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# MINERALS



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## The Mineral Industry of Virginia 1958 Review

This review is taken from the Virginia Chapter of the 1958 Minerals Yearbook which is prepared under a cooperative agreement between the U. S. Bureau of Mines and the Virginia Division of Mineral Resources.

Value of Virginia's mineral production in 1958 declined 11 percent to \$203 million from the record year 1957 but still was the third highest on record. The lower business activity and a slackening in foreign demand due to accumulated stocks resulted in substantial declines in production of coal and most other minerals. The output of sand and gravel, stone, clays, gypsum, salt, and iron oxide pigments was larger than in 1957. Most other minerals showed small to large declines. Measured by value, coal, stone, cement, and sand and gravel ranked highest. Coal supplied over 60 percent of Virginia's mineral production. The value of fuel was 65 percent of the total value, that of nonmetals about 32 percent, and that of metals about 3 percent.

The increase in road building in Virginia led to opening of several new stone quarries and a large increase in paving-sand and gravel production. A growing trend in road construction was in the use of soil aggregate in constructing roads. The demand for this controlled base material increased, and consumption may have reached 400,000 tons in 1958, according to one large aggregate producer. In response to the increased demand for roadmaking materials and to the construction of a new airport, several new aggregate plants were started, particularly in the counties adjoining or near the District of Columbia.

A highlight of the year was construction of the new Moss No. 3 mine and coal-preparation plant at Carbo, southwestern Virginia, by Clinchfield Coal Co., a division of the Pittston Co. This project, to cost \$20 million, included erection of a \$1.5 million lightweight-aggregate plant adjacent to the coal-preparation plant. The two-kiln lightweight-aggregate plant, which will use shale from the coal-preparation plant as raw material, was to be in operation in January 1959.

A brief review of the mineral industry in each county in which rock and mineral producing companies are located, follows:

*Albemarle.*—S. L. Williamson Co., Inc., Charlottesville, recovered bank-run sand and gravel by dragline for use as road material. S. A. Jessup, Charlottesville, reported production of a small quantity of bank-run sand and gravel for miscellaneous uses.

Basalt was mined, crushed, and screened for concrete aggregate and roadstone by Charlottesville Stone Corp. (Charlottesville). Superior Stone Co. continued to mine and process granite for building and highway construction at its Redhill quarry (Redhill). The Esmont plant of Blue Ridge Slate Corp. was idle.

*Amelia.*—Small sales of full-trimmed mica were made through General Services Administration by two miners from six mines to the Materials Purchase Depot at Spruce Pine, N. C. Some 20 individuals reported collecting gem stones or mineral specimens in Amelia County. Most of these gathered amazonite from the famous Rutherford area near Amelia Court House.

Other minerals collected included moonstone, cleavelandite, and spessartite.

*Amherst.*—Aplite was mined near Piney River by Riverton Lime & Stone Co. Division, Chadbourn Gotham, Inc. The material was processed by grinding and magnetic separation at the company Nelson County mill and shipped for use principally in glass manufacture. Competition of foreign window glass and lower output of automobiles and television apparatus reduced sales to these industries, but development of new uses counterbalanced this trend to a great extent. Roadstone and concrete aggregate were also prepared from granite mined by this firm in a plant built during 1958 at Amherst.

American Cyanamid Co. mined ilmenite at Piney River. Output remained high, although it was slightly less than in 1957. All material was consumed in the company nearby titanium-pigment plant. Smiley Sand Co. washed and screened building sand recovered by dredging at a location north of Lynchburg.

*Appomattox.*—Limestone was mined, crushed, and ground for agricultural purposes by the Virginia Department of Agriculture and Immigration.

*Augusta.*—Limestone was mined and sized for building and highway construction by three companies at quarries near Staunton. All of the producers had stationary plants and shipped by truck. Lehigh Portland Cement Co. mined limestone and shale for use in manufacturing cement in its plant in Fordwick. Portland cement for general use, high-early-strength cement, and mortar cement were produced and marketed, principally in Virginia, North Carolina, and West Virginia. Limestone was mined and ground for use as agstone by the Virginia Department of Agriculture and Immigration in a plant near Staunton. The Virginia Highway Department reported production of crushed limestone for highway construction and maintenance in Augusta County.

South River Mining Co., Inc., the leading producer in Virginia, mined ore containing 35 percent or more manganese near Vesuvius, as well as a small quantity of ferruginous manganese (30 percent Mn). This ore was purchased through the Government carlot program.

*Bedford.*—Feldspar was mined at three open-pit mines near Bedford by Clinchfield Sand & Feldspar Corp. This feldspar was processed at

the company mill at Bedford and sold for use in making pottery, enamel, and welding rods. States to which sizable tonnages were shipped included Ohio, New York, New Jersey, Pennsylvania, and Wisconsin. A small quantity of full-trimmed mica was sold through the General Services Administration by one operator.

*Bland.*—Canva Mining Corp. near Bastian produced manganese ore (35 percent or more Mn) for sale to the General Services Administration. A quantity of limestone riprap was produced at Bland Correctional Farm near White Gate.

*Botetourt.*—Botetourt continued to be the leading county in limestone production. Value was approximately the same as in 1957, but tonnage dropped about 14 percent. Five companies mined, crushed, and sized over 2 million tons of limestone for a wide variety of uses. Cement, concrete aggregate, and roadstone consumed 67 percent of the total output. Limestone used as a filler in fertilizer, agstone, and stone sand composed 20 percent of the total. The remaining 13 percent was used as chemical reagent, railroad ballast, mineral filler, and metallurgical flux; for coal-mine rock dust, and as a mineral additive in livestock feed.

Botetourt County ranked first in value of clay production. Roanoke-Webster Brick Co., Inc., and Virginia Lightweight Aggregate Corp. mined miscellaneous clay or shale at Webster near Roanoke for use in heavy clay products and lightweight aggregate, respectively.

*Brunswick.*—Granite was mined, crushed, and sized for use as concrete aggregate and roadstone at the Rawlings quarry by Bryan Rock & Sand Co. Miscellaneous clay or shale for making building brick was mined by Brick & Tile Corp., Lawrenceville.

*Buchanan.*—Buchanan County again was the first-ranking coal-producing county, although sales declined 9 percent from 1957. More than one-third of Virginia coal production, measured both by quantity and value was mined in this county. The number of mines totaled 796. Nearly 99 percent of the coal tonnage was from underground mines. Small tonnages were recovered by both strip and auger methods. Leading producers included Pocahontas Fuel Co. (Amonate mine), Island Creek Coal Co. (Keen Mountain mine), Harman Mining Corp. (Harman mine), and Jewell Ridge Coal Corp. (No. 2 mine).

The United Producing Co. and the United Fuel Gas Co. produced natural gas from the Berea sand in Buchanan County. Virtually the total gas flow was delivered to pipelines for distribution by Hope Natural Gas Co.

*Buckingham.*—Kyanite Mining Corp. continued to operate its mine and mill (opened in 1957) on Willis Mountain near Dillwyn. The kyanite was consumed principally for special refractory and ceramic products.

Slate was quarried, split, and trimmed for roofing, flagging, structural, and sanitary uses by three companies near Arvonnia. Blue Ridge Slate Corp. produced roofing granules at its Dutch Gap slate quarry near New Canton.

Miscellaneous clay and shale was mined near New Canton (Bremono Bluff) for use in making lightweight aggregate near the mine by Southern Lightweight Aggregate Corp.

*Campbell.*—Rockydale Stone Service Corp. (Concord) and Blue Ridge Stone Corp. (Lynchburg) mined and prepared limestone for use as concrete aggregate and roadstone. Miscellaneous stone quarried by Virginia Greenstone Co., Inc. (Lynchburg), was sold under the trade name "Virginia Greenstone," as rough and dressed dimension stone and rubble.

*Caroline.*—Sand and gravel for building was prepared in a stationary plant by Dyson Sand and Gravel Co. at Milford.

*Carroll.*—Pyrite was mined at the Gossan mine near Galax by General Chemical Division, Allied Chemical Corp. The mineral was shipped to Pulaski for use in making sulfuric acid. Sandstone was mined by the city of Galax for road maintenance and repairs.

*Chesterfield.*—Chesterfield ranked as the third county in tonnage and value of sand and gravel produced, although output was less than in 1957. Material prepared in a stationary plant at Dutch Gap and by dredge at Kingsland Reach was used for building and paving. Part of the sand was used as a filter medium. Two companies across the James River from Richmond produced miscellaneous clay or shale for use in manufacturing building brick.

*Clarke.*—Calcareous marl was produced by J. C. Digges & Sons, Old Chapel Lime Marl Plant (White Post), and Elmer Kinney (Berryville) for agricultural purposes.

*Culpeper.*—Culpeper Sand Co. processed sand

in a stationary plant for building and paving purposes. Culpeper Stone Co. (Culpeper) mined and crushed quartzite for use as concrete aggregate and roadstone.

*Dickenson.*—Dickenson County remained third in rank among coal-producing counties. The number of active mines numbered 153. Over 90 percent of the tonnage came from underground mines. A sizable tonnage was produced by strip mining and a small quantity by auger. Leading producers were: Clinchfield Coal Corp. (five underground mines and one strip mine), Baker Coal Co. (one underground mine), Contracting Enterprise, Inc. (one strip mine), and Bolling Coal Co. (one strip mine).

Natural gas production by the Clinchfield Coal Co. was obtained from Devonian shale and Beria sand. Sales were to Kentucky-West Virginia Gas Co. for distribution by pipeline.

*Fairfax.*—Fairfax County ranked second in output of sand and gravel. Seven producers were active, and all of the output was consumed in building and highway construction. Approximately 79 percent of the production was washed and screened. Unwashed bank-run material was used in highway construction. The principal producers were Northern Virginia Construction Co., Inc., Virginia Sand & Gravel Co., Inc., and Alexandria Sand & Gravel Corp., all of Alexandria.

Granite was mined and sized for use as riprap, concrete aggregate, roadstone, and railroad ballast by Graham Virginia Quarries, Inc., near Occoquan. Fairfax Quarries, Inc., mined basalt for building and highway construction near Fairfax. Oystershell prepared by Herbert Bryant, Inc. (Alexandria), was used as poultry grit and in the production of lime.

*Fauquier.*—Stone production in Fauquier County was approximately the same in tonnage and value as in 1957. W. W. Saunders (Warrenton) scrapped an old plant and built a new one at a new quarry site on the same property. W. W. Saunders, as well as Riverton Lime & Stone Division, Chadbourn Gotham, Inc. (Paris), produced crushed basalt for building and highway construction. Crushed limestone was prepared by Millbrook Quarries, Inc. (Broad Run), for roadstone and concrete aggregate. Sandstone, for flagging and facing stone, was produced by James Edward Corum at Halls quarry near Broad Run and J. W. Costello at the Costello quarry near The Plains.

*Franklin.*—Blue Ridge Talc Co., Inc., Henry, produced soapstone from its King Ramsey quarry and ground it for insecticides, foundry facings, and other uses. The same firm marketed finished pigments, including natural and manufactured finished red oxides, manufactured black and browns, ochers, siennas, umbers, and various blended colors. Pigment processing included crushing, grinding and drying.

*Frederick.*—Virginia Glass Sand Corp. operated a quarry and the Shenandoah Silica Co., Inc., a processing plant near Gore, from which a large quantity of glass sand was produced and shipped by rail. A small quantity of sand for building was shipped by motortruck. Shenandoah Brick & Tile Corp. produced shale near Winchester for consumption in building brick.

M. J. Grove Lime Co. operated quarries at Stephens City and Middletown. The quarry at Stephens City furnished limestone for use in manufacturing building lime and for use as flux, coal-mine rock dust, agstone, crushed-stone aggregate, and other uses. The Middletown quarry furnished dolomite for use as furnace flux. Stuart M. Perry, Inc. (Winchester), produced crushed and sized limestone for building, paving, and agstone.

*Giles.*—The second-ranking stone (limestone) production in Virginia was reported from Giles County, although tonnage and value were 13 and 17 percent lower, respectively, than in 1957. Virginia Limestone Corp. (Koltz) quarried, crushed, and screened limestone for riprap, metallurgical uses, concrete aggregate, roadstone, and railroad ballast. National Gypsum Co. (Kimballton), Ripplemead Lime Co., Inc. (Ripplemead), and Standard Lime & Cement Co. (Kimballton) all mined limestone for manufacturing lime in their respective plants and sold undersize and excess stone for a variety of uses.

J. Gordon Gusler produced manganese ore from the H. M. Reynolds mine near Newport during the first part of 1958. During the balance of the year this mine was leased to the Monterey Mining Co. of Newport.

*Goochland.*—Granite was mined and prepared for use as concrete aggregate and roadstone by Boscobel Granite Corp. at a stationary plant in Richmond. Royal Stone Co. transferred its operation from Orange County to Hylas in Goochland County. Production of crushed quartzite for road material was begun July 10 at the new plant with an hourly capacity of 175 tons.

*Greensville.*—Trego Stone Corp. (Skippers) mined, crushed, and sized granite, principally for roadstone, although part of the production was used as railroad ballast and riprap.

*Hanover.*—The new titanium concentrate plant at Montpelier near Beaverdam, constructed by Metal & Thermit Corp., New York, N.Y., operated the full year and produced both ilmenite and rutile.

Basalt was prepared for use in building and highway construction, railroad ballast, and riprap by J. E. Baker Co. at its Verdon quarry near Doswell.

*Henrico.*—Henrico County was the leading sand and gravel producer. Sand and gravel for building and paving construction, filter sand, and fill was washed and screened. The sand mined for use as molding sand was shipped run-of-pit. The Tidewater Crushed Stone Co. mined and prepared granite for use in building and highway construction.

Daniels Brick & Tile Co., Inc., produced drain tile, flue lining, and fittings from river clay. Redford Brick Co., also of Richmond, manufactured building brick from shale (miscellaneous clay) mined near the city.

*Henry.*—Granite was mined and prepared for use in building and highway construction by Snider Stone Quarry and Martinsville Stone Corp., both of Martinsville.

A small quantity of full-trimmed mica was sold through General Services Administration by one miner to the Materials Purchase Depot at Spruce Pine, N. C.

*Isle of Wight.*—Oystershell was burned for use as agricultural lime by Battery Park Fish & Oyster Co. (Battery Park.)

*King William.*—A quantity of sand and gravel was produced near Aylett.

*Lee.*—Although output of coal declined, more than one-third the number of mines reporting output rose from 36 in 1957 to 61 in 1958. Most of the coal came from underground mines, although a small quantity each of strip and auger coal was extracted. Blue Diamond Coal Co. and Virginia Lee Colliery were the chief producers. Petroleum was produced in Rose Hill field in the southwestern part of the county, the only oil-producing area in Virginia.

Limestone was mined for building and highway construction, railroad ballast, agstone, and

riprap by Kentucky-Virginia Stone Co., Inc. (Gibson Station), and Woodway Stone Co. (Woodway). Over half of the total production in the county was consumed by various governmental subdivisions.

*Loudoun.*—Riprap and roadstone were produced from basalt quarries near Leesburg by Virginia Trap Rock, Inc., and Arlington Stone Co. Bull Run Stone Co. (Manassas) also mined basalt for roadstone. Virginia State Highway Department produced road material from the Palmer Limestone Quarry near Leesburg.

*Louisa.*—The exploration, dewatering, and development at the Arminius zinc-lead mine near Mineral, underway for several years, was recessed because of unfavorable market conditions. A quantity of sulfide mineral was collected as mineral specimens by one hobbyist.

*Madison.*—Several collectors reported gathering specimens of unakite and epidote in the Rose River area near Syria.

*Mecklenburg.*—Concrete aggregate, roadstone, railroad ballast, and riprap were produced by Marks-Wicker Co., Inc., at its Boydton granite quarry.

*Montgomery.*—Limestone was produced for concrete aggregate, roadstone, and agstone by Montgomery Limestone Corp. (Ellett) and Radford Limestone Co., Inc. (Radford). The latter company sold part of its output for railroad ballast and mason's sand. At Ironto, Velvet Sand Co. mined and crushed sandstone for concrete. This firm also produced a quantity of washed and screened sand near Radford for building construction and unwashed bank-run sand for fill. Miscellaneous clay (shale) was mined at Elliston, near Salem, by Old Virginia Brick Co., Inc., for making building brick.

Output of coal (semianthracite) in Montgomery County dropped more than 50 percent. All production came from two deep mines and was consumed mostly for domestic space heating.

*Nansemond.*—Roanoke-Webster Brick Co. mined miscellaneous clay from an open pit near Suffolk for use in heavy clay products.

*Nelson.*—Consolidated Feldspar Department, International Minerals & Chemical Corp., mined and processed aplite. Riverton Lime & Stone Co. Division, Chadbourn Gotham, Inc., ground Amherst County aplite at its plant in Nelson County near Piney River. Uses comprised chiefly glass

manufacture and roofing stone (granules). Ground material was consumed in Ohio, New York, New Jersey, Wisconsin, West Virginia, and other states. Buffalo Mines, Inc., a new firm, was engaged in mine and plant development, also at Piney River. Construction commenced the latter part of October, with production scheduled to begin about May 1, 1959.

Alberene Stone Corp. of Virginia (Schuyler) continued to quarry and dress soapstone for use as dimension stone for laboratory and architectural applications and for flagging. Some of the soapstone was crushed or ground for roofing granules and for use as a filler.

*Norfolk.*—Lone Star Cement Corp. (South Norfolk) mined marl and clay for manufacturing portland cement in its three-kiln plant. Most of the Type I and II general-use portland cement was consumed within the State, but some was shipped to North Carolina and a small quantity exported. Part of the oystershell produced by J. H. Miles & Co., Inc. (Norfolk), was sold for road building and to Reliance Fertilizer & Lime Corp., which made hydrated agricultural lime from the shell. Approximately three-quarters of the product was returned to the bay for replanting the oysterbeds.

A quantity of sand and gravel for building and highway construction was produced.

Domestic and imported gypsum was calcined for use in gypsum plasters and other products by United States Gypsum Co. at Norfolk. A number of fertilizer plants in the Norfolk area sold imported, uncalcined gypsum for use chiefly as land plaster.

*Nottoway.*—Granite was crushed for use as roadstone and building stone by the Burkeville Stone Co., Inc. (Burkeville). Approximately half of the production was used by the Virginia Department of Highways.

*Orange.*—Roanoke-Webster Brick Co., Inc., produced miscellaneous clay from a new pit near Orange for consumption in making building brick.

*Page.*—Jasper, epidote, and "cave onyx" were reported as collected for gem or mineral specimen purposes at Ida and Luray.

*Patrick.*—A. C. Wilson Co. quarried limestone near Patrick Springs for concrete aggregate and roadstone.

*Pittsylvania.*—Marshall Sand Co. (Danville) and Kendall Sand Works (Danville) washed and

screened sand for building construction and fill. Concrete aggregate and roadstone were produced at a granite quarry near Danville by Barnes Stone Co., Inc. The city of Danville also produced roadstone from a nearby granite quarry.

Southern Lightweight Aggregate Corp. manufactured lightweight aggregate at a two-kiln plant near Cascade from miscellaneous clay mined in North Carolina.

*Powhatan.*—Virginia Stone and Construction Co. produced road material from the Genito granite quarry near Powhatan.

*Prince Edward.*—Kyanite was mined on Baker Mountain near Farmville by the Kyanite Mining Corp. The product was beneficiated at grinding mills at Cullen and Pamplin and consumed in manufacturing high-temperature refractories and special ceramic bodies, including porcelain and insulators.

Mineral specimens were reported from Baker Mountain and Rice and included amazonite and amethyst crystals.

*Prince George.*—Hitch Gravel Corp. dredged sand and gravel from Powell's Creek about 18 miles from Hopewell for road material. Friend Sand & Gravel Co., Inc., and Bryan Rock & Sand Co. of Petersburg produced washed and bank-run sand and gravel, mainly for building and highway construction. A small quantity was used as filter sand. Output was shipped to points of consumption by railroad, waterway, and motor truck.

Nitrogen Division, Allied Chemical Corp., Hopewell, manufactured ammonia, ammonium nitrate-limestone, solid and solution ammonium nitrate, urea solutions, and other nitrogen compounds for use in fertilizers.

Virginia Perlite Corp. expanded perlite from New Mexico at Hopewell for use in building plasters and concrete aggregate.

*Prince William.*—Miscellaneous clay for making heavy clay products was mined by Woodbridge Clay Products Co. near Woodbridge. This firm began developing and erecting a new mine and plant at Manassas; it was scheduled for production in 1959.

Gainesville Stone Quarry, Inc., produced roadstone and concrete aggregate at its basalt quarry near Gainesville.

*Princess Anne.*—Six companies, two using dredges, produced sand and gravel. Building and highway construction each consumed about 38 percent of the total. The remainder of the

output was used as filler in fertilizer, engine sand, molding sand, for grinding and polishing, and as a filter medium.

*Pulaski.*—American Pigment Corp., Hiwassee, mined crude iron oxide pigments, including ocher, sienna, umber, and natural yellows. Mills of the American Pigment Corp. at Hiwassee and Pulaski prepared finished natural and manufactured iron oxide pigments. Materials sold included finished browns, siennas, and umbers, and manufactured yellows and reds.

The city of Radford produced limestone for road maintenance and repairs at a nearby quarry.

*Roanoke.*—Rockydale Quarries Corp. continued to produce crushed limestone for concrete aggregate, roadstone, and agricultural purposes at its quarry near Roanoke. Marl & Stone Corp. produced a small quantity of building sand near Salem.

Old Virginia Brick Co., Inc., operated an open-pit mine to obtain miscellaneous clay for use in making heavy clay products.

*Rockbridge.*—W. G. Matthews, Jr., Inc., continued to mine and grind quartzite at a quarry near Greenlee to produce raw material for ferrosilicon, railroad ballast, and mortar sand. Lone Jack Limestone Co. produced limestone for use as concrete aggregate, roadstone, and railroad ballast from its Glasgow quarry.

Locher Brick Co., Inc., mined surface (miscellaneous) clay for use in manufacturing building brick near Glasgow. This firm enlarged its brick-making facilities by building a continuous drier kiln. Locher Silica Corp., near Goshen, washed and screened sand, mainly for glass. Small quantities were sold for use as building sand and engine sand. Unakite, as gem or mineral-specimen material, was obtained from near Vesuvius Station.

*Rockingham.*—Limestone was mined and crushed for concrete aggregate, roadstone, agstone, and stone sand by R. Y. Frazier and Fred K. Betts, III, at quarries near Harrisonburg. C. S. Mundy Quarries, Inc., 7 miles west of Broadway, also produced limestone for use as roadstone, agstone, concrete aggregate, and lime. Marble was crushed at a quarry near Harrisonburg by Jamison Black Marble Co., Inc., mainly for use as terrazzo.

Output of zinc at the Bowers-Campbell mine and mill of the Tri-State Zinc Co., near Timberville was suspended indefinitely on January 16, because of low prices realized for that metal.

Underground development, however, continued. Zinc concentrate produced prior to the shutdown was shipped to the St. Joseph Lead Co., Josephstown, Pa., smelter.

*Russell.*—The output of bituminous coal declined slightly, and the number of mines dropped to 52 from 68 in 1957. Only 86 percent of the tonnage was produced from underground mines compared with 91 percent in 1957, indicating a substantial increase in strip and auger coal. Leading coal producers were Clinchfield Coal Co. (two underground mines), Smith Coal Co. (two underground mines), and Stallard Bros. Co. (strip and auger mines).

Limestone for building and highway construction was produced by Clinch River Quarries at St. Paul.

*Scott.*—Foote Mineral Co. (Duffield) produced limestone from an underground mine for use as a reagent in its lithium-refining plant. The lithium ore (spodumene) is mined and concentrated near Kings Mountain, N. C., and shipped to the Sunbright plant for extraction of the lithium as hydroxide. A large quantity of limestone was mined by Penn-Dixie Cement Corp. at its Speers Ferry mine for manufacturing cement at its plant near Kingsport, Tenn. Concrete aggregate, roadstone, agstone, filler, and filter medium were produced from limestone mined by Blountville Construction Co. from its Tri-State Lime quarry. Natural Tunnel Stone Co. (Clinchport) produced road material and concrete aggregate from its limestone mine.

Coal production dropped substantially, as output was reported from only two mines compared with six in 1957. The production of natural gas from the Early Grove field in the southeastern part of the county virtually ceased.

*Shenandoah.*—Shenandoah Valley Lime & Stone Corp. (Strasburg) mined and crushed limestone for blast-furnace and open-hearth furnace flux. Most of the production was shipped by rail. C. S. Mundy Quarries, Inc., near Timberville, and Toms Brook Lime & Stone Co., Inc., Toms Brook, produced limestone for concrete aggregate, roadstone, and agstone. Chemstone Corp., Strasburg Dominion Division (Strasburg), produced limestone for metallurgical flux and other uses and to supply the company Dominion and Strasburg Division lime-burning plants. Most lime produced was shipped to Ohio and Pennsylvania. During the year Chemstone Corp. consolidated all its limestone and lime-processing

operations at its Dominion site. A larger and more efficient crusher was installed at this plant. The older Strasburg mine and mill were abandoned.

*Smyth.*—Olin-Mathieson Chemical Corp. (Saltville) continued to produce chlorine, soda ash, and other chemicals at its Saltville plant in northwest Smyth County from brines recovered from underground rock-salt deposits and limestone mined by the company. A small quantity of limestone was sold for concrete aggregate. Crushed limestone for building and highway construction was mined near Marion by Holston River Quarry, Inc.; R. Snyder & Sons and Sayers Sand Co., both of Marion, produced washed and screened sand for building.

Shales (miscellaneous clay) were mined at Groseclose, a few miles northeast of Marion, by Appalachian Shale Products Co., for use in making building brick.

Manganese ore of 35 percent or better manganese content was produced by Marion Manganese Ore Co., Sidney Manganese Corp., and O. E. Sayers, near Marion. The first two firms suspended operations indefinitely in July.

*Spotsylvania.*—Fredericksburg Stone Co. near Fredericksburg quarried, crushed, and screened granite for road material, concrete aggregate, railroad ballast, and riprap. Massaponax Sand & Gravel Corp., Fredericksburg, washed and screened sand and gravel in a stationary plant. Output was used for building and highway construction.

*Stafford.*—Diamond Construction Co. prepared sand and gravel for use as paving material.

*Surry.*—Friend Sand & Gravel Co., operating a mobile plant, produced sand and gravel for building construction and road material.

*Tazewell.*—Coal output dropped 31 percent in both quantity and value compared with 1957. The county was fourth in rank of Virginia coal-producing counties. Production was obtained from 41 mines, of which 32 were underground, 3 were strip, and 6 auger. Sixty-four mines were active in 1957. Some 94 percent of the county coal output came from underground mines. Leading producers were Pocahontas Fuel Co., Inc. (Amonate, Bishop, Boissevain, and Jenkin-Jones mines), Jewel Ridge Coal Corp. (No. 1 mine), and Alfredton Coal Co. (Alfredton mine).

Pounding Mill Quarry Corp. at its Pounding Mill Quarry produced a large quantity of lime-

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stone for construction, agricultural, and metallurgical purposes as well as for coal mine rock dust and use as stone sand. More than half of the output was shipped by motor truck, the balance by railroad. Two small producers quarried limestone for manufacture of lime largely for local consumption.

Miscellaneous clay was mined by General Shale Products Corp. from its Richland mine for use in making heavy clay products, chiefly building brick.

*Warren.*—Riverton Lime & Stone Co. Division, Chadbourne Gotham, Inc., manufactured masonry cement at its Riverton plant. The company also produced limestone at its No. 5 quarry for building and highway construction, agstone, and railroad ballast.

*Washington.*—Lambert Bros., Inc., Division of Vulcan Materials Co., Bristol, and Meadowview Lime Co., Meadowview, mined limestone for use as roadstone, concrete aggregate, and agstone.

A gypsum mine and plasterboard plant were operated by United States Gypsum Co. at Plasterco. The mine was the only gypsum producer in the State.

*Wise.*—Wise County ranked second among coal-producing counties. Output declined 2 percent in tonnage and 8 percent in value compared with 1957. The value dropped below \$30 million. Some 294 mines contributed to the total output—261 deep mines, 24 strip, and 9 auger. More than 1 million tons was stripped or 16 percent of the county total, and 360,000 tons mined by auger, the largest quantities mined by these methods of any county in the State. Only 78 percent of the tonnage came from underground mines. Leading producers were Stonega Coke & Coal Co. (six underground mines, two strip operations, and

two auger mines), Stamack Mining Co. (one strip and one auger), Central Pennsylvania Quarry, Strip & Construction Co. (one strip and one auger), Coal Processing Corp. (one underground mine), and Wise Coal & Coke Co. (one underground mine). A small quantity of natural gas was obtained from wells by Clinchfield Coal Co.

*Wythe.*—Output of recoverable lead and zinc at Austinville was curtailed in July and reduced to half of the mill capacity. The Ivanhoe mine, on production status only since September 1957, was placed on a standby basis on July 1, owing to the lower market. Concentrate was shipped to smelters for metal recovery. A large tonnage of byproduct dolomite was marketed mostly as agstone, with smaller quantities for fertilizer filler or extender and road construction.

A small quantity of metallurgical manganese of 35 percent or better Mn content was produced by K. & L. Mining Co. near Marion.

Pendleton Construction Corp. (Wytheville) and H. D. Crowder (Poplar Camp) mined and crushed limestone for highway and building construction. The city of Wytheville produced limestone from the town quarry for use in building and maintaining streets. Silica Products Co., Wytheville, produced paving and road sand in a stationary plant at Wytheville.

*York.*—Whalebone and sharks' teeth were collected as mineral specimens from Indian Creek.

#### Industrial Expansion

Lone Star Cement Corporation has authorized a \$6.5 million expenditure to enlarge its plant facilities at Norfolk, Virginia. This expenditure will provide a 1-million barrel kiln and will increase the plant capacity to 2.3 million barrels a year.