

# **GEOLOGIC NOTES**

**DIVISION OF GEOLOGY  
STATE DEVELOPMENT BOARD  
COLUMBIA, S. C.**

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**No. 1**

# GEOLOGIC ACTIVITIES IN SOUTH CAROLINA DURING 1959

By

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DURING 1959 THE DIVISION OF GEOLOGY OF THE SOUTH CAROLINA STATE DEVELOPMENT BOARD CONTINUED ITS INVESTIGATIONS OF THE GEOLOGY AND MINERAL RESOURCES OF THE STATE. THE STAFF NOW COMPRISES TWO FULL TIME GEOLOGISTS, ONE SECRETARY, A CERAMICS CONSULTANT, AND SEVEN PART TIME PROJECT GEOLOGISTS AND GEOLOGIC ASSISTANTS.

ACCORDING TO THE U. S. BUREAU OF MINES, MINERAL PRODUCTION IN SOUTH CAROLINA REACHED AN ALL TIME HIGH IN 1959 WITH A TOTAL VALUE OF \$27 MILLION. THIS WAS AN INCREASE OF ABOUT 20 PERCENT OVER PRODUCTION FOR 1958. THE PRINCIPAL MINERAL INDUSTRIES WERE CEMENT PRODUCTION, THE MINING AND PROCESSING OF KAOLIN AND OTHER CLAYS, AND THE PRODUCTION OF CRUSHED STONE. SOUTH CAROLINA RANKED SECOND IN THE STATES IN OUTPUT OF KAOLIN, KYANITE, AND VERMICULITE. CEMENT PRODUCTION INCREASED 39 PERCENT IN VALUE. KAOLIN PRODUCTION INCREASED 22 PERCENT IN TONNAGE AND 14 PERCENT IN VALUE. STONE PRODUCTION INCREASED 6 PERCENT IN TONNAGE AND 12 PERCENT IN VALUE. MINING OF PLACER ILMENITE, RUTILE, ZIRCON, MONAZITE, AND STAUROLITE CEASED BUT SHIPMENTS OF TITANIUM CONCENTRATES CONTINUED FROM STOCKS. KYANITE AND VERMICULITE OUTPUT AND VALUES INCREASED SUBSTANTIALLY OVER 1958. FELDSPAR CONCENTRATES AND GLASS-GRADE SILICA CAME INTO PRODUCTION FROM A NEW SOURCE DURING THE YEAR.

## PROJECTS

THE FOLLOWING REMARKS SERVE AS AN INDEX TO PROJECTS CARRIED ON DURING 1959 BY THE DIVISION OF GEOLOGY OR WITH ITS KNOWLEDGE AND SUPPORT.

LIMESTONE AND MARL OF THE COASTAL PLAIN OF SOUTH CAROLINA.-- FIELD INVESTIGATIONS WERE BEGUN BY S. D. HERON, JR., IN JUNE 1959 AND ARE NOW ESSENTIALLY COMPLETE. LABORATORY INVESTIGATIONS AND REPORT WRITING ARE IN PROGRESS ON A PART TIME BASIS. TREMENDOUS RESERVES OF LIMESTONE CONTAINING 80 TO 95 PERCENT  $\text{CaCO}_3$  ARE PRESENT IN THE COASTAL PLAIN, PARTICULARLY IN ORANGEBURG, CALHOUN, DORCHESTER, AND BERKELEY COUNTIES.

MINERALS INDUSTRY OF SOUTH CAROLINA.-- MRS. CAMILLA McCAULEY IS UNDERTAKING PART TIME LIBRARY RESEARCH TO ASSEMBLE ALL AVAILABLE INFORMATION ON THE MINERAL INDUSTRY OF SOUTH CAROLINA FROM THE COLONIAL PERIOD TO THE PRESENT.

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RESULTS OF EXPLORATION FOR HEAVY MINERALS ON HILTON HEAD ISLAND, S. C., -- MRS. CAMILLA McCAULEY HAS ESSENTIALLY COMPLETED COMPILATION OF DATA RESULTING FROM U. S. BUREAU OF MINES AND NATIONAL LEAD COMPANY DRILLING FOR HEAVY MINERALS ON HILTON HEAD ISLAND SEVERAL YEARS AGO. ILMENITE, RUTILE, LEUCOXENE, ZIRCON, AND SOME MONAZITE ARE PRESENT IN LONG LOW RIDGES OF SAND THAT ROUGHLY PARALLEL THE PRESENT BEACH AND EXTEND ABOUT A MILE INLAND.

SILICEOUS CLAYS OF THE SOUTH CAROLINA COASTAL PLAIN.  
-- L. N. SMITH CARRIED ON PART TIME FIELD INVESTIGATIONS OF THESE "FULLERS EARTH" DEPOSITS; AND CONSIDERABLE LABORATORY WORK HAS ALREADY BEEN COMPLETED BY PROFESSOR G. C. ROBINSON, HEAD, CERAMICS ENGINEERING DEPARTMENT, CLEMSON COLLEGE. A JOINT REPORT IS IN PREPARATION. THE EXTENSIVENESS AND RELATIVELY UNIFORM QUALITY OF THESE DEPOSITS AND THE LIGHT WEIGHT, BLEACHING CHARACTERISTICS, AND HIGH ABSORPTIVENESS MAKE THESE SILICEOUS CLAYS POTENTIALLY USEFUL FOR A WIDE VARIETY OF INDUSTRIAL PURPOSES.

GEOLOGY AND MINERAL RESOURCES OF PICKENS COUNTY, S. C. -- PROFESSOR C. Q. BROWN OF CLEMSON COLLEGE CONTINUED GEOLOGIC MAPPING, LABORATORY INVESTIGATIONS, AND REPORT WRITING ON A PART TIME BASIS. FIELD WORK IS ESSENTIALLY COMPLETE. THE PRINCIPAL ROCKS IN THE COUNTY ARE GRANITE GNEISS, HORNBLLENDE GNEISS, QUARTZ-BIOTITE GNEISS, MICA SCHIST, AND INJECTION GNEISS. THE OVER-ALL PICTURE IS ONE OF A THICK SEQUENCE OF FOLDED METASEDIMENTARY ROCKS THAT IN PLACES GRADE THROUGH WIDE ZONES OF MIGMATIZATION AND GRANITIZATION INTO LARGE AREAS OF GRANITE GNEISS.

GEOLOGY AND MINERAL RESOURCES OF NEWBERRY COUNTY, S. C. -- PROFESSOR J. F. McCAULEY OF THE UNIVERSITY OF SOUTH CAROLINA HAS MAPPED ABOUT 60 PERCENT OF THE COUNTY AND IS CONTINUING FIELD AND LABORATORY INVESTIGATIONS ON A PART TIME BASIS. THE COUNTY IS UNDERLAIN BY METAMORPHIC AND IGNEOUS ROCKS OF THE CAROLINA SLATE AND CHARLOTTE BELTS OF THE PIEDMONT PROVINCE. THE CAROLINA SLATE BELT LIES TO THE SOUTHEAST OF THE CHARLOTTE BELT AND IS CHARACTERIZED BY AN INCREASE IN METAMORPHIC RANK FROM ARGILLITES AND PHYLLITES OF THE GREENSCHIST FACIES ON THE SOUTHEAST TO COARSE MUSCOVITE SCHIST ON THE NORTHWEST WHERE IT BORDERS THE CHARLOTTE BELT. THE CHARLOTTE BELT IS CHARACTERIZED BY LAYERED AMPHIBOLITES, SCHISTS, AND GNEISSES; WIDE ZONES OF MIGMATIZATION AND GRANITIZATION; AND LARGE BODIES OF GRANITE THAT ARE PARTLY INTRUSIVE AND PARTLY THE RESULT OF REPLACEMENT. THE GROSS FORM OF DEFORMATION IN THE COUNTY SUGGESTS THAT STRUCTURES ARE ASSYMETRICAL TO THE NORTHWEST. LARGE RESERVES OF GRANITE SUITABLE FOR MONUMENTAL AND CONSTRUCTION PURPOSES ARE INDICATED BY MAPPING TO DATE.

GEOLOGY AND MINERAL RESOURCES OF ORANGEBURG COUNTY, S. C. -- W. K. POOSER OF THE DEPARTMENT OF GEOLOGY, UNIVERSITY OF KANSAS, CARRIED ON FIELD WORK IN THE SUMMER OF 1959 AND IS NOW CONTINUING LABORATORY INVESTIGATIONS AND REPORT WRITING ON A PART TIME BASIS.

ORANGEBURG COUNTY IS UNDERLAIN PRINCIPALLY BY UNCONSOLIDATED AND POORLY CONSOLIDATED ROCKS OF TERTIARY AGE. THESE MAY BE DIVIDED INTO A CARBONATE FACIES IN THE SOUTHERN AND EASTERN PARTS OF THE COUNTY AND SANDS AND CLAYS IN THE NORTHERN AND WESTERN PARTS OF THE COUNTY. AN INTERFINGERING AND GRADATIONAL RELATIONSHIP APPARENTLY EXISTS BETWEEN THE CARBONATE FACIES (SANTEE LIMESTONE AND COOPER MARL) AND THE CLASTICS (MCBEAN FORMATION) TO THE NORTHWEST.

THE SOUTHERN PORTION OF ORANGEBURG COUNTY IS EXTENSIVELY COVERED BY THIN DEPOSITS OF MIOCENE AGE. ABUNDANT FOSSILS IN AN EXCELLENT STATE OF PRESERVATION HAVE BEEN FOUND ON SPOIL BANKS OF MANY DUG WATER HOLES. THESE MIOCENE FOSSILS ARE CONSISTENTLY CALCAREOUS AS OPPOSED TO THE SILICIFIED FOSSILS OF THE MCBEAN FORMATION. THE MOST ABUNDANT FOSSILS ARE PELECYPODS. THE PRESENCE OF ECPHORA QUADRICOSTAE AT TWO LOCALITIES IN SOUTHERN ORANGEBURG COUNTY SUGGESTS A CORRELATION WITH THE ECPHORA FACIES OF THE CHOCTAWHATCHEE STATE OF THE MIOCENE SERIES OF FLORIDA.

MINERAL RESOURCES OF ORANGEBURG COUNTY INCLUDE TREMENDOUS RESERVES OF LIMESTONE AVERAGING 80 TO 95 PERCENT  $\text{CaCO}_3$  AND ABUNDANT SUPPLIES OF QUARTZOSE SAND IN FLOODPLAIN DEPOSITS ALONG THE NORTH AND SOUTH EDISTO RIVERS.

GEOLOGY OF THE BLANEY QUADRANGLE, S. C. -- D. C. RIDGEWAY OF THE DEPARTMENT OF GEOLOGY, UNIVERSITY OF SOUTH CAROLINA, HAS ESSENTIALLY COMPLETED FIELD WORK AND IS NOW ENGAGED IN MAP COMPILATION AND REPORT WRITING.

THE BLANEY QUADRANGLE IS ABOUT EQUALLY DIVIDED INTO ARGILLITE, PHYLLITE, AND FINE-GRAINED SCHIST OF THE CAROLINA SLATE GROUP (PALEOZOIC?) AND UNCONSOLIDATED SAND AND CLAY OF THE COASTAL PLAIN FORMATIONS. METAMORPHIC RANK AND FOLDING IN THE CAROLINA SLATE GROUP INCREASE TO THE SOUTHEAST. THE COASTAL PLAIN DEPOSITS CONSIST OF SANDS AND CLAYS OF THE TUSCALOOSA FORMATION (UPPER CRETACEOUS) AND WIDESPREAD BLANKETLIKE SURFICIAL SAND DEPOSITS OF PROBABLE LATE TERTIARY OR PLEISTOCENE AGE. THE SURFICIAL SANDS ARE UP TO 80 FEET THICK IN PLACES AND APPEAR TO BE OF EOLIAN ORIGIN. THE SOURCE OF THESE SANDS WAS PROBABLY THE UNDERLYING TUSCALOOSA FORMATION, AND THE SAND GRAINS WERE APPARENTLY TRANSPORTED ONLY A FEW MILES.

MINERAL RESOURCES OF THE BLANEY QUADRANGLE INCLUDE BRICK CLAY, SERICITE SCHIST, KAOLIN, AND SILICA SAND.

GEOLOGY OF THE FORT JACKSON NORTH QUADRANGLE, S. C. -- W. K. POOSER AND H. S. JOHNSON, JR. ARE CONTINUING FIELD INVESTIGATIONS ON A PART TIME BASIS. THE GEOLOGY AND MINERAL RESOURCES OF THE QUADRANGLE ARE ALMOST IDENTICAL TO THE ADJACENT BLANEY QUADRANGLE DESCRIBED ABOVE.

WACCAMAW AND CROATAN DEPOSITS OF THE CAROLINAS. -- PROFESSOR JULES R. DU BAR OF THE UNIVERSITY OF HOUSTON SPENT MUCH OF THE SUMMER OF 1959 IN A DETAILED STRATIGRAPHIC-PALEO-ECOLOGIC STUDY OF SOME OF THE LATE TERTIARY AND PLEISTOCENE MARINE DEPOSITS OF NORTH AND SOUTH CAROLINA, WITH SPECIAL EMPHASIS ON THE WACCAMAW AND CROATAN FORMATIONS. SUPPOSED WACCAMAW AND CROATAN DEPOSITS CROP OUT IN SCATTERED PATCHES ALONG THE EASTERN EDGE OF THE COASTAL PLAIN FROM CHARLESTON, S. C., TO THE NEUSE RIVER AREA IN NORTH CAROLINA. THESE UNITS ARE NOT OVER 10 FEET THICK AT MOST OUTCROPS, AND ALL KNOWN OCCURRENCES ARE BELOW THE WICOMICO (100 FOOT) SHORELINE. ADDITIONAL FIELD WORK IS PLANNED FOR THE SUMMER OF 1960.

#### SHORTER INVESTIGATIONS

COASTAL PLAIN CLAYS, MEDWAY TYPE. -- EXPLORATION ON MEDWAY PLANTATION, BERKELEY COUNTY, DISCLOSED LARGE RESERVES OF OLIVE TO BROWN PLASTIC CLAY AND MOTTLED ORANGE, RED, AND BROWN SANDY CLAYS. TESTS CONDUCTED BY G. C. ROBINSON OF CLEMSON COLLEGE INDICATE THESE CLAYS ARE SUITABLE FOR BRICK MANUFACTURE -- INCLUDING FACSIMILES OF THE HAND MADE BRICK OF THE COLONIAL PERIOD -- AND FOR THE PRODUCTION OF LIGHT-WEIGHT AGGREGATE WHEN PROPERLY BLENDED.

FOXVILLE CLAY DEPOSIT, SUMTER COUNTY. -- PRELIMINARY DRILLING AND LABORATORY INVESTIGATIONS OF AN EXTENSIVE RIVER TERRACE CLAY DEPOSIT NEAR FOXVILLE INDICATE THAT THIS MATERIAL IS SUITABLE FOR BRICK MANUFACTURE AND ALSO FOR THE PRODUCTION OF LIGHTWEIGHT AGGREGATE WHEN PROPERLY BLENDED WITH ADDITIVES TO INCREASE BLOATING. LIMESTONE, FLY ASH, MARL, AND BENTONITE ARE ALL SUITABLE ADDITIVES AND CAUSE SUFFICIENT BLOATING WHEN ADDED TO THE FOXVILLE CLAY IN AMOUNTS OF 5 TO 20 PERCENT.

NEWLIN BENTONITE DEPOSIT, JASPER COUNTY. -- PRELIMINARY DRILLING AND LABORATORY TESTS INDICATE THAT A 1:1 MIX OF THE BENTONITE AND AN OVERLYING CLAY MAKE AN EXCELLENT LIGHTWEIGHT AGGREGATE. RESERVES ARE SUFFICIENT TO SUPPORT LARGE SCALE OPERATIONS FOR MANY YEARS.

PRELIMINARY INVESTIGATIONS OF GEOLOGY AND MINERAL RESOURCES OF SUMTER COUNTY. -- SUMTER COUNTY HAS BEEN TENTATIVELY DIVIDED INTO SIX PHYSIOGRAPHIC-GEOLOGIC UNITS RANGING FROM UPPER CRETACEOUS TO RECENT IN AGE OF FORMATION. MINERAL RESOURCES OF CURRENT OR PROBABLE FUTURE ECONOMIC INTEREST INCLUDE SAND, GRAVEL, KAOLIN, HEAVY MINERALS, SILICEOUS CLAY ("FULLERS EARTH"), BRICK CLAY, AND CLAY FOR THE MANUFACTURE OF LIGHTWEIGHT AGGREGATE.

LITTLE MOUNTAIN, NEWBERRY COUNTY. -- PRELIMINARY INVESTIGATIONS INDICATE THE PRESENCE OF MANY MILLIONS OF TONS OF KYANITE-BEARING QUARTZITE. BUFF TO WHITE SERICITE SCHIST IS ALSO PRESENT IN SEVERAL PLACES IN ASSOCIATION WITH THE KYANITIC QUARTZITE. PYROPHYLLITE IS PRESENT IN UNDETERMINED AMOUNTS.

SILICA SAND OF BLANEY AREA, KERSHAW COUNTY. -- DRILLING AND SURFACE INVESTIGATIONS HAVE PROVEN THE PRESENCE OF TREMENDOUS RESERVES OF UNCONSOLIDATED SILICA SAND IN DEPOSITS UP TO 80 FEET THICK. WHITEHEAD BROTHERS COMPANY HAS BEGUN PRODUCTION OF FOUNDRY SAND FROM THESE DEPOSITS. PREVIOUSLY THIS SAND HAD BEEN USED ONLY FOR CONSTRUCTION PURPOSES.

CALHOUN FALLS GABBRO, ABBEVILLE COUNTY. -- A CIRCULAR SHAPED GABBRO INTRUSIVE ABOUT THREE MILES IN DIAMETER MAY HAVE POTENTIAL AS A SOURCE OF CRUSHED STONE, POLISHED STONE PANELS, AND POSSIBLY ROOFING GRANULES. SIMILAR GABBRO INTRUSIVES ARE KNOWN IN GREENWOOD AND UNION COUNTIES.

AIRBORNE RADIOACTIVITY CHECK. -- A FIELD CHECK OF A RADIOACTIVITY MAP PREPARED BY THE U. S. GEOLOGICAL SURVEY FROM AIRBORNE SCINTILLOMETER TRAVERSES IN THE WEST-CENTRAL PART OF SOUTH CAROLINA SHOWED VARIATIONS IN MEASURED RADIOACTIVITY TO BE RELATED TO RECOGNIZABLE ROCK TYPES. CONTACTS BETWEEN GRANITE AND ARGILLITE AND PHYLLITE OF THE CAROLINA SLATE SLATE GROUP WERE PARTICULARLY WELL DEFINED BY THE AIRBORNE SURVEY AND COULD ALSO BE PICKED UP WITH CAR AND FOOT TRAVERSES USING A SMALL PORTABLE SCINTILLOMETER. AN EAST-WEST TRENDING BELT OF HIGHER THAN NORMAL RADIOACTIVITY IN WEST-CENTRAL EDGEFIELD COUNTY WAS FOUND TO BE RELATED TO A HALF MILE WIDE ZONE OF SHEARING AND FELDSPATHIC INJECTED MATERIAL ALONG THE CONTACT BETWEEN ROCKS OF THE CAROLINA SLATE BELT AND THE CHARLOTTE BELT IN THIS AREA.

KAOLIN. -- DIVISION OF GEOLOGY PERSONNEL MADE SEVERAL SHORT INVESTIGATIONS OF KAOLIN DEPOSITS IN LEXINGTON, RICHLAND, AND KERSHAW COUNTIES. THERE APPEAR TO BE IN THESE AREAS VERY EXTENSIVE DEPOSITS OF KAOLIN IN THE TUSCALOOSA FORMATION THAT IS SUITABLE FOR USE IN THE MANUFACTURE OF BRICK AND WHICH ALSO COULD BE BENEFICIATED TO MEET HIGHER SPECIFICATIONS.

LIMESTONE FOR CEMENT MANUFACTURE. -- INVESTIGATIONS IN THE PIEDMONT HAVE NOT SUCCEEDED IN LOCATING SUFFICIENT QUANTITIES OF USABLE LIMESTONE. TREMENDOUS RESERVES OF ROCK AVERAGING 80 TO 95 PERCENT  $\text{CaCO}_3$  ARE AVAILABLE IN THE COASTAL PLAIN, HOWEVER. THE NORTHWESTERNMOST EXTENT OF THE COASTAL PLAIN LIMESTONE IS IN THE VICINITY OF ORANGEBURG.

DRILLING FOR STRATIGRAPHIC INFORMATION. -- THE DIVISION OF GEOLOGY DRILLED 57 AUGER HOLES, PRINCIPALLY FOR STRATIGRAPHIC INFORMATION, IN THE COASTAL PLAIN DURING 1959.

DEPTHS AVERAGED ABOUT 50 FEET BUT IN SOME CASES WERE AS MUCH AS 100 FEET. THE POWER AUGER HAS BEEN FOUND TO BE A VERY HELPFUL TOOL IN THE ATTEMPT TO WORK OUT COASTAL PLAIN STRATIGRAPHY. OUTCROPS ARE RARE, AND SURFICIAL SAND AND CLAY DEPOSITS OF VARIED ORIGIN OBSCURE THE BEDROCK IN MOST PLACES. WITH CARE, DRILL CUTTINGS CAN BE RECOVERED WHICH ARE SUFFICIENTLY REPRESENTATIVE OF THE GEOLOGIC UNITS PENETRATED TO ALLOW VISUAL RECOGNITION IN MANY CASES AND IDENTIFICATION BY STUDY OF MICROFAUNA IN OTHERS. TO THE EXPERIENCED OPERATOR THE FEEL OF THE DRILL IS INDICATIVE OF THE TYPE OF MATERIAL BEING CUT, AND DRILLING CHARACTERISTICS ARE VERY HELPFUL IN CORRELATING SOME GEOLOGIC UNITS.

AGE DETERMINATIONS. -- DURING JULY 1959 J. F. McCAULEY AND H. S. JOHNSON, JR., SPENT THREE DAYS WITH F. DONALD ECKELMANN OF BROWN UNIVERSITY SAMPLING ROCKS OF THE SOUTH CAROLINA PIEDMONT FOR AGE DETERMINATIONS TO BE MADE BY ECKELMANN AND J. L. KULP OF LAMONT GEOLOGICAL OBSERVATORY. ROCKS OF VARIOUS METAMORPHIC RANK FROM THE CAROLINA SLATE BELT, CHARLOTTE BELT, AND INNER PIEDMONT BELT WERE SAMPLED; AND THE AGES OF THESE ROCKS SHOULD BE VERY HELPFUL IN WORKING OUT THE STRATIGRAPHY, STRUCTURE, AND TECTONIC HISTORY OF THE PIEDMONT.

OIL LEASE. -- IN OCTOBER 1959 THE STATE OF SOUTH CAROLINA LEASED ITS MARSHLANDS AND OFFSHORE WATERS FOR AN INITIAL PERIOD OF THREE YEARS TO JAY KAUFMAN AND W. J. WILLIAMS OF INDIANAPOLIS, INDIANA, AND OWENSBORO, KENTUCKY, RESPECTIVELY. PLANS ARE TO CONDUCT SEISMIC INVESTIGATIONS IN THE SHALLOW WATERS ALONG THE COAST AND PROBABLY TO DRILL ONE OR MORE WELLS DURING THE INITIAL THREE YEAR PERIOD.

THE COASTAL AREA OF SOUTH CAROLINA IS THOUGHT TO HAVE APPRECIABLE POTENTIAL FOR OIL, PARTICULARLY BENEATH THE WIDE CONTINENTAL SHELF. THE SEDIMENTARY SECTION IS FROM 3,500 TO 4,000 FEET THICK IN THE VICINITY OF CHARLESTON AND BEAUFORT AND THICKENS TO THE SOUTH AND EAST. INLAND THE SECTION IS DOMINANTLY NON-MARINE OR MARGINAL MARINE. TO THE SOUTH AND EAST THE SECTION PROBABLY BECOMES DOMINANTLY MARINE, AND OIL SOURCE BEDS MAY WELL BE PRESENT. OFF CHARLESTON AND BEAUFORT, SOUTH CAROLINA COASTAL WATERS ARE LESS THAN 100 FEET DEEP FOR A DISTANCE OF 35 MILES OUT TO SEA. THIS PROVIDES A VERY LARGE AREA THAT IS ACCESSIBLE TO MODERN EXPLORATION METHODS AND THAT HAS POTENTIAL FOR OIL AND GAS.

## REPORTS

DURING 1959 THE DIVISION OF GEOLOGY PUBLISHED BULLETIN 24, GUIDEBOOK FOR THE SOUTH CAROLINA COASTAL PLAIN FIELD TRIP OF THE CAROLINA GEOLOGICAL SOCIETY. THIS REPORT IS NOW AVAILABLE AT A COST OF 50 CENTS PER COPY. IN VARIOUS STAGES OF PREPARATION NOW ARE REPORTS DEALING WITH CLAYS OF THE COASTAL

PLAIN, HEAVY MINERALS IN BEACH SANDS, CARBONATE ROCKS OF THE  
PIEDMONT, AND THE GEOLOGY AND MINERAL RESOURCES OF EDGEFIELD  
COUNTY.

### GEOLOGIC NOTES

GEOLOGIC NOTES, THE BIMONTHLY PUBLICATION OF THE  
DIVISION OF GEOLOGY, INCLUDED THE FOLLOWING ARTICLES DURING  
1959:

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| JANUARY-FEBRUARY<br>VOL. 3 No. 1  | - GEOLOGICAL ACTIVITIES IN SOUTH<br>CAROLINA DURING 1958 - H.<br>S. JOHNSON, JR.  |
| MARCH-APRIL<br>VOL. 3 No. 2       | RELATIONS AMONG SOME DIKES IN<br>CABARRUS COUNTY, NORTH CARO-<br>LINA - HENRY BELL AND W. C.<br>OVERSTREET  |
| MAY-JUNE<br>VOL. 3 No. 3          | THE LANDRUM MINE, EDGEFIELD<br>COUNTY, SOUTH CAROLINA -<br>L. L. SMITH  |
| JULY-AUGUST<br>VOL. 3 No. 4       | A SMALL BASEMENT CORED ANTICLINAL<br>WARP IN THE BASAL CRETACEOUS<br>SEDIMENTS NEAR CHERAW, SOUTH<br>CAROLINA - S. DUNCAN HERON, JR.<br>THE PRIMITIVE LIMESTONE BELT<br>(REPRINT) - EDMUND RUFFIN |
| SEPTEMBER-OCTOBER<br>VOL. 3 No. 5 | RECONNAISSANCE GEOLOGY AND PRE-<br>LIMINARY APPRAISAL OF MINERAL<br>RESOURCE POTENTIAL OF SUMTER<br>COUNTY, S. C. - H. S. JOHNSON,<br>JR.   |
| NOVEMBER-DECEMBER<br>VOL. 3 No. 6 | THE WACCAMAW AND CROATAN DEPOSITS<br>OF THE CAROLINAS - JULES R.<br>DU BAR  |



