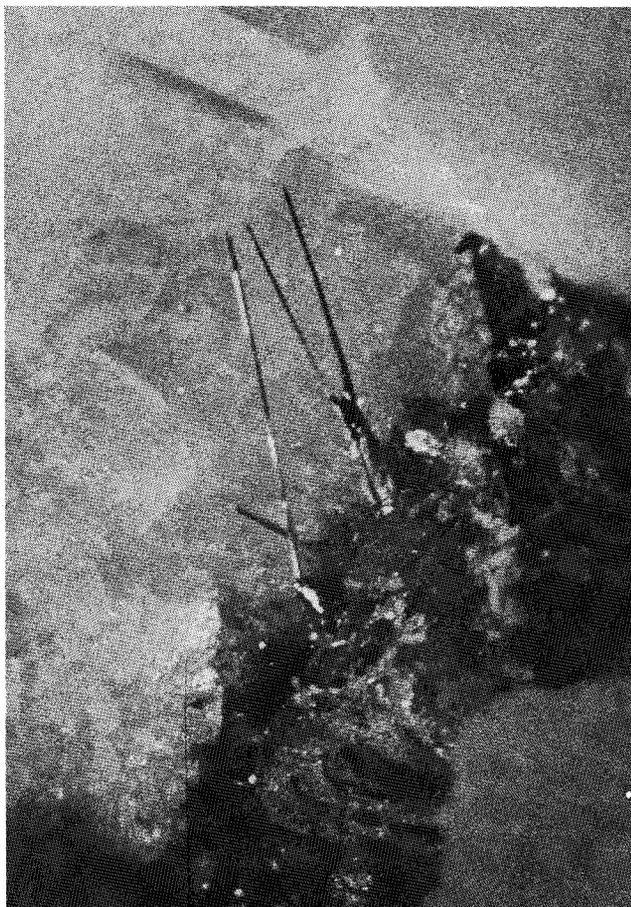
MECKLENBURG COUNTY

Hamme tungsten district (includes Burwell, Kimball, Taylor prospect)—near Clarksville

chalcopyrite, fluorite, galena, huebnerite, rhodochrosite, scheelite, sphalerite, tetrahedrite

NELSON COUNTY

American Rutile quarry—near Roseland
anatase, apatite, augite, chalcopyrite, epidote,



Millerite on chalcopyrite; largest crystal, 1.75 mm; Soapstone quarry, Nelson County. Photograph T. M. Gathright, II; Virginia Division of Mineral Resources specimen.

garnet, ilmenite, orthopyroxene, quartz (blue), rutile, sphene, zoisite

Allen Copper mine—near Wintergreen
chalcopyrite, malachite

J. S. Saunders farm (c)—near Lowesville
amethyst

Roadcut (intersection routes 655 and 724)—near Roseland
blue quartz

Schuyler area soapstone quarries—near Schuyler

actinolite, apatite, calcite, chalcopyrite, chlorite, dolomite, galena, ilmenite, magnetite, millerite, pyrite, serpentine, talc

PAGE COUNTY

Fishers Gap unakite locality—near Stanley
epidote, orthoclase, quartz (rarely apatite, chlorite, zircon)

Hawkbill Creek area—near Ida
epidote, jasper

Ida mine (Virginia Consolidated Copper Company)—near Ida

azurite, copper (native), cuprite, epidote, jasper, malachite

PATRICK COUNTY

Bull Mountain site—near Stuart
andalusite, corundum, kyanite, margarite

Fairy Stone State Park—near Philpott
staurolite (most are sericite pseudomorphs after staurolite)

Marble quarry (unnamed)—near Woolwine
garnet, sphene, tourmaline

PITTSYLVANIA COUNTY

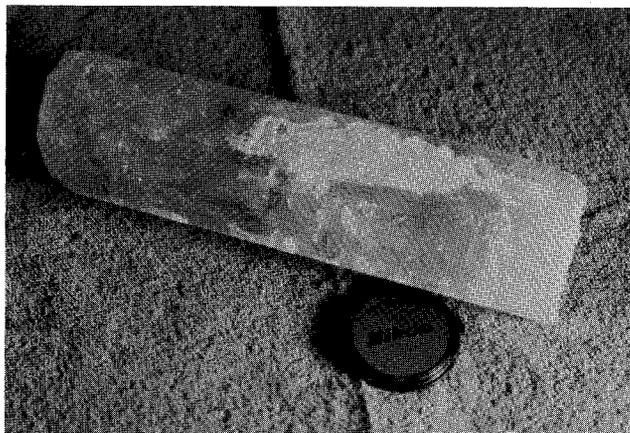
Axton pegmatite district (includes Dalton, Tyler, Vicama, Will Rogers mines)—near Axton
beryl, feldspar minerals, garnet, kyanite, quartz (smoky), tourmaline

Emery prospect—near Whittles
corundum, magnetite, spinel

Pittsylvania Wayside—near Altavista
beryl, columbite-tantalite, garnet, muscovite, orthoclase, zircon

POWHATAN COUNTY

Herbb No. 2 pegmatite mine (f)—near Flat Rock
albite, amazonite, beryl, cassiterite, columbite-tantalite, monazite, muscovite, spessartine, topaz, wodginite



Topaz crystal (gem quality); 10.9 by 3.5 inches (8.9 pounds); Herbb Number 2 pegmatite, Powhatan County. Howard Freeland photograph; Peter McCrery specimen.

White Peak pegmatite mines (numbers 1, 2, 3, & 4)—near Flat Rock

albite, biotite crystals, columbite-tantalite, euxenite, muscovite, pyrochlore, samarskite

PRINCE EDWARD COUNTY

Baker Mountain kyanite mine—(partially reclaimed) near Madisonville

chromian muscovite (fuchsite), garnet, hematite, kyanite, pyrite, rutile

Smith farm (c)—near Rice

amethyst crystals

PRINCE GEORGE COUNTY

James River stie—near Hopewell

gypsum (selenite), jarosite

PRINCE WILLIAM COUNTY

Gainesville quarry—near Gainesville

actinolite, apatite, apophyllite, bornite, chalcopryrite, laumontite, magnetite, prehnite

Manassas quarry—near Manassas

actinolite, apatite, apophyllite, bornite, chabazite, chalcopryrite, datolite

ROANOKE COUNTY

Catawba Mountain prospect—near Salem

barite, quartz crystals

Shepherds pegmatite prospect—near Starkey

allanite, anatase pseudomorphs after sphene, epidote, zircon

ROCKBRIDGE COUNTY

Bargers limestone quarry—Lexington

barite, calcite, fluorite, pyrite, quartz crystals

Irish Creek tin mines (Cash mine)—near Montebello

aikenite, arsenopyrite, beryl, cassiterite, chalcopryrite, fluorite, galenobismutite, gold, phenakite, pyrite, scheelite, scorodite, sericite, siderite, silver, wolframite

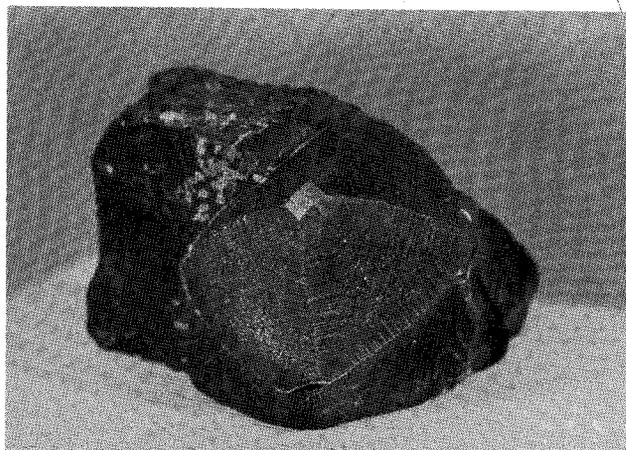
Long Jack quarry—near Glasgow

barite, calcite, chalcopryrite, dolomite, fluorite, malachite, marcasite, palygorskite, pyrite

Route 56 unakite quarry—near Vesuvius

epidote, orthoclase, quartz (rarely apatite, chlorite, magnetite, pumpellyite)

Vesuvius iron—manganese district (includes Dixie, Kelly Bank, Midvale and South River mines)—near Vesuvius



Pyrite crystal showing cube and striated octahedral faces in limestone matrix; crystal, 1.5 inches; Bargers quarry, Rockbridge County. T. M. Gathright, II photograph; D. Allen Penick, Jr., specimen.

cacoxenite, churchite (weinschenkite), cryptomelane, goethite, hematite, kidwellite, manganite, psilomelane, pyrolusite, rockbridgeite, strengite, turquoise, variscite, wavellite

ROCKINGHAM COUNTY

Betts quarry—Harrisonburg

calcite, dolomite, fluorite, native sulfur

Bowers-Campbell mine—near Timberville

dolomite, galena, greenockite, pyrite, smithsonite, sphalerite

Fulks Run (roadcuts)—near Fulks Run

celesite

Gordon mine—near Timberville

dolomite, galena, pyrite, sphalerite

Route 259—Shenandoah River site—near Brocks Gap

large quartz crystals (float)

Timberville mine (Weatherholtz)—near Timberville

barite, dolomite, galena, greenockite, smithsonite, sphalerite

SHENANDOAH COUNTY

Powells Fort manganese mine—near Woodstock

manganite, pyrolusite

SMYTH COUNTY

Henderlite mine—near Marion

barite, calcite, chalcopryrite, fluorite, malachite, pyrite

Locust Cove mine—near Saltville
anhydrite, gypsum

Porterfield quarry Rich Valley
quartz crystals (some scepter type)

SPOTSYLVANIA COUNTY

Edenton pegmatite mine—near Brokenburg
cleavelandite, columbite-tantalite, microcline,
quartz (smoky), tourmaline (dravite)

WARREN COUNTY

Runyon agate mine—near Bentonville
plume agate (quartz and manganese oxide)

WASHINGTON COUNTY

Hayters Gap site (roadcuts)—near Hayters Gap
pyritized ammonoids

North Fork Holston River—near Hayters Gap
calcite, celestite

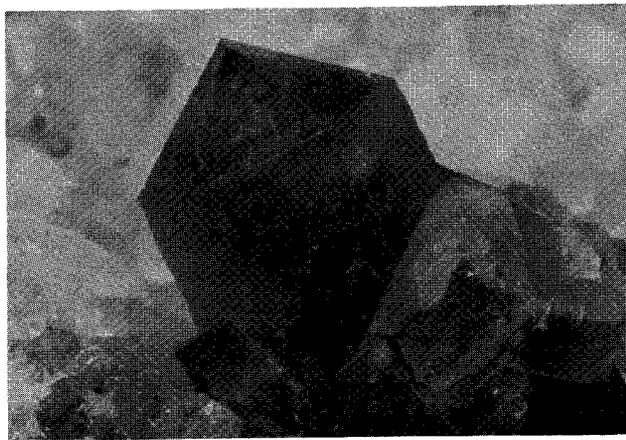
WISE COUNTY

Belton quarry—near East Stone Gap
celestite, calcian strontianite

East Stone Gap quarry—near East Stone Gap
calcite, celestite, calcian strontianite

WYTHE COUNTY

New Jersey Zinc mine (c)—near Austinville
anhydrite, calcite, fluorite, galena, hemimorphite,
pyrite, smithsonite, sphalerite



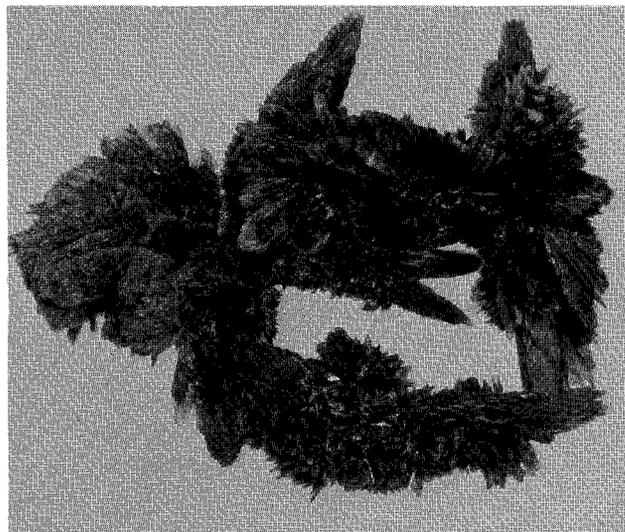
Celestite; 0.8 inch in length; East Stone Gap quarry, Wise County. T. M. Gathright, II, photograph; D. Allen Penick specimen.

CITIES

City of Fredericksburg (along Hazel Run)
alunogen, jarosite, cobaltian pickeringite, tridymite after wood

City of Richmond
diamond (23¼ carat Dewey diamond found in 1855), vivianite

City of Virginia Beach (c)
clam geodes with calcite crystals



Vivianite from Richmond; greatest dimension approximately 7 inches; photograph courtesy of the Smithsonian Institution.



Diamond (Dewey Diamond); 23¼ carats; found in Richmond (area once named Manchester) in 1855. Largest diamond found in the U.S. until 1884. Photograph courtesy of Smithsonian Institution.

ACKNOWLEDGMENTS

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NEW PUBLICATIONS

PUBLICATION 62

Minerals for Virginia by Harry W. Webb and John P. Moore; 36 p., 1985.

\$3.00

PUBLICATION 63

(In Progress)

PUBLICATION 64

Geology of the Ashland Quadrangle, Virginia by Robert E. Weems; 1:24,000-scale color map with text, one sheet, 1986.

\$9.00

PUBLICATION 65

Geology of the Norton Quadrangle, Virginia by Jack E. Nolde, James A. Lovett, William W. Whitlock, and Ralph L. Miller; 1:24,000-scale, color map, with text and stratigraphic section, one sheet, 1986.

\$9.00

PUBLICATION 66

PART 1

Interpretive Seismic Profile Along Interstate I-64 in Central Virginia from the Valley and Ridge to the Coastal Plain by Leonard D. Harris, Wallace deWitt, Jr., and Kenneth C. Bayer; single two-color sheet modified from U.S. Geological Survey Chart OC-123, 1986.

\$5.00

PART 2

(In Progress)

PUBLICATION 67

High-silica Resources in Alleghany, Botetourt, Craig, and Roanoke Counties, Virginia by Palmer C. Sweet and Gerald P. Wilkes; 22 p., 1986.

\$3.00

PUBLICATION 68

Clay-material Samples Collected 1981-1984 by Palmer C. Sweet; 107 p., 1986.

\$5.00

PUBLICATION 69

Geologic Map of Giles County, Virginia by A.P. Schultz, C.B. Stanley, T.M. Gathright, II, E.K. Rader, M.J. Bartholomew, S.E. Lewis, and N.H. Evans; 1:50,000-scale color map, one sheet, 1986.

\$12.00

PUBLICATION 70

Selected Slope Categories and Karst Features Map of Giles County, Virginia by Elizabeth V. Miller and David A. Hubbard, Jr.; 1:50,000-scale, two-color map, one sheet, 1986.

\$2.50

MINERAL UPDATE

BRUCITE FROM HIGHLAND COUNTY, VIRGINIA

William F. Giannini, Richard S. Mitchell,¹ and Robert W. Mann¹

Brucite, a magnesium hydroxide mineral, has recently been found as an important constituent in a contact metamorphic marble in Highland County. This brucite marble occurs as a zone in dolomite in the Beekmantown Group of Lower Ordovician age near the top center of the southeastern wall in an abandoned quarry. The old quarry is located 2.5 miles northeast of Hightown on the southeastern side of Route 640 (Figure) and was formerly operated by the State of Virginia for road stone. The contact metamorphic zone, which is visible approximately 30 feet along bedding, is approximately 5 feet thick below its contact with a porphyritic andesite dike of Middle Eocene age (Fullgar and Bottino, 1969; Rader, Gathright, II, and Marr, Jr., 1986; and Rader and Griffin, 1960). The resulting marble zone contains an intimate mixture of calcite, brucite, and minor serpentine. Dislodged blocks of the brucite marble to 2 feet across have been found on the quarry floor directly below the outcrop. The weathered surfaces of most blocks are mottled dark gray to black with white; however, fresh exposures exhibit a stark white, cryptocrystalline marble, often with zones of pale blue, green, yellow, or purple.

A quantitative X-ray diffraction study was made of specimens from the deposit, and it was determined that the typical marble contains 17 percent brucite and 83 percent calcite by weight. In rock nomenclature brucite marble, in which calcite is greater than brucite, is traditionally named predazzite. Those marbles known to have calcite nearly equal to brucite are named pencaite. In the ideal contact metamorphic environment, the original sedimentary dolomite rock ($\text{CaMg}(\text{CO}_3)_2$) decomposes to form calcite (CaCO_3) and periclase (MgO). However, with the presence of water, brucite ($\text{Mg}(\text{OH})_2$) is often formed instead of periclase. No periclase was observed here. Although there are numerous igneous intrusions in the area, other occurrences of brucite marble are not known in Highland County. If they exist, they will probably be limited to zones bordering intrusions into the Beekmantown Group carbonates since these are the

only rocks containing significant dolomite beds within the intrusive provenance.

The mineral brucite, containing 69 percent magnesium oxide, can be used as a source of magnesium metal or magnesium compounds. Kramer (1986) notes that 54 percent of the metal consumed in the United States in 1985 was for the manufacture of aluminum-base alloys while almost 80 percent of the compounds was for the production of basic refractories used in high temperature metallurgical furnaces.

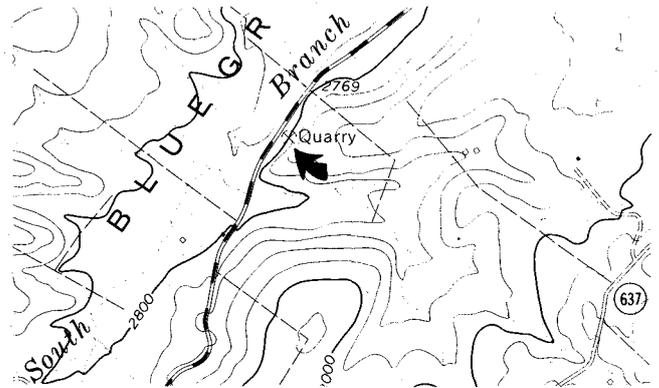


Figure. Location of quarry containing brucite marble, Highland County, 2.5 miles northeast of Hightown and Route 250 (Monterey 7.5-minute topographic map).

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- Rader, E. K. and Griffin, V. S., 1960, A petrographic study of some dikes in a quarry in Bluegrass Valley, Highland County, Virginia (Abstract): *Virginia Jour. Sci.*, vol. 11, no. 4, p. 213.

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SCHEDULED MEETINGS

May 1-3 National Association of Geology Teachers Eastern Section annual meeting and field trips in Stone Ridge, New York (Lawrence R. Matson, Department of Geology, Ulster County Community College, Stone Ridge, NY 12484 (914) 687-7621 ext. 371).

May 11-14 Geology of the Early Mesozoic Basins of Eastern North America, Reston, Virginia (Jean Flynt, 926a National Center, U.S.G.S., Reston, Virginia).

May 21 and 22 Geology Section meeting of the Virginia Academy of Science at ODU in Norfolk. In addition to the regular meeting and presentations, a symposium on applied geology (environmental and engineering) will be held. (Jack Nolde, Virginia Division of Mineral Resources, P.O. Box 144, Abingdon, VA 24210 (703) 628-3940).

October 7 and 8 Virginia Solid Waste Management Association meeting in Roanoke (Ms. Lynn McKinney telephone (703) 783-5103)

MINERAL RESOURCE VIDEOS

Two videotapes about the variety and importance of Virginia's mineral resources are now available for free loan to organizations from the Charlottesville based Division of Mineral Resources, Virginia Department of Mines, Minerals and Energy. A twenty-minute video "We Need Virginia Minerals" is made available by the Virginia Aggregates Association and an hour video produced by WHRO-TV is entitled "Mineral Resources".

These one-half-inch videotapes provide information about the uses and locations of Virginia's mineral resources. Visits to extractive industries show how useful materials are obtained at LeSeur Richmond Slate Corp., Luck Stone Corp. (crushed stone), Kyanite Mining Corp. and Lone Star Cement, Inc. (sand and gravel). "Mineral Resources" presents Palmer Sweet of the Division staff describing the variety of the State's mineral, oil and gas, and coal resources, with illustrative graphs, charts, and slides. "We Need Virginia Minerals" is an innovative presentation about Thomas Jefferson's reactions to today's uses of mineral resources.

Both videos can be obtained on request for free loan to civic, service, and educational organizations from the Division of Mineral Resources, P.O. Box 3667, Charlottesville, VA 22903.