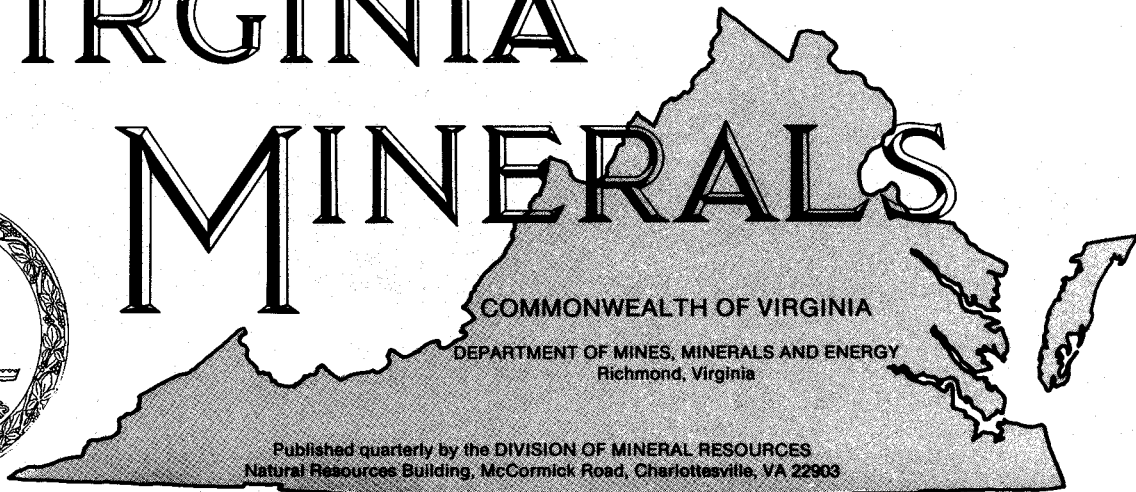


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INTERESTING USES OF STONE IN VIRGINIA - PART II

Harry W. Webb¹ and Palmer C. Sweet

The purpose of this article is to provide information on the locations and uses of various types of dimension stone in Virginia. Architectural terms are defined in the Appendix (Virginia Minerals, v. 38, n. 4, 1992). A list of examples of interesting stone and brick features in most of the counties and cities follows the introduction (Localities beginning with "A" are published in "Virginia Minerals", v. 38, n. 4, November 1992). Figures, previous to number 18, referenced in this text are in "Virginia Minerals", v. 38, n. 4. This list is not a comprehensive survey of all stone and brick construction in the state; it presents only those interesting uses visible from the public roads. Each place on the list was visited, photographed, and described. The more recent uses of crushed stone in exposed aggregate panels and construction are not included herein. It is hoped that those interested in historic preservation will research the uses of stone and brick in their local areas and determine where the materials came from and the workmen who used them.

Dimension stone has been used in Virginia for the construction of buildings, monuments, bridges, iron furnaces, dams, place markers, sidewalks, mills, locks, forts, overlooks, streets, light-houses, and towers since the days of the early colonists. The stone used for construction purposes in Virginia was obtained locally, from other states, and from foreign countries. For example, most of the fossiliferous, fragmental limestone described in building use probably came from Indiana. Most of the stone used has been shaped by masons with various types of finishes and sometimes with carved ornamentation. In places, local field stones have been used with little or no shaping.

LIST OF USES OF STONE AND BRICK

Following is a list of a number of interesting uses of stone and brick in the state. Localities are listed alphabetically by county/city. The listing includes county or city, example name, specific location in parenthesis, and description of the stone or brick used. Completion or dedication dates are indicated for many examples. Abbreviations used for locations are SH-State Highway; SR-State Road; USH-U.S. Highway; IH-Interstate Highway. Dates with "c" are approximate. See Appendix for definitions of architectural terms (Virginia Minerals, v. 38, n. 4).

<u>County/City</u>	<u>Name(Location)Description</u>
Bath	Confederate monument (Warm Springs); marble statue on granite base Douthat Lake dam (Douthat State Park SR629); sandstone-faced dam; 1934
Bedford	Norfolk and Southern Railway station (City of Bedford); faced with reddish-brown sandstone (Figure 18) Dominion Bank (City of Bedford); ground floor faced with squares of red and black granite and with white exposed aggregate concrete; columns and belt course with black granite Courthouse (City of Bedford); constructed of brick with steps of granite and columns of fossiliferous, fragmental limestone; 1930
Bland	Confederate monument (Bland); marble statue on granite, castle-like tower base; 1911
Botetourt	Roaring Run furnace (near SR621 at George Washington National Forest Roaring Run Recreation Site); furnace constructed of sandstone blocks Lime kilns (Eagle Rock); kilns constructed of limestone with brick air vents Blue Ridge Parkway bridge overpass (USH460 at Parkway); bridge arch faced with granite
Brunswick	Confederate monument (Lawrenceville); statue of granite, base with carved flag, stone from Dinwiddie Co.; 1911 Brunswick Bank and Trust Co. (Lawrenceville); base faced with granite and with fossiliferous, fragmental limestone above St. Paul's Church (Lawrenceville at St. Paul's College); constructed of bricks made by students, sandstone sills and buttress caps; black slate roof; 1904 Highway direction marker (Junction SR606 and 670 east of Lawrenceville); granite stone marker inscribed with road directions and date 1794 (Figure 19)
Buckingham	County sign (VH20); slate sign with carved inscription "BUCKINGHAM COUNTY" (Figure 14) Lotus Temple (Yogaville, SR604); temple with colored tiles, landscape ornaments of red and black granite from India Church (Arvonion); patterned roof and facing of slate from nearby quarries

¹ Deceased

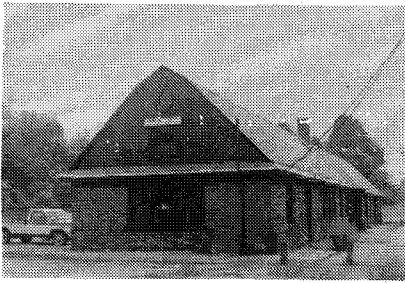


Figure 18. Norfolk and Southern Railway station, City of Bedford



Figure 19. Highway direction marker, Brunswick County



Figure 20. Patterned brick, Charlotte, Charlotte County

Buena Vista	Administration building Southern Seminary College (Buena Vista); constructed of brick with granite door and window trim, slate roof	arch bridge of local granite; 1823 Chesterfield Historical Society museum (Chesterfield); first floor, granite blocks with some drill holes and incised mason marks, and the date 1842; upper floor brick with granite trimmed windows; former jail Confederate monument (Chesterfield); monument base constructed of granite blocks
Campbell	United Methodist Church sign (Leesville); constructed of Mt. Athos quartzite, "Virginia Log", from nearby quarry Leggetts (Altavista); building faced with "Virginia Greenstone" from Lynchburg and with quartz exposed-aggregate Vista Theater (Altavista); building faced with black-veined serpentinite	Clarke Confederate monument (Berryville); soldier statue with granite base Christ Episcopal Church (SH255 near Briggs); constructed of limestone with slate roof; 1928 cornerstone Old Chapel (SH255 at Millwood); constructed of limestone; 1796 (note: granite Confederate monument in adjacent cemetery)
Caroline	Confederate monument (Bowling Green); statue with granite base (chiseled with name J. H. Brown, Richmond-1906) Former Alcoholic Beverage Control store (Bowling Green); faced with "Virginia Greenstone" from Lynchburg under window with fossiliferous, fragmental limestone above and to side	Clifton Forge World War I monument (Sixth and Ridgeway streets); "Virginia Greenstone" from Lynchburg with carved design on top First National Bank (Main Street); ground floor sided with gray, black and red granite squares; adjacent decorative landscape display composed of granite blocks bordered with exposed concrete aggregate
Carroll	Courthouse (Hillsville); constructed of brick with granite columns, bases, and arches trim; 1870	Covington Allegheny County Courthouse (Monroe Ave.); faced with ashlar granite; columns and window sill of fossiliferous, fragmental limestone; material above front windows is artificial stone; 1910 Confederate monument (Monroe Avenue at Courthouse); statue of marble on granite base with carved polished spheres and flag; 1911
Charles City	Confederate monument (Charles City); granite obelisk; 1900 Westover Church (SH5 west of Bowens Store); brick colonial period church; 1731	Craig Confederate monument (Newcastle); granite statue on granite base with carved flag; 1912
Charlotte	Confederate monument (Charlotte Court House); marble statue with granite castle-like tower base; 1901 Clerk's office (Charlotte Court House) constructed of brick in interesting patterns Court House (Charlotte Court House); constructed of brick patterned with "sun" designs on portico floor (Figure 20)	Culpeper Little Fork Church (SR802 near junction SH229); colonial period church with Flemish bond brickwork, headers with ceramic glaze finish, rubbed brick at corners; 1776 Fairview Cemetery wall (USH522 west of Culpeper); outer wall of red and green sandstone rubble from Culpeper County Post Office (Culpeper); exterior of granite blocks with quoins and sills of fossiliferous, fragmental limestone Culpeper County Courthouse (Culpeper); entry steps of gray granite overlain by reddish-brown sandstone; 1870 Lower Rapidan Baptist Church (Rapidan); foundation constructed of concrete blocks that resemble stone
Charlottesville	Christ Episcopal Church (High Street); granite exterior with different finishes and carvings, stone from Richmond Jefferson-Madison Regional Library (Market Street); steps of granite from South Carolina; columns, belt course, and door/window trim of marble from Georgia (Figure 21) Keller and George Jewelers (Main St.); faced with verd antique from Italy adjacent to entrance and marble from Vermont above entrance Lee statue (Jefferson Street); bronze statue, granite base with ornamental carvings and battle names; 1924 (Figure 22) Soapstone statue (High Street, Juvenile Court); carved from Nelson County soapstone (Figure 23) Centel building (Main Street); foundation faced with granite; windows bordered with fossiliferous, fragmental limestone; marble spandrels; entry portico faced with Vermont marble (Figure 24) Sovran Bank (Emmet Street at Barracks Road); first floor faced with Buckingham County slate Jefferson Statue (University of Virginia Rotunda north side); bronze statue with Italian marble base; 1907 Chapel (University of Virginia); constructed of metamorphosed sandstone ashlar construction exterior with black patterned slate roof; 1890	Cumberland Trenton Mills (SR613 at Trenton Mills); four-story mill constructed of local gneiss with slate roof Jones Chapel Baptist Church (SR617 near Trents Mill); faced with rubble quartzite and schist; quoins of ashlar granite; millstones from Tennessee in front wall on both sides of door Confederate monument (Cumberland); granite obelisk with several contrasting ornamentations
Chesterfield	Falling Creek bridge (USH1 south of Richmond); multiple	Danville Texaco Station (N. Main Street); partially faced with "Virginia Log" quartzite from Campbell County (Figure 9) Post Office (S. Main at S. Ridge streets); ground floor faced



Figure 21. Jefferson-Madison Regional Library, City of Charlottesville

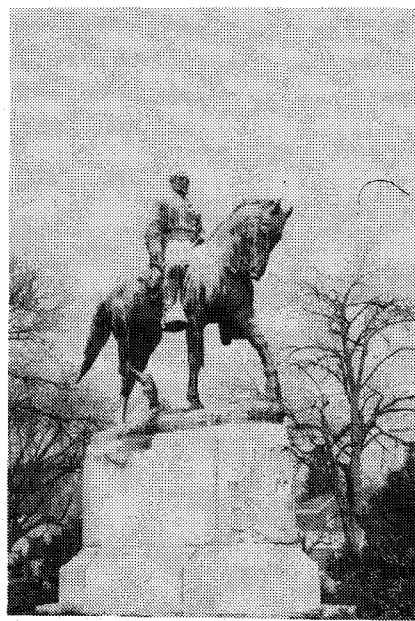


Figure 22. Lee Statue, City of Charlottesville

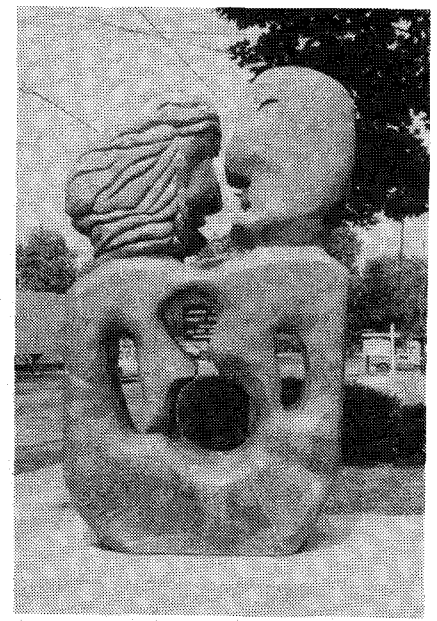


Figure 23 Soapstone statue, City of Charlottesville

with gneiss; upper floors with fossiliferous, fragmental limestone; interior lobby floor with stylonitic limestone with large coral fragments bordered by "Virginia Greenstone" from Lynchburg;

Main Street Methodist Church (S. Main Street); church faced with unique patterns of brick; belt courses, sills and ornamental columns of sandstone; entry steps of granite
The Register - The Bee building (Patton St); faced with granite with fluted columns and ornamented with floral and animal designs

- Dinwiddie** Confederate monument (Dinwiddie); statue of granite with granite base in shape of castle tower with carved flag
- Emporia** Central Fidelity Bank, formerly The Citizens National Bank (Main at Brunswick streets); foundation faced with granite, front faced with fossiliferous, fragmental limestone with fluted columns and carved ornamentation
Confederate monument (Main Street at courthouse); statue and base of granite from Greensville County; 1910
- Essex** Confederate monument (Tappahannock); statue and base granite; 1906 (Figure 25)
- Fairfax** Courthouse (Fairfax Street); constructed of brick Flemish bond construction with sandstone belt courses and keystones
Pohick Church (USH1 just west of Ft. Belvoir); colonial period brick church with sandstone quoins and door-facing; 1794 (Figure 10)
George Washington Historical Grist Mill (VH235 near junction USH1); five-story mill constructed of Aquia sandstone from Stafford County; 1932 restoration (Figure 26)
- Falls Church,** St. James Catholic Church (905 Park Ave.); constructed of local pink and gray granite with sills and window trim of fossiliferous, fragmental limestone; entry steps of granite; slate roof; 1902; 1952
Falls Church Presbyterian Church (225 E. Broad Street); constructed of local pink granite with window sills and buttress caps of red sandstone; slate patterned roof; 1884 with later additions
Original District of Columbia northwest boundary stone (Meridian Avenue); rough stone with carved inscription
- Fauquier** Warrenton House (SR802 Fauquier White Sulphur Springs);

constructed of brick with slate roof (probably from local quarry); 1830

Museum (Warrenton); former jail constructed of 30" thick ashlar blocks of quartzite, window sills and top of exercise yard wall of reddish-brown sandstone; 1808; 1824

Courthouse (Warrenton); front steps and column bases of reddish-brown sandstone; portico floored with reddish-brown and gray sandstone squares; 1893

Grace Episcopal Church (The Plains); constructed of ashlar and rubble blocks of greenstone, basalt, and quartzite; slate roof; arches with brick ornamentation; 1918

Floyd

Bank of Floyd (Floyd); entrance faced with polished granite; window trim of fragmental, fossiliferous limestone; spandrels of granite

Floyd Press (Floyd); building constructed of local soapstone cut to brick size

Willis Baptist Church (USH221 at Willis); faced with quartz fieldstone; constructed 1954 for Rev. Robert Childress as a Presbyterian church

Fluvanna

Courthouse (Palmyra); constructed of brick with granite steps from local source; foundation, granite sill over cut schist blocks; 1830

Historical Museum (Palmyra); former jail constructed of quartzite and schist blocks courses resemble Flemish bond; slate roof; 1828 (Figure 27)

Confederate monument (Palmyra); marble sphere with granite base

Baptist Church (Fork Union); constructed of brick with Buckingham County slate walkway and patterned roof and siding

Franklin(City)

Confederate monument (Meadow Lane and Clay streets); marble statue on granite base; 1911

Franklin

Trinity Episcopal Church (Rocky Mount); constructed of local gneiss and other metamorphic rocks; inscription on north side reads "JP McNeil 1906"

Confederate monument (Rocky Mount); Castle-like tower granite base with marble statue

Frederick

Hopewell Meeting House (SR672 west of IH81 junction); constructed of local limestone and dolomite; 1789
Grace Methodist Church (Middletown); constructed of



Figure 24 Centel building, City of Charlottesville

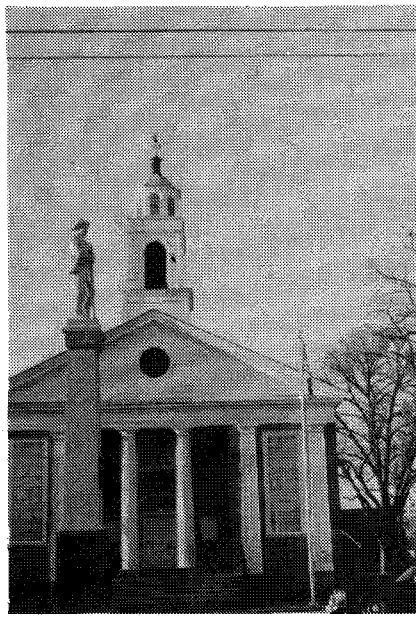


Figure 25. Confederate monument, Tappahannock, Essex County

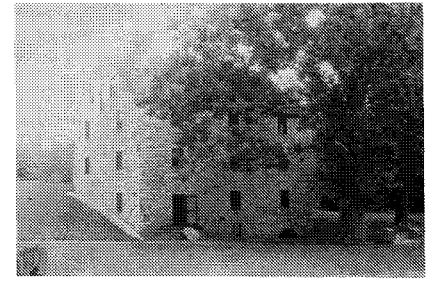


Figure 26. George Washington Historical Grist Mill, Fairfax County

blocks of limestone with patterned slate under eaves and on roof

Ft. Stephens (SR628); hexagonal building constructed of local limestone before Revolutionary War

Fredericksburg "Cartwright House" (Washington St.); constructed of local "Battlefield granite" with slate roof as promotional for stone houses; 1905

First Virginia Bank (Caroline at William streets); constructed of brick with "Aquia" sandstone foundation, quoins and window/door trim

Gatekeepers House, Fredericksburg National Military Cemetery (Sunken Road at Lafayette Street); constructed of blocks of "Aquia" sandstone with patterned slate roof; 1880

Angel of Mary's Heights statue (Fredericksburg National Military Park visitors center); bronze sculpture with marble base; 1965

Penecostal Church (Prince Edward St); former Trinity Episcopal church, faced with slate and granite; roof of slate; 1881 (Figure 28)

Colonial warehouse (Sophia at William streets); constructed of ashlar blocks with tool marks, "Aquia" sandstone; prior to 1760

Giles

Confederate monument (Pearisburg); granite base; 1909

Millstone (Pearisburg, Courthouse grounds); conglomeratic sandstone

Mountain Lake Hotel (Mountain Lake); constructed mostly of local sandstone and quartzite rubble; sills of cut stone

Gloucester

Confederate monument (Gloucester); granite obelisk monument; 1889

Court House (Gloucester); constructed of brick with entry porch of sandstone bordered by granite; 1766

Goochland

Stone Center, Luck Stone Corporation (SH6 at Manakin); faced with local granite rubble; entry flagstone from Pennsylvania; Stone Center exhibits examples of uses of domestic and foreign stone (Figure 29)

Jail (Goochland); constructed of gneiss and quartz rubble; 1848

Confederate monument (Goochland); granite obelisk

Grayson

Confederate monument (Independence); marble soldier from Italy on base of granite from Richmond; 1911

Courthouse (Independence); building constructed of brick from Kentucky with unique six-sided turrets at building corners; slate roof; 1908

Greene

Confederate monument (Stanardsville); marble obelisk with limestone base; 1932

Chapel, Blue Ridge School (SR627 near Dyke); rubble construction of greenstone, granite, and gneiss; walkway of slate and siltstone; 1929

Halifax

Confederate monument (Halifax); marble soldier with granite base

Alcoholic Beverage Control store (Halifax); faced with fossiliferous, fragmental limestone above window and with "Virginia Greenstone" from Lynchburg below window

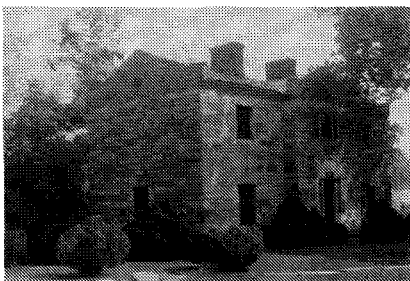


Figure 27. Fluvanna County Historical Museum, Palmyra



Figure 28. Penecostal Church, City of Fredericksburg

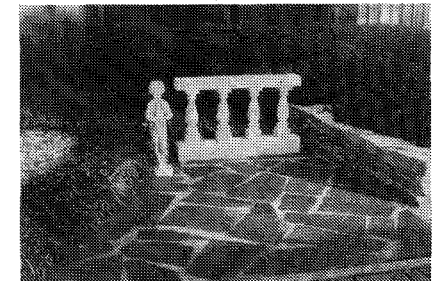


Figure 29. Stone Center examples of stone uses, Manakin, Goochland County

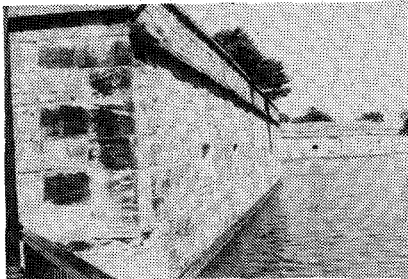


Figure 30. Fort Monroe, City of Hampton

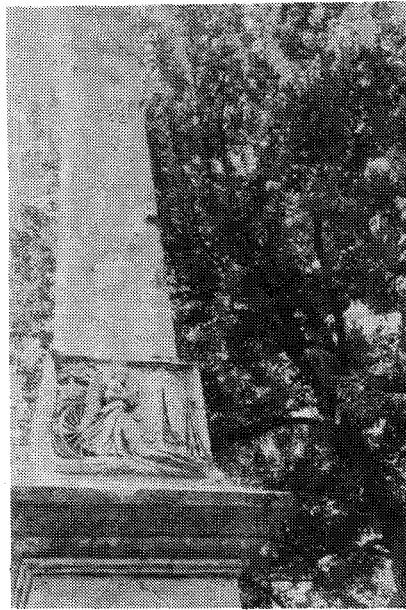


Figure 31. Confederate monument, Lancaster County

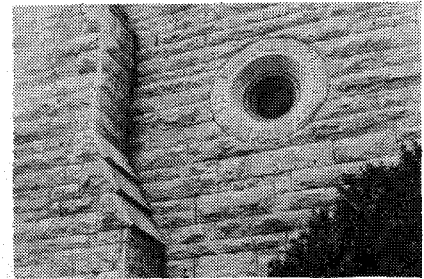


Figure 32. R. E. Lee Methodist Church, City of Lexington

- | | | |
|----------------------|--|--|
| Hampton | Fort Monroe (US258 eastern terminus); constructed of granite blocks with wall corners, windows, and entryways faced with sandstone (Figure 30) | Modlin Printing (Smithfield); former Alcoholic Beverage Control store; faced with "Virginia Greenstone" from Lynchburg below window and limestone from Indiana above window |
| Hanover | Confederate monument (Hanover); granite obelisk with carved flags and weapons
Former jail (Hanover); constructed of large sandstone blocks with tool marks; slate roof; 1840 | Confederate monument (Isle of Wight); soldier on granite base; 1905 |
| Harrisonburg | Asbury United Methodist Church (South Main St.); large multi-story building constructed of sandstone from Pennsylvania; slate roof; 1912
Courthouse (Court House square); faced with fossiliferous, fragmental limestone with some carved ornamentation; calcilutite foundation; 1897
Post Office (North Main St.); front of upper floors faced with marble; spandrels of "Virginia Greenstone" from Lynchburg; marble sills and belt course; granite steps; 1940
Harrison House (Bruce Street near S. Main Street); constructed of local limestone rubble; home of founder of Harrisonburg, Thomas Harrison; 1753
James Madison University (S. Main Street); older buildings constructed mostly of local limestone (Figure 7) | Colonial Parkway bridge overpass (South of Williamsburg); faced with brick in English bond with fossiliferous, fragmental limestone keystone and buttress caps |
| Henry | Patrick Henry monument (SR620 near junction SR803); constructed of granite with rough cut border | King and Queen Confederate monument (King and Queen Court House); granite obelisk with carved flags and weapons
Mattaponi Church (SH14 south of Cumnor); colonial period brick church with cruciform shape and glazed headers; rubbed brick for door facing; slate roof; c1755 |
| Highland | United Methodist Church (Blue Grass); constructed of sandstone and quartzite rubble with limestone window trim; 1924
Montvalle Motel (Monterey); faced with limestone from Rockingham County
Singleton law office (Monterey); constructed of sandstone and quartzite rubble with limestone sills, lintels and ornamentation
Stone observation platform (USH 250, Shenandoah Mountain summit); wall constructed of sandstone containing <i>Arthropycus</i> fossils | King George St. Pauls Church (SR632 near Berthaville); colonial period brick church, Flemish bond with cruciform shape; metal roof patterned like slate; 1767
Confederate monument (King George); granite |
| Isle of Wight | St. Lukes Church (USH258 at Benns Church); colonial period church with interesting examples of ornamental brick work; 1632
Museum (former Bank of Smithfield); faced with pink and gray marble at street level overlain by fossiliferous, fragmental limestone with some ornamentation | King William Confederate monument (King William); marble soldier on granite base with attached stone spheres |
| | | Lancaster Confederate monument (Lancaster); marble obelisk with carved angel and soldier scene; 1872 (Figure 31)
Alcoholic Beverage Control store (Kilmamock); faced with "Virginia Greenstone" from Lynchburg below window and limestone from Indiana above window
Chesapeake National Bank (Kilmamock); faced with verde antique marble
Christ Church (SR646 near Irvington); colonial period church constructed of brick with sandstone doorway ornamentation and window keystones, granite entry steps, and interior aisles of limestone from England; cruciform shape; rubbed brick at building corners and around doors; slate roof from Buckingham County; construction funds from Robert "King" Carter; 1732 |
| | | Lexington Stone house (Randolph Street); constructed of local vein quartz rubble
R. E. Lee Methodist Church (Washington St.); constructed of local limestone with some carving and tool marks (Figure 32)
Stonewall Jackson monument (Virginia Military Institute); bronze equestrian figure on base of Italian tufa on granite subbase |

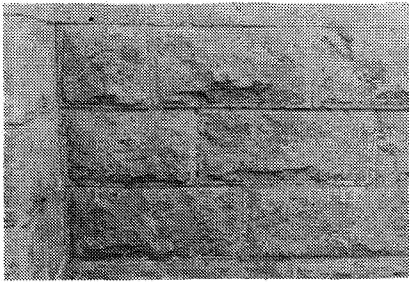


Figure 33. Mason marks, City of Lynchburg

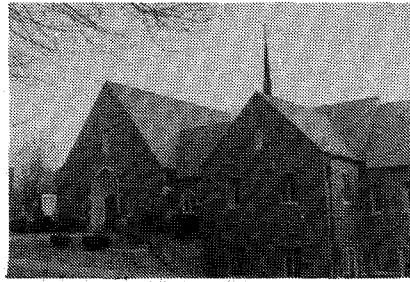


Figure 34. Holy Trinity Lutheran Church, City of Lynchburg

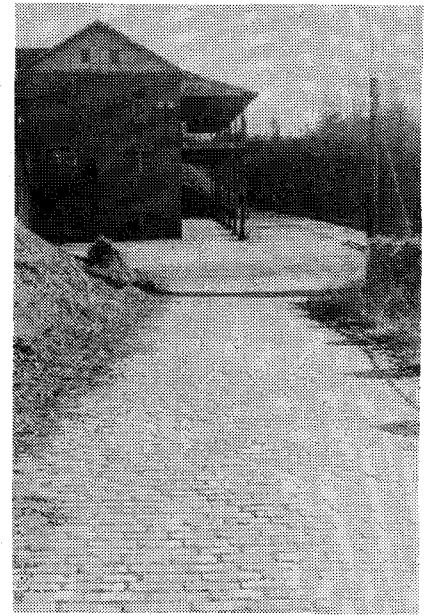


Figure 35. Street paving blocks, City of Lynchburg

	Brick sidewalk (Washington Street near Randolph Street); bricks with concentric circles and "sun" ornamentation				
Loudoun	St. James Episcopal Church (Leesburg); constructed of blocks of limestone conglomerate with reddish-brown sandstone door and window facings; soapstone sidewalk; slate roof; 1895 (Figure 1) First American Bank (Leesburg); first floor faced with ashlar diabase Rampdon building (Purcellville); constructed of locally produced concrete blocks resembling stone; 1908 Stone bridge (USH50 at Aldie); double-arch bridge of rubble sandstone, greenstone, diabase, and quartzite; c1824				
Louisa	Battle of Trevilians monument (SH22 near junction SR613); limestone blocks on concrete base Confederate monument (Louisa); granite from quarry in Richmond area with copper plate inset; 1905 Courthouse (Louisa); columns of fossiliferous fragmental limestone with window trim and keystone of sandstone; 1905				
Lunenburg	Confederate monument (Lunenburg); marble soldier on granite base with carved flag				
Lynchburg	Quaker Meeting House (Fort Ave.); constructed of local "Virginia Greenstone" rubble with patterned slate roof; 1757; remodeled 1904 Court Street Methodist Church (Court Street); facing of sandstone from Kentucky with slate roof Post Office (Church Street); constructed of blocks of fossiliferous, fragmental limestone that shows bedding and bioturbation features Allied Arts building (Church Street); first floor faced with local "Virginia Greenstone" and entrance faced with granite Former Courthouse (Court Street); granite foundation with numerous mason and drill marks; stuccoed exterior scored to resemble stone; adjoining sidewalk constructed of gneiss; 1855 (Figure 33) Holy Trinity Lutheran Church (Langhorne Road); constructed of local "Virginia Greenstone" with slate roof and concrete facing around door (Figure 34) Street paving blocks (Amtrak station); granite blocks from North Carolina (Figure 35) Sidewalk bricks (Randolph Macon College); bricks from				
					Smyth County imprinted with name "Chilhowee" Stone bridge, James River Canal (Ninth Street near James River); gneiss blocks with keystone inscription "1839 by JS King" (Figure 36)
		Madison			Confederate monument (Madison); soldier on granite base with carved State seal Former Alcoholic Beverage Control store (Madison); "Virginia Greenstone" from Lynchburg below window and limestone from Indiana above window
		Martinsville			Confederate monument (Courthouse); marble soldier on castle-like tower granite base; 1901 Building (24 Main Street); granite siding, keystones and trim Post Office (Church Street); foundation "Virginia Greenstone" from Lynchburg, with granite steps
		Mathews			Confederate monument (Mathews); marble soldier on granite base with carved flag
		Mecklenburg			Confederate monument (Boydton); granite base with chiseled designs Alcoholic Beverage Control store (Boydton); "Virginia Greenstone" from Lynchburg under window and limestone from Indiana above window Riprap, Buggs Island Lake (SH4 at John H. Kerr Dam); large local granite blocks bordering road
		Middlesex			Confederate monument (Saluda); polished granite column and sphere on granite base with carved Confederate flag; 1910 Christ Church (SR638 at Christ Church); colonial period brick church, Flemish bond with window sills of siltstone; 1714
		Montgomery			Newman Library, VPI&SU (Blacksburg); constructed of local limestone with door and window trim of fossiliferous, fragmental limestone Cenotaph war memorial VPI&SU (Blacksburg); gneiss (age 3.2 billion years) from Minnesota University Bookstore (VPI&SU Blacksburg); constructed of limestone and uneven dolomite blocks (Figure 6) Leggetts Department Store (Christiansburg); faced with "Virginia Greenstone" from Lynchburg

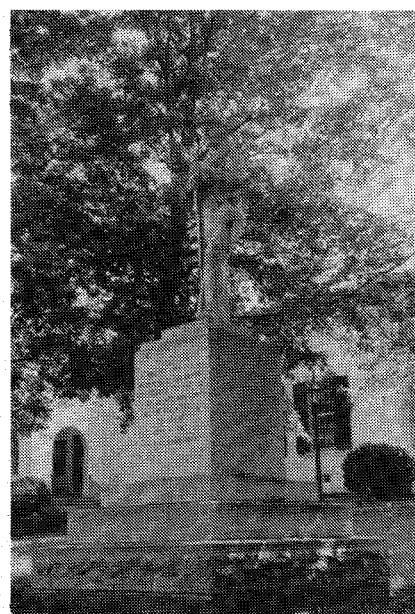
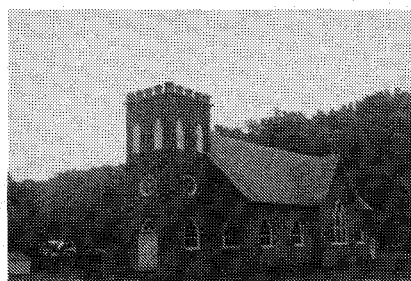
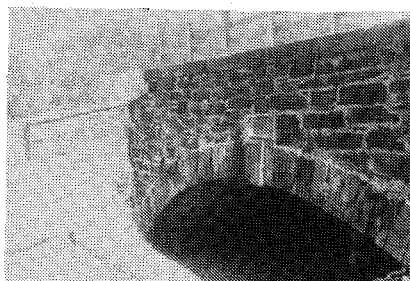


Figure 36. James River Canal stone bridge, City of Lynchburg

Figure 37. Rockfish Presbyterian Church, Nelson County

Figure 38. Confederate monument, Lovingston, Nelson County

Nelson	<p>Rockfish Presbyterian Church (SR664 near junction SH151); constructed of granite, greenstone, and quartz rounded boulders with a slate roof (Figure 37)</p> <p>Confederate monument (Lovingston); soldier on uniquely carved granite base; 1965 (Figure 38)</p> <p>Midway Mills (SR743 at James River); four story mill constructed of reddish-brown sandstone from local quarry with granite window and door sills; slate roof; c1785</p> <p>Aqueduct supports, James River Canal (SR626 at Rockfish River crossing); blocks of granite with drill marks; some conglomerate blocks on southwest side (Figure 39)</p>	Nottoway	<p>Granite house (Crewe); model house to promote construction using granite blocks from Burkeville; 1939</p> <p>Confederate monument (Nottoway Courthouse); soldier on marble base; 1893</p>
New Kent	<p>Confederate monument (New Kent); granite obelisk</p> <p>St. Peters Church (SR642 near junction SR609); colonial period brick church, Flemish bond with glazed headers; slate roof; possible site of marriage of George Washington (Figure 40)</p>	Orange	<p>Confederate monument (Orange); granite base with carved state seal; 1900</p> <p>Jefferson National Bank (Orange); foundation faced with granite; front and columns of fossiliferous, fragmental limestone</p> <p>Office, Virginia Power (USH15 south of Orange); partially faced with gneiss from Hanover County</p>
Norfolk	<p>St. Pauls Church (201 St. Pauls Blvd.); colonial period brick church with siltstone window sills and patterned black and red slate roof; cannonball from 1776 bombardment embedded in east wall; 1739</p> <p>MacArthur Memorial (MacArthur Square); steps, columns and building front of granite (in part now stuccoed); front walkway of granite blocks; 1850</p> <p>Confederate monument (Main St.); tall granite column from Vermont with carved ornamentation; 1907</p>	Page	<p>Belle Brown Northcott Memorial Tower (Luray near Luray Caverns); square stone tower constructed of sandstone and quartzite blocks from nearby Massanutten Mountains; 1937 (Figure 12)</p> <p>United Methodist Church (Luray); constructed of local limestone with concrete steps and sills; slate roof; 1899</p> <p>Confederate monument (Luray USH211 business); marble soldier on a limestone and dolomite square column base, marble from Loudoun County; (Figure 8)</p> <p>Headquarters building (Shenandoah National Park, USH 211); sandstone from Massanutten Mountains; 1940</p> <p>Skyland (Shenandoah National Park); sandstone for buildings and patios from Augusta County portion of Park</p>
Northampton	<p>Hungars Episcopal Church (SR619 near junction with SR622); colonial period brick church, Flemish bond; 1751</p> <p>Confederate monument (Eastville); soldier on granite column; 1913</p> <p>Sovran Bank (Charles City); multi-story building with facing and columns of fossiliferous, fragmental limestone</p>	Patrick	<p>Mayberry Presbyterian Church (SR602 near junction SR614); constructed of quartz fieldstone rubble; 1925 (Figure 41)</p> <p>Confederate monument to Confederate General Stuart (Stuart); granite base with carved flag and commemorative plaque; 1936</p>
Northumberland	<p>Confederate monument (Heathsville); unique marble statue of woman and anchor on marble column with carved vase and ornaments; 1873</p> <p>Former Alcoholic Beverage Control store (Heathsville); "Virginia Greenstone" from Lynchburg under window and limestone from Indiana above window</p> <p>Signet Bank (Reedsville); building with contrasting patterns and columns of brick (bases and capitols of granite); slate roof</p>	Petersburg	<p>Confederate Memorial Arch (Blandford Cemetery); multi-arch, constructed of local granite blocks and keystones; 1914</p> <p>Trinity Methodist Episcopal Church South (Sycamore Street); faced with fossiliferous, fragmental limestone showing some bioturbation; tower has carved wreaths around windows; 1921</p> <p>City Hall (Union Street); three story building sided with granite from Dinwiddie County; 1858</p> <p>Second Presbyterian Church (Washington Ave.); stucco exterior with reddish-brown sandstone door and window trim; 1862</p>

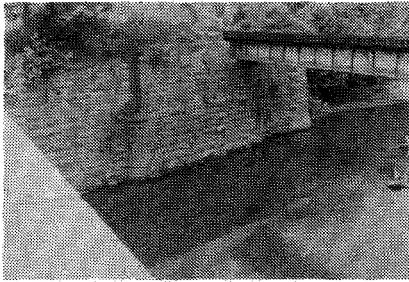


Figure 39. James River Canal aqueduct supports, Nelson County

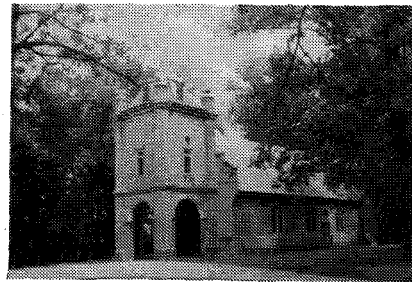


Figure 40. St. Peters Church, New Kent County



Figure 41. Mayberry Presbyterian Church, Patrick County

- Pittsylvania** Central Fidelity Bank (Chatham); facing and columns with pinkish-gray fossiliferous, cross-bedded, fragmental limestone with carved ornamentation
Confederate monument (Chatham); soldier of marble on base of granite with polished columns
Chatham Jewelry Co. (Chatham); faced with "Virginia Greenstone" from Lynchburg, top of facing has scalloped decoration
- Portsmouth** Court Street Baptist Church (Court Street); granite ashlar facing with fossiliferous, fragmental limestone door and window trim and belt courses; slate roof
St. Paul's Catholic Church (Washington and High Streets); ashlar stone facing in English bond style with door and window trim and belt courses of fossiliferous, fragmental limestone (note window on south side has carved head with wings); 1898
Confederate monument (Court Street); granite obelisk with carved designs
- Powhatan** Confederate monument (Powhatan); granite square column with flag and saber carving
- Prince Edward** Confederate monument (Farmville); square granite base with four polished columns
- Prince George** Merchants Hope Church (SR641 near junction with SH10); colonial period brick church, Flemish bond with glazed headers and rubbed brick at door, windows and wall corners; interior aisles, sandstone from England; 1657
Confederate monument (Prince George); granite obelisk, surrounded by fence with granite posts
- Prince William** Manassas Presbyterian Church (Manassas); constructed of local reddish-brown sandstone, numerous tool marks; 1875
Manassas museum (Manassas); constructed of brick with reddish-brown sandstone window and door trim, steps, quoins from local source; slate roof; constructed in 1896 as National Bank of Manassas
Confederate monument (Manassas Cemetery); large pyramid of reddish-brown sandstone from local source; 1889
Visitors Center (Manassas Battlefield Park); front of building partially faced with red and gray sandstone, some blocks with tool marks; 1940
Stone Bridge (USH29 at Bull Run crossing); double-arch bridge constructed of reddish-brown sandstone from just north of Bull Run, important in First Battle of Manassas; (reconstructed 1880s) (Figure 11)
Stone House tavern (USH29 near junction SH234); constructed of reddish-brown sandstone with cross bedding and worm burrows from nearby hillside; used as hospital during Civil War; c1820
Beverly Mills (visible from SH55 at Thoroughfare Gap); five story stone mill constructed of local quartzite; c1759
Mill House Museum (Occoquan); constructed of local granite; granite millstone in front; 1765
- Pulaski** Brick reservoir (Newbern); rounded brick reservoir; 1870 (restored 1965)
- Courthouse (Pulaski); constructed of sandstone from a local source; 1895; entry arch of limestone, sandstone and conglomerate, used at Jamestown Exposition, 1907
St. Edwards Catholic Church (Pulaski); foundation of church and educational wing faced with ashlar "Virginia Greenstone" from Lynchburg
- Rappahannock** Stone walls (USH522 south of Flint Hill); gneiss (Flint Hill Gneiss) and vein quartz fieldstones stacked to produce stone walls
Confederate monument (Washington); obelisk of marble from Loudoun County with carved face and horn on base of reddish-brown sandstone; ; surrounding planter wall of limestone
- Richmond (City)** Monumental Church (Broad Street); facing and columns of "Aquia sandstone" from Stafford County, which shows cross-bedding; exterior foyer floored with gray and creme marble; built as monument to those who died in Richmond Theater site during the war; 1814
Old City Hall (Broad Street); four story stone building constructed of local granite with carved designs at windows and doors; slate roof and flagstone from Buckingham County; 1894 (Figure 4)
State Library (Capitol Street); constructed of fossiliferous, fragmental limestone from Indiana; doorway faced with North Carolina granite; entry steps with Tennessee limestone; planters in front of Culpeper County diabase; 1939 (Figure 42)
Capitol (Bank Street); constructed of brick, stuccoed; on south side, granite steps from a local source and portico floored with Tennessee marble; inside hallways floored with squares of black fossiliferous Vermont limestone and white Italian marble; George Washington statue inside Capitol of Italian marble; 1792
Virginia Retirement System Office Building (1200 E. Main Street); first floor faced with reddish-brown sandstone with carvings of floral designs; constructed in 1893 as Planters National Bank building (Figure 44)
Bell Tower (Capitol Square); building constructed of local brick in Flemish bond pattern with granite steps and sandstone belt courses; 1824
United Virginia Bank Building (900 East Main Street); multi-story building faced with polished red granite from Texas
Fidelity Bankers Building (Ninth and Main Streets); columns and facing with veined serpentinite from Nelson County and gray marble from Italy
City Hall (Broad at Ninth Streets); faced with white Georgia marble; entry walk of Minnesota and Georgia gray granite; walls of interior foyer faced with diamond-matched tan Missouri, fossiliferous limestone, foyer columns sided with Tennessee black limestone; 1971
Virginia Science Museum (2500 W. Broad St.); exterior and columns constructed of Indiana fossiliferous, fragmental limestone with granite foundation; constructed in 1919 as the Union Station
Coburn Hall, Va. Union University (1500 N. Lombardy St.); constructed of local granite; slate roof; 1899; rear addition of concrete blocks shaped to match granite front and windows bordered by slate

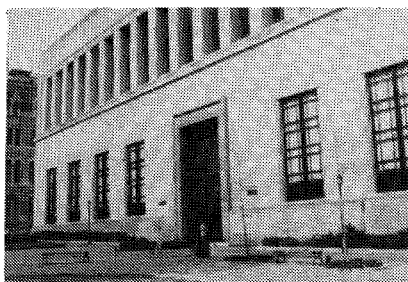


Figure 42. State Library, City of Richmond

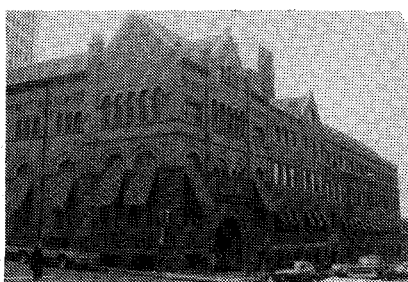


Figure 43. Virginia Retirement System building, City of Richmond



Figure 44. Dominion Bank, City of Richmond



Figure 45. Poe Museum, City of Richmond

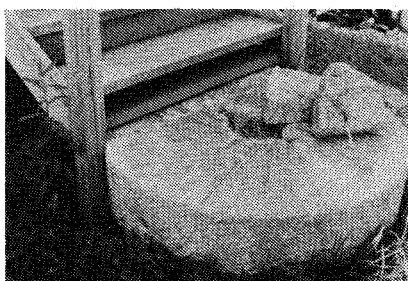


Figure 46. Millstones, Rockbridge County

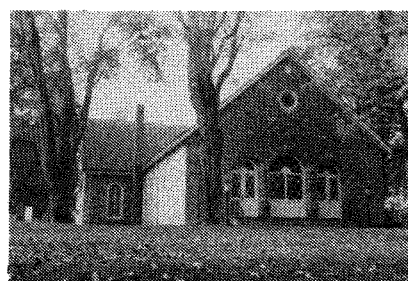


Figure 47. Timber Ridge Presbyterian Church, Rockbridge County

- Lee monument (Monument Ave. at Allen Street); bronze equestrian statue on granite base with carved ornamentation, granite from North Carolina; 1890
- Dominion National Bank Building of Richmond (815 E. Broad St.); faced with slate from Buckingham County (Figure 44)
- Poe Museum (1914 E. Main Street); oldest stone house in Richmond, constructed of granite rubble; mortar contains shell fragments; c1737 (Figure 45)
- Marshall House (E. Marshall at 9th streets); house constructed of brick in Richmond; c1789
- Richmond** Courthouse complex building (Warsaw); foundation constructed of large blocks of iron-cemented conglomeratic sandstone
- Roanoke (City)** St. Johns Episcopal Church (Jefferson at Elm Streets); constructed of limestone from Pulaski County with red sandstone window door and tower trim in front section (1892) with creme fossiliferous, fragmental limestone trim on windows and door in later addition (1957) to back of building; slate roof
- Chesapeake and Potomac building (Tazewell Ave.); faced with white marble from Georgia and black-veined serpentinite from Nelson County
- Greene Memorial Methodist Church (corner of Church at Second streets); faced with blocks of conglomerate from Pulaski County, soapstone steps, and slate roof (Figure 2)
- First Presbyterian Church (Jefferson at McClanahan streets); constructed of sandstone and quartzite from Roanoke County with fossiliferous, fragmental limestone door and window trim; slate roof; 1851; 1928 (Figure 13)
- Dominion Bank Building (Jefferson Street); exterior and columns faced with marble; carved lion heads at cornice
- Christ Evangelical Lutheran Church (Brandon at Grandin avenues intersection); faced with tooled "Virginia Greenstone" from Lynchburg with fossiliferous, fragmental limestone door and window trim; slate roof; 1948
- Virginia First Savings Bank Building (Jefferson at Church streets); partially faced with slate
- Roanoke** Chapel, Catawba Hospital (SH320); constructed of sandstone rubble; 1915
- Hanging Rock Battle monument (SH311 near intersection SH419); pyramid of sandstone; 1932
- Rockbridge** Wades Mill (SR604 near junction SR606); first floor constructed of limestone; at entrance are millstones of conglomerate and buhrstone (Figure 46)
- Mooney stone house (USH11 at Fairfield); constructed of limestone with larger blocks as quoins; c1780
- Timber Ridge Presbyterian Church (SR785 at junction with USH11); colonial period church constructed of limestone from a local source; 1756 (Figure 47)
- Sam Houston monument (USH11 at junction SR785); large rough-cut granite, stone from Texas
- Glenwood Furnace (SR759 south of James River crossing); constructed of large cut blocks of sandstone
- Balcony Falls lock (near US501 at west end James River watergap); constructed of blocks of sandstone with various "mason's marks"
- Rockingham** Bethlehem Church (Tenth Legion); constructed of limestone blocks from a local source; 1845
- Texaco Station (USH340 at Elkton); partially faced with "Virginia Log" quartzite from Campbell County
- Ft. Harrison (Dayton); constructed of limestone blocks from a local source, the house was used as fort; c1745
- Russell** Former Courthouse (Dickensonville; USH58A near junction with SR733); original portion constructed of limestone blocks; brick addition to east; 1787 (Figure 48)
- Alderson Building (Lebanon); limestone blocks with sandstone and concrete window sills and lintels; 1908
- Salem** Administration building (Roanoke College); constructed of brick with fossiliferous, fragmental limestone window sills and lintels; steps of soapstone with siltstone risers; slate roof
- Shenandoah** Elizabeth Furnace, George Washington National Forest (SR678 at northeast end of Fort Valley); made of large blocks of sandstone and quartzite
- Courthouse (Woodstock); constructed of limestone blocks of local origin which have been painted; 1791 (oldest courthouse in continuous use west of Blue Ridge)
- Henkel house (New Market); constructed of limestone of local origin; oldest stone house in New Market, 1835
- Smyth** Stone tavern (USH11 near Atkins); constructed of blocks of limestone of local origin; late 1700s

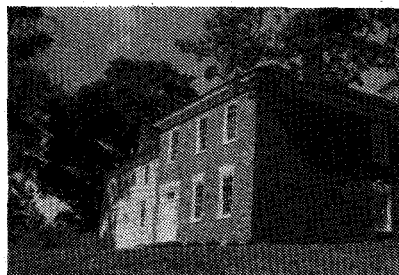


Figure 48. Former Russell County courthouse, Dickensonville

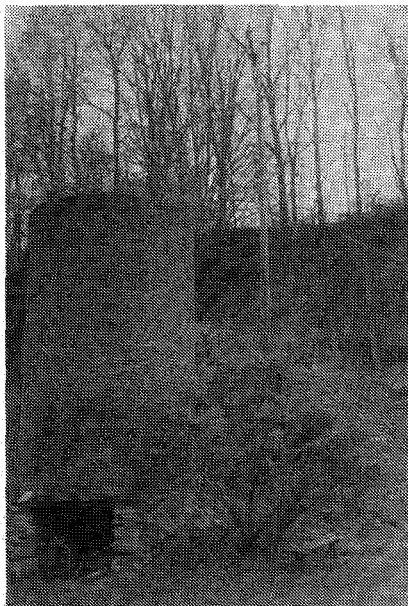


Figure 49. Lime kiln, Smyth County

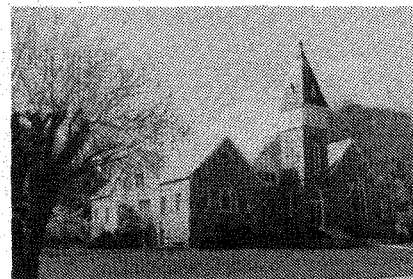


Figure 50. Madam Russell Church, Saltville, Smyth County

	Lime kiln (USH11 at Atkins); cylindrical kiln constructed of brick with limestone and dolomite base (Figure 49)	Stafford	Aquia Church (USH1 near junction SR610); colonial period church constructed of brick, Flemish bond with local "Aquia" sandstone door facing, window sill, keystone, and quoins; 1757
	Courthouse (Marion); constructed of brick from South Carolina (note: columns of curved bricks), entry steps, window sills and keystones are fossiliferous, fragmental limestone; 1905		
	Madame Russell Church (Saltville); constructed of sandstone blocks of local origin; 1898 (Figure 50)	Staunton	Stone house (215 Kalorama Street); constructed of reddish-brown sandstone; 1891 (Figure 53)
	Salt furnace exhibit (Saltville); exterior wall constructed of bricks imprinted Chilhowee VP & CC made in nearby Chilhowee		Marquis building (Beverly at Augusta streets) first floor faced with fossiliferous limestone of local origin; upper floor window sills, lintels and belt courses of similar limestone; patterned slate on roof and cupola; 1896
	Stone railroad bridge (SR645 west of junction with USH11); constructed of blocks of sandstone with wingwalls of limestone buttressed with limestone and sandstone; keystone bears a 1896 date		Crestar Bank (Beverly between Augusta and Central Sts.); former National Valley Bank, foundation faced with granite and fossiliferous, fragmental limestone above; 1865; 1903
	Octagonal brick house (SR657 near Adwolfe); octagonal house constructed of brick, built by Abijah Thomas, ironmaster; 1857		Alcoholic Beverage Control store (State Street); "Virginia Greenstone" from Lynchburg under window with fossiliferous, fragmental limestone above window (Figure 5)
Southampton	Confederate monument (Courtland); soldier on granite base; 1902		St. Francis of Assisi Catholic Church (126 N. New St.); faced with green Pennsylvanian serpentinite above limestone foundation with fossiliferous, fragmental limestone door and window facings and belt courses; entry walk and walls of local limestone; slate roof; upper part of bell tower replaced with Pennsylvania sandstone; 1850; 1895
South Boston	Trinity Episcopal Church (Main at Yancey); brick cruciform church in Flemish bond with slate roof and walk; 1892; 1964		St. Pauls United Methodist Church (West Beverly at North St. Clair Street); varicolored cement facing resembling stone
	Alcoholic Beverage Control store (Main Street); "Virginia Greenstone" from Lynchburg under window and limestone from Indiana above	Suffolk	Former Post Office (200 Main St.); foundation and steps of granite with fossiliferous, fragmental limestone columns and exterior (capitals and cornice with carved designs)
	E L Evans building (Main Street); second story front with ornamental brick and terra cotta work; 1888		National Bank of Suffolk (Main at Washington streets); first floor faced with marble
Spotsylvania	Jackson monument (Chancellorsville National Battlefield Visitors Center SH3); Virginia granite with three types of finish; 1888		Confederate monument (Cedar Hill cemetery); granite base
	"Lee to Rear" marker stone (SR621 near junction SR613) small granite historical marker from local source; c1903	Surry	Confederate monument (Surry); base of granite with carved flag and cannons; 1909
	Catherine Furnace (Furnace Road Chancellorsville National Battlefield Park); constructed of local stone; exhibit of furnace operation (Figure 51)		Bacons Castle (SR617 near junction SH10); colonial period house constructed of brick, English bond with chimneys of three clustered stacks; c1655
	Sedgwick monument (Spotsylvania National Battlefield Park near SR613); constructed as castle tower; Massachusetts granite with several different stone finishes used; 1887 (Figure 52)		Faux Stone buildings (SH31 at Dendron); buildings on opposite sides of road constructed of concrete blocks to simulate stone (Figure 54)
	Meade Pyramid (Along RF & P Railroad and visible from Lee Drive, Fredericksburg National Battlefield Park); pyramid constructed of granite rubble; 1898	Sussex	Alcoholic Beverage Control store (USH460 at Waverly); "Virginia Greenstone" from Lynchburg below window and limestone from Indiana above window

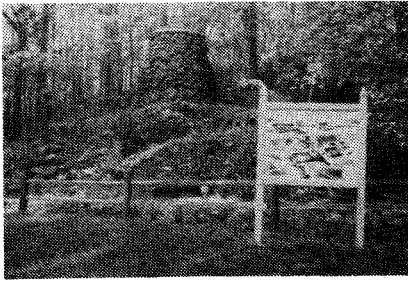


Figure 51. Sedgwick monument, Spotsylvania County

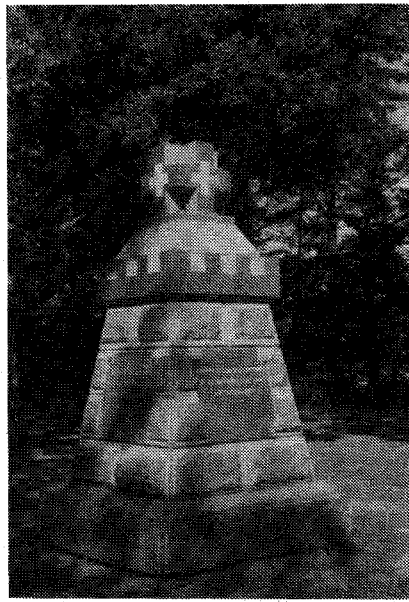


Figure 52. Catherine Furnace, Spotsylvania County

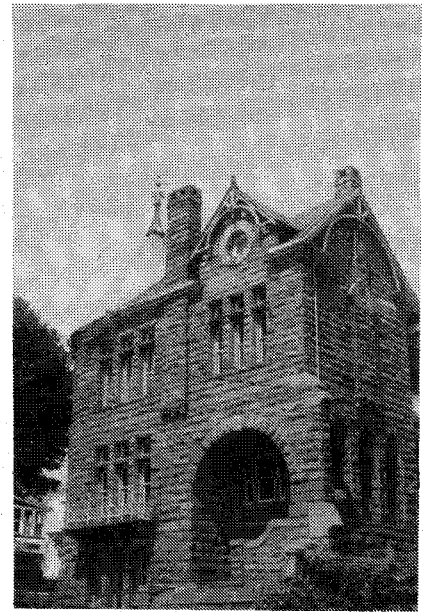


Figure 53. Stone house, City of Staunton

- Confederate monument (Sussex); soldier statue on marble base with carved sabers; 1912
- Tazewell** Community Church (Pocahontas); constructed of sandstone with fossiliferous, fragmental limestone sills, belt courses, and buttress caps; slate roof; 1927
Bank of Clinch Valley building (Tazewell); faced with reddish-brown sandstone; columns of polished sandstone with capitals of carved designs
- Virginia Beach** Old Cape Henry Lighthouse (Atlantic Avenue); constructed of "Aquia" sandstone from Stafford County; 1791
- Warren** Courthouse (Front Royal); faced with sandstone and quartzite rubble; walkway of quartzite (Figure 55)
Confederate monument (Front Royal); soldier statue of granite on base ornamented with carved flags; 1911
United Methodist Church (Front Royal); faced with limestone with belt courses, sills, lintels, buttress caps and arches of tan sandstone; steps of gray sandstone; patterned slate roof
- Washington** St. Thomas Episcopal Church (Abingdon); constructed of limestone blocks; doorway trim of fossiliferous fragmental limestone; 1846; addition of concrete block construction; 1925
Alcoholic Beverage Control store (Abingdon) "Virginia Greenstone" from Lynchburg below window and fossiliferous, fragmental limestone above window
- Waynesboro** Seventh Day Adventist Church (Main at Dupont streets); constructed of sandstone from Roanoke County with concrete sills and buttress caps; 1954
St. Johns Catholic Church (344 Maple Ave.); constructed of limestone with some maroon siltstone; door trim of fossiliferous fragmental limestone; soapstone entry walk; 1931
Grace Lutheran Church (500 S. Wayne Street); constructed of reddish-brown sandstone; walkway consists of concrete cross and symmetrically arranged sandstone
At the Waynesboro Library (14th Street at Wayne Ave.); stepping stones made of quartz conglomerate millstone and limestone
- Westmoreland** St. Marys Episcopal Church (Colonial Beach); faced with stucco containing quartz pebbles ("pebble dash"); 1910
- George Washington monument (George Washington Birthplace National Monument); granite obelisk from Vermont; 1930
Confederate monument (Montross); marble obelisk with carving of military ornament; prepared at Baltimore, Maryland
- Williamsburg** Bruton Parish Church (Duke of Gloucester Street); Colonial brick in Flemish bond, rubbed brick at windows and doors; 1715 (tower 1771)
- Winchester** Handley Library (Braddock at Piccadilly streets); constructed of fossiliferous, fragmental limestone with carved urns, floral decorations, capitals and coat-of-arms; foundation faced with granite; 1913
Rouss Fire Station (Boscawen at Braddock streets); constructed of brick with reddish-brown sandstone belt courses and sills; slate roof; 1895
The Old Stone Presbyterian Church (304 E. Picadilly Street); constructed of rubble limestone; 1788
Former train station (Cameron Street); constructed of reddish-brown conglomeratic sandstone with slate roof
- Wise** Randolph Hall (Clinch Valley College, Wise); constructed of sandstone for facing and columns
Courthouse (Wise); constructed of brick with granite columns, doorway trim steps, sills and lintels; foundation of ashlar sandstone; sandstone boundary walls; slate roof; 1896
United Methodist Church (Appalachia); faced with sandstone blocks
Southwest Virginia Museum (Big Stone Gap); constructed of reddish-brown sandstone with entry steps of gray sandstone and foundation of dolomite; built in 1888 as the Rufus Ayers house (Figure 56)
Alcoholic Beverage Control store (Big Stone Gap); "Virginia Greenstone" from Lynchburg under window and fossiliferous, fragmental limestone above window
- Wythe** Shot Tower (SR608 near junction USH52); constructed of limestone and dolomite rubble; tower used during War of 1812 to produce lead shot; c1807
- York** Victory monument (Yorktown); monument base and allegoric statue of Liberty constructed of granite from Maine; ornately carved figures; 1884

Nelson House (Yorktown); constructed of brick with sandstone quoins and foundation; limestone steps and sills; 1741

Grace Church (Yorktown); colonial period church constructed of local marl that has been stuccoed and scored to resemble block; 1697

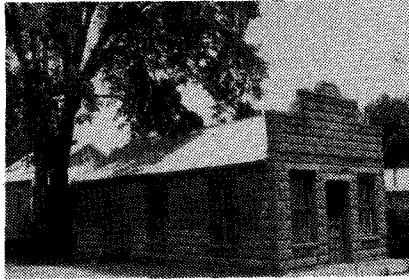


Figure 54. Stone simulated by concrete, Dendron, Surry County

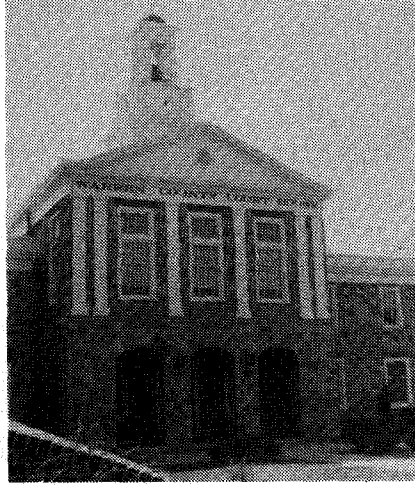


Figure 55. Warren County courthouse, Front Royal

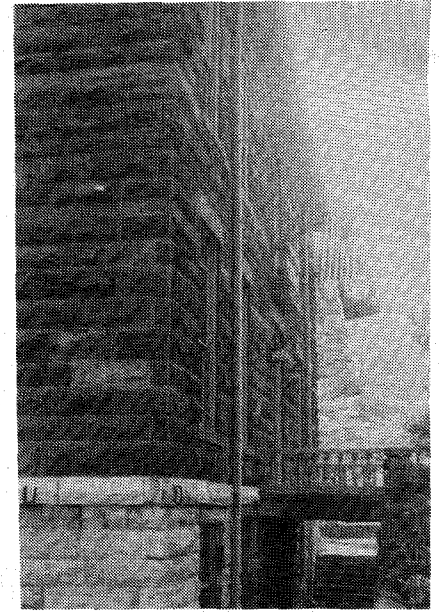


Figure 56. Southwest Virginia Museum, Big Stone Gap, Wise County

STAFF NOTES



Dr. James F. Conley became Manager of the Research Branch and "Chief Geologist" of the Division of Mineral Resources on September 21, 1992. Jim's professional career spans over 36 years. He received his B.A. degree from Berea College, his M.S. Degree from The Ohio State University,

and his Ph.D. degree from the University of South Carolina. From July 1956 to April 1965 he was employed as a geologist with the North Carolina Division of Mineral Resources. While at the North Carolina organization he developed a mapping program for the Division and published its first modern geologic quadrangle on a topographic base. He was in charge of the Division's geologic mapping program until he was promoted to the position of Western District Geologist in 1963. In April, 1965 he took charge of the Geologic Mapping Section of the Virginia Division of Mineral Resources, a position that he held (with one interruption when he returned to graduate school to obtain his Ph.D. degree) until his recent promotion. In addition to his work at the Division of Mineral Resources Jim has taught classes in structural geology at the University of Virginia.

Jim is a member of the Society of Sigma Xi, the Carolina Geological Society, the American Association of Petroleum Geologists, The International Society for Rock Mechanics, American Institute of Mining, Metallurgical, and Petroleum Engineers (Past President, Virginia Section), American Institute of Professional Geologists (Past President, Virginia Section), and is a Fellow in the Geological Society of America. He is listed in American Men and Women of Science; Who's Who in the South and Southwest; Marquis Who's Who in America; Who's Who in Technology Today; and Who's Who in Frontier Science and Technology.

During his career, Jim has been the author or co-author of 56 articles and abstracts that have been published in technical journals and as state documents. The major contributions of Jim and his co-authors to the geology of the Southeast are: the first definition of a stratigraphic sequence in the western Carolina Slate belt in North Carolina; the first

fossil evidence from rocks of the Carolina Slate belt; discovery of a system of silicified mylonites in the western Piedmont of North Carolina and South Carolina; discovery, mapping, and naming of the Pinehurst Formation of the North Carolina Inner Coastal Plain, and discovery and mapping of the Smith River allochthon of the southwestern Virginia Piedmont; also, while working on a consulting project, he helped prove the existence of a world-class lithium deposit. In addition, Jim served on the Governor's High-Level Atomic Waste Repository Task Force and provided geologic information on three proposed crystalline rock atomic waste repository sites in Virginia. This information was used to exclude Virginia from consideration for a high-level atomic waste repository. Under Jim's direction the Virginia Division of Mineral Resources has mapped at 1:24,000 scale and published 24 geologic quadrangles in the southwestern Virginia Piedmont. This group of quadrangles comprises the largest area in the Piedmont of the Southeast that has been mapped in detail.



Prior to coming to the Division of Mineral Resources, Delores Green was a Program Support Technician with the Virginia Department of Transportation Research Council. She worked for the Transportation Research Council for almost 16 years (11 years as a computer Technician and 5 years as a Fiscal and Support Technician).

Delores is responsible for managing and directing the administrative and support services for the Division. She provides guidance and overall direction to the Geologic Support Branch staff including Library, Sales, Technical, and

Custodial Services personnel. She participates in operational planning and develops work plans for the Branch. She plans, develops, and administers the branch budget; authorizes expenditures, and prepares activity reports for the Support Branch.

Delores assists the State Geologist with direction of the division in all administrative matters. As Office Manager, she is responsible for the overall smooth and efficient operation of the Division.

A Nelson County resident, Delores is active in church activities, where she is a member of the Adult Choir, Pastor's Aid Club, and President of the Youth Group. She is a 4-H Community Leader and a Girl Scout Troop Leader.

Delores loves to read and listen to music. She is married and has two children. Her daughter, Olympia, is a sophomore at Bennett College in Greensboro, NC. Her son, Cordell, is a junior at Nelson County High School, where he is a high Honors Student.



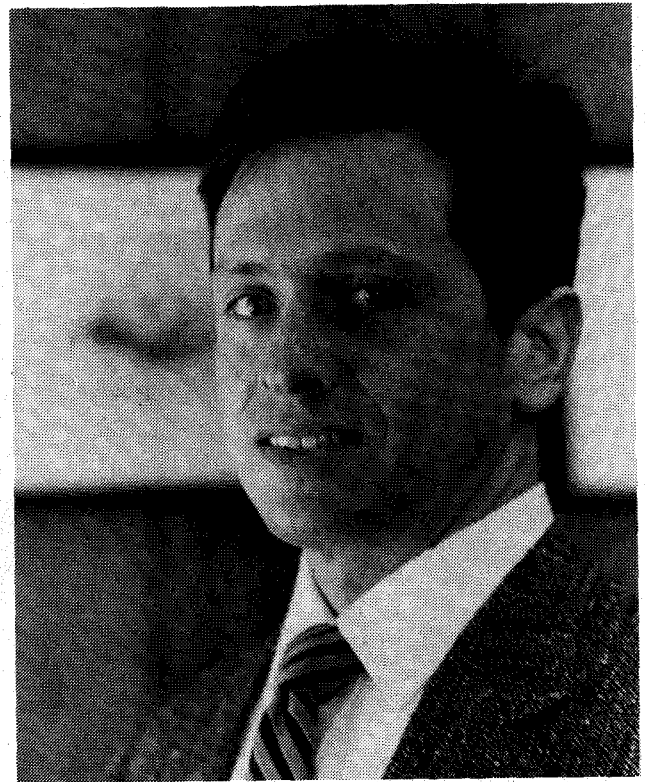
C.R. (Rick) Berquist, Jr. received his B.E. degree in Information Engineering in 1969 (Computer Science) and M.S. degree in Geology in 1970 from Vanderbilt University. After 3 years as a Supply Officer in the U.S. Navy and 2 years graduate work at Florida State University, he began work at the Division of Mineral Resources in July 1973. He spent the next three years in the southwestern Piedmont of Virginia making detailed geologic maps. In 1979 he moved to Williamsburg and continued regional mapping in the eastern Piedmont and Coastal Plain. In 1986 he completed a Ph.D. in Marine Science (Geology) from the Virginia Institute of Marine Science (VIMS), College of William and Mary. His

work with offshore minerals and geologic mapping helped lead to the discovery of heavy mineral deposits in the Fall Zone of Virginia. From April to November 1992 he joined the VIMS faculty as an Associate Research Scientist. Rick is also adjunct faculty member with the Geology Department at William and Mary and with VIMS and enjoys assisting students with their research. He has served two years on the Board for Geology (Virginia Department of Commerce) and is presently the Chairman, and is Secretary-Treasurer of the Virginia Field Conference. He and his wife Karen play acoustic music with the group FOAM (Friends of Appalachian Music). Their daughter, Susan is studying at the University of Munster, Germany this year and son, Peter, is a freshman at Bruton High School in Williamsburg.



Karen K. Hostettler graduated in 1984 from Edinboro University of Pennsylvania with a degree in geology. After a brief internship with the Pennsylvania Topographic and Geologic Survey, she did graduate work in geophysics at the New Mexico Institute of Mining and Technology.

Employed as a geologist at the Division of Mineral Resources since 1988, she has worked on available coal resource studies for the National Coal Resource Data System (NCRDS). Currently, Karen is working on a cooperative project with the Office of Surface Mining (OSM) to develop a geographic information system (GIS) for the Southwest Virginia coalfield. She has co-authored publications on available coal resources and coal quality for the Southwest Virginia coalfield. She is a member of the Urban and Regional Information Systems Association (URISA).



David Spears received a B.S. degree in Geology from Lafayette College and an M.S. degree in Geology from Virginia Polytechnic Institute and State University in 1983. His graduate research involved mapping of geologic structures and rock textures in the Shenandoah Valley. He then spent eight years as a petroleum geologist for a major oil company in Louisiana, exploring in the Southern Appalachians and offshore in the Gulf of Mexico.

In March of 1993, David joined the DMR staff, where he is working on the development of a coal mine data base for the Southwest Virginia coalfield. He lives with his wife and three children on a 50 acre farm in Buckingham County, where he enjoys vegetable gardening and bird watching.

MINERAL UPDATE

ALUMINO-FLUORIDE MINERALS FROM THE MOREFIELD MINE

Lance E. Kearns¹

Several rare alumino-fluoride minerals have been identified recently from the Morefield Mine in Amelia County, Virginia. In February, 1992, mining operations in the new shaft encountered a bright purple mass of sugary, crystalline elpasolite (K_2NaAlF_6) and minor amounts of chiolite ($Na_3Al_3F_{14}$). The mass was surrounded by brown cryolite (Na_3AlF_6) and lavender-gray prosopite ($CaAl_2(F,OH)_8$) (Kearns, 1992). In August a 6 inch by 11 inch pocket of microcrystals was exposed at the 60 foot level, 25 feet northeast of the new shaft. The contents of the pocket contained small trapezohedrons of elpasolite, twinned {011} crystals of chiolite (Figure 1), clear blocky crystals of thomsenolite ($NaCaAlF_6 \cdot H_2O$), small octahedrons of ralstonite ($Na_xMg_xAl_{2-x}(F,OH)_6 \cdot H_2O$) and prismatic crystals of pachnolite ($NaCaAlF_6 \cdot H_2O$).

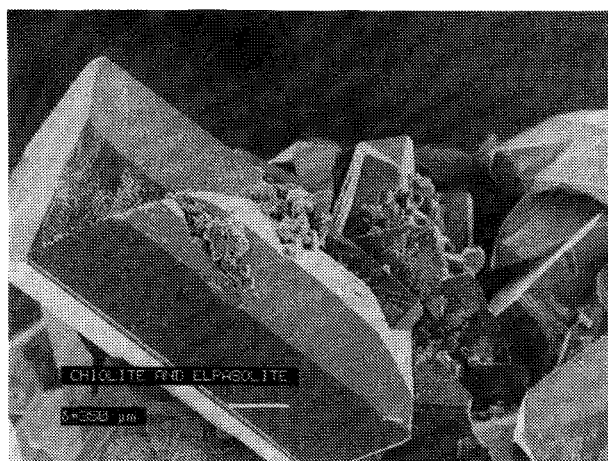


Figure 1. Twinned {011} chiolite crystals and small elpasolite crystals from pocket in the aluminum fluoride zone, Morefield Mine.

The Morefield pegmatite is the second occurrence of these minerals in North America (the first for chiolite). A similar assemblage of minerals is associated with aluminum fluoride pegmatites at St. Peters Dome, El Paso County, Colorado. Outside of North America these minerals are found in the cryolite deposits of Ivigtut, Greenland and at Miass (Miask) in the Ilmen Mountains (Central Urals), Russia.

Other new minerals from the Morefield Mine identified from the aluminum fluoride zone are: strüverite (Ti, Ta, Fe^{+3})₃O₆

and cookeite ($LiAl_4(Si_3Al)O_{10}(OH)_8$). Strüverite was found as a small (about 1 cm) black inclusion in an extremely large zinnwaldite crystal. The X-ray diffraction pattern of strüverite is nearly identical to that of rutile, but EDAX analysis (Figure 2) indicates the presence of a significant amount of tantalum and iron as well as titanium. Cookeite is found as a tan, platy mineral occurring with cleavelandite albite and zinnwaldite in the aluminum fluoride zone. Cookeite is a lithium-bearing member of the chlorite group, and is the second lithium-bearing mineral reported from the Morefield Mine.

Minerals were identified by X-ray diffraction using a Philips Automated Powder Diffraction System. Chemical composition was verified by semi-quantitative EDAX analysis.

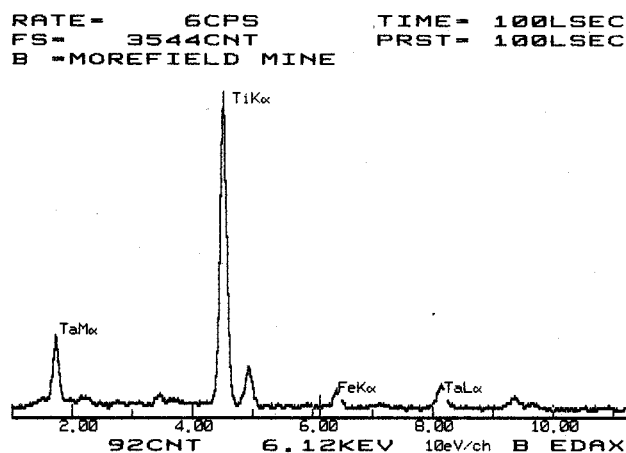


Figure 2. EDAX pattern of strüverite from the Morefield Mine showing relative amounts of titanium, tantalum, and iron.

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¹ James Madison University, Harrisonburg, VA 22807

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