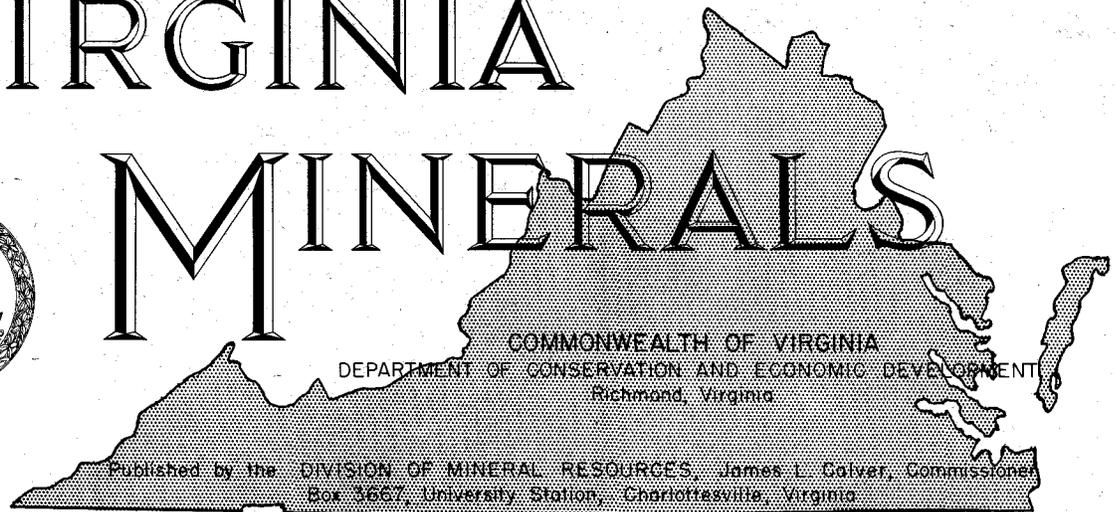


VIRGINIA



MINERALS



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No. 2

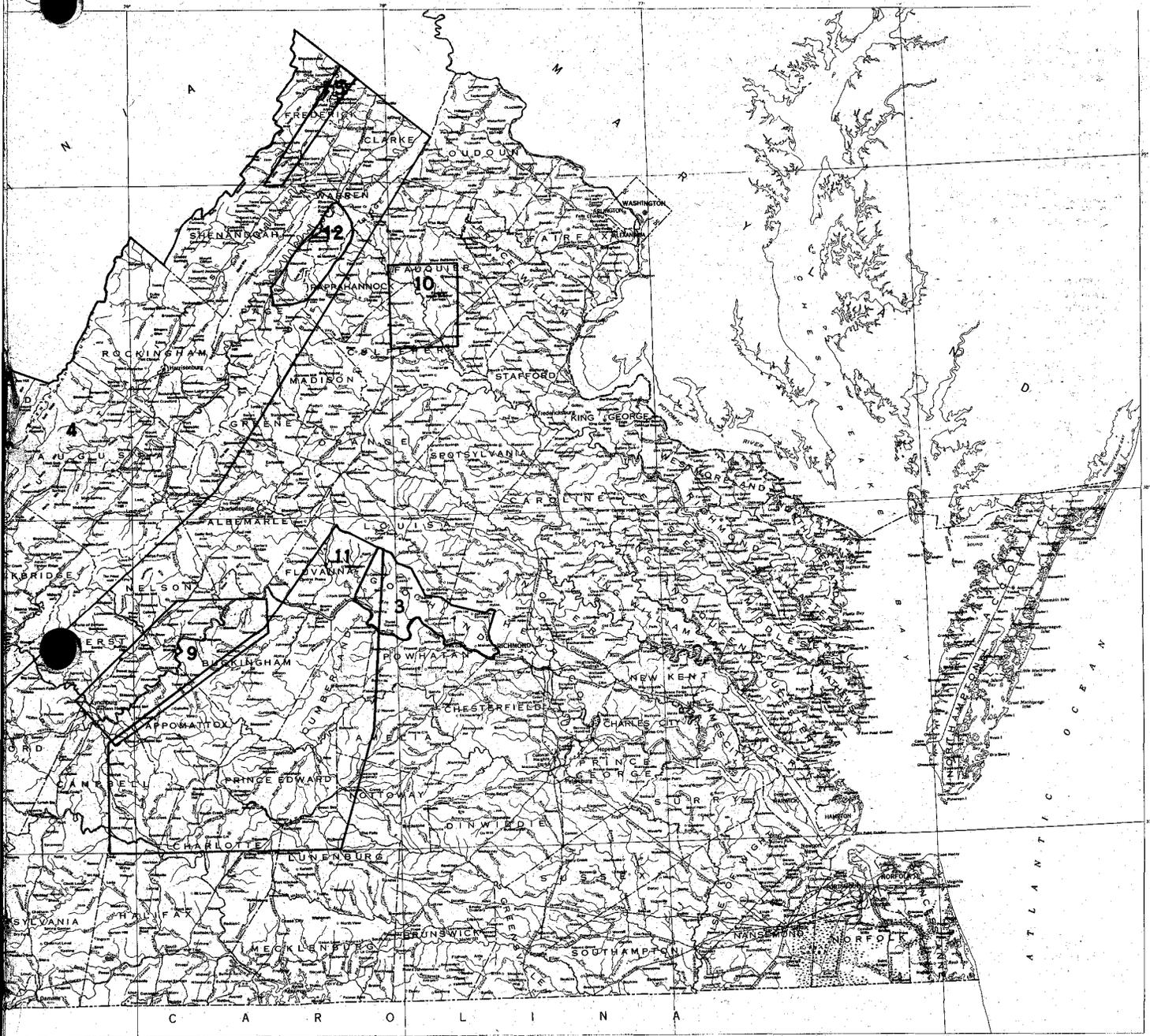
GEOLOGIC MAPPING

From the coal fields of Southwestern Virginia through the granitic core of the Blue Ridge Mountain to the sands of Tidewater Virginia, more than 30 mineral commodities are mined and utilized industrially. These include coal used for many domestic and industrial purposes such as heating, electric power generation, and coke manufacture; limestone for the manufacture of lime, calcium carbide, paper, whiting, alkalies, cement, rubber, plastics, as flux in steel manufacture, and for water purifying, building materials, mine safety dust, and agricultural uses; dolomite, sandstone, diabase, granite, and basalt for production of concrete aggregate and roadstone; shale and clay for the manufacture of cement, brick and tile, pottery, sewer pipe, lightweight aggregate, and clay dummies; and sand and gravel for use in paving, construction, glass manufacture, filtration, railroad ballast and fill. Industrial minerals including, salt, gypsum, kyanite, feldspar, slate, soapstone, ilmenite, rutile, sphalerite and galena also have definite relations to rock structures and rock types. Knowledge of the location of these and other mineral and rock materials beneath the ground surface is important in their commercial recovery and in the planning and construction of highways, dams, tunnels, and buildings.

To illustrate the location, extent, structure, and quantity of these materials and their enclosing rock types it is necessary to prepare a map. A geologic map is a plan of the type and distribution of various rocks present at and beneath the ground surface. Where possible a topographic

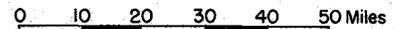
map that meets modern accuracy standards is used as a base for compilation. Close examination of aerial photographs may aid in recognition of the types of rock that are present and such geologic features as folds and faults and mineralized areas. The geologist must identify the various rock units and trace their extent throughout the area to be mapped. Samples of the more complex rocks may be analyzed in the laboratory by use of microscopes, X-ray units, and other specialized instruments. Surface exposures of mappable rock units, or formations, are outlined on the map. This information is carefully plotted on a topographic map base with respect to natural features, ie. ridges, valleys, and streams, and to cultural features, ie. roads, dwellings, and power lines. Well data, test borings and magnetometer, gravity, and resistivity surveys may be used to aid in the identification and interpretation of the geologic units. The position, shape, and size of rock masses may be interpreted from such a map. By use of geologic maps geologists, mine and quarry owners and operators, industrial mineral producers, promoters, mining and materials engineers, agronomists, and others can determine the location of rock deposits that may be utilized in present and future mineral resource exploitation.

An index to published geologic mapping in Virginia is being prepared by the Division of Mineral Resources. Maps that have scales less than 1:24,000 are listed; those maps that are generalized or are copies of previously published maps are excluded. The location of the areas for



Scale

Maps with a scale larger than 1:24,000, and generalized maps have been excluded from this index.



Ground and airborne data collected indicate that the outstanding magnetic feature is a major trend of magnetic high anomalies 4 to 12 miles in width that extends in a northeasterly direction from the vicinity of Sussex, Sussex County, to Currioman Bay, Westmoreland County, a distance of about 100 miles. The trend continues northward into Maryland. Values of vertical magnetic intensity as much as 2000 gammas above the

regional field were recorded locally along this trend. A second trend of magnetic highs extends northwestward from the vicinity of Whaleyville, Nansemond County, to the James River in northeastern Prince George County, a distance of approximately 50 miles. These two trends are bordered in part by magnetic lows. An elongate northerly-trending magnetic high occurs west of West Point, King William County. A prominent

1941-1950

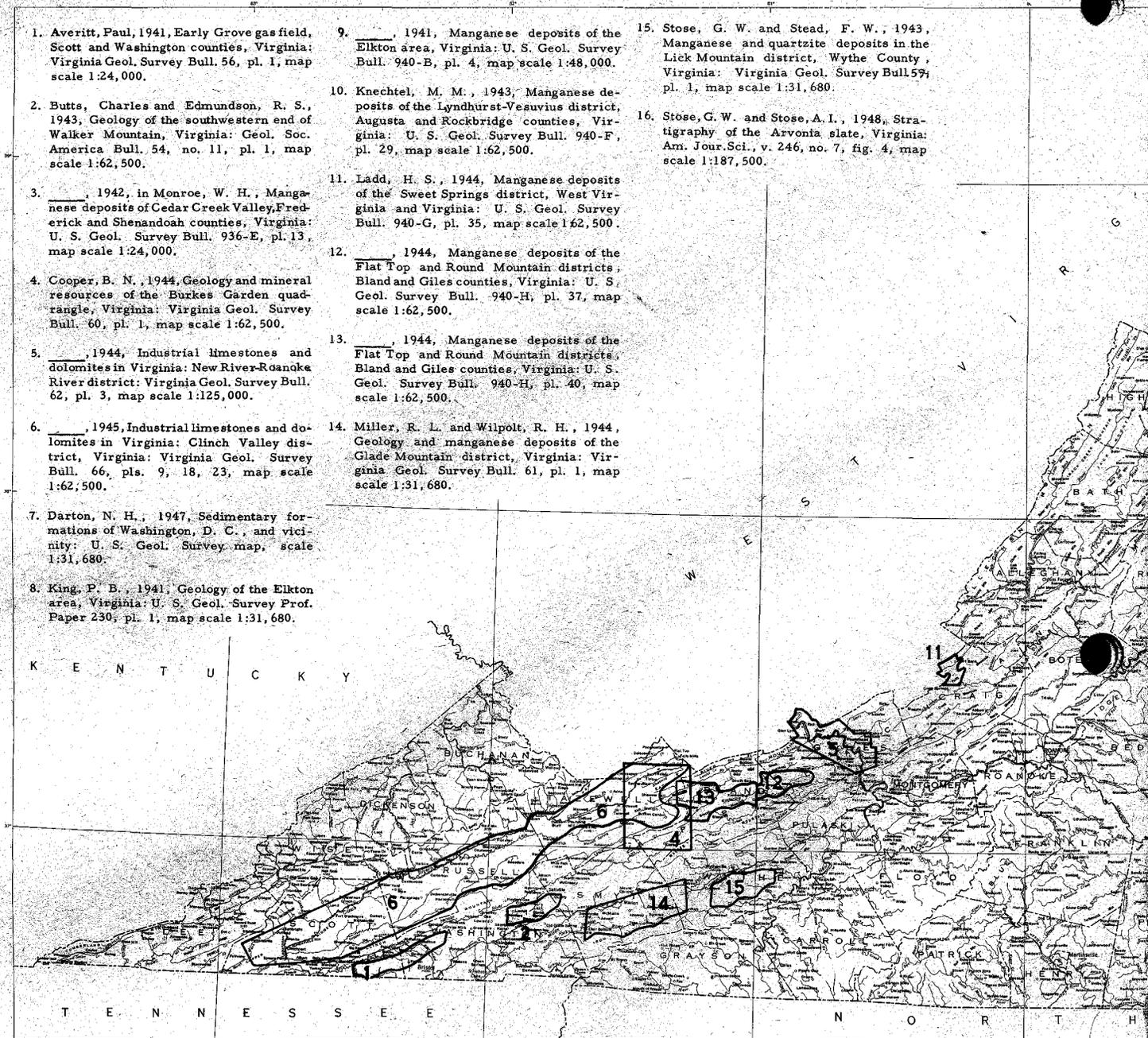
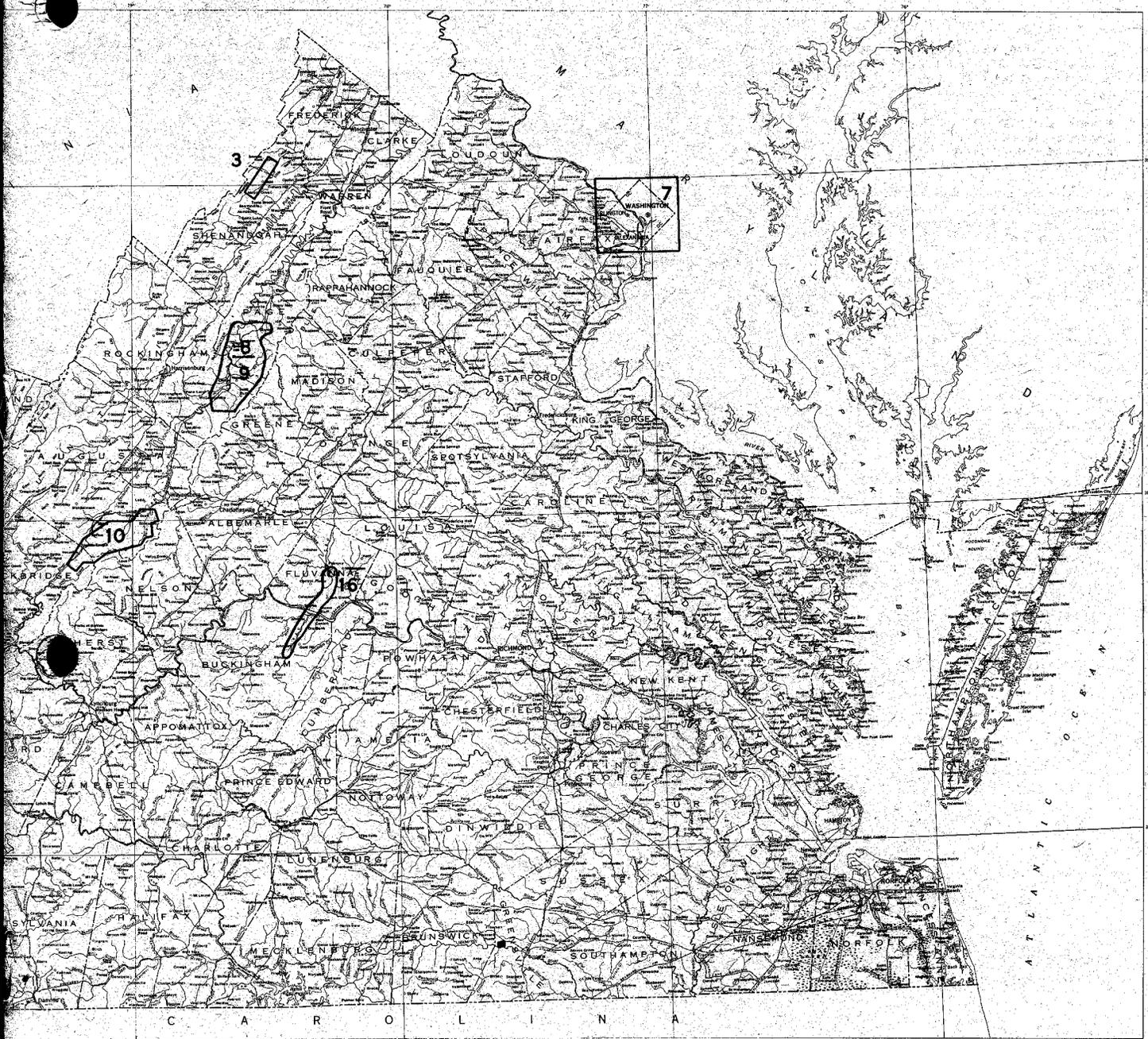


Fig. 2. Index to Geologic Mapping from 1941 to 1950.

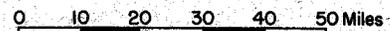
magnetic high occurs near Gloucester, Gloucester County, and other highs occur in the vicinity of Cape Henry, Princess Anne County; South Bay, Northampton County; and Parramore Island, Accomack County. Magnetic lows were recorded in an area near the mouth of the Rappahannock River, in the adjacent portions of Chesapeake Bay, and from near Newport News southward through Lake Drummond into North Carolina.

News Notes

The Grayson Stone Corporation, a subsidiary of B. R. deWitt, Inc., Pavilion, New York, is producing crushed stone from a quarry in granite near Fries, Grayson County. Subsidiaries of B. R. deWitt, Inc., also operate quarries in Montgomery and Pulaski Counties.



Scale



Maps with a scale larger than 1:24,000, and generalized maps have been excluded from this index.

The Salem Stone Corporation began production in July 1962 of crushed stone from its limestone quarry one mile north of Stephens City, Frederick County.

The Carroll Stone Company is producing crushed stone from a quarry just east of U. S. Highway 52, approximately one mile south of the Wythe-Carroll county line.

L. S. Sorber and Company commenced production during March 1963 of crushed stone from diabase near Herndon, Fairfax County. The firm also produces sand and gravel in the county at a site near Garfield.

D. V. Tunstall of South Hill, Virginia, began production of sand for building purposes in June

1951-1960

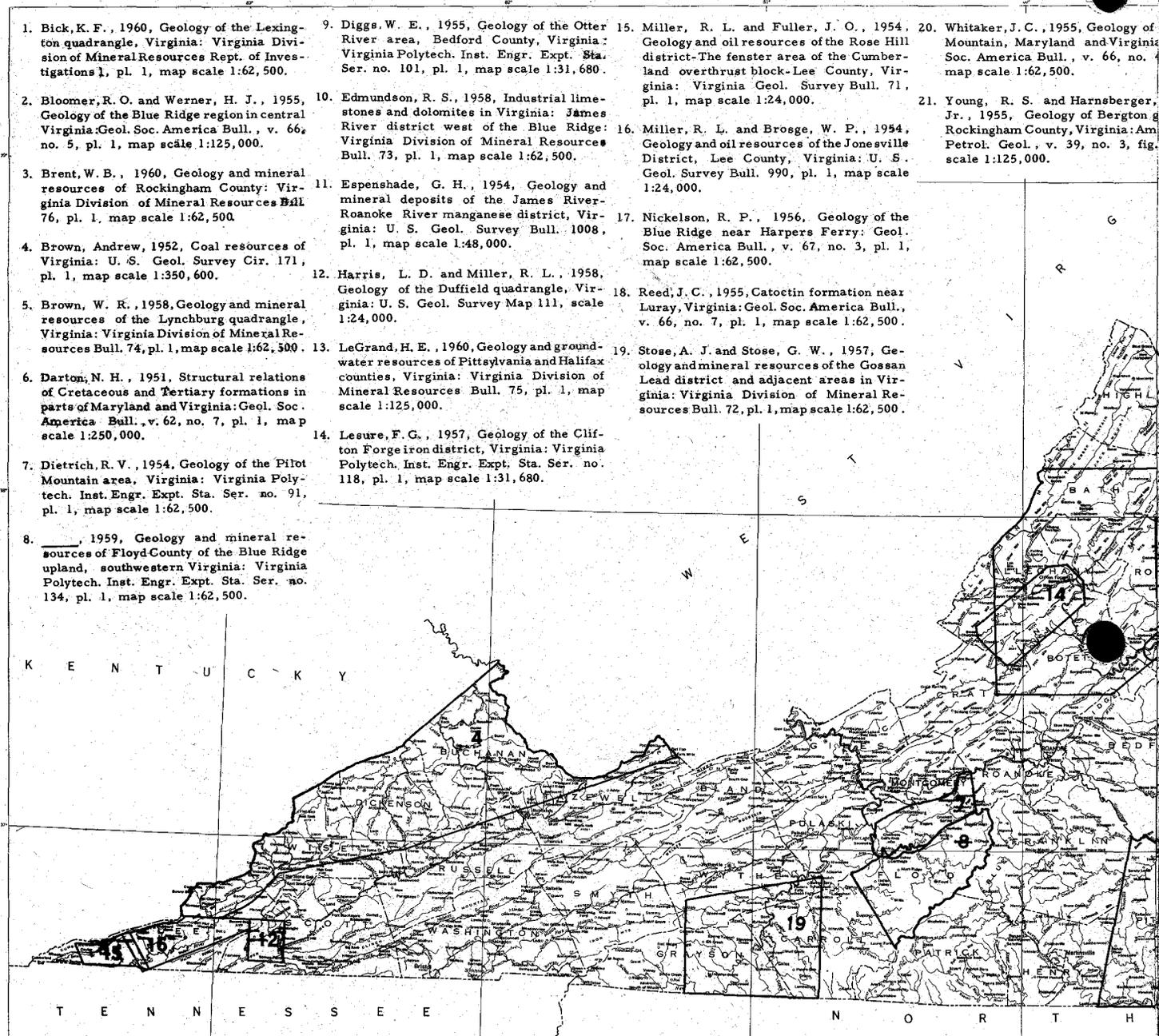


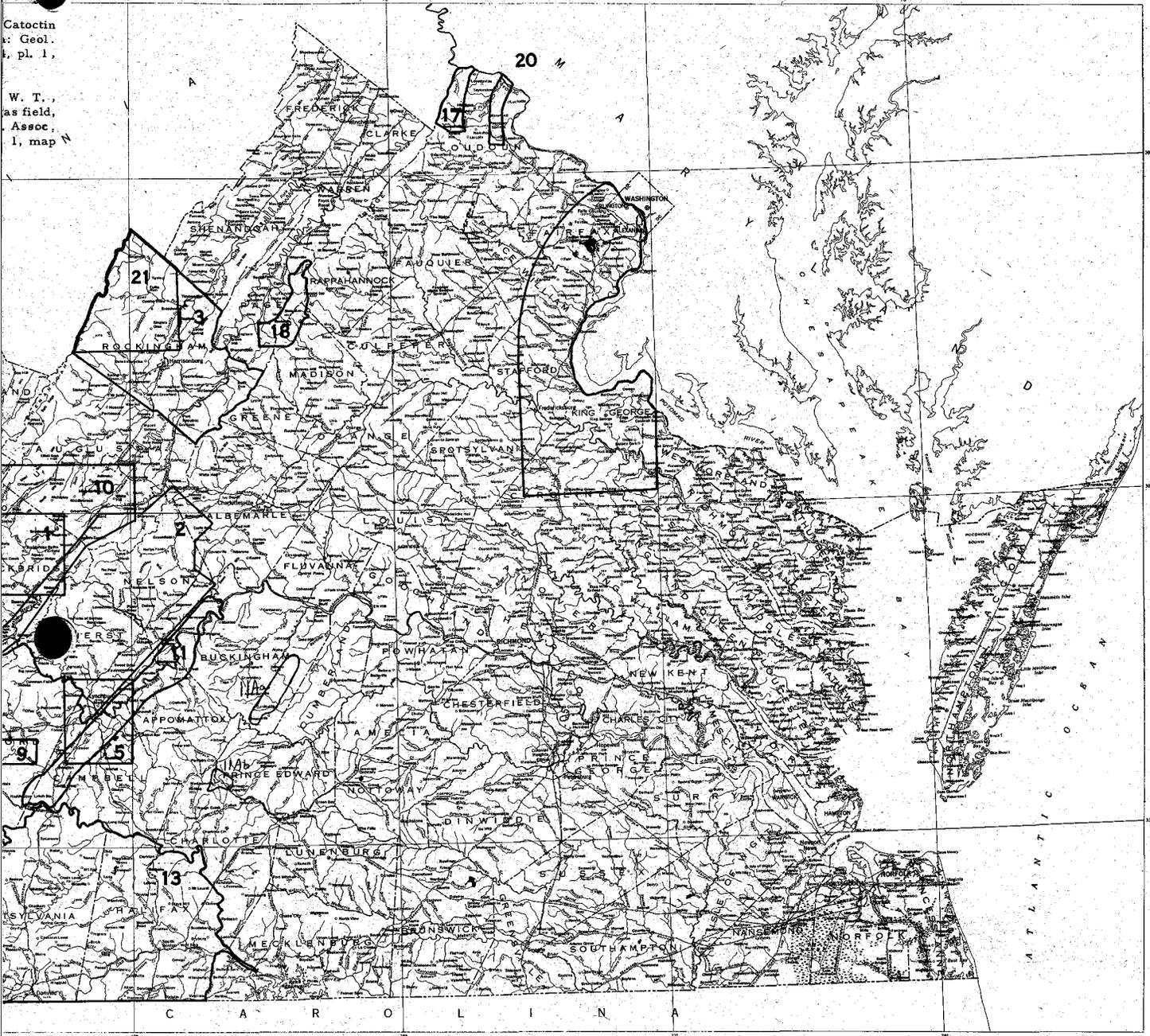
Fig. 3. Index to Geologic Mapping from 1951 to 1960.

1962. The sand is pumped from the Meherrin River at a locality on the Mecklenburg-Lunenburg County line about five miles north of South Hill.

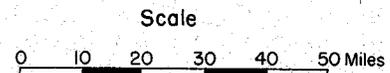
Addition To Staff

Mr. Donald W. Hutcheson joined the Division staff on February 1, 1963, to assist in editing publications and reports. He graduated from

Berea College, Berea, Kentucky, in 1955 with a B.A. degree in geology, and in 1957 he received the M.S. degree in geology from the University of Illinois. Mr. Hutcheson was employed by the Illinois Geological Survey as a research assistant in the Industrial Minerals Division and later as a subsurface geologist by Standard Oil Company of Texas in Roswell, N. M. He is married and has two sons.



Maps with a scale larger than 1:24,000, and generalized maps have been excluded from this index.



Geophysical Maps

Aeromagnetic maps that are used in the interpretation of the characteristics and distribution of subsurface rocks are available. Areas surveyed include those in Louisa, Orange, and Spotsylvania counties—Belmont (Map GP-387), Contrary Creek (Map GP-389), Lahore (Map

GP-386), and Mineral (Map GP-388) quadrangles; Prince William and Stafford counties—Joplin (Map GP-390) and Quantico (Map GP-391) quadrangles; and Fairfax and Loudoun counties—Rockville (Map GP-397) and Seneca (Map GP-396) quadrangles. Copies of these maps may be purchased from the U. S. Geological Survey, Washington 25, D. C., at \$0.50 each.

