



# VIRGINIA MINERALS

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No. 3

A quarterly designed to acquaint the public with the mineral resources and activities of Virginia, and to furnish information on market quotations, new discoveries and developments, and pertinent publications. Distributed free upon request to the Division of Mineral Resources.

## ANNOUNCEMENT OF THE DIVISION OF MINERAL RESOURCES OF THE DEPARTMENT OF CONSERVATION AND DEVELOPMENT

### BIOGRAPHY OF THE COMMISSIONER

On May 1, 1957, Dr. James L. Calver was installed as Head of the newly organized Division of Mineral Resources by Mr. Raymond V. Long, Director, Virginia Department of Conservation and Development. Dr. Calver will serve as Commissioner of the Division as well as State Geologist. The Division of Mineral Resources includes the work of the former Division of Geology and incorporates additional functions pertaining to mineral economics. On April 30, 1957, Mr. William M. McGill resigned as State Geologist after having held that position for ten years and the position of Assistant State Geologist for eighteen years.

Dr. Calver was born June 15, 1913, at Pontiac, Michigan, and attended the public schools of that city prior to completing his formal education at the University of Michigan where he received three degrees. An A.B. degree was granted in 1936, M.S. in 1938, and Ph.D. in 1942. While a graduate student at the University of Michigan, he held a teaching fellowship and during several summers he was employed by the Michigan Geological Survey. During the academic years of 1940-41 and 1941-42, he held an instructorship at the University of Wichita, Wichita, Kansas, where he taught Economic Geology and Mineralogy. The following year he held an assistant professorship in Economic Geology and Mineralogy at the University of Missouri, Columbia, Missouri. From 1943 through 1947, Dr. Calver was employed by the Tennessee Valley Authority as Associate Geologist in the Regional Products Research Division. There he put to practical use his knowledge of economic geology by relating specifications of raw materials to industrial products, particularly in the field of nonmetallic materials. Following World War II, he accepted an appointment as Geologist on the staff of the Florida Geological Survey, Tallahassee, Florida. In Florida he was particularly interested in the development of new uses for clays, sands, and limestones, as well as investigating sand deposits that contained ilmenite, rutile, zircon, and related minerals. He has recently completed a manuscript which will be published by the Florida Geological Survey, entitled "Mining and Mineral Resources" of Florida.



Dr. James L. Calver

In 1945, Dr. Calver married Lela M. Mynatt of Knoxville, Tennessee, and they have two boys, Stevan 11, and Lewis 10. The Calvers recently purchased a home in Charlottesville, Virginia, at 1614 Oxford Road.

In commenting on his appointment, Mr. Raymond V. Long, Director, said "Virginia is indeed fortunate in securing the services of Dr. Calver. His intimate, practical experience in the field of economic geology will be invaluable in organizing the activities of the Division of Mineral Resources."

## OBJECTIVES OF THE DIVISION

By  
 Dr. Marcellus H. Stow  
 Professor of Geology  
 Washington and Lee University

The former Virginia Geological Survey has been reorganized and is now officially the Division of Mineral Resources. Details of organization have not been developed, but the functions will be expanded to include two major objectives: (1) Scientific and technical studies of the geology and mineral resources of the State, and (2) economic studies pertaining to the development and utilization of these resources. Each of these two aspects is so highly specialized that an economist cannot adequately and effectively comprehend and use the results of the geological investigations and the geologist cannot adequately and effectively comprehend the economic implications of the geological investigations. Hence, there must be careful coordination between technical scientific geology and mineral economics within the organization. For this the services of a mineral economist will be required.

Both subdivisions are essential. Adequate development of a State's mineral resources cannot be made until scientific data pertaining to them have been obtained. By the very nature of the work, basic scientific research cannot have "use" as a primary objective. The electric motor, radio, television, atom bomb, were useful developments based on principles discovered by fundamental scientific research. Frequently, there is a long time lag between the time scientific data are obtained and economic or useful application of these data is made.

It is imperative that a State have adequate scientific studies made of its geology. However, information pertaining to the use or value of this information is necessary to justify, ultimately, the expenditure of public funds for the scientific investigations. This justification cannot be balanced on a year to year basis, but only of periods of many decades. It is very easy to establish that, over a period of time, fundamental geological investigations produce economic advantages equal to many times the cost of the original geological studies.

It would not be appropriate for me to present details of an organizational structure of the new Division. Development of the organization will be one of the first objectives of the Commissioner, but the functions of certain specific units have been discussed by various interested representatives of the State Government and geologists of Virginia.

Basic to all geological work are studies of minerals and rocks; hence there should be a unit of Mineralogy and Petrology. These studies should include microscopic examination and chemical analyses pertaining to composition, identification, origin and interrelation of rocks and minerals. These studies should include those materials that are of scientific, popular, or economic interest.

A unit concerned with Stratigraphy and Structural Geology is visualized, as studies in

these fields are essential to the interpretation of the geology of any area and to the development of economic mineral resources.

An Economic Geology unit should be established to obtain information on the rocks and minerals that are, or potentially could be, of importance to the economy of Virginia and the nation. Primary concern of this unit would be with scientific information rather than with problems in economics. Subdivisions of the unit might consist of metallics, nonmetallics, and fuels.

Geophysics and geochemistry should be represented in an appropriate unit of the Division. Modern geological research necessitates use of these two specialized tools developed from the respective fields of physics and chemistry.

Geology is "the study of the earth and its prehistoric inhabitants." Hence, it is axiomatic that Field Geology is the most important single aspect of all geological work -- scientific and economic. Laboratory studies are important, but are secondary to the outdoor examination of the minerals, rocks, and structures of the earth. "Arm-chair geology" -- indoor contemplation and supposition, without field observation -- is absolutely worthless! Hence, an adequate field program is the foundation of any Division of Mineral Resources or Geological Survey. The permanent staff should engage in extensive field studies, but it is very important that this staff be supplemented by a temporary summer staff of competent senior geologists, graduate school students, and undergraduate assistants. This summer staff is of basic importance as a training ground for the next generation of mineralogists, economic geologists, and geophysicists.

Compilation and publication of the results of field and laboratory work should be correlated under the direction of a competent and efficient editor. Scientific or economic data are worthless unless made available to those who need it. Hence, the results of investigations should be published as promptly as possible and should be made available on a preliminary basis as soon as any significant information is obtained. This policy should apply particularly to geological mapping. Maps and reports in closed files are of no value to anyone!

Economic studies should be developed in a section of Mineral Economics. The function of this section should be to make available to the public the data of economic significance that have been developed by the technical geologists. Its staff should make studies of mineral and rock production of present and potential uses of mineral and rock products, and of industries that might be interested in development of the deposits of the State. Information pertaining to the geology of Virginia should be made available to and coordinated with other divisions and departments of the state government, to industry, chambers of commerce, educational institutions, and to the public in general. Public relations should be an important consideration.

To conclude the discussion of possible organization, it is appropriate to list a few of the objectives of the new Division.

A. Technical and scientific objectives:

1. To determine the occurrence, extent, and quality of the State's mineral resources.
2. To map and describe the geological formations and features of the State by counties.
3. To map and describe the geological formations and features of the State by 15-minute quadrangles.
4. To prepare and keep up-to-date a key map showing status of geologic mapping in Virginia.
5. To complete and modernize the topographic mapping in Virginia.
6. To revise and publish the manuscripts now in the files of the Division.
7. To prepare and publish two volumes on the geology of Virginia: (a) a technical edition, (b) a popular edition.
8. To examine and identify specimens of rocks and minerals of the State as requested by residents or landowners.
9. To prepare and distribute sets of Virginia rocks and minerals, for nominal charge, to schools, clubs, other organizations and individuals.
10. To prepare and publish maps and popular reports on the geology of the State Parks.

**B. Application of technical and scientific investigations to the economic development of the State's mineral resources should include:**

1. Interpretation of the technical and scientific studies through publications designed for public information and understanding.
2. Determination of present and potential uses of the State's minerals, the present and potential market, and publication of this information.
3. Encouragement of prospecting and exploration for economically valuable minerals and rocks.
4. Promotion of best use and prevention of waste of mineral resources.
5. Collection and publication of up-to-date statistics on the State's mineral production.
6. Preparation and publication of reports on the minerals and rocks of economic importance.
7. Advisory and technical assistance to individuals, local governments, business organizations and industries concerning the use of Virginia minerals.
8. Development of a close cooperative relationship with other Divisions of the

Department of Conservation and Development and other State and Municipal agencies.

9. Development of a close cooperative relationship with the schools of Virginia.

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**THE MINERAL INDUSTRY OF VIRGINIA IN 1956  
(Preliminary)**

This release has been prepared under a cooperative agreement for the collection of mineral data, except mineral fuels, between the Bureau of Mines, Department of the Interior, and the Virginia Department of Conservation and Development.

The value of mineral production in Virginia in 1956 increased to \$201,781,000, a rise of 17 percent compared with 1955, according to estimates by the Bureau of Mines, United States Department of the Interior. This increase was due to an 18 percent rise in the output of coal, largely as a result of much higher export demands in 1956, particularly from European countries.

Mineral commodities showing large gains in value in 1956 over 1955 levels were sand and gravel and clays, the value of sand and gravel rising to \$10,339,000, or 28 percent higher than in 1955, and that of clays to \$1,126,000, or 29 percent more than in 1955. The value of kyanite output also increased substantially. Moderate gains of from 1 to 7 percent were made in the value of lead and titanium concentrate production among the metallic minerals and in the value of output of gypsum, pyrites, salt, and stone among nonmetallic minerals.

By far the most important stone in both quantity and value was crushed limestone, followed by crushed granite, basalt, and sandstone. Other kinds of stone produced were dimension sandstone, crushed marble, and crushed and dimension miscellaneous stone. The values of feldspar, iron oxide pigments and calcareous marl were estimated to be higher in 1956 than in 1955, while those of aplite and talc and ground soapstone declined. Although not mined in Virginia, the output of expanded perlite continued at an active pace during 1956.

Production of fuels other than coal were relatively small, and included petroleum and natural gas. Natural gas showed a moderate increase in output, while petroleum had a small decrease in 1956 compared with 1955.

1/ Prepared by Robert W. Metcalf, Commodity-industry analyst, under the supervision of Robert D. Thomson, Acting Chief, Division of Mineral Industries, Region V, and published as Mineral Industry Surveys Area Report H-60.

TABLE 1. - Mineral production in Virginia, 1955-56 1/

Mineral and rock products	1955		Preliminary 1956	
	Short tons (unless other- wise stated)	Value	Short tons (unless other- wise stated)	Value
Beryllium concentrate . . . . . pounds	1,259	389	(2)	(2)
Clay . . . . .	935,941	873,348	1,207,000	\$ 1,126,000
Coal . . . . .	3/23,507,509	3/108,173,907	27,855,000	(2)
Gem stones . . . . . pounds	255	344	(2)	(2)
Lead . . . . .	2,997	893,106	3,000	960,000
Lime (open market) . . . . .	494,293	5,048,697	340,000	3,475,000
Manganese ore (35% or more Mn) . . . . .	32,654	2,779,337	21,000	1,787,000
Natural gas . . . . . million cubic feet	968	259,000	1,000	(2)
Petroleum . . . . . thousand 42-gal. bbls.	12	(2)	9	(2)
Sand and gravel . . . . .	6,460,886	8,076,104	8,010,000	10,339,000
Silver . . . . . ounces	1,850	1,674	1,927	1,653
Slate . . . . .	31,536	820,124	(2)	(2)
Stone . . . . .	11,965,890	19,869,675	12,262,941	20,148,000
Zinc . . . . .	18,329	4,508,934	19,000	5,130,000
Undistributed: Aplite, beryllium con- centrate (1956), cement, feldspar, gem stones (1956), gypsum, iron oxide pig- ments, kyanite, calcareous marl, mica, pyrites, salt, slate (1956), talc and ground soapstone, titanium concen- trate, and minerals whose value must be concealed for particular years, indicated in appropriate column by footnote 2 . . . . .				161,500,000
Total Virginia 4/ . . . . .		\$172,559,000		\$201,781,000

1/ Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

2/ Included under "Undistributed."

3/ Preliminary - subject to revision.

4/ Total has been adjusted to eliminate duplication in the value of clay and stone used in cement and lime.

LIST OF PUBLICATIONS AVAILABLE FROM  
VIRGINIA DIVISION OF MINERAL RESOURCES

Remittance by check or money order made payable to the Division of Mineral Resources is requested for publications that have a nominal charge.

- | Number | <u>Bulletins</u>  |
|--------|---|
| 5.     | The underground water resources of the Coastal Plain of Virginia, by Samuel Sanford, 1913.  |
| 9.     | The coal resources and general geology of the Pound quadrangle in Virginia, by Charles Butts, 1914.   |
| 10.    | Surface water supply of Virginia, by G. C. Stevens, including drainage map of Virginia showing gaging stations, 1916.   |
| 12.    | The coal resources of the Clintwood and Bucu quadrangles, Virginia, by Henry Hinds, 1916.   |
| 13.    | The clays of the Piedmont province, Virginia, by H. Ries and R. E. Somers, 1917. Price: 25 cents.   |
| 14.    | The geology and ore deposits of the Virgilia district of Virginia and North Carolina, by F. B. Laney, 1917. Price: \$1.00.  |
| 16.    | The country about Camp Lee, Virginia, by A. W. Giles, 1918. Price: 25 cents.  |
| 18.    | The geology and coal resources of Buchanan County, Virginia, by Henry Hinds, with a section on the forests of Buchanan County, by W. G. Schwab, 1918. Price: \$1.00.  |
| 19.    | The geology and coal resources of the coal-bearing portion of Tazewell County, Virginia, by T. K. Harnsberger, 1919. Price: \$1.00.   |
| 20.    | The clays and shales of Virginia west of the Blue Ridge, by H. Ries and R. E. Somers, 1920. Price: 25 cents.  |
| 21.    | The geology and coal resources of Dickenson County, Virginia, by A. W. Giles, 1921. Price: \$1.00.  |
| 22.    | The geology and coal resources of Russell County, Virginia, by C. K. Wentworth, with a section on the forests of Russell County, by J. W. O'Byrne, 1922. Price: \$1.00.   |
| 24.    | The geology and mineral resources of Wise County and the coal-bearing portion of Scott County, Virginia, by J. B. Eby, with sections by M. R. Campbell and G. W. Stose, and with a section on the forests of Wise County, by F. C. Pederson, 1923. Price: \$1.00. |
| 25.    | The Valley coal fields of Virginia, by M. R. Campbell and others, with a section on the forests of the Valley coal fields, by F. C. Pederson, 1925. Price: \$1.00.  |
| 26.    | The geology and coal resources of the coal-bearing portion of Lee County, Virginia, by A. W. Giles, with a section on the forests of Lee County, by H. L. Baker, 1925. Price: \$1.00.   |
| 27.    | Oil and gas possibilities at Early Grove, Scott County, Virginia, by Charles Butts, 1927. Price: 25 cents.  |
| 28.    | Fensters in the Cumberland overthrust block in southwestern Virginia, by Charles Butts, 1927. Price: 25 cents.  |
| 31.    | Water resources of Virginia, by J. J. Dirzulaitis and G. C. Stevens, 1927. (Also available from the Division of Water Resources, Department of Conservation and Development, Room 8, The Capitol, Richmond 19, Virginia.)   |
| 32.    | Sand and gravel resources of the Coastal Plain province of Virginia, by C. K. Wentworth, 1930.  |
| 37.    | (Educ. Ser. No. 2.) The Lower York-James Peninsula, by J. K. Roberts, 1932. Price: 50 cents.  |
| 38.    | Kyanite in Virginia, including Geology of the kyanite belt, by A. I. Jonas, and Economic aspects of kyanite, by J. H. Watkins, 1932. Price: \$1.00.   |
| 41.    | Preliminary report on ground-water in northern Virginia, by R. C. Cady, 1933.   |
| 43.    | Zinc and lead region of southwestern Virginia, by L. W. Currier, 1935. Price: 50 cents.   |
| 44.    | Preliminary report on gold deposits of the Virginia Piedmont, by C. F. Park, Jr., 1936. Price: 50 cents.  |
| 45.    | Ground-water resources of the Shenandoah Valley, Virginia, by R. C. Cady, with analyses by E. W. Lohr, 1936.  |
| 46-G   | The Natural Bridge of Virginia, by F. J. Wright, 1936.  |
| 47.    | (Educ. Ser. No. 3.) Outline of the mineral resources of Virginia, by William M. McGill, 1936. Price: 50 cents.  |
| 49.    | (County Ser. No. 2.) Outline of the geology and mineral resources of Russell County, Virginia, by H. P. Woodward, 1938.   |
| 52.    | Geology of the Appalachian Valley in Virginia, by Charles Butts, 1941. Price: Complete, \$1.50; Part II (Fossil Plates and Explanations) 50 cents.  |
| 53.    | Barite deposits of Virginia, by R. S. Edmundson, 1938.  |
| 54.    | Geology and mineral resources of the Warrenton quadrangle, Virginia, by A. S. Furcron, 1939.  |

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## Bulletins (continued)

- Number
55. Geology of the Draper Mountain area, Virginia, by B. N. Cooper, 1939.
  56. The Early Grove gas field, Scott and Washington counties, Virginia, by Paul Averitt, 1941. Price: \$1.00.
  57. Eocene of Virginia, by Benjamin Gildersleeve, 1942.
  58. Chloride in ground-water in the Coastal Plain of Virginia, by D. J. Cederstrom, 1943.
  59. Manganese and quartzite deposits in the Lick Mountain district, Wythe County, Virginia, by F. W. Stead and G. W. Stose, 1944.
  60. Geology and mineral resources of the Burkes Garden quadrangle, Virginia, by B. N. Cooper, 1945. Price: 25 cents.
  61. Geology and manganese deposits of the Glade Mountain district, Virginia, by R. L. Miller, 1945. Price: 25 cents.
  62. Industrial limestones and dolomites in Virginia: New River-Roanoke River district, by B. N. Cooper, 1945.
  63. Geology and ground-water resources of the Coastal Plain in southeastern Virginia, by D. J. Cederstrom, 1946.
  64. Commercial granites and other crystalline rocks in Virginia, by Edward Steidtmann, 1945.
  66. Industrial limestones and dolomites in Virginia: Clinch Valley district, by B. N. Cooper, 1951.
  67. An Upper Eocene foraminiferal fauna from deep wells in York County, Virginia, by J. A. Cushman and D. J. Cederstrom.
  68. Chemical character of ground-water in the Coastal Plain of Virginia, by D. J. Cederstrom, 1951.
  69. Public and industrial ground-water supplies of the Roanoke-Salem district, Virginia, by Bruce F. Latta, 1956.
  70. Sulfide mineralization in the Shenandoah Valley of Virginia, by Paul Herbert, Jr., and Robert S. Young, 1956.
  71. Geology and oil resources of the Rose Hill district--the Fenster area of the Cumberland overthrust block--Lee County, Virginia, by Ralph L. Miller and J. Osborn Fuller, 1954. Price: \$2.00.

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Circulars

Number

1. Ground-water resources of the southeastern Virginia Coastal Plain, by D. J. Cederstrom, 1941.
3. Selected well logs in the Virginia Coastal Plain north of James River, by D. J. Cederstrom, 1945.
5. Planning mineral resources into mineral industries, by Arthur Bevan, 1945.

Reprint Series

2. Virginia's mineral industries, by Arthur Bevan, 1938.
3. Virginia's industrial limestones, by Arthur Bevan, 1941.
4. Virginia's war mineral resources, by Arthur Bevan, 1942.
5. Manganese-bearing veins in southwestern Virginia, by Anna I. Jonas, 1942.
6. Deep wells in the Coastal Plain of Virginia, by D. J. Cederstrom, 1943.
16. Structural framework and mineral resources of the Virginia Piedmont, by William R. Brown, 1954.
17. Geology of the Bergton gas field, Rockingham County, Virginia, by Robert S. Young and Wilbur T. Harnsberger, 1955.
18. The mineral industry of Virginia (1952), by Richard H. Mote and Alvin Kaufman. (Reprinted from U. S. Bureau of Mines Minerals Yearbook 1952, Vol. III.)
19. The mineral industry of Virginia (1953), by Norwood B. Melcher and Alvin Kaufman. (Reprinted from U. S. Bureau of Mines Minerals Yearbook 1953, Vol. III.)

Mineral Resources Circulars

1. Iron in Virginia, by Edwin O. Gooch, 1954.
3. Records of selected wells on the Eastern Shore peninsula, Virginia, by Allen Sinnott and G. Chase Tibbitts, Jr., 1955.
4. Summary of geology and ground-water conditions in the Fredericksburg district, eastern Spotsylvania County, Virginia--A Preliminary Report--by Seymour Subitzky, 1955.
5. Titanium, by Arthur A. Pegau, 1956.
6. Subsurface correlations based on selected well logs from the Eastern Shore peninsula, Virginia, by Allen Sinnott and G. Chase Tibbitts, Jr., 1957.

Virginia Minerals

Vol. 1

- No. 1. A summary of Virginia's mineral resources, by C. C. Fisher.
- No. 2. Virginia's oil and gas resources, by W. T. Harnsberger.
- No. 3. Ground water in Piedmont Virginia, by V. R. Geyer.
- No. 4. Uranium in Virginia, by Marcellus H. Stow.
- No. 5. Current manganese operations in Virginia, by Edwin O. Gooch.

Vol. 2

- No. 1. Sulfides in Virginia, by Robert S. Young.
- No. 3. Geophysical surveying, by H. R. Hopkins.
- No. 4. Spelunking in Virginia, by Jean Lowry.

Vol. 3

- No. 1. Vermiculite, by Edwin O. Gooch.
- No. 2. Mineral collecting in Virginia, by Arthur A. Pegau.

Guidebooks

Guidebook field conference of Pennsylvania geologists, Virginia, by Arthur Bevan with the collaboration of Charles Butts, Frank M. Swartz, Anna I. Jonas, A. S. Furcron, Earl A. Trager, and Joseph K. Roberts, 1938.

Joint field conference in the Harrisonburg area, Virginia, by Appalachian Geological Society, Commonwealth of Virginia - Division of Geology, and West Virginia Geological Survey, May 19-22, 1955. Price: \$1.00.

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NEWS ITEMS

On May 10, 1957, Drs. James L. Calver and Edwin O. Gooch, and Mr. H. R. Hopkins attended the Virginia Academy of Science meeting at Old Point Comfort, Virginia. Mr. Hopkins presented a paper on "Magnetic Intensities of Some Rock in the Vicinity of Lynchburg, Virginia," based on the field work in the Lynchburg Hematite and Magnetite District. Dr. Gooch presented a paper on "Vermiculite in Virginia."

Dr. C. R. B. Hobbs, Jr. joined the permanent staff on June 17. His present interest lies in stratigraphy and structure of the Coastal Plain. He has received the major part of his education in Virginia. The B.S., M.S., and Ph.D. degrees were obtained at Virginia Polytechnic Institute, Blacksburg, Virginia. His interest is in the petrology and utilization of silica and dolomite in carbonate rocks and he submitted a doctoral dissertation entitled, "Petrography and Origin of Dolomite-Bearing

Carbonate of Ordovician Age in Virginia." Dr. Hobbs has recently given a paper at the Virginia Academy of Science on some aspects of the origin of dolomite. He is a member of American Association of Petroleum Geologists, Geological Society of America, and Sigma Xi.

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NEW SERVICE COMPANIES

An announcement has been received of the formation of a new geophysical division of Virginia Research Associates, Inc., P. O. Box 3173, University Station, Charlottesville, Virginia. The division is equipped to offer the following services:

1. Self potential, resistivity, and magnetic surveys.
2. Custom instrumentation.
3. Repair and servicing of geophysical instruments.

For further information, inquiries should be addressed to Mr. A. R. Kuhlthau, President.

The Alste Chemical Laboratory, 147 West Brambleton Avenue, Norfolk 10, Virginia, announced their services to make quantitative chemical analyses of minerals, ores, and soils, as well as construction materials. Mr. J. Mizroch is in charge of the laboratory.

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REPRODUCTIONS OF STATE GEOLOGIC MAP AVAILABLE

Black and white reproductions of the state geologic map are now available at the office of the Division of Mineral Resources, Box 3667, University Station, Charlottesville, Virginia, for one dollar per copy. This is a reproduction of the 1928 colored geologic map of Virginia. Orders received will be given prompt attention.

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RECENT TOPOGRAPHIC MAPS

The following topographic maps have been published recently and are now available from this office: Brandon, Claremont, Dendron, Providence Forge, Roxbury, Surry, Walker, and Westover. Each covers a 7½-minute quadrangle and is on a scale of 1:24,000, with a contour interval of 20 feet. They cover portions of New Kent, Charles City, James City, Prince George, and Surry counties.

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SUMMER FIELD PROGRAM OF THE DIVISION OF MINERAL RESOURCES

The summer field program of the Division of Mineral Resources includes the following seven projects:

Completion of detailed mapping and collection of samples of clays and shales from the Danville Triassic--Carl T. Meyertons.

Division of Mineral Resources  
 Box 3667, University Station  
 Charlottesville, Virginia

Summer Field Program (continued)

Geology and mineral resources of the south-central part of the Piedmont region (Albemarle and Nelson counties)--Harvey C. Sunderman. Dr. Sunderman will be assisted by Mr. John Tappe.

Geology and mineral resources of the Broadway quadrangle, Virginia, (Rockingham County)--Wilbur T. Harnsberger. Mr. Harnsberger will be assisted by Mr. Walter Edmund Henes.

Study of the geology and mineral resources of the southeastern portion of the Parnassus quadrangle--Joseph G. Patterson.

Study of the limestones of the Piedmont province of Virginia, north of James River--Tinsley Mack.

Study of the soapstone deposits of Virginia--H. Robert Hopkins. Mr. A. W. McThenia, Jr., who is a geology student at Washington and Lee University, will assist Mr. Hopkins in this study.

Study of the stratigraphy and structure of the northwest portion of the Roanoke quadrangle and adjacent areas in the Salem and Eagle Rock quadrangles--Robert F. Nichol.

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NEW PLANTS

A new Solite plant, operated by the Southern Lightweight Aggregate Corporation of Richmond, was placed in operation at Leaksville Junction near Danville on June 1. It is the third Solite plant to be established by the Southern Lightweight Aggregate Corporation. The other plants are located in Buckingham County, Virginia, and Stanley County, North Carolina.

The Union Carbide & Carbon Corporation has announced plans for a new plant at Warwick, Virginia, which will grade and classify manganese and chromium

ores at the rate of about 30,000 tons a month. Unloading facilities will be able to handle ocean-going cargoes at the rate of 500 tons per hour. The ore will be shipped by rail to the plants of the Electro Metallurgical division of Union Carbide.

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