ANNOTATED BIBLIOGRAPHY
OF GEORGIA GEOLOGY
1971 through 1979

by

Howard Ross Cramer

ATLANTA

1986

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
GEORGIA GEOLOGIC SURVEY

BULLETIN 101

ANNOTATED BIBLIOGRAPHY OF GEORGIA GEOLOGY

1971 through 1979

by

Howard Ross Cramer

Georgia Department of Natural Resources
J. Leonard Ledbetter, Commissioner

Environmental Protection Division
Harold F. Reheis, Assistant Director

Georgia Geologic Survey
William H. McLemore, State Geologist

Atlanta
1986

BULLETIN 101

ANNOTATED BIBLIOGRAPHY OF GEORGIA GEOLOGY FROM

1971 through 1979.

by

Howard Ross Cramer *

This bibliography is a continuation of, and a supplement to, the Annotated Bibliography of Georgia Geology through 1959, the Annotated Bibliography of Georgia Geology, supplement from 1960 through 1964, and Annotated Bibliography of Georgia Geology, 1965 through 1970. These were published as Bulletins 79, 84, and 90 of the Georgia Geologic Survey. This bibliography contains annotations of not only those articles published during 1971 through 1979 inclusively, but also those published at earlier dates which were not included in Bulletins 79, 84, and 90.

The annotations and index pattern of this supplement are similar to those established for Bulletins 79, 84, and 90. Entries in the bibliography are listed alphabetically by author (whose birth year is included where known), and then chronologically. Abstracts are not included if the entire work has appeared later. Abstracts, maps, theses, and biographies are not annotated. Surface-water reports are not included unless they contain geological information also, such as the influence on erosion or natural sources of dissolved chemicals. The index is subdivided into subjects, areas (with subjects as subdivisions), and into geological age where appropriate. Most of the entries are cross indexed into the above three categories. Topographic maps are not included.

Each article was read, annotated, and indexed by county, subject, and geological age where applicable. In those cases where the geographic area of the subject was greater than a county, subdivisions of the state, based upon physiographic provinces, were employed. The shoreline is the seaward boundary. Many fine geological studies, accordingly, are not included unless the studies also include geological data from the mainland. These subdivisions are outlined in Figure 1.

There is no way in which proper credit can be given to a host of persons who assisted in the preparation of this bibliography, but special mention must be made of the members of the Reference Department of the Woodruff Library of Emory University in Atlanta, Georgia. William Lee Morris did the typesetting. Geologists should be forever grateful for these and others who have assisted in the gathering and dissemination of information. May their tribe increase.

Users are encouraged to notify the Director of the Georgia Geologic Survey of any omissions in this bibliography so that they may be included in later supplements.

* Professor of Geology, Emory University, Atlanta, Georgia

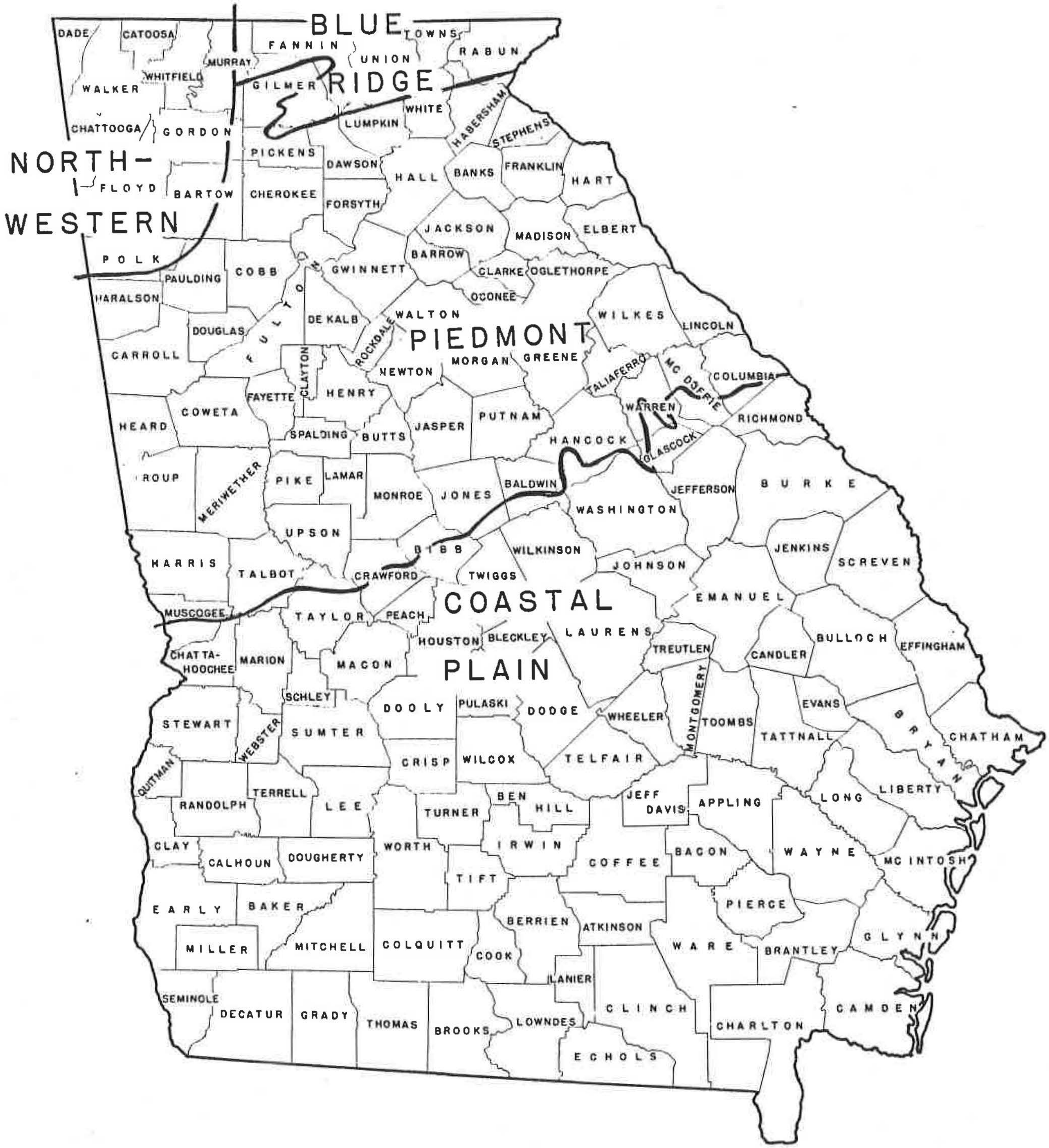

Figure 1. Subdivisions of Georgia used in this Bibliography

Completed abbreviations

Following are the completed citations for the abbreviated forms which are used in the bibliography.

ACAD. NAT. SCI. PHILADELPHIA NOTULAE NATURAE. Academy of Natural Sciences of Philadelphia, Notulae Naturae. Published irregularly by the Academy.

ACAD. SCI. PARIS, C.R., SER. D. Series D of the Comptes Rendues of the Academy of Sciences of Paris. Published by the Academy.

ALABAMA ACAD. SCI. JOUR. Journal of the Alabama Academy of Science. Published by the Academy from Birmingham, Alabama.

ALABAMA GEOL. SURVEY MON. Monographs of the Alabama Geological Survey. Published by the Geological Survey of Alabama from Tuscaloosa, Alabama.

AMER. ASSOC. PETROLEUM GEOLOGISTS ANN. MTG. ABSTRACTS. Abstracts and programs of the American Association of Petroleum Geologists. Published by the Association from Tulsa, Oklahoma.

AMER. ASSOC. PETROLEUM GEOLOGISTS BULL.; ...MEM. Bulletin and Memoirs of the American Association of Petroleum Geologists. Published by the Association from Tulsa, Oklahoma.

AMER. GEOPHYS. UNION MON. Monographs of the American Geophysical Union. Published by the National Research Council for the Union from Washington, D.C.

AMER. JOUR. SCI. American Journal of Science. Published by Yale University from New Haven, Connecticut.

AMER. MINERALOGIST. American Mineralogist. Published by the American Mineralogical Society, from Lancaster, Pennsylvania.

AMER. SOC. PHOTOGRAMMETRY, PROC. ANN. MTG. Proceedings of the Annual Meeting of the American Society of Photogrammetry. Published by the Society from New York.

ANNELEN DER PHYSIK UND CHEMIE. Annalen der Physik und Chemie. Published commercially from Vienna, Austria.

ANNALES DE CHIMIE ET DE PHYSIQUE. Annales de Chimie et de Physique. Published commercially from Paris, France.

ASSOC. ENG. GEOLOGISTS ANN. MTG. PROG. AND ABS. Program and Abstracts of the Annual Meeting of the Association of Engineering Geologists. Published by the Association from Brentwood, Tennessee.

ASSOC. SENEGALESE POUR L'ETUDE DU QUATERNAIRE AFRICAINE BULL. DE LIAISON. Bulletin de Liaison de la Association Senegalese pour l'etude du Quaternaire de Afrique. Published by the Association from Dakar, Senegal.

BULLS. AMER. PALEONTOLOGY. Bulletins of American Paleontology. Published by the Paleontological Research Institute from Ithaca, New York.

CANADA GEOL. SURVEY PAPER. Papers of the Canadian Geological Survey. Published by the Survey from Ottawa, Canada.

CANADIAN JOUR. INDUSTRY, SCIENCE, AND ART. Canadian Journal of Industry, Science, and Art. Published by the Canadian Institute from Toronto, Ontario.

CARNEGIE INST. WASHINGTON PUB.;...YEARBOOK. Publications and Yearbook of The Carnegie Institution of Washington. Published by the Institution from Washington, D.C.

CASTANEA. Castanea. Published by the Southern Appalachian Botanical Club from Morgantown, West Virginia.

CHEM. GEOLOGY. Chemical Geology. Published commercially from Amsterdam, Holland.

CLAY MINERALS CONF.; ... ANN. MTG. PROG. AND ABS. Program and Abstracts of the numbered Annual Meeting of the Clay Minerals Conference. Published by the Conference from various places in England.

CLAYS AND CLAY MINERALS. Clays and Clay Minerals. Published by the Clay Minerals Society, from London, England.

CONTRIBS. MINERALOGY AND PETROLOGY. Contributions to Mineralogy and Petrology. Published commercially from Heidelberg, Germany.

DEUTSCHE GESELL. GEOL. WISS. Deutsche Gesellschaft fuer geologische Wissenschaft. Published by the Academy from Berlin, Germany.

DEUTSCHES GEOL. GESELL. ZEITSCHR. Zeitschrift der Deutches geologisches Gesellschaft. Published by the Academy from Berlin, Germany.

DISSERT. ABS. INTERNATL. Dissertation Abstracts International. Published commercially by University Microfilms, Inc., from Ann Arbor, Michigan.

EOS. EOS. Published by the American Geophysical Union from Washington, D.C.

EARTH AND MINERAL SCIENCES. Earth and Mineral Sciences. Published by Pennsylvania State University from University Park, Pennsylvania.

EARTH AND PLANET. SCI. LETTERS. Earth and Planetary Science Letters. Published commercially from Amsterdam, Holland.

EARTH SCI. REVS. Earth Science Reviews. Published commercially from Amsterdam, Holland.

EARTHQUAKE NOTES. Earthquake Notes. Published by the Southeastern Section of the Seismological Society of America from Washington D.C.

ECOL. MONOGRAPHS. Ecological Monographs. Published by the Ecological Society of America from Lawrence, Kansas.

ECOLOGY. Ecology. Published by the Ecological Society of America from Brooklyn, New York.

ECON. GEOLOGY. Economic Geology. Published by the Society of Economic Geologists from Lancaster, Pennsylvania.

ELISHA MITCHELL SCI. SOC. JOUR. Journal of the Elisha Mitchell Scientific Society. Published by the North Carolina Academy of Science from Chapel Hill, North Carolina.

FLORIDA GEOL. SURVEY SPEC. PUB. Special Publication of the Florida Geological Survey. Published by the Survey from Tallahassee.

FRAGMENTA MINERAL. PALEONTOL. Fragmenta mineralogica et paleontologica. Published by the Hungarian Academy of Science from Budapest, Hungary.

GSS BULL. Bulletin of the Georgia Speleological Survey. Published by the Survey from West Georgia College, Carrollton, Georgia.

GEOCHIM. ET COSMOCHIM. ACTA. Geochimica et Cosmochimica Acta. Published by the Geochemical Society from London, England.

GEOL. SOC. AMERICA ABS. WITH PROGS.; ...BULL.; ...MEMOIRS; ...MEMORIALS; ...MICROFORM PUB.; ...SPEC. PAPER. Abstracts with Programs, Bulletin, Memoirs, Memorials, Microform Publications, and Special Papers of the Geological Society of America. Published by the Society from Boulder, Colorado.

GEOL. ASSOC. CANADA ANN. MTG. PROG. AND ABS. Program and Abstracts of the Annual Meeting of the Geological Association of Canada. Published by the Association from Toronto.

GEOL. MAG. Geological Magazine. Published commercially from London, England.

GEOL. RUNDSCHAU. Geologische Rundschau. Published commercially from Stuttgart, Germany.

GEOL. SOC. DENMARK BULL. Bulletin of the Geological Society of Denmark. Published by the Society from Copenhagen, Denmark.

GEOLOGY. Geology. Published by the Geological Society of America from Boulder, Colorado.

GEOPHYSICS. Geophysics. Published by the Society of Exploration Geophysics from Tulsa, Oklahoma and Houston, Texas.

GEORGIA ACAD. SCI. BULL. Bulletin of the Georgia Academy of Science. Published by the Academy from Atlanta, Georgia. Superseded by the Georgia Journal of Science.

GEORGIA GEOL. SURVEY BULL.; ...GEOLOGIC GUIDE; ...GEOL. REPT.; ...GUIDEBOOK; ...HYDROL. ATLAS; ...HYDROL. REPT.; ...INF. CIRC. Bulletin, Geologic Guide, Geologic Report, Guidebook, Hydrological Atlas, Hydrological Report, and Information Circular of the Georgia Geologic Survey. Published by the Survey from Atlanta, Georgia.

GEORGIA INST. TECHNOLOGY ENVIR. RESEARCH CENTER REPT. Report from the Georgia Institute of Technology, Environmental Research Center. Published by the Institute from Atlanta, Georgia.

GEORGIA JOUR. SCI. Georgia Journal of Science. Published by the Georgia Academy of Science from Atlanta, Georgia. Supersedes Georgia Academy of Science Bulletin.

GEORGIA MARINE SCI. CENTER TECH. REPT. Technical Report of the Georgia Marine Science Center. Published by the Center from Skidaway Island, Georgia.

GEORGIA UNDERGROUND. Georgia Underground [Mimeographed]. Published by Dogwood City Grotto of the National Speleological Society from Atlanta, Georgia.

GEOSCIENCE AND MAN. Geoscience and Man. Published by the Institute for the Study of Geoscience and Man from Dallas, Texas.

GLOBAL TECTONICS AND METALLOGENY. Global Tectonics and Metallogeny. Published commercially from Stuttgart, Germany.

GROUND WATER. Ground Water. Published by the National Water Well Association from Urbana, Illinois.

GULF COAST ASSOC. GEOL. SOCS. TRANS. Transactions of the Gulf Coast Association of Geological Societies. Published by the Association from diverse places.

HERPETOLOGICA. Herpetologica. Published by the Herpetologists League of the Society for Systematic Zoology, from Lafayette, Louisiana.

ICARUS. Icarus. Published commercially from New York City, New York.

INDIAN ACAD. SCI. PROC. Proceedings of the Indian Academy of Science. Published by the Academy from Bangalore, India.

INST. GEOL. BASSIN AQUITAINE MEM. Memories du Institute de geologie du bassin d'Aquitaine. Published by the Institute from Talence, France.

INTERNATL. ASSOC. SCIENTIFIC HYDROLOGY PUB. Publication of the Internatl Association of Scientific Hydrology. Published by the Institute of Hydrology from Wallingford, England.

INTERNATL. GEOL. CONG. 24, PROC. Proceedings of the 24th International Geological Congress. Published by the Congress from Toronto, Canada.

JAPANESE ASSOC. MINERALOGISTS, PALEONTOLOGISTS, AND ECON. GEOLOGISTS JOUR. Journal of the Japanese Society of Mineralogists, Paleontologists, and Economic Geologists. Published by the Association from Sendai, Japan.

JOUR. GEOCHEM. EXPLOR. Journal of Geochemical Exploration. Published by the Association of Exploration Geochimists from Amsterdam, Holland.

JOUR. GEOLOGY. Journal of Geology. Published by the University of Chicago, from Chicago, Illinois.

JOUR. GEOPHYSICAL RESEARCH. Journal of Geophysical Research, published by the American Geophysical Union from Washington, D.C.

JOUR. HERPETOLOGY. Journal of Herpetology. Published by the Society for the Study of Reptiles and Amphibians, from Athens, Ohio.

JOUR. HYDROLOGY. Journal of Hydrology. Published commercially from Amsterdam, Holland.

JOUR. PALEONTOLOGY. Journal of Paleontology. Published by the Paleontological Society, the Society of Economic Paleontologists and the Geological Society of America, from Lawrence, Kansas.

JOUR. RESEARCH U.S. GEOL. SURVEY. Journal of Research of the U.S. Geological Survey. Published by the Survey from Washington, D.C.

JOUR. SED. PETROLOGY. Journal of Sedimentary Petrology. Published by the Society of Economic Paleontologists and Mineralogists from Menasha, Wisconsin.

KENTUCKY GEOL. SURVEY SPEC. PUB. Special Publication of the Kentucky Geological Survey. Published by the Survey from Lexington, Kentucky.

LAPIDARY JOUR. Lapidary Journal. Published commercially from Los Angeles, California.

LIMNOLOGY AND OCEANOGRAPHY. Limnology and Oceanography. Published commercially from Lawrence, Kansas.

MARINE MICROPALEONTOLOGY. Marine Micropaleontology. Published commercially from Amsterdam, Holland.

METEORITICS. Meteoritics. Published by the Meteoritical Society from Albuquerque, New Mexico.

MICROPALEONTOLOGY. Micropaleontology. Published by the American Museum of Natural History from New York City, New York.

MINERALOG. ASSOC. CANADA ANN. MTG. PROG. AND ABS. Program and Abstracts from the Annual Meeting of the Mineralogical Association of Canada. Published by the Association from Ottawa, Canada.

MINERLOG. RECORD. Mineralogical Record. Published commercially from Tuscon, Arizona.

MINING ENGINEERING. Mining Engineering. Published by the American Institute of Mining, Metallurgical, and Petroleum Engineers from New York City, New York.

MODERN GEOLOGY. Modern Geology. Published commercially from London, England.

MUS. NAT. HIST. NICE ANNALS. Annals of the Natural History Museum of Nice. Published by the Museum from Nice, France.

NATL. ACAD. SCI. BIOG. MEM.;...MEM. Biographical Memoirs and Memoirs of the National Academy of Science. Published by the Academy from Washington, D.C.

NATURE PHYS. SCI. Nature, Physical Science. Published by the British Association for the Advancement of Science from London, England.

NEDERLANDS. GEOL. MIJNBOUKUNDIG GENOOT. VERH. Verhandelingen der Nederlandsch geologisch-mijngeboukundig Genootschap. Published by the Society from Amsterdam, Holland.

NEWFOUNDLAND JOUR. GEOL. EDUCATION. Newfoundland Journal of Geological Education. Published by the Newfoundland Section of the Geological Association of Canada, from St. Johns, Newfoundland.

NINTH INTERNATL. CONG. CARB. STRATIGRAPHY AND GEOLOGY ABS. VOLUME. Abstracts volume of the Ninth International Congress of Carboniferous Stratigraphy and Geology. Published by the Congress from Urbana, Illinois.

NUCL. TRACK DETECTION. Nuclear Track Detection. Published commercially from Elmsford, New York.

OREGON GEOL. SURVEY BULL. Bulletin of the Oregon Geological Survey. Published by the Survey from Portland, Oregon.

PALAEONTOGRAPHICA ABT. B. Abteilung B of Paleontographica. Published commercially from Stuttgart, Germany.

PALAEONTOGRAPHICA AMERICANA. Palaeontographica americana. Published by the Paleontological Research Institute from Ithaca, New York.

PALYNOLOGY. Palynology. Published by the American Association of Stratigraphic Palynologists from Dallas, Texas.

POP. ASTRONOMY. Popular Astronomy. Published by Carlton College from Northfield, Minnesota.

PURE AND APPLIED GEOPHYSICS. Pure and Applied Geophysics. Published commercially from Basel, Switzerland.

QUATERNARIA. Quaternaria. Published commercially from Rome, Italy.

QUATERNARY RESEARCH. Quaternary Research. Published commercially from New York City, New York.

RADIOCARBON. Radiocarbon. Published by Yale University from New Haven, Connecticut.

REVS. GEOPHYSICS AND SPACE PHYSICS. Reviews of Geophysics and Space Physics. Published by the American Geophysical Union from Washington, D.C.

ROCK AND GEM. Rock and Gem. Published commercially from Encino, Califormia.

ROCKS AND MINERALS. Rocks and Minerals. Published commercially from Peekskill, New York.

ROY. SOC. LONDON PHIL. TRANS. Philosophical Transactions of the Royal Society of London. Published by the Society from London.

SCIENCE. Science. Published by the American Association for the Advancement of Science from Washington, D.C.

SCRIPTA GEOLOGICA. Scripta geologica. Published by the Rijksmuseum van Geologie en Mineralogie from Leyden, Holland.

SED. GEOLOGY. Sedimentary Geology. Published commercially from Amsterdam, Holland.

SEISMOL. SOC. AMERICA BULL. Bulletin of the Seismological Society of America. Published by the Society from Stanford, California.

SENCKENBERG. MARITIMA. Senckenbergiana maritima. Published by the Senckenbergische Naturforschende Gesellschaft from Frankfurt, Germany.

SOC. EXPLOR. GEOPHYS. ANN MTG. Annual meeting of the Society of Exploration Geophysics. Published by the Society from Tulsa, Oklahoma.

SOC. MINING ENGINEERS TRANS. Transactions of the Society of Mining Engineers of the American Institute of Mining, Mechanical, and Petroleum Engineers. Published by the Society from New York City, New York.

SOIL SCI. Soil Science. Published commercially from Baltimore, Maryland.

SOIL SCI. SOC. AMERICA JOUR. Journal of the Soil Science Society of America. Published by the Society from Ann Arbor, Michigan.

SOUTH CAROLINA ACAD. SCI. BULL. Bulletin of the South Carolina Academy of Science. Published by the Academy from Columbia, South Carolina.

SOUTH CAROLINA DIV. GEOLOGY, GEOLOGIC NOTES. Geologic Notes. Published by the South Carolina Division of Geology from Columbia, South Carolina.

SOUTHEASTERN GEOLOGY. Southeastern Geology. Published by Duke University from Durham, North Carolina.

SOUTHEASTERN U.S. SEISMIC NETWORK BULL. Bulletin of the Southeastern U.S. Seismic Network. Published by Virginia Polytechnic Institute from Blacksburg, Virginia.

SPELEO DIGEST. Speleo Digest. Published by the Pittsburgh Grotto of the National Speleological Society from Pittsburgh, Pennsylvania.

SYSTEM. ZOOLOGY. Systematic Zoology. Published by the Society of Systematic Zoology, from Washington, D.C.

TECTONOPHYSICS. Tectonophysics. Published commercially from Amsterdam, Holland.

TENNESSEE ACAD. SCI. JOUR. Journal of the Tennessee Academy of Science. Published by the Academy from Nashville, Tennessee.

TENNESSEE DIV. GEOL. REPT. INV. Report of Investigations of the Tennesee Division of Geology. Published by the Division from Nashville, Tennessee.

TSCHERMAK'S MINERALOG. PETROGR. MITTH. Tschermaks's Mineralogische und Petrographische Mittheilungen. Published commercially from Vienna and New York.

TULANE STUDIES GEOLOGY AND PALEONTOLOGY. Tulane Studies in Geology and Paleontology. Published by Tulane University from New Orleans, Louisiana.

U.S. BUR. MINES INF. CIRC.;...REPT. INV. Information Circular and Report of Investigations of the United States Bureau of Mines. Published by the Bureau from Washington, D.C.

U.S. DEPT. AGRIC. SOIL CONSERV. SERVICE SPEC. PUB. Special publication of the Soil Conservation Service of the U.S. Department of Agriculture. Published by the Department from Washington, D.C.

U.S. GEOL. SURVEY BULL.; ...GEOPHYS. INVS. MAP.; ...MISC. FIELD STUDIES MAP; ...MISC. GEOL. INVS. MAP; ...PROF. PAPER; ...REPTS. OPEN FILE; ...WATER RESOURCES INVS.; ...WATER-SUPPLY PAPER. Bulletin, Geophysical Investigations Map, Miscellaneous Field Studies Map, Miscellaneous Geological Investigations Map, Professional Paper, Reports on Open File, Water Resources Investigations, and Water-Supply Paper of the United States Geological Survey. Published by the Survey from Washington, D.C.

VIRGINIA POLYTECH. UNIV. RES. DIV. BULL.; ...MON. Bulletins and Monographs of the Research Division of the Department of Geological Sciences of the Virginia Polytechnical Institute. Published by the Department from Blacksburg, Virginia.

WATER RESOURCES RESEARCH. Water Resources Research. Published by the American Geophysical Union from Washington, D.C.

Author Citations

Listed Alphabetically and Chronologically

ABBOTT, WILLIAM HAROLD, 1944-, **see also** Ernissee, John Justus, 1

1. (and Andrews, George William) Miocene diatomaceous deposits of South Carolina and [Coastal Plain] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 7, p. 969, 1975.

2. Miocene opal phytoliths and their climatic implications: South Carolina Div. Geology, Geologic Notes, v. 19, p. 43-47, illus., 1975.
   Miocene phytoliths have been identified from unspecified, but presumably Georgia Coastal Plain localities. They support the hypothesis of an arid climate at that time.

3. Correlation and zonation of Miocene strata along the Atlantic margin of North America using diatoms and silicoflagellates: Marine Micropaleontology, v. 3, p. 15-34, illus., 1978.
   Six zones in Early and Middle Miocene rocks are proposed. The early ones are in the Hawthorne Formation. Samples from Bulloch and Thomas Counties are included, and the zone fossils are illustrated.

4. (and Andrews, George William) Middle Miocene marine diatoms from the Hawthorne Formation within the Ridgeland Trough, South Carolina and Georgia: Micropaleontology, v. 25, p. 225-271, illus., 1979.
   Varved sediments from one outcrop in Effingham County, across the Savannah River from Berry's Landing, were deposited in a restricted basin or lagoon with oxygen-deficient bottom water. Over 100 taxa are described and illustrated from the Serravallian Stage.

ABRAMS, CHARLOTTE ELAINE, 1945-, **see also** Higgins, Michael Wicker, 4; McConnell, Keith Ian, 1, 3

1. (and McConnell, Keith Ian) Geologic guide to Sweetwater Creek State Park: Georgia Geol. Survey [Geologic Guide 1], 29 p., illus., 1977.
   This is a popular account of the geology of the park in Douglas County. Descriptions of marked sites along marked trails are included, and explanations for the geological features are given.

2. (and McConnell, Keith Ian) Structural and lithologic control of Sweetwater Creek [Cobb, Douglas, and Paulding Counties] [abstract]: Georgia Jour. Sci., v. 35, p. 87, 1977.

ACKER, LOUIS LIGON, 1945-, **see** Hatcher, Robert Dean, Jr., 19

ACKERMAN, HANS DIETRICH, 1927-, **see** Gohn, Gregory Scott, 1

ADDINGTON, JAMES WILLIAM, see Woods, Raymond Douglas, 1

AGAN, BENNY EDWARD, 1949-, **see** Hecht, Alan David, 1

ALBAUGH, DENNIS STEPHEN, 1954-, **see** Cook, Frederick Ahrens, 1, 2, 3

ALDRIDGE, ROBERT SAMUEL, 1951-, **see** Smith, James William, 3

ALGERMISSEN, SYLVESTER THEODORE, 1932-

1. (and Perkins, David M.) A probabilistic estimate of maximum acceleration in rock in the contiguous United States: U. S. Geol. Survey Repts. Open File 76-416, 45 p., illus., 1976.
   Probable acceleration coming from a particular kind of earthquake occurrence and ground-motion attenuation is given. Results from Georgia are included.

ALT, DAVID DOLTON, 1933-

1. Arid climatic control of Miocene sedimentation and origin of modern drainage, southeastern United States, in Post-Miocene stratigraphy, central and southern Atlantic Coastal Plain (edited by Robert Quincy Oaks, Jr., and Jules Ramon DuBar): Logan, Utah State Univ. Press, p. 21-29, illus., 1974.
   High-level gravels between streams on the Georgia Coastal Plain and elsewhere are interpreted as remnants of coalesced alluvial fans on a pediplain. They reflect Miocene arid conditions. Modern drainage was initiated in early post-Miocene time.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, see also Gulf Coast Association of Geological Societies, 1

1. Geological highway map of the southeastern [United States] region ...Georgia...: Amer. Assoc. Petroleum Geologists Map no. 9, scale, 1 inch to about 30 miles, text, 1975.

AMERIGIAN, CRAIG ARNEN, see Ellwood, Brooks Beresford, 3

ANDERS, ROBERT BERNARD, 1922-, **see** Stringfield, Victor Timothy, Jr., 2

ANDERSON, BARBARA MAY, 1938-

1. Calcium-carbonate hardness of public water supplies in the conterminous United States, **in** Environmental geochemistry in health and disease (edited by Helen Leighton Cannon and Howard Carl Hopps): Geol. Soc. America Memoir 123, p. 151- 153, illus., 1971.
   A small-scale map shows values of greater than 180 ppm calcium-carbonate in the ground water in the south and southeastern Coastal Plain; a few other localities in the state have concentrations between 61 to 120 and 121 to 180 ppm.

2. Lithium in surface and ground waters of the conterminous United States: U. S. Geol. Survey Repts. Open File [unnumbered] 7 p., illus., 1972.

ANDERSON, HAROLD V.

1. Henry Van Wagenen Howe, 1896-1973, **in** Energy for action--action for energy: Gulf Coast Assoc. Geol. Socs. Trans., v. 24, p. xxii-xxiv, port., 1974.

ANDREJKO, MICHAEL JOHN, 1951-

1. (and Stone, Peter Alan) Ash content of [Georgia] Okefenokee Swamp peats relative to vegetational and depositional settings [abstract]: Ninth Internatl. Cong. Carb. Stratigraphy and Geology, Abs. Volume, p. 4, 1979.

ANDREWS, GEORGE WILLIAM, 1929-, **see** Abbott, William Harold, 1, 4

ANGEL, BRIAN REGINALD, 1941-

1. (and Vincent, Wendy E. J.) Electron spin resonance studies of iron oxides associated with the surface of kaolins: Clays and Clay Minerals, v. 26, p. 263-272, illus., 1978.
   Numerous samples of kaolin from localities within the Georgia Coastal Plain are utilized in the study. They are coated with a hematite- or goethite-like phase which is not removed by a treatment described. The effects of these coatings on brightness are examined.

APPLIN, ESTHER ENGLISH RICHARDS, 1895-1972, **see** Maher, John Charles, 1

ARDEN, DANIEL DOUGLAS, JR., 1922-, **see** Cramer, Howard Ross, 5, 6, 7; Loman, William Thomas, Jr., 1; Rountree, Roy Gene, 1

ARNONE, ROBERT ANTHONY, 1949-

1. (and Beck, Kevin Charles) Formation of organic floccules in the Satilla estuary [Camden County] [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 637, 1974.

ARNOTT, GEMMA.

1. (and Johnson, Warren, and Whitworth, Lawrence) Boxcar cave (GSS 69), Dade County, Ga.: GSS Bull. 1971, p. 12, 21-28, illus. [1971] [not seen]; Speleo Digest 1971, p. 172-175, illus. incl. map, 1978.

ASMUSSEN, LORIS ELDEN, 1931-

1. Hydrologic effects of Quaternary sediments above the marine terraces in the Georgia Coastal Plain: Southeastern Geology, v. 12, p. 189-201, illus., 1971.
   Shallow phreatic aquifers occur in the Quaternary eolian and fluvial sediments which form an otherwise permeable veneer over the underlying marine formations. This veneer of sand effects runoff, pond and pit locations, drainage systems, watershed infiltration rates and stream localities.

ATKINS, ROBERT LEE, 1947-

1. (and Griffin, Martha McDonald) Geologic guide to Panola Mountain State Park, rock outcrop trail: Georgia Geol. Survey [Geologic Guide 2], 12 p., illus., 1977.
   This is a guidebook for a popular and elementary, geologically marked trail in the state park in Rockdale County. The origins of the igneous rocks and geomorphologic features are explained.

2. (and Griffin, Martha McDonald) Geologic guide to Panola Mountain State Park, watershed trail: Georgia Geol. Survey [Geologic Guide 3], 8 p., illus., 1977.
   This is a popular account of the geomorphological and hydrological features encountered along a marked trail in the state park in Rockdale County.

3. (and Griffin, Martha McDonald) A model station for geologic study--Panola Mountain State Park [Rockdale County] [abstract]: Geol. Soc. America Abs. with Progs., v. 9, p. 114-115, 1977; reprinted, p. 884

4. (and Power, Walter Robert, Jr.) The crushed granite industry of the Atlanta metropolitan area, in Twelfth forum on the geology of industrial minerals: Georgia Geol. Survey Inf. Circ. 49, p. 6-9, illus., 1978.
   A very generalized overview of the industry includes a brief summary of the geology of the area. Actually, granite, granite-gneiss, biotite gneiss, schist, and amphibolite are crushed for industrial needs.

5. (and Higgins, Michael Wicker) Relationship between superimposed folding and geologic history in the Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 361, 1978.

6. (and Higgins, Michael Wicker) Superimposed folding in the central Georgia Piedmont [abstract]: Georgia Jour. Sci., v. 36, p. 91, 1978.

7. A widespread unconformity in the Georgia Piedmont southeast of the Brevard Zone [abstract]: Georgia Jour. Sci., v. 36, p. 93, 1978.

8. (and Joyce, Lisa Gail) Geologic guide to Stone Mountain Park [DeKalb County] [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 169, 1979.

ATKINSON, JULIE LANE, 1954-

1. (and Channell, Walter Dene) Phosphatic nodules of the [Mississippian] Maury Shale [northwestern Georgia] [abstract]: Georgia Acad. Sci. Bull., v. 34, p. 87, 1976.

AUSTIN, ROGER SETH, 1940-

1. The origin of kaolin and bauxite in [Coastal Plain] central Georgia [abstract]: Clay Minerals Conf. 21st Ann. Mtg., Prog. and Abs., p. 38, 1972.

2. The origin of the kaolin and bauxite deposits of Twiggs, Wilkinson, and Washington Counties, Georgia: Ph D Thesis, Univ. Georgia, 1972; [abstract]: Dissert. Abs. Internatl., v. 34 B, p. B3304, 1974.

3. Distinction between Cretaceous and Tertiary kaolins of the Irwinton District [Coastal Plain] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 375-376, 1973.

4. The origin of Georgia's kaolin deposits, **in** Twelfth forum on the geology of industrial minerals: Georgia Geol. Survey Inf. Circ. 49, p. 10-15, illus., 1978.
   The Georgia kaolins are part of a regional system of aluminous laterite and lateritic sediments. The Cretaceous kaolin and bauxite were formed by laterization, and are residual from former aluminous sediments. The Tertiary kaolin and bauxite are derived largely from the Cretaceous deposits by erosion, having then been deposited in normal sedimentary environments; all were then subjected later to lateritization in the Early Tertiary. Some examples from quarries are described and illustrated.

AUVIL, JESSIE HERBERT, JR. 1919-1980, **see also** Tompkins, F. Vernon, 1; Wells, J. Robert, 1

1. Memorial to Aurelius Sydney Furcron, 1899-1971: Geol. Soc. America Memorials, v. 3, p. 91-95, port., 1974.

AVERITT, PAUL, 1908-

1. Coal resources of the United States, January 1, 1974: U. S. Geol. Survey Bull. 1412, 131 p., illus., 1975.
   A general discussion of the identification procedures of coal resources and reserve estimation is followed by estimates of reserves from each of the coal-mining states. Northwestern Georgia contains 64 million tons of identifiable resources, and 260 million tons are hypothetical or are in unmapped or unexplored terrain.

AYER, STANLEY, see Beck, Barry Frederic, 1

BABIN, WILLIAM F., SR.

1. Beryl by the bucket: Lapidary Jour., v. 29, p. 2290-2292, illus., 1976.
   This is a popular account of the occurrence of beryl in pegmatites from Jackson County.

BACK, WILLIAM, 1925-, **see** Stringfield, Victor Timothy, Jr., 2

BAEDECKER, PHILLIP ACKERMAN, 1939-, **see** Chou, Chen-Lin, 1

BAGBY, ROBERT WILLIAM, 1930-, **see** Broadhead, Thomas Webb, 1

BAILEY, ARTHUR CLAY, JR., 1937-, **see** Radcliffe, Dennis, 2

BAILEY, STURGES WILLIAMS, 1919-, **see** Murray, Hayden Herbert, 2

BALDWIN, JEFFREY SCOTT, 1946-, **see** Medlin, Jack Harold, 2

BANKS, PHILIP OREN, 1937-

1. Basement rocks bordering the Gulf of Mexico and the Caribbean Sea, Chapter 4 of The Gulf of Mexico and the Caribbean, vol. 3 of The ocean basins and margins (edited by Alan Eben Mackenzie Nairn and Francis Greenough Stehli): New York, Plenum Press, p. 181-199, illus., 1975.
   A review of the geology of the entire region includes a very brief description of the Georgia Coastal Plain. Metamorphic and igneous rocks of unclear age, and Triassic-aged sedimentary rocks are present. No new data are included.

BARNES, STEVEN CHARLES, 1953-

1. (and Craft, Thomas Fisher, and Windom, Herbert Lynn) Iron-scandium budget in sediments of two Georgia salt marshes: Georgia Acad. Sci. Bull., v. 31, p. 23-30, illus., 1973.
   Scandium remains in sediments once introduced as particulate matter whereas iron is mobilized. As the iron diffuses upward into the vegetation, it reduces other matter. Data come from Chatham County.

BARNETT, RICHARD SAMUEL, 1931-

1. Basement structure of Florida and its tectonic implications: Gulf Coast Assoc. Geol. Socs. Trans., v. 25, p. 122-142, illus., 1975.
   The geology of the southern part of the Georgia Coastal Plain is included. The Triassic-aged Eagle Mills Formation is in the southern part, and Paleozoic-aged sedimentary rocks occur toward the southeast, and are overlain by Jurassic and Cretaceous rocks. Petrographic descriptions and other data about the basement rocks in Camden, Charlton, and Lowndes Counties are included.

BARR, DAVID JOHN, 1939-

1. (and Hensey, Melville D.) Preliminary evaluation of an industrial plant site using remote sensing techniques: Amer. Soc. Photogrammetry, Proc. 38th Ann. Mtg., p. 82-94, illus., 1972.
   A karst area near Albany, Dougherty County was investigated with a Daedelus scanner on color and color infra-red film. Sinkholes can be identified by this technique.

BARTON, ROBERT HELMUTH, 1932-, **see** King, Elizabeth Raymond, 1

BARWOOD, HENRY LEWIS, 1947-

1. (and Hajek, Benjamin Frank) Notes on some occurrences in Georgia and Virginia: Mineralog. Record, v. 10, no. 1, p. 48-49, illus., 1979.
   Vivianite crystals from Cretaceous oyster shells from Stewart County, wavellite and cacoxenite from Paleozoic rocks near Cedartown in Polk County, and phosphosiderite and jarosite from metamorphic rocks on Graves Mountain in Lincoln County are described and illustrated.

BASAN, PAUL BRADLEY, 1943-, **see also** Frey, Robert Wayne, 2,6

1. (and Frey, Robert Wayne) Paleoecologic aspects of a salt marsh [McIntosh County] [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 445, 1972.

2. (and Pierce, Robert, and Frey, Robert Wayne) Microenvironments and shrinkage in natural molds in the mussel **Modiolus demissus** [Coastal Plain] [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 376-377, 1973.

3. (and Frey, Robert Wayne) Orientation of sessile pelecypods relative to water currents in [Coastal Plain] Georgia salt marshes [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 332-333, 1974.

4. Actual paleontology of a modern salt marsh near Sapelo Island [McIntosh County], Georgia: Ph D Thesis, Univ. Georgia, 1975; [abstract]: Dissert. Abs. Internatl., v. 36B, p. B2114, 1976.

5. (and Frey, Robert Wayne) Actual-paleontology and neoichnology of salt marshes near Sapelo Island, Georgia, **in** Trace fossils 2 (edited by T. P. Crimes and J. C. Harper): Liverpool, Seel House Press, p. 41-70, illus., 1977.
Associations of animals and plants are useful for distinguishing salt marsh deposits from those of other environments and for distinguishing subdivisions of the salt marshes. Most habitats are characterized biologically, and to some extent sedimentologically and hydrologically, by the zonation of typical assemblages. Burrows are commonly used. Examples from Sapelo Island in McIntosh County are cited.

BASSETT, MICHAEL G., see Dennison, John Manley, 4; Neuman, Robert Ballin, 1

BASU, ABHIJIT, 1940-

1. Petrology of Holocene fluvial sand derived from plutonic source rocks--implications to paleoclimatic interpretation: Jour. Sed. Petrology, v. 46, p. 694-709, illus., 1976.
Fluvial sediments derived from the Union Point pluton in Greene County and from other humid Appalachian sites are compared with fluvial sediments from arid sites. (1) Climatic differences produce different modal grain abundances and size-dependent trends, and (2) the relative distribution of the mineral types of the principal constituents in a first-cycle sand is probably determined by the compositon of the source rocks and the preferential loss of plagioclase. A static model is presented.

2. (and Blanchard, Douglas Paul, and Brannon, J. C.) Trace elements in Holocene fluvial sands derived from granitic plutons [Piedmont] [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 62, p. 494, 1978.

BATES, ROBERT LATIMER, 1917-

1. Sedimentary fractionation and industrial-mineral deposits, **in** Proceedings of the seventh forum on the geology of industrial minerals (edited by Harbans Singh Puri): Florida Geol. Survey Spec. Pub. 17, p. 13-16, illus., 1972.
A discussion of the geological processes which result in the fractionation of specific minerals or products, includes that which has concentrated the kaolin deposits of the Georgia Coastal Plain. The kaolin is possibly from volcanism or from the weathering of detrital feldspar.

BAUER, DAVID THOMAS, see also Schamel, Steven, 1

1. The structure of the Pine Mountain belt in portions of Talbot, Upson, and Meriwether Counties, Georgia: M S Thesis, Florida State Univ., 1976.

BAYER, KENNETH CHARLES, 1916-, **see** Harris, Leonard Dorrean, 3, 4

BEARCE, DENNY NEIL, 1934-, **see** Drahovzal, James Alan, 2

BEARDEN, STANLEY DYAR, 1952-

1. A petrographic and geochemical study of the Austell, Palmetto, and Sand Hill granite gneisses [Douglas and Fulton Counties] [abstract]: Georgia Acad. Sci. Bull., v. 34, p. 84, 1976.

BECK, BARRY FREDERIC, 1944-

1. (and Ayer, Stanley, and Padgett, Edgar Allen, Jr.) Management of Ellison's Cave, site of the United States' deepest cave pit--Pigeon Mountain, Georgia, **in** National Cave Management Symposium Proc. [2nd], Mountain View, Arkansas, 1976: Albuquerque, New Mexico, Speleobooks, p. 44-49, illus., 1977.
   A general description of the cave is given, with plans to restrict the access of parts of it to experienced cavers only. Two of the longest vertical caves in the nation are present in this Walker County site.

2. Color differentiation in "fried egg" stalagmites: Jour. Sed. Petrology, v. 48, p. 821-824, illus., 1978.
   An example from Byer's Cave in Dade County is used to show that the yellow and white color zones are due to crystal-texture differences and not to chemical or mineralogic factors.

3. The feasibility of using ponds as shallow wells in the Georgia Coastal Plain: Georgia Inst. Technology Envir. Research Center, Rept. ERC 02-79, 24 p., illus., 1979.
   The water-bearing properties of surficial sand, clay, and gravel are determined, and it is shown that intermediate amounts of ground water could be obtained from large-diameter, shallow-depth wells [ponds].

BECK, KEVIN CHARLES, 1936-, **see also** Arnone, Robert Anthony, 1; Pollard, Charles Oscar, Jr., 1; Reuter, Johannes Helmut, 2; Weaver, Charles Edward, 5; Windom, Herbert Lynn, 3, 4

1. (and Windom, Herbert Lynn) Clay-mineral water interaction in the Ogeechee River estuary [Chatham County] [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 60, 1972.

2. (and Reuter, Johannes Helmut) Control of river water chemistry by dissolved organic matter [Coastal Plain] [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 447, 1972.

BECKER, SUSAN WARD, 1952-, **see also** Speer, John Alexander, 2

1. Compositional variations of southeastern gabbros, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Rept. VPI-SU 5648-1, p. A31-A42, illus., 1977.
The Pressley's Mill Norite in Putnam County and the Gladesville Norite in Jasper County are included with many other gabbros from elsewhere which have been divided into alkaline and sub-alkaline groups; those from Georgia are in the latter. They cannot, with certainty, be further subdivided into calc-alkaline or tholeitic. Analyses are included.

BEIKMAN, HELEN MARIE, 1929-, **see** King, Philip Burke, 4, 6

BENJAMINS, JANET Y., **see** Drahovzal, James Alan, 1

BENNETT, HUGH FREDERICK, 1931-

1. (and Tilmann, Stephen Edward, and Dorman, LeRoy Myron) Application of the Q-ellipsoid method to teleseismic data from the Atlanta,[Fulton County] Georgia area [abstract]: EOS, v. 55, p. 357, 1974.

BENOIT, JEFFREY ROSS, 1953-

1. A shoreline erosion study of the Atlantic intracoastal waterway of Georgia, classification and methods of erosion control: M S Thesis, Georgia Inst. Technology, 1978.

BENSON, ARTHUR FRANCIS, 1946-

1. (and Fogle, Gerald Howard) Intensity survey of Lincoln County, Georgia, McCormick County, South Carolina earthquake August 2, 1974: Earthquake Notes, v. 45, no. 4, p. 27-29, illus., 1974.
A post-card survey of the earthquake showed its epicenter to be about 22 km northwest of Augusta, Georgia, in Lincoln County. The MM was V.

BENTLEY, ROBERT DONALD, 1933-

1. (and Higgins, Michael Wicker, and Pickering, Samuel Marion, Jr., and Grant, Willard Huntington, and Zeitz, Isidore, and Neathery, Thornton Lee) Preliminary interpretation of an aeromagnetic map of most of the central and southern Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 333-334, 1974.

BERDAN, JEAN MILTON, 1916-, **see also** Pojeta, John, Jr., 1

1. Memorial to Esther [English] Richards Applin, 1895-1972: Geol. Soc. America Memorials, v. 4, p. 14-18, port., 1975.

BERGENBACK, RICHARD EDWARD, 1926-, **see also** Herndon, Mark Allen, 1; McCullough, James Dewitt, 1

1. Pennsylvanian stratigraphy of Sand Mountain, Marion County, Tennessee and Dade County, Georgia: Tennessee Acad. Sci. Jour., v. 53, p. 140-143, illus., 1978.
   Boreholes within the Warren Point Sandstone show the positions of the various sand and shale units, some of which are intertonguing in the Raccoon Mountain Formation. The Aetna and Dade coal seams are the two minable coals, but others are present.

2. Field trip 5, Carboniferous depositional environments in the southern Cumberland Plateau, **in** Field trips in the southern Appalachians--Geol. Soc. America Southeastern Sec. Field Trip: Tennessee Div. Geology Rept. Inv. 37, p. 63-86, illus., 1978.
   One of the stops, No. 4, on this trip is in the now-abandoned Carbon [sic.] Mine in Dade County. Bay-fill, sand-flat, and sand-shoal environments are present in the rocks of the Gizzard Group which are exposed in the walls of the mine. Line drawings of the features are included.

3. (and Warren, Gregory F.) Pennsylvanian lithostratigraphy and depositional environments, Lookout and Sand Mountain (Cumberland Plateau), Tennessee, Alabama, and [northwestern] Georgia, U. S. A. [abstract]: Ninth Internatl. Cong. Carb. Stratigraphy and Geology, Abs. Volume, p. 16, 1979; with slightly different title: Geol. Soc. America Abs. with Progs., v. 11, p. 170-171, 1979.

BERGER, ZEEV, see also Wadsworth, Joseph Rogers, Jr., 1

1. (and Thomas, Adrian Wesley) Erosion and sedimentation in Call Creek basin [Oconee County] [abstract]: Georgia Jour. Sci., v. 37, p. 78, 1979.

BERGSTROEM, STIG MAGNUS, 1935-, **see also** Sweet, Walter Clarence, 1

1. Biostratigraphy and facies relations in the lower Middle Ordovician of easternmost Tennessee, **in** The Byron Nelson Cooper volume (edited by Lynn Glover, 3d, and Paul Hubert Ribbe): Amer. Jour. Sci., v. 273A, p. 261-293, illus., 1973.
   Rocks mapped as Lenoir Limestone, and which are below the Middle Ordovician Rockmart Slate in Polk County, contain a Whiterockian-aged conodont fauna. These, and those in the conformably overlying Rockmart, suggest that the Rockmart is the oldest Middle Ordovician unit in the southern Appalachians.

2. Late Canadian-Whiterockian strata in eastern North America [Polk County]--new data on distribution and biostratigraphy [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 775-776, 1976.

BERNOTAT, W. H.

1. Principal component maps instead of trend surface maps for modal and chemical data of granitoid rock bodies: Tschermak's Mineralog. Petrogr. Mitth., v. 19, p. 185-207, illus., 1973.
   Contour maps are made of eigenvectors which are calculated from the covariance matrix of the principal components of the chemistry of rock bodies. Stone Mountain Granite from DeKalb County is one of the many sources of data.

BERSCHINSKI, CHARLES J., 1947-, **see** Casagrande, Daniel Joseph, 6

BHATE, UDAY RAMESH, 1949-

1. Trace metal distributions in natural salt marsh sediments [Chatham County]: M S Thesis, Georgia Inst. Technology, 1972.

BILBO, RAYMOND E.

1. (and Slater, Randy, and Hunter, Donald) Bilbo Baggins Cave, GSS 231, Sulphur Springs Quad., Dade Co., Ga.: GSS Bull. 1971, p. 12-13, illus., 1972; Speleo Digest 1971, p. 171, illus., 1978.

BISDORF, ROBERT JAMES, 1948-, **see also** Gill, Harold Edward, 1

1. (and Zohdy, Adel Abd Rahman) Geoelectric investigations with Schlumberger soundings near Brunswick, Georgia: U. S. Geol. Survey Repts. Open File 79-1551, 124 p., illus., 1979.
   Eighty one electric soundings show the depth and lateral extent of the saltwater encroachment into the carbonate aquifer. They are also used to map the top of the carbonate sequence. Computer-generated geoelectric sections are included.

BLAIR, LARRY O.

1. Ellison's [Cave spring resurgence, Walker County]: Georgia Underground, v. 12, p. 172-177, illus. incl. map, 1975.

2. Smyrna Block-Creep Cave [Cobb County]: Georgia Underground, v. 16, p. 6-8, illus. map, 1979.

BLANCHARD, DOUGLAS PAUL, 1945-, **see** Basu, Abhijit, 2

BLANCHARD, HARRY EUGENE, JR., 1930-, **see** Cressler, Charles William, 4; Pollard, Lin Davis, 2

BOERNGEN, JOSEPHINE GRAHAM, 1923-, **see** Shacklette, Hansford Threlkeld, 1, 2, 5

BOLDING, ROBERT WILLIAM, 1956-

1. A Mississippian limestone in the Rome North Quadrangle [Floyd County] Georgia [abstract]: Georgia Jour. Sci., v. 37, p. 84, 1979.

BOLLINGER, GILBERT ARTHUR, 1931-

1. Earthquake magnitude and intensity in the southeastern United States [and Georgia] [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 379, 1973.

2. Seismicity and crustal uplift in the southeastern United States, **in** The Byron Nelson Cooper volume (edited by Lynn Glover, 3d): Amer. Jour. Sci., v. 273A, p. 396-408, illus., 1973.
   The 850 earthquakes in the southeastern states between 1754 and 1970 fall into four seismic zones, two of which occur in Georgia: (a) South Carolina-Georgia zone, perpendicular to the Appalachian trend and largely in the Piedmont, (b) and the Southern Appalachian Zone that includes much of the Piedmont, Blue Ridge, and northwestern Georgia. These zones are analyzed with geodetic and tidal information; the strain development may have been induced by crustal uplift and concentrated in old Appalachian structures.

3. Seismicity of the southeastern United States: Seismol. Soc. America Bull., v. 63, p. 1785-1808, illus., 1973.
   Existing earthquake data show that there are two seismic zones of which Georgia is a part. They are the South Carolina-Georgia Zone, and the Southern Appalachian Zone. The latter is parallel with Appalachian structures and the former is almost perpendicular to them. No quakes of intensity VII or higher have occurred in Georgia.

4. A catalog of southeastern United States earthquakes, 1754 through 1974: Virginia Polytech. Univ. Dept. Geol. Sci. Research Div. Bull. 101, 68 p., illus., 1975.
There have been 34 earthquake epicenters known in Georgia between 1872 and 1974. The greatest had an intensity of VI; most have been in the Piedmont or northwestern Georgia.

5. The seismic regime in a minor earthquake zone, in Numerical methods in geomechanics (edited by Chandrakant S. Desai), vol. 2 of Second Internatl. Conf. Numerical Methods in Geomechanics [Proc.]: New York, Amer. Soc. Civil Engineers, p. 917-937, 1976.
The southeastern United States, including Georgia, is a minor seismic zone. The existing data base and current state of knowledge are reviewed. Two well-defined seismic zones occur, both parallel and oblique to the dominant northeastern tectonic trend. The temporal behavior of earthquakes is poorly known, and except for the Charleston 1886 earthquake, the overall energy release has been relatively uniform. No causes are known. The relation between the region's micro- and macroseismicity has only recently begun to be studied. Crustal velocity structure is known to a first approximation.

6. (and Murphy, Carol Anne, editors) Seismicity of the southeastern United States--July 1, 1977-December 31, 1977: Southeastern U. S. Seismic Network Bull. no. 1, 56 p., illus., 1978.
The Lake Sinclair area in Baldwin, Hancock, and Putnam Counties experienced numerous microearthquakes between September and November, 1977.

7. (and Mathena, Ellen Cooper, editors) Seismicity of the southeastern United States, January 1, 1978 - June 30, 1978: Southeastern U. S. Seismic Network Bull. no. 2, 18 p., illus., 1978.
Earthquakes in Georgia for the period are listed, and are: (1) near Lake Sinclair (Feb. 12, Mar. 2) in the Piedmont; (2) near Greensboro (Mar. 3) Greene County; and from near Dalton (June 16) Whitfield County. Microearthquakes from the Lake Sinclair, from northwestern Georgia, and from the Georgia-Alabama border area near LaGrange are also listed.

8. Attenuation of the Lg phase and the determination of m in the southeastern United States: Seismol. Soc. America Bull., v. 69, p. 45-63, illus., 1979.
Data from six earthquakes with epicenters in Georgia, and from elsewhere show that the attenuation of the Lg phase is 0.070^{-1} rate for epicentral distances to 700 km. At longer distances it was somewhat greater for some of the quakes. The nature of the wave propagation changes.

9. (and Mathena, Ellen Cooper, editors) Seismicity of the southeastern United States, July 1, 1978 - December 31, 1978: Southeastern U. S. Seismic Network Bull. no. 3, 66 p., illus., 1979.
There were three earthquakes in Georgia during this time; one was near Ringgold in Catoosa County; another at La Grange in Troup County, and one reported from near the Georgia-Alabama border in northwestern Georgia. A swarm of microearthquakes is reported from near Lake Sinclair in the Piedmont.

10. (and Mathena, Ellen Cooper, editors) Seismicity of the southeastern United States, January 1, 1979 - June 30, 1979: Southeastern U. S. Seismic Network Bull. no. 4, 78 p., illus., 1979.
There were no earthquake epicenters in Georgia for this time period, but a list of definite or probable microearthquakes are reported from the region of Lakes Oconee and Sinclair. The arrival-time differences between the S and P waves vary from 3.71 to 0.50 seconds.

BOND, THOMAS ALDEN, 1938-, **see also** Scrudato, Ronald John, 2

1. Pollen analysis and radiocarbon dates from Chase Prairie, Okefenokee Swamp, Charlton County, Georgia [abstract]--Proc. 6th Ann. Mtg. Amer. Assoc. Stratig. Palynologists: Geoscience and Man, v. 11, p. 153-154, 1975.

BOSWELL, ERNEST HARRISON, 1919-, **see** Cederstrom, Dagfin John, 1

BOUDREAU, JOHN E., 1946-, **see** Casagrande, Daniel Joseph, 10

BOUSKA, VLADIMIR

1. (and Zdenek, Randa) Rare earth elements in tektites: Geochim. et Cosmochim. Acta, v. 40, p. 486-488, illus., 1976.
A tektite from Jay Bird Springs, in Dodge County is included. The REE abundances resemble those of sedimentary rocks. The one from Georgia is relatively rich in Eu, possibly due to a plagioclase-rich source rock such as a feldspathic sandstone.

BOWEN, RICHARD LEE, 1929-

1. Post-Pennsylvanian geologic history of the southeastern United States--economic geology: Gulf Coast Assoc. Geol. Socs. Trans., v. 25, p. 100-103, 1975; Amer. Assoc Petroleum Geologists Bull., v. 59, p. 1724, 1975.
Seven sedimentary cycles, labelled G to A from oldest to youngest are identified. Cycle C contains rocks of Paleocene to Oligocene age and includes the kaolin deposits of the Georgia Coastal Plain. Uranium, leached from acid-volcanic rocks, may be present.

2. Post-Pennsylvanian geologic history of the southeastern United States [Coastal Plain], Part 2, sedimentary cycles [abstract]: Geol. Soc. America Abs. with Progs., v. 7, p. 472, 1975.

BOWLES, JESSE M., see Shacklette, Hansford Threlkeld, 1

BOZION, CONSTANTINE N., 1919-, **see** Heyl, Allen Van, Jr. 1

BRANDAU, BETTY LEE, 1933-, **see also** Noakes, John Edward, 1

1. (and Noakes, John Edward) University of Georgia radiocarbon dates II: Radiocarbon, v. 14, p. 486-497, 1972.
   Marsh muds from around Sapelo Island, McIntosh County, are less than 4,450 years old. Shell fragments and wood from the same vicinity are younger than 2,450 years. Alluvial wood from the Savannah River floodplain is older than 40,000 years save for one sample which is 35,000 years. Sloth bones from Glynn County are 9,380 to 11,310 years old.

2. (and Noakes John Edward) University of Georgia radiocarbon dates IV: Radiocarbon, v. 17, p. 99-111, 1975.
   Numerous samples of peat from the Okefenokee Swamp, mostly in Charlton County, are dated. All are less than 6,500 years old.

3. (and Noakes, John Edward) University of Georgia radiocarbon dates VI: Radiocarbon, v. 20, p. 487-501, 1978.
   Shells from Sapelo Island and neighboring marine sediments in McIntosh County are less than 4,820 years old. In general, the older the sample, the higher it is above mean sea level. Some are from nearby Blackbeard and Cabretta Islands, and all are Holocene.

BRANDE, SCOTT, 1950-

1. Biometric analysis and evolution of two species of **Mulina** (Bivalvia:Mactridae) from the late Cenozoic of the Atlantic Coastal Plain: Ph D Thesis, New York State Univ. Stony Brook, 1979.

BRANNON, J. C., **see** Basu, Abhijit, 2

BRANTLEY, ALBERT GEORGE, 1949-

1. Paleoenvironmental significance of bone orientation in Watkin's Quarry (Late Pleistocene), Glynn County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 29, p. 128, 1971.

BREDEHOEFT, JOHN DALLAS, 1933-

1. (and Pinder, George Francis) Application of transport equations to groundwater systems: Internatl. Geol. Cong. 24th, Proc. Sec. 11, Hydrogeology, p. 255-263, illus., 1972; **in** Underground waste management and enviromental implications: Amer. Assoc. Petroleum Geologists Mem. 18, p. 191-199, illus., 1972; discussions, p. 199-201.
   The mass-transport equation and the equation of motion have been coupled and numerically solved. Numerical solutions have also been obtained for the heat-transport equation and the equation of motion, particularly for convection problems. The groundwater contamination in wells from limestone aquifers in Glynn County is used to demonstrate the application of the equations.

2. (and Pinder, George Francis) Mass transport in flowing groundwater: Water Resources Research, v. 9, p. 194-210, illus., 1973.
A case history of a salt-water-contaminated well at Brunswick, in Glynn County, is used to demonstrate the use of the coupling of the mass transport equation with the equation of motion to predict and control future movement of contaminants.

3. (and Counts, Harlan Bryan, and Robson, Stanley Gene, and Robertson, John Brown) Solute transport in groundwater systems, **in** Facets of hydrology (edited by John C. Rodda): New York, John Wiley, p. 229-256, illus., 1976.
Data from wells in the Brunswick area of Glynn county are used along with others from elsewhere to show the problems of the dispersivity of dissolved substances in water. Complex mathematical models are needed to solve the mass- and fluid-transport problems; examples from the chloride contamination of the groundwater at Brunswick are used.

BRETSKY, SARA SU STEWART, 1943-

1. Evolution and classification of the Lucinidae (Mollusca; Bivalvia): Palaeontog. Americana, v. 8, no. 50, p. 219-337, illus., 1976.
A complete review of this pelecypod family includes allusions to **Lucina (L.) wacissana** from the Oligocene Flint River Formation on the Coastal Plain.

BRIDGES, SAMUEL RUTT, 1951-, **see also** Long, Leland Timothy, 2, 3, 10

1. Study of a positive Bouguer gravity anomaly in Tift County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 31, p. 82, 1973.

2. Evaluation of stress drop of the August 2, 1974 [Lincoln County] Georgia-South Carolina earthquake and aftershock sequence: M S Thesis, Georgia Inst. Technology, 1975.

3. (and Long, Leland Timothy) Recent seismic activity in the Clark Hill reservoir area on the [Piedmont] Georgia-South Carolina border [abstract]: Geol. Soc. America Abs. with Progs., v. 7, p. 473, 1975.

BRIGGS, GARRETT, 1934-, **see** Hobday, David Kenneth, 1; Milici, Robert Calvin, 1

BRINDLEY, GEORGE WILLIAM, 1905-

1. Citation and memorial for Dr. William F[rank] Bradley [1908-1973]: Clays and Clay Minerals, v. 22, p. i-v, port., 1974.

BROADHEAD, THOMAS WEBB, 1950-

1. (and Bagby, Robert William) Chesteran inadunate crinoids from the Floyd Shale, Floyd County, Georgia: Georgia Acad. Sci. Bull., v. 30, p. 27-31, illus., 1972.
   Ten crinoids are discussed and illustrated. Blastoids, ectoprocts and brachiopods are also present. There is a probable correlation with the Gasper Limestone.

2. (and Jordan, Larry Eugene) The [Mississippian] Golconda Group in [northwestern] Georgia? [abstract]: Georgia Acad. Sci. Bull., v. 30, p. 80, 1972.

3. Biometric studies of **Pentremites** from the Floyd Shale, Upper Mississippian, northwest Georgia [abstract]: Georgia Acad. Sci. Bull., v. 32, p. 16, 1974.

4. Depositional system interpretation of marine benthic communities in the Floyd Shale, Upper Mississippian, northwest Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 667-668, 1974.

5. (and Underwood, Susan Elizabeth) Diploporan cystoids from the Lebanon Limestone, Middle Ordovician, Walker County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 32, p. 17, 1974.

6. Biostratigraphy and paleoecology of the Floyd Shale, Upper Mississippian, northwest Georgia: M A Thesis, Univ. Texas, 1975.

7. Depositional systems and marine benthic communities in the Floyd Shale, Upper Mississippian, northwest Georgia, **in** Structure and classification of paleocommunities (edited by Robert William Scott and Ronald Robert West): Stroudsburg, Pa., Dowden, Hutchinson and Ross, p. 263-278, illus., 1976.
   Five benthic marine communities are identified. Each is in a distinct lithotope whose relation to deltaic sedimentation is shown.

BROBST, DONALD ALBERT, 1925-

1. (and Pratt, Walden Penfield) United States mineral resources: U. S. Geol. Survey Prof. Paper 820, 722 p., illus., 1973.
   A review of all of the mineral resources of the nation includes those in Georgia.

BROCK, GEORGE GAINHAM, 1909-

1. Soil survey of Banks and Stephens Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 78 p., illus., 1971.
   The soils of these counties are mapped and described, and their origin is cursorily reviewed.

2. Soil survey of Barrow, Hall, and Jackson Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 60 p., illus., 1977.
   The soils of the counties are mapped and described in great detail. A cursory discussion of their origin from the local bedrock is included.

BROEKSTRA, BRADLEY ROBERT, 1953-, **see also** Sedivy, Robert Alan, 1

1. Diagenetic changes in a Cambrian shale [Conasauga Formation] as a function of burial depth [northwestern Georgia]: M S Thesis, Georgia Inst. Technology, 1978.

2. (and Weaver, Charles Edward) Geothermal history of the [Cambrian] Conasauga Shale [northwestern Georgia] [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 163-164, 1978.

BROKAW, RICHARD SCOTT, JR., 1952-

1. (and Howard, James Dolan) Role of bioerosion in mass-wasting of Pleistocene outcrops in Georgia coast [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 63, p. 424, 1979.

BROOKS, J. F.

1. Soil survey of Carroll and Haralson Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 60 p., illus., 1971.
   The soils of the counties are mapped and described in great detail. Their origin in relation to the underlying rocks is briefly discussed.

BROOKS, PAULA ELIZABETH, 1956-

1. (and Buchanan, Robert Beach, and Loman, William Thomas, Jr., and Moore, Thomas Patrick) Upper Eocene (Jackson) sediments of central Georgia [Coastal Plain] [abstract]: Georgia Jour. Sci., v. 35, p. 83, 1977.

BROWN, BAHNGRELL WALTER, 1916-

1. Thomas Sterry Hunt (1826-1892)--chemical geologist [abstract]: Geol. Soc. America Abs. with Progs., v. 7, p. 1011, 1975.

BROWN, DONALD LEE, 1938-, **see** Brown, Philip Monroe, 3

BROWN, JACK R.

1. Soil survey of Jenkins County, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 61 p., illus., 1968.
   The soils of the county are mapped and described in great detail. There is also a cursory review of the geology of the county.

BROWN, LARRY DOUGLAS, 1951-, **see also** Citron, Gary Paul, 1; Cook, Frederick Ahrens, 1, 2, 3; Lawrence, Mark Bauer, 1

1. Recent vertical crustal movements from geodetic measurements--Alaska and the eastern United States: Ph D Thesis, Cornell Univ., 1976.

2. (and Oliver, Jack Ertle) Vertical crustal movements from leveling data and their relation to geologic structure in the eastern United States: Revs. Geophysics and Space Physics, v. 14, p. 13-35, illus., 1976.
   Changes in level are plotted, and trends are identified; some of the data are from Georgia. Changes in rate of change correspond with known geologic structures. On the Coastal Plain, a consistent tilt seaward is present. The Brevard Zone is arched upward. The relationship of trend lines (of systematic change) to seismicity is shown on small-scale maps.

3. Recent vertical crustal movement along the east coast of the United States: Tectonophysics, v. 44, p. 205-231, illus., 1978.
   There is a discrepancy between vertical movement determined by recent leveling studies and by tide gauges, one of which is at Savannah. It is unclear which method is incorrect.

4. (and others) Structure of the continental crust--new results from COCORP seismic reflection profiling [northwestern Georgia] [abstract]: EOS, v. 60, p. 313, 1979.

5. (and others) Thin-skinned thrusting in the crystalline Appalachians demonstrated by COCORP profiling [Piedmont] [abstract]: Soc. Explor. Geophys. Ann. Mtg. 49, p. 83-84, 1979 [not seen].

BROWN, PHILIP MONROE, 1922-

1. Subsurface correlation of Mesozoic rocks in Georgia, **in** Symposium on the petroleum geology of the Georgia Coastal Plain (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 45-59, illus., 1974.
   Cretaceous rocks vary in thickness from a feather edge to 2,500 feet. The structures which have shaped and influenced the sedimentary geometry of the Coastal Plain reflect, or are derived from, lateral and vertical movement of crustal segments which are juxtaposed along two intersecting hinge lines. They mirror similar structures described from the Atlantic Coastal Plain farther to the north.

2. Cenozoic and Mesozoic aquifer systems of the Atlantic Coastal Plain, **in** A symposium of geothermal energy and its direct uses in the eastern United States: Davis, California, Geothermal Resources Council Spec. Rept. 5, p. 31-36, illus., 1979.
   A discussion of the structural and stratigraphic framework of the Coastal Plain includes that of Georgia. Mesozoic aquifers which are discontinuous and discordant are subdivided into 8 distinct units (A to H), and these are tabulated by area, volume, number of aquifers containing usable ground water, percentage containing usable ground water, and number containing non-usable ground water.

3. (and Brown, Donald Lee, and Reid, Marjorie S., and Lloyd, Orville Bruce, Jr.) Evaluation of the geologic and hydrologic factors related to the waste-storage potential of Mesozoic aquifers in the southern part of the Atlantic Coastal Plain, South Carolina and Georgia: U. S. Geol. Survey Prof. Paper 1088, iv, 37 p., illus., 1979.
Cretaceous rocks of the Georgia Coastal Plain are examined as potential waste-storage areas. Numerous cross sections are included, and analyses of ground water are given. Porous sands greater than 20 feet thick, with 20 feet of shale above and below, and which are below the fresh-water zone are considered to be potential areas of interest. Structure contour, salinity, and sand-shale ratio maps of each of the units are included.

BROWN, STEPHEN W.

1. (and Cernock, Paul John, and Haykus, Joseph A.) Regional hydrocarbon source-rock evaluation of Atlantic Coastal Plain adjacent to the Georgia Embayment [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 63, p. 425-426, 1979.

BRUNFELT, ARILD O., see Ragland, Paul Clyde, 1

BRYAN, JOHN GREGORY, 1954-, **see** Hatcher, Robert Dean, Jr., 19

BRYANT, BRUCE HAZELTON, 1930-, **see also** Reed, John Calvin, Jr., 1

1. (and Reed, John Calvin, Jr.) Structural and metamorphic history of the southern Blue Ridge, **in** Studies of Appalachian geology--central and southern (edited by George Wescott Fisher and others): New York, Interscience Pub., p. 213-225, illus., 1970.
A review of the stratigraphy of the entire southern Blue Ridge Province includes that part in Georgia. It is a terrane of complex, intricately deformed and variously metamorphosed sedimentary and volcanic rocks of Precambrian age which have been invaded by a diverse array of Precambrian and Paleozoic intrusive rocks. Thrust faults are the predominant structures.

BUCHANAN, ROBERT BEACH, 1953-, **see** Brooks, Paula Elizabeth, 1

BUCHWALD, VAGN FABRITIUS, 1929-, **see also** Schaudy, Rudolf, 1

1. Handbook of iron meteorites--their history, distribution, composition and structure: Berkeley, Univ. California Press, 3 vols., 1418 p., illus., 1976.
All of the known iron meteorites of the world are described in great detail. Included are those from Georgia.

2. The mineralogy of iron meteorites: Roy. Soc. London Phil. Trans. ser. A, v. 286, p. 453-491, illus., 1977.
A general treatise on the minerals found in iron meteorites includes those from Pitts, Wilcox County, as one of many examples. Pitts is one of 32 witnessed falls of iron meteorites.

3. Seven severely altered hexahedrites, sensitive to grain boundary corrosion [Holland's Store meteorite, Chattooga County] [abstract]: Meteoritics, v. 14, p. 359-360, illus., 1979.

BUDDHUE, JOHN DAVIS, 1910-

1. The formation of meteoritic iron oxide: Pop. Astronomy, v. 52, p. 346-351, illus., 1944.
Meteoritic iron oxide occurs as coarsely lamellar, finely lamellar, and massive. The two former result from oxidation proceeding parallel to the surface of the metal, and the latter occurs when electrolysis causes the oxide to invade the metal, or when redeposition of dissolved oxide obliterates the original lamellar structure. Examples from the Sardis, Jenkins County meteorite and the Paulding County meteorite are included.

2. The oxidation and weathering of meteorites: Univ. New Mexico Pubs. Meteoritics, no. 3, 161 p., illus., 1957.
A survey of many meteorites, many different minerals, and many different climates includes the Sardis, Walker County, Paulding County, and Holland's Store meteorites.

BUIE, BENNETT FRANK, 1910-, **see also** Patterson, Samuel Hunting, 3

1. The Huber Formation of eastern central Georgia, *in* Short contributions to the geology of Georgia: Georgia Geol. Survey Bull. 93, p. 1-7, illus., 1978.
The term "Huber Formation" is proposed for all of the post-Cretaceous, pre-Jackson Eocene updip strata in the kaolin district between Macon and the Savannah River. The strata lie between two regionally recognizable unconformities, are largely clastic, and are incompletely known. Sections from several clay mines are described.

2. Post-Cretaceous pre-Jacksonian stratigraphic interval in the Coastal Plain of central and eastern Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 164, 1978.

3. (and Hetrick, John Harold, Jr., and Patterson, Samuel Hunting, and Neeley, Cathy Louise) Geology and industrial mineral resources of the Macon-Gordon kaolin district, Georgia: U. S. Geol. Survey Repts. Open File 79-526, 36 p., illus. incl. geol. map, 1979.
A complete geological report of the area in Twiggs, Bibb and Wilkinson Counties is given. Paleozoic?, Cretaceous to Miocene, and Quaternary rocks are present. The kaolin is in the Cretaceous, Paleocene, and Lower and Middle Eocene rocks. Crushed stone and sand are also among the mineral resources.

BULANZHE, YU. H., see Meade, Buford Kelly, 1

BUNKER, CARL MAURICE, 1915-, **see** Perlman, Stephen H., 2

BURBANCK, GEORGE PALMER, 1947-

1. Sediment and macro-infaunal trends in the Altamaha estuary [Glynn County] Georgia: M S Thesis, Emory Univ., 1972.

BURBANCK, MADELINE PALMER, 1914-, **see** Leslie, Kent Anderson, 1

BURNETT, THOMAS LAWRENCE, JR., 1939-

1. Petrology of southeastern Piedmont river sands, Georgia, South Carolina and North Carolina: Ph D Thesis, Texas A and M Univ., 1971; [abstract]: Dissert. Abs. Internatl., v. 32B, p. B5866-B5867, 1972.

BURST, JOHN FREDERICK, 1923-

1. Genetic relationship of the Andersonville, Georgia and Eufaula, Alabama bauxitic kaolin areas: Soc. Mining Engineers Trans., v. 256, p. 137-142, illus., 1975.
   Eocene Nanafalia Formation-aged bauxitic kaolins at Eufaula and at Andersonville in Sumter County, have a Piedmont source. In Georgia, the Nanafalia is a shoreline deposit--the Andersonville deposits are in ancient freshwater swamps along the Eocene shoreline.

BUSECK, PETER R., 1935-

1. Silver, **in** Handbook of elemental abundances in meteorites (edited by Brian Harold Mason): New York, Gordon and Breach, p. 351-359, illus., 1971.
   Analyses of many meteorites include those from Locust Grove, Henry County and from Sardis, Jenkins County.

BUSH, CHARLES A. , see Perlman, Stephen H., 2

BUTLER, JAMES ROBERT, 1930-, **see also** Fullagar, Paul David, 2, 3, 4, 5, 6, 7,; Hatcher, Robert Dean Jr., 18

1. Age of Paleozoic regional metamorphism in the Carolinas, Georgia, and Tennessee southern Appalachians: Amer. Jour. Sci., v. 272, p. 319-333, illus., 1972.
Published radiometric dates from the Georgia Piedmont and Blue Ridge are reviewed. The peak of regional metamorphism was attained in the Blue Ridge at least 450 m.y. ago. Scant data suggest a peak event more than 450 m.y. ago in the Elberton area. There is a general progressive decrease in age of peak metamorphism from Taconic in the Blue Ridge to nearly Acadian in the Charlotte Belt. The Carolina Slate Belt's peak was between 300 and 520 m.y. ago. Older and younger dates represent crustal cooling by uplift rather than by metamorphic events.

2. (and Fullagar, Paul David) Southeastern margin of the Appalachians in the Carolinas and eastern [Piedmont] Georgia, U.S.A. [abstract]: Geol. Assoc. Canada-Mineralog. Assoc. Canada, 1974 Ann. Mtg., Prog. and Abs., p.16, 1974.

CAHILL, JAMES P., see Shacklette, Hansford Threlkeld, 5

CAHOON, ELIZABETH JERABEK.

1. Coniferous wood from the [Cretaceous] Tuscaloosa outcrop area in Alabama and [Muscogee County] Georgia [abstract]: Alabama Acad. Sci. Jour., v. 42, p. 159-160, 1971.

CAINES, GARY LEE, 1945- **see** Gaines, Gary Lee.

CALHOUN, JOHN W.

1. (and Wood, Garnet J.) Soil survey of Ben Hill and Irwin Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 63 p., illus., 1969.
The soils of the counties are mapped and described in great detail. Their origin in relation to the bedrock is also cursorily described.

2. (and Stevens, Joseph G.) Soil survey of Colquitt and Cook Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 68 p., illus., 1975.
The soils of these two counties are mapped and described in great detail. Their origin in relation to the local bedrock is cursorily included.

3. Soil survey of Brooks and Thomas Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 107 p., illus., 1979.
The soils of the counties are described in great detail, and maps are included. There is a brief summary of the origin of the soils from the underlying bedrock.

CALSTEREN, P. W. C. VAN.

1. Catalog of meteorites in Dutch collections: Scripta Geologica 51, 32 p., 1979.
   Parts of the Sardis meteorite from Jenkins County and the Forsyth meteorite from Monroe County are in Dutch museums.

CAMPBELL, DAVID L., see Gohn, Gregory Scott, 1

CANNON, HELEN LEIGHTON, 1911-, **see** Anderson, Barbara May, 1; Shacklette, Hansford Threlkeld, 4

CARPENTER, ROBERT HERON, 1937-, **see also** Jones, Lois Marilyn, 4; Koch, George Schneider, Jr., 1; O'Connor, Bruce James, 2; Robinson, Gene Deadrick, Jr., 1, 3, 4; Whitney, James Arthur, 3, 7, 8

1. Copper, lead, and zinc concentrations in stream sediment, Metasville Quadrangle, Wilkes and Lincoln Counties, Georgia: Georgia Geol. Survey Inf. Circ. 43, 12 p., illus., 1971.
   Seventy-two samples from the -80 mesh screen interval were analyzed by atomic absorption spectrophotometry. Five geochemical anomalies are recognized; two reflect mineralization at the Magruder Mine (Lincoln County) and the Chambers Prospect (Wilkes County), and two occur along the margin of a metadacite unit and probably reflect similar mineralization. A single anomaly occurs in the vicinity of a hornblende gneiss and amphibolite.

2. (and Prather, Jesse Preston, Jr.) A gravity survey of the south-central Georgia Piedmont: Georgia Geol. Survey Inf. Circ. 42, 16 p., illus., 1971.
   A gravity survey of 1,000 square miles in Butts, Monroe, Jones, and Jasper Counties shows a major northwest-trending gravity ridge with a steep negative northwest gradient. A positive anomaly is superimposed on the ridge with a diameter of 12 miles. Basic intrusive rocks are interpreted to be the origin of the positive anomalies.

3. Norite intrusives in western Jasper County and eastern Monroe County, Georgia--Georgia Geol. Soc. 6th Ann. Field Trip: Georgia Geol. Survey [Guidebook 10] [p. 1-11], illus., 1971.
   A general discussion of the origin and occurrence of the Gladesville Norite and accompanying pegmatites includes a half day field trip of fifty miles with six stops.

4. (and Pope, Timothy Alexander, and Smith, Robert Lincoln) Fe-Mn oxide coatings in stream sediment geochemical surveys: Jour. Geochem. Explor., v. 4, p. 349-363, illus., 1975.
   Comparisons of Fe-Mn-coated stream-sediments and co-existing -80 mesh samples from mineralized areas in Lincoln County and elsewhere were made with similar samples from an unmineralized area in Greene County. The results show (1) that the anomaly/background ratio for zinc and copper is higher in the Fe-Mn-oxide coatings in the mineralized area; and (2) in drainages with Pb mineralization, the anomaly/background ratio is higher in the -80 mesh fraction for lead which is not concentrated in the coatings. The ratios Zn/Mn and Cu/Mn as well as Zn/Co and Cu/Co in the Fe-Mn coatings can be used to enhance downstream detectability of the mineralization.

5. General geology of the Carolina Slate Belt along the Georgia- South Carolina Border, in Stratigraphy, structure, and seismicity in slate belt rocks along the Savannah River--Georgia Geol. Soc. 11th Ann. Field Trip (compiled by Timothy Michael Chowns): Georgia Geol. Survey Guidebook 16, p. 9-12, 1976.
Three sequences of volcaniclastic rocks are, from oldest to youngest: Lincolnton Metadacite, felsic pyroclastics, and a sedimentary sequence of banded argillite and thin interbedded mafic volcanics with some graywacke. Dikes and sills have intruded these. Most are in the greenschist facies. Isoclinal folds, the Modoc Fault, and smaller, northwest-trending faults are also present.

6. (and Odom, Arthur Leroy, Jr., and Hartley, Marvin Eugene, 3d) Geochronology of the southern portion of the slate belt [Lincoln County] [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 164, 1978.

7. (and Robinson, Gene Deadrick, Jr. and Hayes, Willis B.) Partitioning of manganese, iron, copper, zinc, lead, cobalt, and nickel on black coatings on stream boulders in the vicinity of the Magruder Mine, Lincoln Co., Georgia: Jour. Geochem. Explor., v. 10, p. 75-89, illus., 1978.
These elements are partitioned with respect to Mn and Fe coatings on stream boulders below the mine. The partitioning varies systematically with location of metal-rich waters derived from sulfide mineralization. Upstream, Zn and Ni are partitioned to the Fe oxide and Co and Cu are partitioned to the Mn oxide component. Downstream, Mn oxides are more enriched in Zn and Fe oxides, and less enriched in Cu, Co, and Ni.

8. (and Hayes, Willis B.) Precipitation of iron, manganese, zinc, and copper on clean, ceramic surfaces in a stream draining a polymetallic sulfide deposit: Jour. Geochem Explor., v. 9, p. 31-37, illus., 1978.
Streams draining into and from the Magruder Mine area in Lincoln County were sampled chemically. The copper and zinc downstream are distinctly anomalous and are interpreted as being from ground-water percolation into the streams from the mine area.

9. (and Hayes, Willis B.) Annual accretion rates of Fe-Mn oxides and certain associated metals in a stream environment [Greene County] [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 173, 1979.

10. (and Hayes, Willis B.) Fe-Mn oxide coatings in routine geochemical surveys, in Proceedings of the seventh international geochemical exploration symposium (edited by John Robert Watterson and Paul K. Theobald): Rexdale, Ontario, Assoc. Exploration Geochemists, p. 277-282, illus., 1979 [not seen].

CARTER, BURCHARD DOSWELL, 1954-

1. Silicification in the Chic[k]amauga Limestone (Middle Ordovician) associated with the T-3 bentonite in Alabama and northwest Georgia [abstract]: Georgia Jour. Sci., v. 35, p. 85-86, 1977.

CARTER, WILLIAM DOUGLAS, 1926-, see Kutina, Jan, 1

CARVER, ROBERT ELLIOTT, 1931-

1. Absorption characteristics of opaline clays from the Eocene of Georgia, **in** Proceedings of the seventh forum on the geology of industrial minerals (edited by Harbans Singh Puri): Florida Geol. Survey Spec. Pub. 17, p. 91-94, illus., 1972.
   X-ray diffraction studies of the Eocene Twiggs Clay from the Coastal Plain show that water-vapor absorption is related to the opal content; ethylene glycol absorption is related to the montmorillonite content. The most absorbent clays are very porous and contain opal and montmorillonite.

2. Stratigraphy of the Jackson Group in eastern Georgia: Southeastern Geology, v. 14, p. 153-181, illus., 1972.
   The Upper Eocene Jackson Group in the Coastal Plain is a result of a transgression and a regression. Downdip it is the Ocala Limestone and updip it occurs as several clastic formations. The Barnwell Formation is the near-shore deposit. Fossils are listed, and sections are measured.

3. Anomalous distribution of sinks in the upper Little River watershed--Tift, Turner, and Worth Counties, Georgia, **in** Short contributions to the geology of Georgia: Georgia Geol. Survey Bull. 93, p. 8-10, illus., 1978.
   Twenty-six percent of the sinkholes occur on 2.1 percent of the total area. This area has Pleistocene aeolian sand at the surface which overlies Miocene-aged carbonate rocks. Other Pleistocene terraces in the watershed do not have an abnormal concentration of sinkholes. No explanation is offered.

4. (and Scott, Richard Murray) Stratigraphic significance of heavy minerals in Atlantic Coastal Plain sediments of Georgia, **in** Short contributions to the geology of Georgia: Georgia Geol. Survey Bull. 93, p. 11-14, illus., 1978.
   The heavy-mineral content of the sands of the Coastal Plain is determined by provenance, weathering and sorting during transport, grain size of the sediment or sediment fraction examined, but mostly by intrastratal solution. The older the sediment, the fewer the heavy minerals.

CASAGRANDE, DANIEL JOSEPH, 1945-, **see also** Gunther, Peter Patrick, 1

1. (and Erchull, Leo Donald) Organic geochemistry of Okefenokee peats--trace metal distributions in selected waters, plants, and peats [Ware and Charlton Counties] [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 684-685, 1974.

2. (and Erchull, Leo Donald) Metals in Okefenokee [swamp] peat forming environments--relation to [the] constituents found in coal: Geochim. et Cosmochim. Acta, v. 40, p. 387-393, illus., 1976.
   Fourteen metals were examined from cores from two major vegetational types. Except for Hg and Pb, metals in the peat were higher or equal to the Clarke values. The environment of the peat does not play a critical role in determining metal distribution.

3. (and Erchull, Leo Donald) Metals in plants and waters in the Okefenokee Swamp and their relationship to the constituents found in coal: Geochim. et Cosmochim. Acta., v. 41, p. 1391-1394, illus., 1977.
Fourteen major and minor elements were determined from the plants and waters of the swamp environment. Variations in present vegetation, vegetation cover, metal-distribution between plants of different genera, between different anatomical parts of the plants, and the different components of the peat, all contribute to the erratic metal distribution observed in peats. These may be reflected in later coal seams.

4. (and Erchull, Leo Donald) Organic geochemistry of Okefenokee peats--metal constituents, in Interdisciplinary studies of peat and coal origins (edited by Peter Hervey Given and Arthur David Cohen): Geol. Soc. America Microform Pub. 7, p. 72-90, illus., 1977.
The distribution of seventeen major and trace elements from two peat-forming environments was studied. Samples of plants, water, and peat at various levels show that virtually all of the metals in fresh-water coals can be accounted for in the peat-forming stage.

5. (and Siefert, Kristine S.) Origins of sulfur in coal--importance of the ester sulfate content of peat: Science, v. 195, p. 675-676, illus., 1977.
Peat from the Okefenokee Swamp in Charlton County is examined at the peat-forming stage. Ester sulfate is a major contributor to the sulfur in peat, and thus in coal.

6. (and Siefert, Kristine S., and Berschinski, Charles J., and Sutton, Nell E. Lang-Lutlen) Sulfur in peat-forming systems in the Okefenokee Swamp and Florida Everglades--origins of sulfur in coal: Geochim. et Cosmochim. Acta, v. 41, p. 161-167, illus., 1977.
Peat from Minnie's Lake and Chesser Prairie areas in Charlton County was examined. 0.1 to 10 percent sulfur was found, showing that the sulfur is incorporated early in the coal-forming process. Most was carbon-bonded sulfur.

7. (and Park, Kjungja) Muramic acid levels in bog soils from the Okefenokee Swamp: Soil Sci., v. 125, p. 181-183, illus., 1978.
Peat from Grande Prairie and Minnie's Lake in the Okefenokee Swamp in Charlton County has an unusually high muramic acid content when compared with inorganic soils. The reasons for the differences are not clear.

8. (and others) H_2S incorporation in coal precursors--origins of organic sulphur in coal: Nature, v. 282, p. 599-600, illus., 1979.
Peat from the Okefenokee Swamp in Charlton County is used to show that hydrogen sulfide can react with organic matter in peat to produce organic sulfur. This is a source of organic sulfur in coal that had not been previously appreciated.

9. (and Ng, Lily Mon-Sai) Incorporation of elemental sulphur in coal as organic sulphur: Nature, v. 282, p. 598-599, illus., 1979.
Peat from the Okefenokee Swamp was examined. Organic sulfur can be over 50 percent of the total sulfur in coal. Some organic sulfur originates from sulfur-containing amino acids in the source plants, such as elemental sulfur.

10. (and Ferguson, Austin O., and Boudreau, John E., and Predney, Robert M., and Folden, Charles Allen) Organic geochemical investigations in the Okefenokee Swamp, Georgia--the fate of fatty acids, amino sugars and cellulose [Charlton County] [abstract]: Ninth Internatl. Cong. Carb. Stratigraphy and Geology, Abs. Volume, p. 31, 1979.

CATE, PAUL DAVID, 1938-

1. Developments in southeastern states in 1975: Amer. Assoc. Petroleum Geologists Bull., v. 60, p. 1277-1287, illus., 1976.
Two dry wells were drilled in the Coastal Plain in 1975.

2. Developments in southeastern states in 1976: Amer. Assoc. Petroleum Geologists Bull., v. 61, p. 1259-1268, illus., 1977.
Four dry holes were drilled into the Coastal Plain.

CEDERSTROM, DAGFIN JOHN, 1908-

1. (and Boswell, Ernest Harrison, and Tarver, George Robert) Summary appraisals of the nation's ground-water resources--South Atlantic-Gulf region: U. S. Geol. Survey Prof. Paper 813-O, p. O1-O35, illus., 1979.
A general summary of the occurrence and distribution of ground water includes that in Georgia. Many small-scale maps are included.

CERNOCK, PAUL JOHN, 1942-, **see** Brown, Stephen W., 1

CHADWICK, MICHAEL JOHN, 1934-, **see** May, Jack Truett, 1

CHAMBERLAIN, CHARLES FRANKLIN, 1946-, **see** Oertel, George Frederick, Jr., 12

CHAMBLEY, MICHAEL JAMES, 1949-, **see** Poort, Jon Michael, 2

CHAMPION, W. A., **see** Dendy, F. E., 1

CHANNELL, WATER DENE, 1952-, **see** Atkinson, Julie Lane, 1

CHEMERYS, J. C., **see** Hobba, William A., Jr., 2

CHINNERY, MICHAEL ALISTAIR, 1933-

1. A comparison of the seismicity of three regions of the eastern U. S.: Seismol. Soc. America Bull., v. 69, p. 757-772, 1979.
Frequency-intensity data from earthquakes in the South Carolina-Georgia seismic zone are compared with those from elsewhere. All are parallel with one another and consistent with a slope of 0.57. No upper limit to intensity is noted. Large earthquakes in the three regions conform to expected probabilities.

CHIPMAN, MARY LOU MARTIN, 1948-, **see** Gunther, Peter Patrick, 1

CHOU, CHEN-LIN, 1943-

1. (and Baedecker, Phillip Ackerman, and Wasson, John Taylor) Distribution of Ni, Ga, Ge, and Ir between metal and silicate portions of H-group chondrites: Geochim. et Cosmochim. Acta, v. 37, p. 2159-2171, illus., 1973.
Lumpkin, from Stewart County, is an L6 chondrite. Various conclusions about the astromonical origin of the various combinations of features are discussed.

CHOWNS, TIMOTHY MICHAEL, 1942-, **see also** Carpenter, Robert Heron, 5; Frey, Robert Wayne, 3; Hartley, Marvin Eugene, 3d, 4; Lovingood, Daniel Alan, 1; McLemore, William Hickman, 4; Nunan, Walter Edward, 2; O'Connor, Bruce James, 3; Ortiz, Alan Salvadore, 1; Paris, Travis Anthony, 2; Reid, Barry James, 1; Sellars, Barbara Diane, 1; Wallace, Blanche Marie, 1; Waters, Johnny Arlton, 1

1. Stratigraphy of the Ordovician and Silurian section exposed in the Ringgold [Catoosa County] road cuts--a proposed geological monument [abstract]: Georgia Acad. Sci. Bull., v. 29, p. 123, 1971.

2. Depositional environments in the Upper Ordovician of northwest Georgia and southeast Tennessee, **in** Sedimentary environments in the Paleozoic rocks of northwest Georgia (edited by Timothy Michael Chowns)--Georgia Geol. Soc. 7th Ann. Field Trip: Georgia Geol. Survey Guidebook 11, p. 3-12, illus., 1972.
The Sequatchie Formation contains: the "Juanita facies" a coarse, alluvial sand; the red Sequatchie facies, a supratidal clastic deposit; the gray Sequatchie facies, transitional from supratidal to marine; the Fernvale facies, a barrier beach deposit; and the Mannie facies, a lagoonal sequence. The Liepers facies has a shallow marine origin, and the Catheys facies is from an open marine setting. Time relationships are unclear.

3. Molasse sedimentation in the Silurian rocks of northwest Georgia, **in** Sedimentary environments of the Paleozoic rocks of northwest Georgia (edited by Timothy Michael Chowns)--Georgia Geol. Soc. 7th Ann. Field Trip: Georgia Geol. Survey Guidebook 11, p. 13-23, illus., 1972.
A variety of sedimentary environments can be recognized, ranging from littoral (lagoon and barrier) to open marine (platform and slope). These are the part of the marginal edge of the clastic wedge which was speading westward. Depositional facies strike approximately NNE; the littoral deposits are to the east.

4. Promolasse sedimentation in Silurian rocks of the southern Appalachians [northwestern Georgia] [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 472, 1972.

5. Sedimentary environments in the Paleozoic rocks of northwest Georgia--Georgia Geol. Soc. 7th Ann. Field Trip: Georgia Geol. Survey Guidebook 11, 100 p., illus., 1972.
This contains numerous papers by different authors, all of which are cited separately. It also includes a two-day field trip of 186 miles which makes seven stops. Each stop is described in detail.

6. Paleogeology of the Pre-Cretaceous surface beneath the Georgia Coastal Plain--a reassessment [abstract]: Georgia Acad. Sci. Bull., v. 34, p. 82, 1976.

7. (compiler, and others) Stratigraphy, structure, and seismicity in slate belt rocks along the Savannah River--Georgia Geol. Soc. 11th Ann. Field Trip: Georgia Geol. Survey Guidebook 16, 76 p., illus., 1976.
Six structural-stratigraphic areas are described by specialists. The first day of the trip begins and ends at Hickory Knob Park in South Carolina, traverses 111 miles through Harlem, Columbia County, Georgia, making nine stops. The geology at each stop is described. The second day begins at Hickory Knob Park and makes four stops in 39 miles, the last stop being at Graves Mountain, in Lincoln County.

8. (compiler, and others) Stratigraphy and economic geology of Cambrian and Ordovician rocks in Bartow and Polk Counties, Georgia--Georgia Geol. Soc. 12th Ann. Field Trip: Georgia Geol. Survey [Guidebook 16-A], 21 p., illus., 1977.
The first day of the trip is in the Cartersville area and makes nine stops in 37 miles. Cambrian rocks, barite, ochre, limestone, and shale are described. The second day, between Cartersville and Rockmart, five stops are made in Ordovician to Mississippian rocks. Iron ore, limestone, slate and chert are the mineral resources included.

9. (and Waters, Johnny Arlton) The Lookout Valley fault and thin-skinned thrusting beneath Lookout Mountain [Walker and Dade Counties] [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 165, 1978.

10. (and Higgins, Michael Wicker, and Pickering, Samuel Marion, Jr.) A new core from the felsic volcanic terrane beneath the southeast Georgia [Wayne County] Coastal Plain [abstract]: Georgia Jour. Sci., v. 36, p. 92, 1978.

11. Pre-Cretaceous geology beneath Georgia Coastal Plain [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 62, p. 504, 1978.

CHRISTOPHER, RAYMOND ANTHONY, 1943-, **see** Perlman, Stephen H., 2; Reinhardt, Juergen, 1; Sohl, Norman Frederick, 3

CIESIELSKI, PAUL FRANK, 1949-, **see** Wise, Sherwood, Willing, Jr., 1, 4

CITRON, GARY PAUL, 1953-

1. (and Brown, Larry Douglas) Recent vertical crustal movements from precise leveling surveys in the Blue Ridge and Piedmont Provinces, North Carolina and Georgia: Tectonophysics, v. 52, p. 223-238, illus., 1979.
Repeated level lines reveal: (1) apparent uplift of the Blue Ridge-Piedmont physiographic boundary relative to the Coastal Plain on the east and to the Valley and Ridge Province on the west, and (2) large tilts over short baselines superimposed upon the regional pattern in the Brevard Fault Zone. Drainage changes reflect the tilting.

CLARK, GEORGE RICHMOND, JR., 1938-

1. (and Lutz, Richard Arthur) Pyritization in shells of living bivalves [Liberty County] [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 63, p. 432, 1979.

CLARK, WILLIAM Z., JR.

1. (and Zisa, Arnold Charles, and Jones, Richard C.) Georgia--A view from space--an atlas of LANDSAT-1 imagery: Georgia Geol. Survey Educ. Ser. 1], 33 p., illus., 1976.
An atlas of 15 high-altitude, LANDSAT-1 photographs of Georgia includes the entire state. Brief descriptions of many of the geological features are included.

2. (and Zisa, Arnold Charles) Physiographic map of Georgia: Georgia Geol. Survey [Map GM-8], scale, 1:2,000,000, 1976.

CLARKE, JAMES WOOD, 1922-, see Nelson, Arthur Edward, 1

CLARKE, JOHN STUART, 1955-

1. (and Hester, Willis Gene, and O'Byrne, Michael Patrick) Ground-water levels and quality data for Georgia, 1978: U. S. Geol. Survey Repts. Open File 79-1290, 94 p., illus., 1979.
Data from observation wells throughout the state are given in graph form, by month. Included are numerous small-scale maps showing levels and trends in the different Coastal Plain aquifers.

CLARKE, OTIS MANSON, JR., 1914-

1. Gibbsite in Coastal Plain soils, southeastern United States: Southeastern Geology, v. 13, p. 77-90, illus., 1971.
In west central Georgia, gibbsite occurs in the B and C soil horizons, in the soils on erosional remnants of high-terrace gravels, and in the Citronelle Formation. The gibbsite may be from weathered clay of older Coastal Plain rocks or from the feldspars from the Piedmont.

CLEARY, WILLIAM JAMES, JR., 1943-

1. (and Conolly, John Robert) Distribution and genesis of quartz in a Piedmont-Coastal Plain environment: Geol. Soc. America Bull., v. 82, p. 2755-2766, illus., 1971.
   Some of the rivers in Georgia have Piedmont-derived quartz from weathering which is mixed with pre-deposited Coastal-Plain quartz. The change is noticeable. Embayed quartz comes from the weathering of Piedmont rocks, and rivers which are on the Coastal Plain only (such as the Satilla) show very little if any of the Piedmont-derived quartz.

CLOOS, ERNST, 1898-

1. Edward Wilbur Berry, February 10, 1875-September 20, 1945: Natl. Acad. Sci. Biog. Mem., v. 45, p. 57-95, port., 1974.

CLOUD, PRESTON ERCELLE, JR., 1912-, **see** Rodgers, John, 1

COASTAL PLAINS REGIONAL COMMISSION

1. (and U. S. Geological Survey) Aeroradioactivity maps of parts of Georgia, South Carolina and North Carolina: U. S. Geol. Survey Repts. Open File 75-400, scale, 1:250,000, 1975 [not seen].

2. (and U. S. Geological Survey) Aeromagnetic maps of parts of Georgia, South Carolina and North Carolina: U. S. Geol. Survey Repts. Open File 76-181, scale, 1:250,000, 1976 [not seen].

3. (and U. S. Geological Survey) Aeromagnetic map of parts of southeastern Georgia [Macon to Brunswick Corridor]: U. S. Geol. Survey Repts. Open File 77-96, scale, 1: 250,000, 1977.

4. (and U. S. Geological Survey) Aeroradioactivity map of part of southeastern Georgia [Macon to Brunswick Corridor]: U. S. Geol. Survey Repts. Open File 77-97, scale, 1:250,000, 1977.

COBBAN, WILLIAM AUBREY, 1916-

1. Some ammonoids from the Ripley Formation of Mississippi, Alabama and Georgia: Jour. Research U. S. Geol. Survey, v. 2, p. 81-88, illus., 1974.
   Solenoceras sp., Solenoceras nitidum, Bactrites undatus, and **Nostoceras alternatum** from the Ripley Formation in Quitman County are described and illustrated.

COFFMAN, JERRY LEE, 1940-

1. (and Stover, Carl W.) United States earthquakes, 1976: Washington, D.C., U. S. Dept. Commerce, 94 p., illus., 1978.
   One earthquake, in Toombs County, in the Riedsville area, occurred in 1976. It had an intensity of V. Three small aftershocks followed.

2. Earthquake history of the United States (1971-1976 supplement): Boulder, Colorado, U. S. Dept. Commerce, 41 p., illus., 1979.
There were three V intensity earthquake epicenters in Georgia. One was in northwestern Georgia; one was in the the Piedmont, and one was on the Coastal Plain.

COGBILL, ALLEN HUGHES, JR., 1951-

1. Gravity data in the southeastern United States, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress Report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Resources Rept. VPI-SU 5648-3, p. C65-C110, illus., 1978.
Gravity data from the southeastern part of the Georgia Coastal Plain are included, but no interpretations are given.

COHEE, GEORGE VINCENT, 1907-1984, **see** Hazel, Joseph Ernest, 1

COHEN, ALVIN JEROME, 1918-

1. Germanium content of tektites and other natural glasses, implications concerning the origin of tektites, **in** Geochemistry of germanium: Stroudsburg, Penn., Dowden, Hutchinson and Ross, p. 242-251, illus., 1973. Originally published in 1960.

COHEN, ARTHUR DAVID, 1942-, **see also** Casagrande, Daniel Joseph, 4; Reuter, Johannes Helmut, 2; Rich, Frederick James, 1; Spackman, William, Jr., 1

1. Petrology, paleoecology and diagenesis of the peats of the Okefenokee Swamp of [Coastal Plain] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 475, 1972.

2. (and Ting, Francis Ta-Chuan) Comparison of a silicified Paleocene peat from North Dakota and a modern **Taxodium** peat from the Okefenokee Swamp of [Coastal Plain] Georgia [abstract]: Geol Soc. America Abs. with Progs., v. 5, p. 579, 1973.

3. Petrology of some Holocene peat sediments from the Okefenokee swamp-marsh complex of southern Georgia: Geol. Soc. America Bull., v. 84, p. 3867-3878, illus., 1973.
Samples from six petrologically different peat environments are described. Herbaceous peats are distinguishable from marsh peats.

4. Possible influences of subpeat topography and sediment type upon the development of the Okefenokee swamp-marsh complex of Georgia: Southeastern Geology, v. 15, p. 141-151, illus., 1973.
The data are from 43 cores. The thickness of the peat ranges from one to 12.5 feet. Where it is thickest it is also the oldest radiometrically. The swamps started as isolated lakes which coalesced as the water table rose and peat filled the depressions. Dates range from 2,950 to 6,490 years BP; all are Holocene or Late Pleistocene.

5. Petrography and paleoecology of Holocene peats from the Okefenokee swamp-marsh complex of Georgia: Jour. Sed. Petrology, v. 44, p. 716-726, illus., 1974.
Nine cores show there was a considerable time between the withdrawal of the sea and the formation of the fresh-water peat swamp. Paleobotanically, the swamp has not changed greatly since its inception. Pre-peat topographic lows control the distribution of the peat. Fire has played an important role in the peat formation.

6. Peats from the Okefenokee swamp-marsh complex [Ware County], **in** Proceedings of the 6th Ann. Mtg. Amer. Assoc. Stratig. Palynologists: Geoscience and Man, v. 11, p. 123-131, illus., 1975.
Seven distinct peat-forming environments were sampled palynologically and each can be recognized paleoecologically. They are **Nymphaea, Panicum, Carex,** and **Woodwardia** marshes, **Nyassa** and **Taxodium** swamps, and **Cyrilla** tree islands.

7. (and Staub, James Rodney) Comparison of environments of coal formation in the Okefenokee Swamp of [southeastern] Georgia [Coastal Plain] and the Snuggedy Swamp of South Carolina [abstract]: South Carolina Acad. Sci. Bull., v. 39, p. 131, 1977.

8. The Okefenokee Swamp--a low-sulfur end-member of a depositional model for Coastal Plain coals [abstract]: Ninth Internatl. Cong. Carb. Stratigraphy and Geology, Abs. Volume, p. 41, 1979.

9. Resinoid precursors in [Coastal Plain Georgia] Okefenokee and Everglades peats [abstract]: Ninth Internatl. Cong. Carb. Stratigraphy and Geology, Abs. Volume, p. 41, 1979.

COLEMAN, ROBERT GRIFFIN, 1923-, **see** Williams, Harold, 1

COLEMAN, SALLY LYNN, 1950-

1. (and Medlin, Jack Harold, and Crawford, Thomas Jones) Petrology and geochemistry of the Austell Gneiss in the western Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 388, 1973.

COLMAN, STEVEN MICHAEL, 1949-

1. (and Pierce, Kenneth Lee) Preliminary map showing Quaternary deposits and their dating potential in the conterminous United States: U. S. Geol. Survey Misc. Field Studies Map MF 1052, scale, 1:7,500,000, text, 1979.

COLQUHOUN, DONALD JOHN, 1932-

1. (and Pierce, Jack Warren) Pleistocene transgressive-regressive sequences on the Atlantic Coastal Plain, in Les niveaux marins quaternaires, Part II, Pleistocene--Proc. Cong. INQUA, no. 8: Quaternaria, v. 15, p. 35-50, illus., 1971.
   There are fundamentally two types of unconformities upon which barrier islands lie: (1) the land surface over which a marine transgression has occurred and (2) on marine sediments resulting from the stillstand preceding the regression. Some examples are cited from Georgia.

2. Faunal differentiation of North American Atlantic terrace formations, North Carolina to Georgia, U. S. A. [abstract]: 9th Cong. Internatl. Union Quat. Research, Abs. Volume, p. 66, 1973 [not seen].

3. (and Konigsson, Lars Konig A.) Fluctuation dans le niveau moyen de la mer 2,700 ans avant le present de part et d'autre de l'Atlantique: Assoc. Senegalese pour l'Etude du Quaternaire Africaine Bull. de Liaison, no. 54-55, p. 93-94, 1979.
   Sea-level changes reported for Georgia for the period of about 2,000 years ago are based upon archaeological data. Similar sea-level stands from elsewhere around the Atlantic are based upon other types of data. The justification for the different methods is noted.

COLTON, GEORGE WILLIS, 1920-

1. The Appalachian Basin--its depositional sequences and their geologic relationships, in Studies in Appalachian geology--central and southern (edited by George Wescott Fisher and others): New York, Interscience Publishers, p. 5-47, illus., 1970.
   Northwestern Georgia is included in a review of the geology of the entire basin. Small-scale isopach maps show the distribution of the rocks from the Late Precambrian though the Pennsylvanian. Numerous stratigraphic sections are used to correlate the rocks thoughout the basin. No new data are included.

CONNAR, JON JAMES, 1932-

1. (and Shacklette, Hansford Threlkeld) Background geochemistry of some rocks, soils, plants, and vegetables in the conterminous United States: U. S. Geol. Survey Prof. Paper 574-F, p. F1-F168, illus., 1975.
   Areas in the Blue Ridge and Coastal Plain of Georgia are included among many others from the United States. Numerous elements from many different sources, including soils, are tabulated as to their presence, ratio, mean in parts per million, some statistical parameters, and observed range in parts per million.

CONOLLY, JOHN ROBERT, 1936-, see Cleary, William James, Jr., 1

CONSIDINE, ROBERT EARL, JR., 1948-, see Gunther, Peter Patrick, 1

COOK, FREDERICK AHRENS, 1950-

1. (and Albaugh, Dennis Stephen, and Brown, Larry Douglas, and Oliver, Jack Ertle, and Kaufman, Sidney, and Hatcher, Robert Dean, Jr.) COCORP profiling of the southern Appalachians [Piedmont] [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 404-405, 1979.

2. (and Albaugh, Dennis Stephen, and Brown, Larry Douglas, and Kaufman, Sidney, and Oliver, Jack Ertle) Preliminary interpretation of COCORP seismic reflection data across the Brevard Zone in northeast [Piedmont] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 175, 1979; EOS, v. 60, p. 314, 1979.

3. (and Albaugh, Dennis Stephen, and Brown, Larry Douglas, and Kaufman, Sidney, and Oliver, Jack Ertle, and Hatcher, Robert Dean, Jr.) Thin-skinned tectonics in the crystalline southern Appalachians--COCORP seismic-reflection profiling of the Blue Ridge and Piedmont: Geology, v. 7, p. 563-567, illus., 1979.
   A seismic profile, from near Augusta northwestward to Helen, reveals layered rocks six to 15 km below the surface metamorphic rocks. The Piedmont and Blue Ridge of Georgia are interpreted as being on an allochthonous sheet which has been thrust at least 260 miles northwestward.

COOK, ROBERT BIGHAM, JR., 1944-

1. The geologic history of massive sulfide bodies in west-central Georgia: Ph D Thesis, Univ. Georgia, 1971; [abstract]: Dissert. Abs. Internatl., v. 32B, p. B4008, 1972.

2. (and Hughes, Thomas C.) Langite, brochantite, and linarite in the Chestatee massive sulfide deposit, Lumpkin County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 31, p. 84, 1973.

3. Recrystallization characteristics of massive sulfide deposits in west central [Piedmont] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 389-390, 1973.

4. Tetradymite in southeastern United States [Haralson County] [abstract]: Alabama Acad. Sci. Jour., v. 44, p. 184-185, 1973.

5. Genetic implications of geochemical relationships between country rock, wall rock and "ore" of massive sulfide deposits [Paulding and Haralson Counties] west central Georgia [abstract]: Georgia Acad. Sci. Bull., v. 32, p. 16, 1974.

6. Minerals of Georgia--their properties and occurrences: Georgia Geol. Survey Bull. 92, 189 p., illus., 1978.
   Brief descriptions and locations by county where minerals have been found, are given for 193 minerals. There are 9 native elements, and 20 sulfides, 4 sulfosalts, 31 oxides and hydroxides, 2 halides, 13 carbonates, 1 nitrate, 13 sulfates, 14 phosphate and arsenates, 3 molybdates and tungstates, and 80 silicate minerals.

7. Ore mineralogy of west central Georgia massive sulfide deposits, *in* Short contributions to the geology of Georgia: Georgia Geol. Survey Bull. 93, p. 22-31, illus., 1978.
The deposits and genesis of the ores in the Little Bob and Swift mines in Paulding County, the Tallapoosa mine in Haralson County, and the Villa Rica mine in Douglas County are described. The ores of the Villa Rica, Little Bob, and Tallapoosa mines are similar to those of Ducktown. The ore of the Tallapoosa mine has no pyrrhotite, abundant gangue dolomite and low-iron sphalerite. The ores of the Little Bob, Swift, and Villa Rica mines reflect a similar paragenesis and a complex post-depositional history. The origin of all of the deposits is unclear.

8. Soil geochemistry of the Franklin-Creighton gold mine, Cherokee County, Georgia, *in* Short contributions to the geology of Georgia: Georgia Geol. Survey Bull. 93, p. 15-21, illus., 1978.
The B soil horizon was sampled from a grid of 198 stations on 30.5-meter centers. Arsenic, copper, and gold were tested. Maximum values are 2.7 ppm gold, 155 ppm copper, and 40 ppm arsenic. Gold reflects a bimodal population of 0.4 and 0.8 ppm thresholds whereas copper has a threshold of 80 ppm. Arsenic does not show any anomaly. The gold and copper anomalies are related to known ore bodies below the surface, but the relationship is not straightforward.

COOKE, CHARLES WYTHE, 1887-1971.

1. American emerged shorelines compared with levels of Australian marine terraces: Geol. Soc. America Bull., v. 82, p. 3231-3234, illus., 1971.
The 390, 70, and 25-foot terraces on the Atlantic Coastal Plain, including Georgia, correspond with similarly elevated terraces in Australia. This shows tectonic stability in Georgia since the last terrace formed.

COOPER, ARTHUR WELLS, 1931-

1. Salt marshes, Chapter C-4A, *in* Coastal ecological systems of the United States (edited by Howard Thomas Odum and others): Washington D.C., Conservation Foundation, v. 2, p. 55-98, illus., 1974.
The salt marsh as a distinct ecosystem is described. That from near Sapelo Island in McIntosh County is considered a typical example. The interaction of tidal energy, organic and inorganic material, and time is discussed. The system is very fragile.

COOPER, JAMES DEAN.

1. (and Pickering, Samuel Marion, Jr.) The mineral industry of Georgia, *in* Minerals yearbook 1974, vol. 2: Washington, D. C., U. S. Bur. Mines, p. 191-208, illus., 1977.
The value of the minerals recovered from Georgia was 363 million dollars, an increase of 19 percent over the previous year.

2. (and Pickering, Samuel Marion, Jr.) The mineral industry of Georgia, **in** Minerals yearbook 1975, vol. 2: Washington, D. C., U. S. Bur. Mines, p. 207-223, illus., 1978.
The value of Georgia's mineral production declined eight percent to slightly over 333 million dollars.

COPELAND, CHARLES WESLEY, JR., 1932-

1. Memorial to Josie Winifred McGlamery, 1887-1977: Geol. Soc. America Memorials, v. 9, 3 p., 1979.

COSTAIN, JOHN KENDALL, 1929-, **see also** Becker, Susan Ward, 1; Cogbill, Allen Hughes, Jr., 1; Dashevsky, Samuel Solomon, 1; Gleason, Richard Jeffrey, 1, 2; Hall, Stephen Thomas, 1, 2; Lambiase, Joseph John, 1; Merz, Barbara Alida, 1; Speer, John Alexander, 1,2

1. (and Perry, Lawrence Dunnington, and Dunbar, John Andrew, Jr.) Geothermal gradients, heat flow, and heat generation, **in** Evaluation and targeting of geothermal energy in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5648-1, p.C28-C53, illus., 1977.
Two holes being drilled in Greene County are to be used for heat-flow-value determinations. No data are yet available. An oil well in Wayne County was deepened, and its geothermal gradient was determined prior to thermal equilibrium having been obtained.

2. (and others) Heat flow and heat generation, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5648-3, p. C36-C57, illus., 1978.
Two holes in Greene County and one in Coweta County have been geothermally logged, and the data are given in tabular form.

3. (and others) Heat flow and heat generation, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5648-4, p. C22-C32, illus., 1978.
The heat flow from a core in the Siloam Granite from Greene County has been redetermined and is 1.53 HFU. This is the highest value encountered in the southeastern Piedmont.

4. (and Perry, Lawrence Dunnington) Linear relationship between heat flow and heat generation, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5648-4, p. C33-C36, illus., 1978.
Heat flow data from the Siloam Granite in Greene County, with other data from elsewhere, are presented to show, with some reasonable exceptions, a relationship of $Q=0.65 + 7.9 A$.

5. (and others) Heat flow and heat generation, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5648-5, p. C139-C153, illus., 1979.
Heat flow values have been determined for granites in Coweta and Greene County. The Ben Hill Granite is 0.94, and for two places in the Siloam Granite it is 1.53 and 1.58. Both of the latter are very high. Temperature logs are included.

6. (and Perry, Lawrence Dunnington, and Dashevsky, Samuel Solomon, and Sans, Barbara Urban) Heat flow in the Piedmont of the southeastern United States--progress report [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 175, 1979.

7. (and Perry, Lawrence Dunnington) Linear relation between heat flow and heat generation, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5648-5, p. C154-C157, illus., 1979.
Most of the known values are defined by Q=.65 + 8.1A The Palmetto Granite in Coweta County, with a HFU of 0.94, is an exception. This is interpreted to mean that the Palmetto is not deeply rooted.

COSTELLO, JOHN OLIVER, 1947-, **see also** McConnell, Keith Ian, 4; O'Connor, Bruce James, 6

1. Shear zones in the Corbin Gneiss of Georgia, **in** Short contributions to the geology of Georgia: Georgia Geol. Survey Bull. 93, p. 32-37, illus., 1978.
The Precambrian gneiss contains cataclastic rocks which have been interpreted both as sheared gneiss and as metamorphosed sediments which were infolded from the overlying unconformity. Most of the exposures are in Bartow and Cherokee Counties.

COUNTS, HARLAN BRYAN, 1921-, **see** Bredehoeft, John Dallas, 3; Davis, George H., 3d, 1; Krause, Richard Emil, 3

COURTNEY, PETER STIRLING, 1948-, **see** Dallmeyer, Ray David, 6

COUSMINER, HAROLD LEOPOLD, 1925-

1. (and Terris, Linda) Palynology of Paleogene clays from [Washington, Warren, Wilkinson, and Twiggs Counties] Georgia [abstract]--Fifth Ann. Mtg. Amer. Assoc. Stratigraphic Palynologists: Geoscience and Man, v. 9, p. 72-73, 1972.

2. Paleogene palynology of basal Coastal Plain sediments, Irwinton District, Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 584-585, 1973.

COUTURE, REX ARTHUR, 1944-, **see** Weaver, Charles Edward, 5

CRAFT, THOMAS FISHER, 1924-, **see** Barnes, Steven Charles, 1

CRAIG, LAWRENCE CAREY, 1918-

1. (and Varnes, Katherine Lutz) History of the Mississippian System--an interpretive summary, **in** Paleotectonic investigations of the Mississippian System of the United States, Part 2: U. S. Geol. Survey Prof. Paper 1010R, p. 371-406, illus., 1979.
   A general discussion of the tectonic history and the resulting features is given for the entire United States; Georgia is included.

CRAM, IRA HIGGINS, SR., 1901-, **see** Rainwater, Edward Harriman, 1; Spivak, Joseph, 1

CRAMER, FRITZ HENDRICK, 1927-

1. (and Diez de Cramer, Maria del Carmen R.) North American Silurian palynofacies and their spatial arrangement--acritarchs: Palaeontographica Abt. B., v. 138, p. 107-180, illus., 1972.
   Acritarchs from 700 samples throughout the United States are described and illustrated. The Red Mountain Formation of northwestern Georgia is within the Lower Wenlock Stage and contains the **Neoveryhachium carminae** facies. Three species come from Catoosa County.

CRAMER, HOWARD ROSS, 1925-, **see also** Thomas, William Andrew, 2

1. Annotated bibliography of Georgia geology from 1960 through 1964: Georgia Geol. Survey Bull. 84, vi, 110 p., illus., 1972.
   Entries are alphabetical by author and chronological. Each entry is annotated. The index is to subject, locality, and geologic age.

2. Isopach and lithofacies analyses of the Cretaceous and Cenozoic rocks of the Coastal Plain of Georgia, **in** Symposium on the petroleum geology of the Coastal Plain of Georgia (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 21-43, illus. incl. geol. maps, 1974.
   Isopach and lithofacies maps of each of the stages in the Cretaceous and Cenozoic intervals are analyzed. Potential hydrocarbon-bearing units are discussed. The volume of Cretaceous sediments is 12,463 cubic miles, and of the Cenozoic, 9,525 cubic miles.

3. Annotated bibliography of Georgia geology, 1965-1970: Georgia Geol. Survey Bull. 90, 84 p., illus., 1976.
   References to the geology of Georgia are cataloged alphabetically by author and chronologically. They are indexed by subject, locality, and geologic age.

4. (and Treadwell, Gilbert Lee) Geologic analyses of [Coastal Plain] Georgia oil tests with interpretations [abstract]: Georgia Acad. Sci. Bull., v. 34, p. 81-82, 1976.

5. (and Arden, Daniel Douglas, Jr.) Faults in Oligocene rocks of the Georgia Coastal Plain [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 166, 1978.

6. (and Arden, Daniel Douglas, Jr.) Mesozoic and Cenozoic geology of Georgia Coastal Plain [abstract]: Gulf Coast Assoc. Geol. Socs. Trans., v. 28, p. 101, 1978; Amer. Assoc. Petroleum Geologists Bull., v. 62, p. 507, 1978.

7. (and Arden, Daniel Douglas, Jr.) Upper Mesozoic and Paleogene geology and unconformities, Coastal Plain of Georgia [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 62, p. 1755, 1978.

8. Lower Pennsylvanian rocks and coal resources of northwestern Georgia [abstract]: Georgia Jour. Sci., v. 37, p. 84, 1979.

9. Sabine (Wilcox) rocks and structure, Coastal Plain of Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 175, 1979.

CRAWFORD, ARTHUR RAYMOND.

1. Tektites probably wholly terrestrial and related to continental movement: Geol. Mag., v. 116, p. 261-283, illus., 1979.
Those from Dodge and Irwin Counties are considered as part of hypervolcanism on earth and do not have an extraterrestrial origin.

CRAWFORD, THOMAS JONES, 1932-, **see also** Coleman, Sally Lynn, 1; Medlin, Jack Harold, 1, 2, 3, 4

1. Geologic map, Carroll-Heard Counties, Plate 1 of Geochemical study of alluvium in the Chattahoochee-Flint area, Georgia (by Vernon James Hurst and Clarence Sumner Long, Jr.): Athens, Univ. Georgia Inst. Community and Area Dev., scale, 1 inch to 2 miles, 1970 [1971].

2. (and Medlin, Jack Harold) The Georgia Piedmont west of Atlanta--stratigraphic and structural features [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 306, 1971.

3. (and Medlin, Jack Harold) The western Georgia Piedmont between the Cartersville and Brevard Fault zones, in Geology of the Blue Ridge-Ashland-Wedowee belt of the southern Piedmont (edited by Thornton Lee Neathery): Amer. Jour. Sci., v. 273, p. 712-722, illus., 1973.
Repeated sequences from folding have been traced across metamorphic belts; the grade increases progressively southwestward. Broad, upright folds and isoclinal folds are recognized. Shear zones and subsidiary fault zones to the Cartersville fault are also present. Most of the rocks are schists.

4. (and Medlin, Jack Harold) Brevard Fault zone in western Georgia and eastern Alabama--Geol. Soc. America Southeastern Sec. Ann. Field Trip: Georgia Geol. Survey Guidebook 12 [Part 1], p. I 1- I 67, illus. incl. geol. map, 1974.
Metasedimentary rocks from the Paulding-Douglas County boundary westward to the state line are repeated due to doubly plunging anticlinoria and synclinoria and to faulting. The Austell-Frolona anticlinorium can be traced for 80 miles. Staurolite-grade metamorphism and retrogressive metamorphism are recognized. The Brevard Fault zone is included, and there is not a great discontinuity across the fault. Analyses of rocks are included. The field trip consists of three traverses across the structures in Douglas, Carroll, and Heard Counties. The geology along the traverses, and between them, is described.

CRESSLER, CHARLES WILLIAM, 1932-, **see also** Sonderegger, John Lawrence, Jr., 1

1. Geology and ground-water resources of Floyd and Polk Counties, Georgia: Georgia Geol. Survey Inf. Circ. 39, 95 p., illus., 1970.
The type section of the Deaton Member of the Lenoir Limestone of Ordovician age is included.

2. Geology and ground-water resources of Gordon, Whitfield, and Murray Counties, Georgia: Georgia Geol. Survey Inf. Circ. 47, 56 p., illus. incl. geol. maps, 1974.
Complete stratigraphic and structural studies of the counties are given. Precambrian? to Mississippian rocks are present. Folds and overthrust faults are the major structures. The water-bearing properties of each of the rock units are discussed, and well data and water analyses are included.

3. (and Franklin, Marvin Arthur, and Hester, Willis Gene) Availability of water supplies in northwest Georgia: Georgia Geol. Survey Bull. 91, 140 p., illus., 1976.
A general discussion of the origin and occurrence of ground water is followed by maps of the counties and of populated areas in the counties indicating favorable locations for water wells. Also included in tabular form are chemical analyses and other data from the ground water and springs in the individual counties.

4. (and Blanchard, Harry Eugene,Jr., and Hester, Willis Gene) Geohydrology of Bartow, Cherokee, and Forsyth Counties, Georgia: Georgia Geol. Survey Inf. Circ. 50, 45 p., illus. incl. geol. maps, 1979.
The rocks are not given stratigraphic designations but are mapped and discussed as water-bearing units. Analyses are included. Sinkhole and landfill potentials are present in Bartow County; well records are included in tabular form.

CRIMES, T. P., see Basan, Paul Bradley, 5; Howard, James Dolan, 1

CRONIN, LEWIS EUGENE, 1917-, **see** Oertel, George Frederick, Jr., 13

CRONIN, THOMAS MARK, 1950-

1. Marginal marine ostracodes from Late Pleistocene deposits, central and southeastern Atlantic Coastal Plain [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 175, 1979.

CUMMINGS, DAVID, 1932-

1. (and Shiller, Gerald I.) Isopach map of the earth's crust: Earth Sci. Revs., v. 7, p. 97-125, illus., 1971.
   The thickness of the crust below Georgia, as shown on a small-scale map, varies from 30 to a little over 40 kilometers.

CURTIS, DORIS MALKIN, 1914-

1. (and Echols, Dorothy Jung) Eustasy in the Miocene? Interpretation of stratigraphic evidence from Gulf Coast (USA): Internatl. Sed. Cong. 9th, Proc., v. 1, p. 37-41, illus., 1975 [not seen].

DAILEY, HAROLD W., 1936-, **see** Medlin, Jack Harold, 2

DAINTY, ANTON MICHAEL, 1942-, **see** Lee, Chang Kong, 1; Obaoye, Michael Olajide, 1

DALLMEYER, RAY DAVID, 1944-

1. (and Martin, Benjamin Franklin, Jr.) $^{40}Ar/^{39}Ar$ and K-Ar biotite ages from basement rocks of the southernmost Appalachians [Bartow County] [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 588, 1973.

2. Petrology and geochemistry of eclogite inclusions in a mafic-ultramafic sill, Lake Chatuge [Blue Ridge] Georgia-South Carolina [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 392, 1973.

3. Eclogite inclusions in an alpine peridotite sill, Georgia-North Carolina--their chemistry and petrogenetic evolution: Amer. Jour. Sci., v. 274, p. 356-377, illus., 1974.

4. $^{40}Ar/^{39}Ar$ age spectra of biotite from Grenville basement gneisses in northwest Georgia: Geol. Soc. America Bull., v. 86, p. 1740-1744, illus., 1975.
   Biotite from the Grenville gneisses from Bartow and Pickens Counties are 735 and 702 m.y. old, and are discordant with the whole rock Rb/Sr and zircon U/Pb ages from the same units. The biotite ages record the date at which the temperatures cooled enough to retain the argon.

5. $^{40}Ar/^{39}Ar$ incremental-release ages of hornblende and biotite across the Georgia inner Piedmont--their bearing on late Paleozoic-early Mesozoic tectono thermal history: Amer. Jour. Sci., v. 278, p. 124-149, illus., 1978. The age spectra of 20 samples are all concordant and inconsistent with previous interpretations of the "age belt" as a distinct late Paleozoic regional metamorphic event. The total-gas ages date the times of post-metamorphic cooling. Post-magmatic cooling for the Stone Mountain Granite was rapid. There was about 24 km of uplift following regional metamorphism about 365 m.y. ago and near-exhumation of the present surface about 250 m.y. ago.

6. (and Courtney, Peter Stirling, and Wooten, Richard Mark) Stratigraphy, structure, and metamorphism east of the Murphy Syncline-- Georgia-North Carolina--a field excursion for the [13th Ann. Field Trip] Georgia Geological Society: Georgia Geol. Survey Guidebook 17, 74 p. illus., 1978. The metasedimentary rocks of the Great Smoky and Murphy Groups and some igneous rocks are described. Several stages of folding and faulting are present. The chronologic relation between deformation, metamorphism, and intrusion is discussed. The field trip is for two days, is about 100 miles in length, and makes 12 stops, all in the Blue Ridge Province. Geological information at each stop included.

7. $^{40}Ar/^{39}Ar$ dating--principles, techniques, and applications in orogenic terranes, in Lectures in isotope geology (edited by Emilie Jaeger and Johannes Christoph Hunsiker): New York, Springer Verlag, p. 77-104, illus., 1979.
A field study in the Piedmont between Atlanta and Athens is used as an example of the application of the technique. The isotope spectra are concordant, suggesting only one metamorphic event; the different ages obtained are from different rates of cooling to below the argon-retention temperatures, or from tectonism.

DANIELS, DAVID LEE, 1937-

1. Geologic interpretation of geophysical maps, Central Savannah River Area, South Carolina and Georgia: U. S. Geol. Survey Geophysical Invs. Map GP-893, 3 sheets, scales, 1:250,000 and 1:500,000, 10 p. text, 1974.
An interpretive geological map is derived from aeromagnetic and aeroradioactivity maps of the southeastern Piedmont and the northwestern Coastal Plain. Features in the Bel Air, Kiokee and Charlotte belts are examined. Faults are postulated, as is the nature of the basement rocks below the Coastal Plain.

2. (and Zeitz, Isidore) Geologic interpretation of aeromagnetic maps of the Coastal Plain region of South Carolina, and parts of North Carolina and Georgia: U. S. Geol. Survey Repts. Open File 78-261, 4 sheets, scale, 1:500,000, 1978.

DARRELL, JAMES HARRIS, JR., 1942-, **see also** McLaughlin, Robert Everett, 2

1. A palynological investigation of the Twiggs Formation (Upper Eocene) in central and east central [Coastal Plain] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 348, 1974.

2. A palynological zonation of selected [Cretaceous-Tertiary] Coastal Plain strata in Georgia--a reconnaissance study [abstract]: Geol. Soc. America Abs. with Progs., v. 7, p. 481-482, 1975.

DASHEVSKY, SAMUEL SOLOMON, 1955-, **see also** Costain, John Kendall, 6

1. Geothermal gradients in the southeastern United States, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5648-3, p. C24-C35, illus., 1978.
   Two holes, 600 feet deep, were drilled in Greene and Coweta Counties to determine heat flow values. Temperatures and gradient logs are given in tables.

DAVIS, BONNIE.

1. Harrisburg Cave [Walker County] trip: Georgia Underground, v. 8, p. 110-111, illus. incl. map, 1971.

DAVIS, EDWARD G.

1. (and Sullivan, Gerald V.) Recovery of heavy minerals from sand and gravel operations in the southeastern United States: U. S. Bur. Mines Rept. Invs. 7517, 25 p., illus., 1971.
   The occurrence and recovery-potential of ilmenite, rutile, zircon, kyanite, and monazite from Cretaceous sandstones and Quaternary sands on the Coastal Plain are described.

DAVIS, GEORGE H., 3D, 1921-

1. (and Counts, Harlan Bryan and Holdahl, Sandford R.) Further examination of subsidence at Savannah, Georgia, 1955-1975, **in** Land subsidence symposium--Proceedings of the second international symposium on land subsidence...: Internatl. Assoc. Scientific Hydrology Pub. no. 121, p. 347-354, illus., 1977.
   Continued leveling shows continued subsidence of about 4 mm per year around Savannah in Chatham County. It is related to the head decline from ground-water withdrawal. A threshold stress equivalent to 15 meters of head decline is required to produce subsidence.

2. Potential for land subsidence due to reduction of artesian head in the Atlantic Coastal Plain, **in** Hydraulics in the coastal zone: New York, Amer. Soc. Civil Engineers, p. 152-160, illus., 1977.
   Subsidence in the Savannah area of Chatham County, as a result of pumping from the aquifer, is used as an example. The rate of subsidence has changed, having been detected by leveling though the years, and is related to the amount of ground water which has been removed.

DAVIS, HUGH TURNER, 1918-

1. Soil survey of Lamar, Pike, and Upson Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 67 p., illus., 1972.
   The soils of these counties are mapped in considerable detail, and the geology is cursorily described.

DAVIS, LOUIS LLOYD, JR., 1946-

1. Petrology of the Claiborne Group and part of the Wilcox Group, southwest Georgia [Coastal Plain] and southeast Alabama: M S Thesis, Univ. Texas Austin, 1974.

DAVIS, MICHAEL PAUL, 1951-

1. Investigation of uranium and thorium variation in selected intrusive rocks of the southeastern Piedmont: M S Thesis, Univ. Florida, 1977 [not seen].

DAVIS, RICHARD ALBERT, JR., 1937-, **see** Frey, Robert Wayne, 6

DE BOER, JELLE, 1934-

1. (and Snider, Frederic Girvan) Magnetic and chemical variations of Mesozoic diabase dikes from eastern North America--evidence for a hotspot in the Carolinas?: Geol. Soc. America Bull., v. 90, pt. 1, p. 185-198, illus., 1979.
   Many dikes from the Piedmont of Georgia are included in the regional study. The inclination of thermoremanent magnetization, magnetic susceptibility, and anomaly amplitudes are measured, as are the magnetic-mineral content and other petrographic characteristics.

DEERY, JOHN RICHARD, 1952-

1. Origin and character of washover fans on the [Chatham County] Georgia coast, U.S.A.: M S Thesis, Univ. Georgia, 1976; (and Howard, James Dolan): Gulf Coast Assoc. Geol. Socs. Trans., v. 27, p. 259-271, illus., 1977.
   "Active" and "passive" phases of fan development leave characteristic records in the stratigraphic and sedimentary records. The phases and characteristic results are described and discussed. More time is represented by the passive phase of the fan development than by the active phase.

2. (and Howard, James Dolan) Physical characteristics of washover fans of Georgia coast [Chatham County] [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 61, p. 779-780, 1977.

DEININGER, DONALD TOWNEND, 1948-

1. An investigation of groundwater in northeastern Florida and southeastern Georgia [Coastal Plain] by analysis of its tritium content [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 349, 1974.

DEKALB COUNTY [GEORGIA] PLANNING DEPARTMENT

1. Soapstone Ridge--its environment and land use: Decatur, Georgia, DeKalb County Planning Dept., 108 p., illus., 1976.
   A highly ornate report includes a generalized summary and small-scale maps of the area in southern DeKalb County. No new data are included.

DE LUCA, FRANK A., see Miller, John C., 1

DENDY, F.E.

1. (and Champion, W. A.) Summary of reservoir sediment deposition surveys made in the United States through 1970: U. S. Dept. Agric. Spec. Pub. 1266, 82 p., illus., 1973.
   Data from numerous reservoirs in Georgia are in tables which include reservoir name, stream, drainage area, date of survey, period of years between surveys, storage capacity, and average annual accumulation.

DENMAN, HARRY EDWARD, JR., 1950-, **see also** Long, Leland Timothy, 9, 12; O'Connor, Bruce James, 2

1. Implications of seismic activity at the Clark Hill reservoir [Lincoln and Wilkes Counties]: M S Thesis, Georgia Inst. Technology, 1974.

DENNIS, HOWARD WILLIS, 1927-

1. The pre-Recent sediments and surfaces of the Georgia Piedmont: Ph D Thesis, Univ. Georgia, 1971.

DENNISON, JOHN MANLEY, 1934-, **see also** Kiefer, John David, 2

1. (and Wheeler, Walter Hall) Precambrian through Cretaceous strata of probable fluvial origin in southeastern United States and their potential as uranium host rocks: U. S. Dept. Energy Rept. GJO 4168, 211 p., illus., 1972; Southeastern Geology, Spec. Pub. 5, 210 p., illus., 1975.
   Such rocks in Georgia are the Precambrian Ocoee Supergroup and quartzites in the Piedmont; the Cambrian Weisner Sandstone and Rome Formation; the Middle Ordovician Bays and Moccasin Formations; the Mississippian Pennington Group; and the Pennsylvanian Pottsville Group, all in northwestern Georgia; and the Cretaceous Tuscaloosa Group in the Coastal Plain. The uranium-bearing potential of each is discussed.
2. Uranium possibilities in Appalachians [northwestern Georgia] [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 58, p. 1891-1892, 1974.

3. (and Head, James William, 3d) Sea level variations interpreted from the Appalachian Basin Silurian and Devonian: Amer. Jour. Sci., v. 275, p. 1089-1120, illus., 1975.
Sea level changes, based upon interpretations of sedimentary sequences and unconformities, are described for the entire Appalachian basin, inluding that part in northwestern Georgia. Pre-Chattanooga erosion has removed most of the evidence from Georgia. The Cherokee Discontinuity separates Ordovician from Silurian rocks.

4. Appalachian Queenston Delta related to eustatic sea-level drop accompanying Late Ordovician glaciation centred in Africa, in The Ordovician System (edited by Michael G. Bassett): Cardiff, Univ. Wales Press, p. 107-120, illus., 1976.
An unconformity between the Ordovician and Silurian rocks everywhere in the Appalachian Basin, including northwestern Georgia, can be best explained by having its origin due in part to sea-level changes resulting from glaciation.

5. Gravity tectonic removal of cover of Blue Ridge anticlinorium to form Valley and Ridge Province: Geol. Soc. Amer. Bull., v. 87, p. 1470-1476, illus., 1976; discussion by Peter Anderson Geiser, v. 89, p. 1429-1430, 1978.
Northwestern Georgia is included in a regional study. Based upon comparative amounts of foreshortening, the eastern Valley and Ridge strata may be the remnants of the former cover of the Blue Ridge. These were moved to their present locality by gravity sliding when the Blue Ridge was uplifted sometime after the Early Permian and before the Late Triassic. Later-phase movements resulted in the Blue Ridge being thrusted westward over the gravity-emplaced sedimentary rocks.

6. Tuff-reworking model for uranium concentration in Chattanooga Shale [northwestern Georgia] [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 160-161, 1976.

7. Middle Ordovician sea level drop in the Appalachian Basin [northwestern Georgia] [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 176, 1979.

DE PRATTER, CHESTER BURTON, 1947-, **see also** Howard, James Dolan, 19; Pearson, Charles Edward, 1

1. (and Howard, James Dolan) Archeologic dating of Holocene shoreline changes on Georgia coast [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 60, p. 663-664, 1976.

2. (and Howard, James Dolan) History of shoreline changes determined by archaeological dating--Georgia coast, U.S.A.: Gulf Coast Assoc. Geol. Socs. Trans., v. 27, p. 251-258, illus., 1977.
In the intertidal zone, south of Savannah in Chatham County, 33 habitation sites on beach-ridge remnants show six cultural phases which become progressively younger seaward. A progradation of the shoreline of nearly 10 km in 4,500 years is determined.

3. (and Howard, James Dolan) Holocene shoreline progradation on the Georgia coast, U.S.A. [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 39-40, 1978.

4. (and Howard, James Dolan) Shoreline changes and sea level fluctuation on the Georgia coast during the last 4500 years--the archaeological evidence [abstract]: Georgia Jour. Sci., v. 36, p. 115, 1978.

DESAI, CHANDRAKANT S., 1936-, **see** Bollinger, Gilbert Arthur, 5

DEVINE, JAMES FRANCIS, 1934-, **see** Hadley, Jarvis Bardwell, 2

DE VOTO, RICHARD HAHMAN, 1934- **see** Earth Resources, Inc., 1; Fountain, Richard Calhoun, 2

DE WITT, WALLACE, JR., 1920-

1. (and Perry, William J., Jr., and Wallace, Laure Gwen) Oil and gas data from Devonian and Silurian rocks in the Appalachian Basin: U. S. Geol. Survey Misc. Invs. Map I 917 B, 4 sheets, scale, 1:2,500,000, 1975.
The Silurian rocks in extreme northwestern Georgia are about 200 feet thick, and the Devonian rocks are less than 100 feet thick thoughout northwestern Georgia. Only 25 feet of the Devonian rocks are black shale.

2. Oil and gas data from the upper Paleozoic rocks in the Appalachian Basin: U. S. Geol. Survey Misc. Invs. Map I 917 A, 4 sheets, scale, 1:2,500,000, 1975.
Mississippian rocks in northwestern Georgia are less than 2,500 feet thick for the most part, but are in a province considered to be potential for oil and gas production in extreme northwestern Georgia. Pennsylvanian rocks less than 1,000 feet thick at the most.

3. (and McGrew, Laura May Wenger) The Appalachian Basin region, **in** Introduction and regional analysis of the Mississippian System in the United States, Part 1 **of** Paleotectonic investigations of the Mississippian System in the United States: U. S. Geol. Survey Prof. Paper 1010, p. 13-48, illus. incl. atlas of maps, 1979.
A complete summary of the Mississippian System in Georgia is included as a part of the study. There are, in Georgia, four "units", and each is described on maps. Isopach, lithofacies, and structure maps are included as are cross sections and numerous interpretive maps of sedimentary environments and paleogeography.

DIETRICH, RICHARD VINCENT, 1924-

1. Memorial to Anna I[sabel] Jonas Stose, 1881-1974: Geol. Soc. America Memorials, v. 6, 6 p., port., 1977.

DIETZ, ROBERT SINCLAIR, 1914-

1. (and Emery, Kenneth Orris) Portrait of a scientist--Francis [Parker] Shepard: Earth-Sci. Revs., v. 7, no. 1, p. A9-A15, illus. incl. ports., 1971.

DIEZ DE CRAMER, MARIA DEL CARMEN R., see Cramer, Fritz Hendrik, 1

DIMENT, WILLIAM HORACE, 1927-

1. (and Urban, Thomas Charles, and Revetta, Frank Alexander) Some geophysical anomalies in the eastern United States, Chap. 20 **in** The nature of the solid earth (edited by Eugene Corley Robertson): New York, McGraw Hill, p. 544-572, illus., 1972.
   A summary of the numerous large-scale anomalies in the country include some which are in Georgia. Discussions include tectonic framework, seismic-reflection results, upper mantle velocity, and attenuation of waves.

DOERING, JOHN ADAM, 1900-

1. The Lafayette Formation reviewed: South Carolina Div. Geology, Geologic Notes, v. 20, p. 34-44, illus., 1976.
   A review of the various names and of mapping interpretations of the Lafayette Formation on the Atlantic Coastal Plain includes Georgia. The formation covers a large part of the Atlantic Coastal Plain where it is called the Citronelle Formation, and it is post-Miocene in age.

DOERJES, JUERGEN, 1936-, **see also** Howard, James Dolan, 7, 9

1. (and Howard, James Dolan) Diversity of benthonic communities in shallow marine sedimentary environments of the Georgia coast, U. S. A. [abstract]: Amer. Assoc. Petroleum Geologists Abs. Ann. Mtg., v. 2, p. 90, 1975.

2. (and Howard, James Dolan) Fluvial-marine transition indicators in an estuarine environment, Ogeechee River-Ossabaw Sound, [Part] 4 **of** Estuaries of the Georgia coast...: Senckenberg. Maritima, v. 7, p. 137-179, illus., 1975.
   Five facies in this Chatham County system, based upon physical and biogenic sedimentary parameters, are: inner estuarine, upper-middle estuarine, lower-middle estuarine, outer estuarine, and offshore. These do not coincide with facies based upon the presence or absence of biota; the latter are controlled by salinity only.

DOLAN, ROBERT, 1929-, **see** Hayden, Bruce Phillips, 1; Vincent, Charles Linwood, 1

DOLSEN, JANE P., -1981, **see** Spackman, William , Jr., 1

DOOLAN, BARRY LEE, 1944-, **see** Thomas, William Andrew, 1

DOOLEY, ROBERT ERVIN, 1949-

1. K-Ar relationships in dolerite dikes of [Piedmont and Blue Ridge] Georgia: M S Thesis, Georgia Inst. Technology, 1977; (and Wampler, Jesse Marion) [abstract]: Geol. Soc. America Abs. with Progs., v. 9, p. 134, 1977.

2. (and Wampler, Jesse Marion) Location of environmental excess ^{40}Ar in [Piedmont] dolerites [Triassic] [abstract]: Georgia Jour. Sci., v. 35, p. 88-89, 1977.

3. (and Wampler, Jesse Marion) Low temperature release of excess ^{40}Ar from Georgia dolerites, in Short papers of the fourth international conference, geochronology, cosmochronology, isotope geology, 1978 (edited by Robert Eugene Zartman): U. S. Geol. Survey Rept. Open File 78-701, p. 94-96, illus., 1978.
Excess Argon-40 in Triassic dolerite dikes in the Georgia Piedmont arrived with the magma. Its differential release from different dikes is due to the concentration of the argon in structural irregularities and its diffusion outward from the crystals during the slow cooling. Rapidly cooling dikes retained more of their excess Argon-40.

DORMAN, LE ROY MYRON, 1938-, see also Bennett, Hugh Frederick, 1; Long, Leland Timothy, 2, 3; Taylor, Patrick Timothy, 1,2

1. Seismic anisotropy in the crust of the southeastern U.S. [abstract]: Carnegie Inst. Washington Yearbk. 70, p. 349, 1971.

2. Crustal seismic anisotropy in Georgia [abstract]: EOS, v. 53, p. 447, 1972.

3. Seismic crustal anisotropy in northern Georgia: Seismol. Soc. America Bull., v. 62, p. 39-45, illus., 1972.
Quarry-explosion velocities observed from the Piedmont are listed. Variations with azimuth from blasts are noted, and are probably due to velocity banding in the crust.

4. (and Ziegler, Robert E.) The Georgia gravity base net [abstract], in Symposium on the petroleum geology of the Georgia Coastal Plain (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 139, 1974.

DOTT, ROBERT HENRY, JR., 1929-

1. Memorial to [George] Marshall Kay, 1904-1975: Geol. Soc. America Memorials, v. 7, 9 p., port., 1977.

DOUGHERTY, DANIEL O'CONNELL, JR., 1948-

1. Stratigraphic, structure, and metamorphic history of the northern half of the Blairsville Quadrangle [Union and Towns Counties] Georgia-North Carolina: M S Thesis, Univ. Georgia, 1977.

DOUGLAS, J. A. V.

1. Revised catalogue of the national meteorite collection of Canada, listing acquisitions to August 31, 1970: Canada Geol. Survey Paper 70-66, 41 p., 1971.
Included in the collection are fragments of Dalton, Forsyth, and Union County meteorites.

DRAHOVZAL, JAMES ALAN, 1939-

1. Lineaments of northern Alabama and possible regional implications, **in** Proceedings of the first international conference on the new basement tectonics (edited by Robert Arnold Hodgson, S. Parker Gay, Jr., and Janet Y. Benjamins): Salt Lake City, Utah, Utah Geol. Assoc., p. 250-261, illus., 1976.
More than 2,000 lineaments are recognized from LANDSAT-1 photographs. Regional extension of some of them reveals a possible relationship to a deep-seated crustal fault zone that passes southeastward into and through Georgia; it is possibly related to the Bahama Fracture zone.

2. (and Thomas, William Andrew) Pre-Mississippian sandstones in the interior structures of the Appalachian fold and thrust belt of eastern Alabama [and Polk County, Georgia], **in** Cambrian and Devonian stratigraphic problems of eastern Alabama (edited by Denny Neil Bearce)--Alabama Geol. Soc. Guidebook 15th Ann. Field Conf.: Tuscaloosa, Alabama Geol. Survey, p. 29-36, illus., 1977.
Allusions are made to the occurrence of sandstones in the Cambrian Weisner Formation, in the Ordovician System, and to the Devonian Frog Mountain Sandstone in Polk County. Structural complexities have made stratigraphic correlations uncertain.

DRAKE, CHARLES LUM, 1924-, **see** Sheridan, Robert Edmund, 1

DUANE, DAVID BIERLEIN, 1934-, **see** Oertel, George Frederick, Jr., 5; Pilkey, Orrin Hendren, 1

DU BAR, JULES RAMON, 1923-, **see** Alt, David Dolton, 1; Hoyt, John Harger, 4; Richards, Horace Gardiner, 2; Oaks, Robert Quincy, Jr., 1, 2

DUEVER, MICHAEL JAMES, 1941-

1. The distribution of trace elements in a small reservoir as influenced by two types of discharge [Lake Russell, Habersham County]: Ph D Thesis, Univ. Georgia, 1973; [abstract]: Dissert. Abs. Internatl., v. 34B, p. B3344, 1974.

DUNBAR, DAVID MALCOM, 1948-

1. A seismic velocity model of the Clark Hill reservoir area [Wilkes and Lincoln Counties]: M S Thesis, Georgia Inst. Technology, 1977.

DUNBAR, JOHN ANDREW, JR., 1955-, **see** Costain, John Kendall, 1

DUNN, MAYNARD L., **see** Slack, John Frederick, 1

DUPUIS, ROY HARBIN, 1946-

1. The stratigraphy, structure and metamorphic history of the northern half of the Nottely Dam 7 1/2' Quadrangle [Union County] Georgia-North Carolina: M S Thesis, Univ. Georgia, 1975.

DUVALL, WILBUR IRVING, 1915-, **see** Hooker, Verne E., 1

DWORNIK, EDWARD JOHN, 1920-, **see** May, Irving, 1

DYAR, THOMAS ROBERT, 1938-

1. (and Tasker, Gary D., and Wait, Robert Lyle) Hydrology of the Riceboro area, Coastal Georgia: Atlanta, Georgia Water Quality Control Board, 74 p., illus., 1972.
   The geology of an area in Liberty and Long Counties is described. Eocene and Holocene rocks are present. Groundwater is being pumped at the rate of 9 mgd from the Principal Artesian Aquifer. Water quality and other hydrologic studies are being made on a continuing basis, and monitoring of a large injection-well nearby will be maintained.

EARLE, JANET L., see Gabelman, John Warren, 1

EARTH RESOURCES, INC.

1. Introduction, summary, and conclusions, uraniferous phosphate resources of the United States and the free world, Chapter 1 of Vol. 1 of Uraniferous phosphate resources...United States and the free world (edited by Richard Hahman Devoto and Douglas Nelson Stevens): U. S. Dept. Energy Rept. GJBX 110(79), p. 1-53, illus. incl. atlas of maps, 1979.
   A summary of the phosphate resources of the entire United States includes those of Georgia. The South Georgia-North Florida District contains over 19 million tons of uranium ore. The East Georgia-South Carolina District contains over 18 million tons of phosphate ore with 142,000 tons of uranium ore.

ECHOLS, DOROTHY JUNG, 1916-, **see** Curtis, Doris Malkin, 1

EDWARDS, JAMES MICHAEL, 1945-

1. (and Frey, Robert Wayne) Radiographic and sedimentologic examination of Holocene salt marsh [Coastal Plain] Georgia [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 56, p. 616, 1972.

2. Sedimentological and environmental analysis of a Holocene salt marsh, Sapelo Island [McIntosh County] Georgia: M S Thesis, Univ. Georgia, 1973.

3. (and Frey, Robert Wayne) Substrate characteristics within a Holocene salt marsh, Sapelo Island, Georgia: Senckenberg. Maritima, v. 9, p. 215-259, illus., 1977.
Marsh sediments in McIntosh County are examined for distribution, mineralogy, chemistry, physical and biological structures, and sedimentation. A zonation is proposed which is related largely to tide and elevation.

EHMANN, WILLIAM DONALD, 1931-, **see also** Santoliquido, Patricia M., 1

1. Gold, **in** Handbook of elemental abundances in meteorites (edited by Brian Harold Mason): New York, Gordon and Breach, p. 479-485, illus., 1971.
Analyses of the gold in the Sardis meteorite, from Jenkins County, are included.

EISTER, MARGARET FORD, 1927-, **see** McIntosh, Willard Lynn, 1

ELDERS, CHRISTOPHER A., **see** Howard, James Dolan, 1, 12

ELLWOOD, BROOKS BERESFORD, **see also** Whitney, James Arthur, 9, 10

1. An archeomagnetic measurement of the age and sedimentation rate of Climax Cave sediments, southwest Georgia: Amer. Jour. Sci., v. 271, p. 304-310, illus., 1971; summary, GSS Bull. 1970, p. 8-11, illus. [1972]
The cave is in Decatur County. The magnetic declination and inclination of cave-floor silts are compared with those of radiocarbon-dated Arizona archeomagnetic stratigraphy. The average sedimentation rate of 6.9 cm / 100 years is indicated, with the base of the sequence being about 1,000 years old. Periods of varied sedimentation rates are present also.

2. (and Wenner, David Bruce, and Stormer, John Charles, Jr., and Hess, James Robert, and Whitney, James Arthur) Laminar flow direction estimates for the Elberton Granite as inferred from magnetic, isotopic, and chemical data [Elbert County] [abstract]: EOS, v. 60, p. 972, 1979.

3. (and Whitney, James Arthur, and Amerigian, Craig Arnen) The magnetization of the Elberton Granite, N.E. Georgia [Elbert County]--anisotropy of magnetic susceptibility--remanent magnetism [abstract]: EOS, v. 60, p. 247, 1979.

EMERY, KENNETH ORRIS, 1914-, **see** Dietz, Robert Sinclair, 1

EMHOF, JOHN WARREN, 1953-, **see** Smith, Douglas Lee, 2

EPPERT, HERBERT CHARLES, JR., **see** Krivoy, Harold Lloyd, 1, 2

EPSTEIN, ANITA GLORIA FISHMAN, 1937-, **see also** Harris, Anita Gloria Fishman Epstein

1. (and Epstein, Jack Burton, and Harris, Leonard Dorrean) Conodont color alteration--an index to organic metamorphism: U. S. Geol. Survey Prof. Paper 995, iv, 27 p., illus., 1977.
   The color of conodonts is altered by the amount of heat they have experienced from metamorphism and/or burial. Small-scale maps show CAI isograds for the Ordovician, Devonian, and Mississippian Systems in the Appalachians, which include northwestern Georgia.

EPSTEIN, JACK BURTON, 1935-, **see** Epstein, Anita Gloria Fishman, 1; Harris, Anita Gloria Fishman Epstein, 1

ERCHULL, LEO DONALD, 1948-, **see** Casagrande, Daniel Joseph, 1, 2, 3, 4

ERNISSEE, JOHN JUSTUS.

1. (and Abbott, William Harold, and Huddlestun, Paul Francis) Microfossil correlation of the Coosawhatchie Clay (Hawthorn Formation, Miocene) of South Carolina, and its equivalent in Georgia: Marine Micropaleontology, v. 2, p. 105-119, illus., 1977.
   Diatom and silicoflagellate assemblages in the clay in South Carolina are correlative with a red clay in Effingham County, near Berry's Landing. The latter contains calcareous nannoplankton and planktonic foraminifera. Both sections are compared with deep sea cores and are in North Pacific Diatom Zone XX and in planktonic foraminifera zones N 11 to lower N 12. The calcareous nannoplankton are in the **Coccolithus miopelagicus** Subzone. The fossils are listed.

ERVIN, CLARENCE PATRICK, 1943-, **see** McGinnis, Lyle David, 1

ERWIN, JAMES WALTER, 1934-

1. (and Titcomb, Earl Franklin, Jr.) Engineering geology of the West Point [Harris County] dam foundation [abstract]: Assoc. Eng. Geologists 15th Ann. Mtg. Prog. and Abs., p. 21-22, 1972.

EVANS, LEONARD NEWTON, 3D, 1951-, **see** Smith, James William, 3

EYTON, JOHN RONALD, 1942-

1. (and Parkhurst, Judith Irene) A re-evaluation of the extraterrestrial origin of the Carolina Bays: Univ. Illinois Dept. Geography, Occas. Paper 9, 46 p., illus., 1975.
   The distribution and geological setting of the bays, including those in Georgia on the Coastal Plain, are reviewed. An origin from shock waves from an exploding and disintegrating comet is proposed.

FAGAN, JAMES MICHAEL, 1936-1977, **see** Miller, Robert Ardell, 1

FAIRBAIRN, HAROLD WILLIAMS, 1906-

1. Radiometric age of mid-Paleozoic intrusives in the Appalachian-Caledonides mobile belt: Amer. Jour. Sci., v. 270, p. 203-217, illus., 1971.
   Sixty radiometric dates from many places includes a date on the Comoli Granite in Elbert County which is Late Ordovician age.

FAIRLEY, WILLIAM MERLE, 1928-

1. The Piedmont in Georgia--discussion [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 309, 1971.

2. Relationship of the Ashland-Wedowee belt to the Great Smoky Group and the Murphy Marble belt [Lumpkin County] [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 72, 1972.

3. Correlations of stratigraphic belts of the northwest Georgia Piedmont and Blue Ridge, **in** Geology of the Blue Ridge-Ashland-Wedowee Belt in the southern Piedmont (edited by Thornton Lee Neathery): Amer. Jour. Sci., v. 273, p. 686-697, illus., 1973.
   Numerous formations are grouped into "belts" and shown to have different correlation possibilities than had been previously proposed. The Walden Creek, Great Smoky, and Murphy Belt groups are described. The Salem Church and Corbin Granites are probably basement complex. The others are younger Precambrian and early Paleozoic groups.

FALLAW, WALLACE CRAFT, 1936-, **see** Ogley, David S., 1

FARRINGTON, OLIVER CUMMINGS, 1864-1933.

1. Catalog of the meteorites of North America, to January 1, 1909: Natl. Acad. Sci. Mem. 13, 513 p., illus., 1915.
   A summary and description of all of the meteorites known from North America includes nine from Georgia. These are: Canton, Dalton, Forsyth, Holland's Store, Locust Grove, Losttown Creek, Lumpkin, Putnam County and Union County. Considerable information is included about each.

FAUL, HENRY, 1920-, **see** Zimmerman, Robert Allen, 1

FAUST, NICHOLAS LEA, 1945-

1. Analysis of the usefulness of automatically processed ERTS multispectral data for geologic purposes in Georgia: M S Thesis, Georgia Inst. Technology, 1976.

FAY, WILLIAM MARTIN, 1952-

1. The geology of the northwest portion of the Plum Branch Quadrangle [Lincoln County] Georgia and South Carolina [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 178, 1979.

FEISS, PAUL GEOFFREY, 1943-

1. Economic ore deposits of the Carolina Slate Belt [Piedmont] [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 178, 1979.

FELDMANN, H., see Voshage, Hans, 1, 2, 4

FERGUSON, AUSTIN O., 1945-, **see** Casagrande, Daniel Joseph, 10

FERGUSON, ROBERT BURY, 1920-

1. (and Price, Vaneaton, Jr.) National uranium resource evaluation (NURE) program--hydrogeochemical and stream sediment reconnaissance in the eastern United States: Jour. Geochem. Explor., v. 6, p. 103-117, illus., 1976.
   The Moye uranium-bearing-pegmatite area in Lamar County is utilized as an example of how useful the analyses of -100 mesh stream-sediments are in providing adequate reconnaissance information. Both stream and ground-water data are also useful.

2. Athens 1° X 2° NTMS area, Georgia and South Carolina, preliminary basic data report, hydrogeochemical and stream sediment reconnaissance: U. S. Dept. Energy Rept. DPST 78-146-7, 42 p., illus. incl. geol. map, 1978.
   A summary of the geology of the map area is given, and is followed by numerous tables of chemical analyses of ground water and stream sediments. Eight elements are analyzed from the ground water, and eleven are analyzed from the stream sediments.

3. Greenville 1° X 2° NTMS area, Georgia, North Carolina, and South Carolina, [part of] Savannah River Laboratory hydrogeochemical and stream sediment reconnaissance: Aiken, South Carolina, E. I. DuPont Company Rept. DPST-78-146-2, 180 p., illus., 1978.
   The Blue Ridge and Piedmont of northeastern Georgia are included in the map area. Raw analytical data are presented. Various types of geochemical information are given in tabular form.

4. Athens, Charlotte, Greenville, and Spartanburg NTMS 1° X 2° Quadrangle areas--supplemental data release: Aiken, South Carolina, E. I. DuPont Company, Rept. DPST-79-155-1, 124 p., illus., 1979.
   The results of chemical analyses for 19 different elements are given in tabular form. The Athens and Greenville 1° X 2° sheets include the Piedmont and Blue Ridge Provinces of Georgia.

FERM, JOHN CHARLES, 1925-

1. (and Galloway, Malcolm Charles Bell Bradsworth) Permo-Carboniferous depositional environments and radioactivity in the eastern United States: U. S. Dept. Energy Rept. GJO 7405, 81 p., illus., 1971.
A review of the Pennsylvanian and Permian stratigraphy and depositional environments includes those of the Pennsylvanian in northwestern Georgia. Mineral composition, texture, and structures are described in the analysis. No radioactive anomalies are reported from Georgia.

2. (and others) Carboniferous depositional environments in the Appalachian region: Columbia, South Carolina, Univ. South Carolina Geol. Dept., 1979 [not seen].

FIELD, MICHAEL EHRENHART, 1945-, **see** Pilkey, Orrin Hendren, 1

FISCHER, IAN A., see Nummedal, Dag, 2

FISHER, DONALD WILLIAM, 1922-, **see** Hobba, William A., Jr., 2

FISHER, GEORGE WESCOTT, 1937-, **see also** Bryant, Bruce Hazelton, 1; Colton, George Willis, 1; Hadley, Jarvis Bardwell, 1; Hurst, Vernon James, 2; Owens, James Patrick, 1; Reed, John Calvin, Jr., 1; Sundelius, Harold Wesley, 1

1. (and others) Studies of Appalachian geology--central and southern: New York, Interscience Pub., 460 p., illus., 1970. Reviews of many aspects of the geology of the southern Appalachians include Georgia. Numerous articles are cited by author.

FLETCHER, JON PETER BODMAN, 1946-

1. (and Sbar, Marc Lewis, and Sykes, Lynn Ray) Seismic trends and travel-time residuals in eastern North America and their tectonic implications: Geol. Soc. America Bull., v. 89, p. 1656-1676, illus., 1978.
Earthquakes in Georgia can be related to a northwest-trending zone of earthquakes from Charleston, South Carolina to Columbia, Tennessee and to a southwest-trending zone from Alabama to Maryland. The origins of the seismicity are deep crustal fractures rather than surficial structures.

FOGLE, GERALD HOWARD, 1939-, **see** Benson, Arthur Francis, 1; Lance, Richard Jerome, 1

FOLDEN, CHARLES ALLEN, 1951-, **see** Casagrande, Daniel Joseph, 10

FOOTE, ERICK ENSIGN, 1942-

1. (and Foote, Penny, and Morris, George C., Jr.) [Map of] Elbow cave, G.S.S. 191, Shellmound Quadrangle, Dade County, Ga.: GSS Bull. 1970, p. 53, 1971.

FOOTE, PENNY, see Foote, Erick Ensign, 1

FORREST, JOSEPH T., JR., see Power, Walter Robert, Jr., 1

FOUNTAIN, RICHARD CALHOUN, 1937-

1. Phosphate deposits in the southeastern [Coastal Plain] United States [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 311, 1971.

2. (and Hayes, Arthur Wesley) Uraniferous phosphate resources of the southeastern United States, Chapter 2 of vol. 1 of Uraniferous phosphate resources...United States and the free world (edited by Richard Hahman De Voto and Douglas Nelson Stevens): U. S. Dept. Energy Rept. GJBX-110 (79), p. 55-122, illus. incl. atlas of plates, 1979.
Phosphatic Miocene rocks extend from the Valdosta area southeastward into Florida. The phosphorite occurs as lenticular and irregularly shaped bodies in the Hawthorn Formation and in an unnamed Pliocene unit. Uranium oxide occurs in the phosphorite. In the Savannah area, the Ridgeland Basin extends northward from Chatham County into South Carolina. Here, phosphorite occurs as particles in the Miocene Hawthorn Formation. The uranium-oxide concentration in the rocks has not been determined, but estimates based on beneficiated ore are included.

FRANKLIN, MARVIN ARTHUR, 1942-, **see** Cressler, Charles William, 3

FRAZIER, WILLIAM JAMES, 1946-

1. Origin of septarian concretions in the Cretaceous Blufftown Formation of Georgia's Coastal Plain [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 177, 1976.

FREDERIKSEN, NORMAN OLIVER, 1932-

1. New Paleocene pollen species from the Gulf and Atlantic Coastal Plains: Jour. Research U. S. Geol. Survey, v. 6, p. 691-696, illus., 1978.
Trivestibulopollenites fissuratus from the Middle Eocene Tallahatta Formation of the Georgia Coastal Plain is described and illustrated. Allusions to other genera and other formations are included.

2. Paleocene-Eocene sporomorph correlation network in eastern United States [Coastal Plain] [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 427-428, 1979.

FREY, ROBERT WAYNE, 1938-, **see also** Basan, Paul Bradley, 1, 2, 3, 5; Edwards, James Michael, 1, 3; Howard, James Dolan, 8, 9, 10, 15, 16, 17, 20; Pinet, Paul Raymond, 1

1. (and Mayou, Taylor Vinton) Decapod burrows in Holocene barrier island beaches and washover fans, Georgia: Senckenberg. Maritima, v. 3, p. 53-77, illus., 1971.
The burrows of four different decapods are examined and described. The mode of construction and preservation is important. Their relation to the strand line is such that a zonation of the beach is possible.

2. (and Basan, Paul Bradley, and Scott, Richard Murray) Sampling geologically important salt marsh animals and burrows [abstract]: Georgia Acad. Sci. Bull., v. 30, p. 82, 1972.

3. (and Chowns, Timothy Michael) Trace fossils from the Ringgold road cut (Ordovician and Silurian), Georgia, **in** Sedimentary environments in the Paleozoic rocks of northwest Georgia (edited by Timothy Michael Chowns)--Georgia Geol. Soc. 7th Ann. Field Trip: Georgia Geol. Survey Guidebook 11, p. 25-55, illus., 1972.
Twenty five species in 18 genera of trace fossils from the Catheys, Sequatchie, and Red Mountain Formations are described and illustrated. Sedimentary environments from this Catoosa County exposure are interpreted for some of the formations.

4. (and Howard, James Dolan) Endobenthic adaptions of juvenile thalassinidean shrimp: Geol. Soc. Denmark Bull., v. 24, p. 283-297, illus., 1975.
A burrow of **Upogebia affinis** from Sapelo Island, in McIntosh County, is described in great detail. Branched tunnels from enlarged chambers are developed by juveniles.

5. (and Voorhies, Michael Reginald, and Howard, James Dolan) Fossil and recent skeletal remains in Georgia estuaries, [Part] 8 **of** Estuaries of the Georgia coast....: Senckenberg. Maritima, v. 7, p. 257-295, illus., 1975.
Fossil and Holocene mollusks from estuarine mud are listed, and their locations in or between estuaries are noted. Environmentally, they are mixed with themselves and with vertebrate fragments. The fossils are more abundant in the estuaries than inland in rocks of similar age; such mixing is normal and should be expected in ancient analogs. The known Miocene and Pleistocene vertebrates are listed.

6. (and Basan, Paul Bradley) Coastal salt marshes, **in** Coastal sedimentary environments (edited by Richard Albert Davis, Jr.): New York, Springer Verlag, p. 101-169, illus., 1978.
A complete and detailed review of the origin and occurrence of salt marshes is given. Numerous examples are cited from the Georgia coast.

7. (and Howard, James Dolan, and Pryor, Wayne Arthur) **Ophiomorpha** -- its morphologic, taxonomic, and environmental significance: Palaeogeography, Palaeoclimatology, Palaeoecology, v. 23, p. 199-229, illus., 1978.
Ophiomorpha, a true fossil burrow, could have been created by several different organisms. Examples from the modern coastline of Georgia are described; several other types of ichnofossils have been called **Ophiomorpha**. Diagenesis and taxonomic discussions are included.

FRIDDELL, MICHAEL STEVEN, 1948-, **see** Marsalis, William Ephraim, Jr., 3

FROST, LOUIE W., JR.

1. Soil survey of Elbert, Franklin, and Madison Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 92 p., illus., 1979.
   The soils of the counties are mapped in great detail, and a cursory summary of the geology is also included.

FULLAGAR, PAUL DAVID, 1938-, **see also** Butler, James Robert, 2

1. Age and origin of plutonic intrusions in the Piedmont of the southeastern Appalachians: Geol Soc. America Bull., v. 82, p. 2845-2862, illus., 1971.
   The Sparta Granite, in Hancock and Warren Counties, is from 300 to 535 m.y. old and was emplaced in two events. Various regional metamorphic events are discussed.

2. (and Ragland, Paul Clyde, and Butler, James Robert) Geochemistry and geochronology of plutonic rocks in the southern Appalachian Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 161-162, 1973.

3. (and Butler, James Robert) Strontium isotopic and chemical study of granitic rocks from the Piedmont near Sparta [Hancock County] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 357, 1974.

4. (and Butler, James Robert) Petrochemical and geochronologic studies of plutonic rocks in the southern Appalachians--[Part] 2, The Sparta Granite complex, Georgia: Geol. Soc. America Bull., v. 87, p. 53-56, 1976.
   The Rb/Sr ages for the granite in Hancock county are in a cluster around 300 my, similar to other Piedmont granites. The Sr isotopes suggest a mantle origin, uncontaminated by crustal chemistry. The K and Na, however, migrated into the granite during emplacement. Other granites in the complex are at least 530 m.y. old.

5. (and Butler, James Robert) Timing of Paleozoic igneous activity in the southern Piedmont and Blue Ridge [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 178, 1976.

6. (and Butler, James Robert) 300 m.y.-old post-tectonic granitic plutons of the southeastern Appalachians [Piedmont] [abstract]: EOS, v. 58, p. 531, 1977.

7. (and Butler, James Robert) 325 to 265 m.y.-old granitic plutons in the Piedmont of the southeastern Appalachians: Amer. Jour. Sci., v. 279, p. 161-185, illus., 1979.
   At least 20 granitic plutons in this late Paleozoic age bracket occur in the Piedmont. Of these, four are in Georgia: The Danburg Granite in Wilkes County, the Siloam Granite in Greene County, the Sparta Granite in Hancock County, and the Appling Granite in Columbia County. Petrographic, chemical, and geochronologic data are included. They are derived from the upper mantle or lower crust and are undeformed by Alleghenian deformation. The Alleghenian in Georgia was probably in the form of an antiformal uplift which ultimately resulted in the gravitational sliding of the overlying Paleozoic rocks toward the northwest.

FURLOW, JAMES WARREN, 1937-, **see also** Herrick, Stephen Marion, 2

1. Georgia phosphate--stratigraphy and economic geology of the Chatham County deposit, **in** Proceedings of the seventh forum on the geology of industrial minerals (edited by Harbans Singh Puri): Florida Geol. Survey Spec. Pub. 17, p. 227-228, illus., 1972.
The phosphate deposits occur in approximately 5 billion yards of matrix in Miocene rocks offshore of Chatham County, with an average yield of 22.5 percent BPL; this is 1.6 billion tons of 100 percent BPL.

GABELMAN, JOHN WARREN, 1921-

1. Segmentation of the Appalachian belt by deep wrench faulting, **in** Proceedings of the second international conference on basement tectonics (edited by Melvin Henry Podwysocki and Janet L. Earle): Denver, Colorado, Basement Tectonics Comm., p. 122-135, illus., 1979.
A summary of the data used to support the existence of wrench (transform) faults in the crust, below the Appalachian sedimentary-rock cover, is given. An unnamed and undocumented lineament passes northwest to southeast across the Georgia Piedmont.

GADOW, SIBYLLE LITTLE, see also Howard, James Dolan, 9

1. Provenance and distribution of heavy minerals, [Part] 2 **of** Georgia coastal region....: Senckenberg. Maritima, v. 4, p. 15-45, illus., 1972.
Sediments from several rivers and the continental shelf are analyzed. Those on the inner shelf are the finest. In general, there are more heavy minerals in the river sediments with the heavy-mineral composition reflecting individual drainage basins.

GAINES, [sic.] **GARY LEE,** 1945-, **see** Manley, Frederick Harrison, Jr., 5

GAIR, JACOB EUGENE, 1922-

1. (and Slack, John Frederick) Map showing lithostratigraphic and structural setting of stratabound (massive) sulfide deposits in the U. S. Appalachians: U. S. Geol. Survey Repts. Open File 79-1517, 1979 [not seen].

GALLAHER, RAYMOND NOEL, 1939-

1. (and Perkins, Henry Frank, and Tan, Kim Hong) Classification, composition, and mineralogy of iron glaebules in a southern coastal plain soil: Soil Sci., v. 117, p. 155-164, illus., 1974.
Soils from Tift County are examined by x-ray spectrography and electron probe analyses. Glaebules are in the series glaebular halos to diffuse nodules to normal or irregular nodules to septaria. Plasma was active in the alteration. Part of the process results in a loss of kaolinite due to its alteration to gibbsite; goethite is converted to kaolinite by dehydration. The original material was plinthite.

GALLOWAY, MALCOLM CHARLES BELL BRADSWORTH, see Ferm, John Charles, 1

GARVEY, MICHAEL JOSEPH, 1950-, **see also** Smith, Douglas Lee, 3

1. Uranium, thorium, and potassium abundances in rocks of the Piedmont of Georgia: M S Thesis, Univ. Florida, 1975 [not seen].

GAY, S. PARKER, JR., see Drahovzal, James Alan, 1

GAZDIK, GERTRUDE CHRISTIE, see Slack, John Frederick, 1

GEISER, PETER ANDERSON, 1940-. **see** Dennison, John Manley, 5

GELBAUM, CAROL SANDLER, 1948-

1. The geology and ground water of the Gulf Trough, **in** Short contributions to the geology of Georgia: Georgia Geol. Survey Bull. 93, p. 38-49, illus., 1978.
   The Gulf Trough is a subsurface geologic feature which affected the deposition of sediments from probably as early as Late Eocene to Miocene time. It parallels a hydrologic anomaly from Thomas County northeastward to possibly Effingham county. Ground water availability in it is very low due to poor porosity. The nature and origin of the feature are unclear.

2. (and Howell, Julian) Geohydrology of the Gulf Trough [Coastal Plain] [abstract]: Georgia Jour. Sci., v. 37, p. 87, 1979.

GEODATA INTERNATIONAL, INC.

1. Aerial radiometric and magnetic survey of the Athens national topographic map, NI 17-7, South Carolina and Georgia: Dallas, Texas, Geodata Internatl. [Rept., GJO 1663-1], 2 vols., 61 p. and microfiche data in appendices, illus. incl. atlas of maps and charts, 1975.
   A general geological description of the map area is given, and correlated with airborne-gathered magnetic and radiometric data. A frequency-distribution study of the data as a function of the geologic units is included. The data are compared with known radioactivity on the ground. Most of the data are computer enhanced. Much of the Georgia Piedmont is included, as is part of the Coastal Plain.

2. Aerial radiometric and magnetic survey of the Augusta national topographic map, NI 17-8, South Carolina and Georgia: Dallas, Texas, Geodata Internatl., [Rept. GJO 1663-1], 2 vols., 58 p., incl. microfiche appendices and atlas of maps and charts, 1975.
   A general geological description of the map area is given, and correlated with airborne-gathered magnetic and radiometric data. A frequency-distribution study of the data as a function of the geologic units is included. The data are compared with known radioactivity on the ground, and most of the data are computer enhanced and evaluated.

3. Aerial radiometric and magnetic survey of the Greenville National topographic map, NI 17-4, South Carolina and Georgia: Dallas, Texas, Geodata Internatl., [Rept. GJO 1663-1], 2 vols., 61 p., incl. microfiche appendices, illus. incl. atlas of maps and charts, 1975.
A generalized geological description of the map area is given, and correlated with airborne-gathered magnetic and radiometric data. A frequency-distribution study of the data as a function of the geologic units is included. The data are compared with known radioactivity on the ground. The data are, for the most part, computer enhanced and evaluated.

4. Aerial radiometric and magnetic survey of the Savannah national topographic map, NI 17-11, and South Carolina and Georgia: Dallas, Texas, and Grand Junction, Colorado, U. S. Energy Res. Devel. Admin. [Rept. GJO 1663-1], 2 vols., 60 p., illus. incl. microfiche data and an atlas of maps and charts, 1975.
A generalized geological description of the map area is given, and correlated with airborne-gathered magnetic and radiometric data. A frequency- distribution study of the data as a function of the geologic units is included. The data are compared with known radioactivity on the ground. The data are, for the most part, computer enhanced and evaluated.

5. Aerial radiometric and magnetic survey Phenix City topographic map, Alabama/Georgia: Dallas, Texas, Geodata Internatl., [Rept. GJBX-101(80)], variously paged atlas, [1979].
A description of the geology of the area is followed by data gathered by aerial surveys. The data are presented in curves and graphs along the flight lines and as computer-generated maps.

GEORGIA DEPARTMENT OF NATURAL RESOURCES

1. Index to core holes, Georgia Coastal Plain, 1965-1972: Georgia Geol. Survey [Misc. Pub. 3], [7 p.], illus., 1973.
Core holes in each county are listed by depth; index maps provide the localities. No data are included. The samples from the holes are in the sample library of the Georgia Geologic Survey.

2. Tri-state conference report-- Methods for beach and sand dune protection: Atlanta, Georgia Dept. Nat. Resources [Office of Planning and Research], 48 p., illus. [1974].
This contains extracts and summaries of discussions of numerous specialists presented in a semi-popular manner. Examples from the barrier islands of Georgia are utilized. The dune geomorphology is described, as are its effects on sedimentation and ecology. Engineering aspects of protection are also described.

GEORGIA GEOLOGIC SURVEY

1. Geologic map of Georgia: Georgia Geol. Survey, scale, 1:500,000, 1976.

2. [LANDSAT imagery photograph of] Blue Ridge Mountains: Georgia Geol. Survey [Map RM-8], scale, approx. 1:250,000, 1977.

3. [LANDSAT imagery photograph of] coastal Georgia: Georgia Geol. Survey [Map RM-8], scale, approx. 1:250,000, 1977.

4. [LANDSAT imagery photograph of] Cumberland Plateau-Ridge and Valley [northwestern Georgia]: Georgia Geol. Survey, scale [Map RM-8], scale, 1:250,000, 1977. 1977.

5. [LANDSAT imagery photograph of] Okefenokee Swamp [Ware and Charlton Counties]: Georgia Geol. Survey [Map RM-8], scale, approx. 1:250,000, 1977.

6. Investigations of alternate sources of ground water in the coastal area of Georgia: Georgia Geol. Survey Open File Rept. 80-3, 116 p., illus., 1979 [not seen].

GERAGHTY, JAMES JOSEPH, 1920-

1. (and Miller, David William, and Van der Leeden, Fritz, and Troise, Fred L.) Water atlas of the United States: Port Washington, New York, Water Info. Center, 122 p., illus. atlas of maps, 1973.
   Many small-scale maps are devoted to numerous different aspects of water in the United States including Georgia. Among them are maps of ground water areas (major aquifers), temperature of ground water, thermal springs, depth to saline ground water, hardness of ground water, natural fluoride content, and concentration of sediment in streams.

GERNAZIAN, ANDREA M., see Swanson, David Eugene, 2

GEVREK, ALI IHSAN, 1952-

1. Clay mineralogy and sedimentary petrography of Lower to Middle Paleozoic rocks from a single core from [Floyd County] northwest Georgia: M S Thesis, Georgia Inst. Technology, 1978.

GHUMAN, GIAN SINGH, 1929-

1. Impact of environment on the quality of surface and ground water in Chatham County [abstract]: Georgia Acad. Sci. Bull., v. 33, p. 79, 1975.

GIBSON, EVERETT KAY, JR., 1940-

1. (and Moore, Carleton Bradley) The distribution of total nitrogen in iron meteorites: Geochim. et Cosmochim. Acta, v. 35, p. 877-890, illus., 1971.
   Nitrogen in 123 meteorites, which includes Locust Grove meteorite from Henry County and the Putnam County meteorite, is such that there is more in the inclusions than in the metallic phases. The nitrogen is correlated positively with the germanium content, and there is also a positive correlation between nitrogen content and cooling rates.

GILBERT, OSCAR EDWARD, JR., 1946-, **see also** Roeder, Dietrich Hans, 1; Wielchowsky, Charles Carl, 1

1. (and Wielchowsky, Charles Carl, and Roeder, Dietrich Hans) Early rifting and Taconic tectonism in the southern Appalachians [Georgia] [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 169, 1978.

GILES, ROBERT TALMADGE, 1934-, **see** Pickering, Samuel Marion, Jr., 12

GILL, HAROLD EDWARD, 1930-

1. (and Mitchell, Gail Denene, and Bisdorf, Robert James) Saltwater encroachment in a [Tertiary] carbonate aquifer system at Brunswick [Glynn County] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 180, 1979.

GILLULY, JAMES, 1896-1980.

1. Memorial to Dolan Hoye Eargle, 1905-1973: Geol. Soc. America Memorials, v. 5, 5 p., port., 1977.

GIVEN, PETER HERVEY, 1918-, **see** Casagrande, Daniel Joseph, 4; Reuter, Johannes Helmut, 2; Spackman, William, Jr., 1

GLAWE, LLOYD NEIL, 1932-

1. Upper Eocene and Oligocene Pectinidae of Georgia and their stratigraphic significance: Georgia Geol. Survey Inf. Circ. 46, 27 p., illus., 1974.
   Eight species are redescribed, illustrated, and evaluated in terms of stratigraphic usefulness. Some are restricted to Oligocene rocks and some to the Upper Eocene. They are from 14 localities, and measured sections of the key areas are included.

GLEASON, RICHARD JEFFREY, 1954-

1. Petrographic and petrologic description of a sub-Coastal Plain basement core from near Jesup, Georgia, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5648-3, p. A41-A76, illus., 1978.
   About 28 feet of core from a well in Wayne County, from a depth between 4341 and 4371 feet, are analysed in great detail. The core contains fine-grained, highly deformed, metamorphosed, pyroclastic rock. It is predominantly of felsic material and sericite with phenocrysts of quartz and altered feldspar. Veinlets are abundant; analyses are included. The rocks are pre-Cretaceous in age.

2. Study of the pre-Cretaceous basement below the Atlantic Coastal Plain, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5438-5, p. A60-A83, illus., 1979.
Ninety-three holes have penetrated the Georgia Coastal Plain to enter the pre-Cretaceous basement rocks. These, and many others from elsewhere, are used for a contour map. No new data are included.

GLOVER, LYNN, 3D, 1928-, **see also** Bergstroem, Stig Magnus, 1; Bollinger, Gilbert Arthur, 2; Griffen, Dana Thomas, 1; Medlin, Jack Harold, 4; Roper, Paul James, 1

1. General geology of the east coast with emphasis on potential geothermal energy regions--a detailed summary, **in** A symposium of geothermal energy and its direct uses in the eastern United States: Geothermal Resources Council Spec. Rept. 5, p. 9-11, 1979.
This is a very generalized review of geothermal-heat producing features such as Paleozoic igneous rocks in the Piedmont which have intruded into metamorphic rocks. Structural features and lineaments have an effect on the presence and distribution of these sources.

GODFREY, STEPHEN CRAIG, 1956-, **see** Hatcher, Robert Dean, Jr., 19

GOHN, GREGORY SCOTT, see also Lyttle, Peter Thomas, 1

1. (and Ackerman, Hans Dietrich, and Campbell, David L., and others) Buried early Mesozoic graben in southeastern United States [abstract], **in** Symposium on the Rio Grande rift 1978 (edited By Kenneth H. Olsen): Los Alamos, New Mexico, Technical Rept. LA-C no. 7487, p. 39-40, 1978 [not seen].

2. (and Gottfried, David, and Lanphere, Marvin Adler, and Higgins, Brenda Baer) Regional implications of Triassic or Jurassic age for basalt and sedimentary red beds in the South Carolina Coastal Plain: Science, v. 202, p. 887-889, illus., 1978.
Radiometric dates for "basement" rocks in Mitchell and Echols Counties are 186 and 195 m.y. respectively. They are in a graben of Triassic and Jurassic red clastic rocks which extends from South Carolina through Georgia into Florida. North of the graben are metamorphic rocks, and south of it are Paleozoic sedimentary rocks.

GOLDSMITH, RICHARD, 1918-, **see** Hack, John Tilton, 3

GOLDSMITH, VICTOR, 1940-

1. Internal geometry and origin of vegetated coastal sand dunes: Jour. Sed. Petrology, v. 43, p. 1128-1142, illus., 1973.
Dunes from many areas, including Sapelo Island in McIntosh County, are included in the study. Frequency-distribution curves of dip angles, azimuths and elevations are also included. The azimuths correlate with the prevailing winds and the dips center around two modes. Grass acts as a baffle, trapping sand which is being moved by the prevailing wind.

GOLDSTEIN, JOSEPH IRWIN, 1939-, **see** Moren, Arthur Eugene, 1; Randich, Erik, 1

GONZALES, SERGE, 1936-

1. Geologic and hydrologic considerations of solid waste management in Georgia [abstract]: Georgia Acad. Sci. Bull., v. 30, p. 83, 1972.

2. (and Wenner, David Bruce) Comments, geologic field trip, Chatsworth, Georgia talc district: Oak Ridge, Tennessee, Union Carbide Company Office of Waste Isolation, Rept. Y (OWI) SUB 4310/3, 6 p.,illus., 1975.
   A description of the occurrence of talc in the Georgia, Earnest, and Rock Cliff mines in Murray County is given. The rocks are entirely in the greenschist metamorphic grade. Faults influence the distribution of talc and ground water.

3. Geologic feasibility of selected chalk-bearing sequences within the conterminous United States with regard to siting of radioactive-waste repositories: Oak Ridge, Tennessee, Union Carbide Company Office of Waste Isolation, Rept. Y (OWI) SUB 4310/2, 56 p. illus., 1975.
   Only the Ocala Limestone of Eocene age contains chalk in Georgia, but its association with the fresh-water aquifer of the region renders it potentially poor for waste disposal.

GOODMAN, GORDON TERENCE, 1926-, **see** May, Jack Truett,1

GORDON, ROBERT BOYD, 1929-, **see** Jain, Anant Vir, 1

GOTTFRIED, DAVID, 1924-, **see** Gohn, Gregory Scott, 2

GRANT, WILLARD HUNTINGTON, 1923-, **see also** Bentley, Robert Donald, 1; Nixon, Roy Arthur, 3d, 1; Prowell, David Cureton, 1; Wooten, James Singleterry, 3d, 1

1. Weathering of granite in tropical and subtropical environments [DeKalb County] [abstract], **in** Proceedings of the seventh Guinea geological conference: Nederlands Geol. Mijnboukundig Genoot. Verh., v. 27, p. 68, 1969.

2. Chemical weathering of biotite from a quartz diorite near Haralson [Coweta County] Georgia [abstract]: Clay Mins. Conf., 21st Ann. Mtg., Prog. and Abs., p. 39, 1972.

3. Clay mineralogy of southeastern alluvium and its relation to soil [Georgia] [abstract]: Clay Mins. Conf., 23rd Ann. Mtg., Prog. and Abs., p. 30, 1974.

4. Chemical weathering of Panola Adamellite with special reference to apatite: Southeastern Geology, v. 17, p. 15-25, illus., 1975.
   Details of the weathering processes and products from the adamellites in Henry County and DeKalb Counties are included. Apatite weathers from ground water, but the rate is controlled by the dissolution of the whole rock.

5. Alluvial and weathering processes on the Chattahoochee River floodplain near Atlanta [Fulton County] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 170, 1978.

GRANTHAM, RODNEY GORDON, JR., 1927-, **see also** Pollard, Lin Davis, 2

1. (and Stokes, William Russell, 3d) Ground-water quality data for Georgia: Washington, D. C., U. S. Geol. Survey, 216 p., illus., 1976.
   Data from many wells throughout the state are given in tables. Sixteen different ions are reported, and nine other water parameters are measured.

GRAY, MARION GLOVER, 3D, 1952-

1. Pre-Gulfian rocks of the southwestern Georgia Coastal Plain: M S Thesis, Emory Univ., 1978.

GREEN, R., see Lyttle, Peter Thomas, 1

GREENBERG, JEFFREY KING, 1951-, **see also** Rogers, John James William, 1

1. (and Kish, Steven Alexander) The generation of ultramafic and trondjemitic magmas along the eastern margin of the southern Appalachian Blue Ridge [abstract], **in** Magma genesis 1977: Oregon Dept. Geology and Mineral Industries Bull. 96, p. 303-304, 1977.

2. (and Hauck, Steven Arthur, and Ragland, Paul Clyde, and Rogers, John James William) A tectonic atlas of uranium potential in crystalline rocks of the eastern United States: U. S. Dept. Energy Rept. GJBX 69 (77), 98 p., illus., 1977.
   The Lithonia Gneiss area is a Roessing type of uranium occurrence, and the 300 m.y.-old pluton belt in which it is included, is a Bokan Mountain type of occurrence. Data are given on maps and tables; thirteen localities in Georgia are included.

3. Two ultramafic belts in the Appalachians [Piedmont and Blue Ridge] [abstract]: Geol. Soc. America Abs. with Progs., v. 9, p. 142, 1977.

GREER, SHARON ANNE, 1944-

1. Physical and biogenic facies of an estuary-marine transition zone--Ossabaw Sound [Chatham County] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 644, 1973.

2. Relationship between tidal flat sedimentary structures and energy levels--Ossabaw Sound [Chatham County] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 766, 1974.

3. Geology of sand body geometry and sedimentary facies at the estuarine-marine transition zone, Ossabaw Sound [Chatham County] Georgia, U.S.A.: Ph D Thesis, Univ. Georgia, 1975; [abstract]: Dissert. Abs. Internatl., v. 37B, p. B2124, 1977.

4. Sandbody geometry and sedimentary facies at the estuary-marine transition zone, Ossabaw Sound, Georgia--a stratigraphic model, [Part] 3 of Estuaries of the Georgia coast....: Senckenberg. Maritima, v. 7, p. 105-135, illus., 1975.
An estuarine facies of muddy, coarse grained, bioturbated sand; an inlet-shoal facies of ripple cross-bedded, fine-grained sand; and an inner shelf facies of muddy, fine-grained, bioturbated sand are described from Chatham County.

GREGG, DEAN OAKLEY, 1937-, **see also** Krause, Richard Emil, 2; Wait, Robert Lyle, 1

1. Protective pumping to reduce aquifer pollution, Glynn County, Georgia: Ground Water, v. 9, no. 5, p. 21-29, illus., 1971.
Brackish water from a zone stratigraphically below the main aquifer was leaking into a well where a head imbalance had been created by a cone of depression. A relief well was drilled into the brackish water zone nearby, and the head was reduced.

2. (and Zimmerman, Everett Alfred) Geologic and hydrologic control of chloride contamination in aquifers at Brunswick, Glynn County, Georgia: U. S. Geol. Survey Water-Supply Paper 2029D, v, 44 p., 1974.
Faults allow water from a brackish-water zone in a deep well to seep into a fresh-water aquifer. Eocene to Holocene rocks are present and are described, especially their water-bearing properties. Water analyses from the Eocene rocks are included.

3. (and Kennedy, Keith Gordon) Movement of chemical contaminants in ground water, **in** Environmental aspects of chemical use in well-drilling operations: U. S. Envir. Prot. Agency Rept. 560/1-75-004, p. 289-309, illus., 1975.
A review of the movement of ground water through various kinds of media and of the variety of factors which make certain results unpredictable, is followed by an example of induced leaking of chloride-charged water from one aquifer to another and of the movement and distribution of the contaminants within the ground water system. The example is from a well in Brunswick, Glynn County.

GREGORY, ROBERT GEORGE, 1952-, **see also** Smith, Douglas Lee, 2, 3

1. A geothermal study of Alabama, Georgia [Coastal Plain] and South Carolina: M S Thesis, Univ. Florida, 1978 [not seen].

GRIFFEN, DANA THOMAS, 1943-

1. (and Ribbe, Paul Hubert) The crystal chemistry of staurolite, **in** The Byron Nelson Cooper volume (edited by Lynn Glover, 3d, and Paul Hubert Ribbe): Amer. Jour. Sci., v. 273 A, p. 479-495, illus., 1973.
Staurolite from Fannin and Cherokee Counties and elsewhere is used to determine the formula based upon microprobe analyses. Details of the unit cell, lattice parameters, and curves showing the relationship of 2V to iron content are determined.

GRIFFIN, GEORGE MELVIN, JR., 1928-, **see also** Reel, David Anderson, 1

1. (and Levy, Alexandro Gustavo, and Paulus, Frederick Joseph) Oil and gas maturation zones in the Jurassic and Cretaceous trends of northwest Florida, [Coastal Plain] Georgia, and Alabama [abstract]: Gulf Coast Assoc. Geol. Socs. Trans., v. 28, pt.1, p. 173, 1978.

GRIFFIN, MARTHA MC DONALD, 1936-, **see** Atkins, Robert Lee, 1, 2, 3

GRIFFIN, VILLARD STUART, JR., 1937-

1. Relevancy of the Dewey-Bird hypothesis of Cordilleran-type mountain belts and the Wegmann stockwork concept: Jour. Geophys. Research, v. 75, p. 7504-7507, illus., 1970.
   The Piedmont of Georgia may be a good locality to identify a type of tectonic style proposed by Dewey and Bird to explain mountain building accompanying plate tectonism. The inner Piedmont zone should be an area of high-grade metamorphism, with the cataclastic-rock-belts expressing detachment zones.

2. The inner Piedmont belt of the southern crystalline Appalachians: Geol. Soc. America Bull., v. 82, p. 1885-1898, illus., 1971.
   The Piedmont belt is probably the migmatitic infrastructural core of the southern Appalachians. High grade metamorphic rocks are present. To the northwest is the non-migmatitic Brevard zone, and to the southeast is the Kings Mountain-Wacoochee belt which is of lower metamorphic grade. The inner Piedmont narrows toward the southwest.

3. Stockwork tectonics in the Appalachian Piedmont of South Carolina and Georgia: Geol. Rundschau, v. 60, p. 868-886, illus., 1971.
   Several belts of highly deformed, overthrusted and nappe-folded metamorphic rocks are recognized in South Carolina and Georgia. A stockwork model of deformation is proposed. The inner Piedmont contains recumbent isoclinal folds and nappes with migmatitic, sillimanite-mica schist, and gneiss; amphibolite and granite gneiss are the infrastructures. The detachment zone is of lower grade, tightly folded, non-migmatitic, partially cataclasized metamorphic rocks. The suprastructure is a moderately deformed, low grade, slaty assemblage of volcanic and clastic rocks to the south and the same to the north except that they have been raised in grade because of intrusions of plutons.

4. A tectonic interpretation of the Piedmont along the South Carolina-Georgia border [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 170, 1973.

5. Stratigraphic relationships between the Carolina Slate belt and the Charlotte belt at the Georgia-South Carolina [Piedmont] border [abstract]: Georgia Jour. Sci., v. 36, p. 91-92, 1978.

GRIFFIN, WILLIAM

1. (and Smith, Marion Otis) Hidden Cave [Walker County]: Georgia Underground, v. 10, p. 96-97, illus. incl. map, 1973.

GUINN, STEWART ALLEN, 1951-, **see also** Long, Leland Timothy, 11; Manley, Frederick Harrison, Jr., 6

1. Molybdenite, Siloam Granite quarry, Green[e] County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 31, p. 81, 1973.

2. Rapakivi texture Siloam Granite quarry, Greene County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 32, p. 15, 1974.

3. Earthquake focal mechanisms in the southeastern United States [Clark Hill reservoir, Piedmont; Toombs County area]: M S Thesis, Georgia Inst. Technology, 1977.

4. (and Long, Leland Timothy) A gravity survey of the Dalton, Georgia area, **in** Short contributions to the geology of Georgia: Georgia Geol. Survey Bull. 93, p. 78-82, illus., 1978.
   A strong regional trend is apparent on the Bouguer anomaly map in Whitfield County and on the state map. Contours show a basin which deepens northward. Seismic and gravity data suggest that the basement rocks are progressively shallower toward the east; the eastern edge of the basin is 10 km west of the Great Smoky fault and may be fault controlled. The depth to crystalline rock 3 km north of Dalton is 2.1 km.

GULF COAST ASSOCIATION OF GEOLOGICAL SOCIETIES

1. (and American Association of Petroleum Geologists) Tectonic map of the Gulf Coast region, U.S.A.: Tulsa, Amer. Assoc. Petroleum Geologists, scale, 1:1,000,000, 1972.

GUNTHER, PETER PATRICK, 1943-

1. (and Casagrande, Daniel Joseph, and Chipman, Mary Lou Martin, and Considine, Robert Earl, Jr.) Decay of water lily rhizomes as a model of subsurface peat formation [Okefenokee Swamp, Coastal Plain] [abstract]: Ninth Internatl. Cong. Carb. Stratigraphy and Geology, Abs. Volume, p. 80-81, 1979.

GURR, THEODORE MARSHALL, 1944-

1. Geology of U. S. phosphate deposits: Mining Engineering, v. 31, p. 682-691, illus., 1979.
   Included are cursory descriptions of the deposits in Lowndes, Echols and Chatham Counties. All are in marine Miocene rocks. The deposits are all structurally controlled.

GUY, JERRY LYN, 1947-

1. Computer applications to exploration and development of bedded kaolin [Coastal Plain]: M S Thesis, Florida State Univ., 1972 [not seen].

HACK, JOHN TILTON, 1913-

1. The area, its geology--Cenozoic development of the southern Appalachians, **in** The distributional history of the biota of the southern Appalachians, Part 1, Invertebrates (edited by Perry Cecil Holt): Virginia Polytech. Inst. Research Mon. 1, p. 1-17, illus., 1969.
   A general review of the geology and geomorphology of the southern Appalachian Mountains includes the Blue Ridge and part of the Piedmont of Georgia. The relation between the lithology, topography, and botany is stressed.

2. Drainage adjustment in the Appalachians, Chap. 3 **of** Fluvial geomorphology (edited by Marie Morisawa): Binghamton, State Univ. New York, p. 51-69, illus., [1973].
   Subenvelope maps of the central and southern Appalachians, including northern Georgia, are used to demonstrate the relation of stream adjustment to topography. The profiles of several rivers in the Blue Ridge, Valley and Ridge, and Piedmont Provinces are analyzed along with others from elsewhere.

3. (and Goldsmith, Richard) Memorial to Jarvis Bardwell Hadley, 1909-1974: Geol. Soc. America Memorials, v. 6, 4 p., port., 1977.

4. Rock control and tectonism--their importance in shaping the Appalachian highlands: U. S. Geol. Survey Prof. Paper 1126B, p. B1-B17, illus., 1979.
   The Blue Ridge owes its existence to differential resistance to erosion rather than to tectonism. Uplift and tilting can be demonstrated, but the physical evidence is masked because the effects of erosion are so overwhelming. The rates of uplift recognized in geodetic surveys cannot have been sustained for long periods of time.

HACKENBERRY, PAUL S., see Miller, John C., 1

HACKETT, LE ROY HUNTINGTON, JR., 1944-, **see** Marcus, Harris L., 1

HADLEY, JARVIS BARDWELL, 1909-1974, **see also** Power, Walter Robert, Jr., 1

1. The Ocoee Series and its possible correlatives, **in** Studies of Appalachian geology--central and southern (edited by George Wescott Fisher and others): New York, Interscience Pub., p. 247-259, illus., 1970.
   The Ocoee Series is metamorphic rocks in a basin 50 by 200 miles in dimension, is up to 40,000 feet thick and occurs in the western part of the Blue Ridge of Georgia. The rocks are much deformed. Their origin and history are reviewed, and they are correlated with rocks to the east, west and north.

2. (and Devine, James Francis) Seismotectonic map of the eastern United States: U. S. Geol. Survey Misc. Field Studies Map MF-620, 3 sheets, scale, 1:5,000,000, text, 7 p., 1974.
   One map shows tectonic features which includes those in Georgia; another shows earthquake epicenters, 1800-1972, of which 25 are in Georgia; all are less than Mercalli VI. The third map indicates seismic activity level compared with structural control. All are in areas where known epicenters do not coincide with known structures.

HAILS, JOHN ROBERT, 1932-, **see also** Hoyt, John Harger, 2, 4

1. (and Hoyt, John Harger) The nature and occurrence of heavy minerals in Pleistocene and Holocene sediments of the Lower Georgia Coastal Plain: Jour. Sed. Petrology, v. 42, p. 646-666, illus., 1972.
   Samples from Pleistocene sediments of various terranes, even though modified by diagenesis and pedogenesis, differ very little in their heavy-mineral composition. There is no relationship between depth of weathering and occurrence in Pleistocene sediments. Two heavy-mineral provinces can be detected; the Holocene beaches are high in epidote and hornblende whereas the Pleistocene beach sediments are low in these minerals.

HAJEK, BENJAMIN FRANK, 1931-, **see** Barwood, Henry Lewis, 1

HALE, ROBIN CLYDE, 1961-, **see** Miller, Robert Ardell, 1

HALL, STEPHEN THOMAS, 1949-

1. Palmetto Granite, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5648-4, p. B12-B21, illus., 1978.
   Six surface samples and fourteen core samples from Fulton, Coweta, and Fayette Counties are analysed for major-element chemistry. The data are summarized in tables.

2. Siloam [Granite] cores, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5648-4, p. B10-B11, B14-B21, illus., 1978.
   Chemical data from cores in the Siloam Granite from Greene County are summarized in tables.

HALLAM, ANTHONY, 1933-

1. (editor) Atlas of palaeobiogeography: New York, Elsevier Pub. Co., 531 p., illus., 1973.
   Many chapters are given over to global distribution of organisms of various types and times. Most of the maps include Georgia, but on a global scale.

HALLIDAY, WILLIAM ROSS, 1926-

1. Depths of the earth: New York, Harper and Row, 432 p., illus., 2nd ed., 1976.
   A popular account of caves and caving includes discussions and illustrations of Ellison's Cave in Walker County.

HAMAN, PETER J.

1. A lineament analysis of the United States: West Canadian Research Pubs. in Geology and Related Sciences, ser. 4, no. 1, 28 p., illus., 1975.
   A statistical analysis of 1,585 lineaments identified from ERTS-1 photographs is converted to plotted trends and density contours for azimuths in 15-degree increments. These are plotted on small scale maps; major structural features are also plotted. Georgia is included.

HAMILTON, JOHN CHRISTIE, 1945-, **see** Shacklette, Hansford Threlkeld, 1

HAMM, W. DOW, 1900-1983.

1. Memorial to Geoffrey W[illiam] Crickmay, 1905-1971: Geol. Soc. America Memorials, v. 3, p. 83-85, port., 1974.

HANCOCK, WILLIAM E., **see also** Titcomb, Earl Franklin, Jr., 2

1. (and Titcomb, Earl Franklin, Jr.) The [Cretaceous] Eutaw Formation [Chattahoochee and Muscogee Counties]--a study of its geologic impact and engineering significance, including an example of structure siting [abstract]: Georgia Jour. Sci., v. 35, p. 86, 1977.

2. (and Lutton, Richard Joseph) Lineaments, joints and stream trends in the Georgia Piedmont portion of the Savannah River basin [abstract]: Georgia Jour. Sci., v. 35, p. 87, 1977.

HANDFORD, CHARLEY ROBERTSON, 1946-

1. Monteagle Limestone (Upper Mississippian)--oolitic tidal-bar sedimentation in southern Cumberland Plateau: Amer. Assoc. Petroleum Geologists Bull., v. 62, p. 644-656, illus., 1978.
   Echinoderm-bryozoan-packstone and grainstone, and oolitic packstone-grainstone lithofacies are recognized in Georgia. Exposures are on Lookout Mountain. Thin, shale lithofacies are tongues of the Floyd Formation.

HANLEY, THOMAS BRAINARD, 1943-

1. The crystalline rocks of Muscogee County (Columbus), west-central Georgia. A preliminary report on their structure and petrography [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 181, 1979.

HANSEN, THOR ARTHUR, 1951-

1. Ecological control of evolutionary rates in Paleocene-Eocene marine mollusks [Coastal Plain]: Ph D Thesis, Yale Univ., 1978.

HARDING, JAMES LOMBARD, 1929-, **see also** Oertel, George Frederick, Jr., 20; Woolsey, James Robert, Jr., 3

1. (and Woolsey, James Robert, Jr.) Exploration techniques for aggregate resources in coastal Georgia: Georgia Marine Sci. Center Tech. Rept. 75-1, 50 p., illus., 1975.
   Sub-bottom profiles from multiple-channel reflection-surveys are included. Sediment-size samples taken by an air-lift system and a water-jet-hammer rig are graphed. They are from many places thoughout coastal Georgia. The main thrust of the work describes the techniques used.

HARPER, CHARLES THOMAS, 1949-, **see** Stonebraker, Jack Douglas, 1

HARPER, J. C., see Basan, Paul Bradley, 5; Howard, James Dolan, 1

HARRIS, ANITA GLORIA FISHMAN EPSTEIN, 1937-, **see also** Epstein, Anita Gloria Fishman

1. (and Harris, Leonard Dorrean, and Epstein, Jack Burton) Oil and gas data from Paleozoic rocks in the Appalachian Basin--maps for assessing hydrocarbon potential and thermal maturity (conodont color alteration isograds and overburden isopachs): U. S. Geol. Survey Misc. Invs. Map I-917 E, 4 sheets, scale, 1:2,500,000, text, 1978.
   Northwestern Georgia is included. Isograds, based upon conodont color-alteration due to metamorphism for Ordovician, Devonian and Mississippian rocks are included. Isopach maps show these rocks to be very thin in Georgia.

HARRIS, B. B., JR., see also Pickering, Samuel Marion, Jr., 4

1. The effect of weathering on Twiggs Clay [Eocene] in [Coastal Plain] Georgia [abstract]: Georgia Acad. Sci. Bull., v. 30, p. 77, 1972.

HARRIS, LEONARD DORREAN, 1925-1984, **see also** Epstein, Anita Gloria Fishman, 1; Harris, Anita Gloria Fishman Epstein, 1; Milici, Robert Calvin, 3

1. Dolomitization model for Upper Cambrian and Lower Ordovician carbonate rocks in the eastern United States: Jour. Research U. S. Geol. Survey, v. 1, p. 63-78, illus., 1973.
   The Cambro-Ordovician Knox Group of northwestern Georgia is included in the discussion. Large-scale hypersaline systems produced large wedges of subtidally deposited dolomite. The limestone-dolomite distribution is closely keyed to the salinity gradient, accounting for a natural progression from normal marine limestones though a transition zone to a highly saline, dolomite phase.

2. Oil and gas data from the Lower Ordovician and Cambrian rocks of the Appalachian Basin: U. S. Geol. Survey Misc. Invs. Map I-917 D, 3 sheets, scale, 1:250,000, 1975.
Only one map includes data from Georgia. The basement-depth contour is -7,000 ft. in extreme northwestern Georgia. The rocks in Georgia were deposited on a stable or unstable shelf and are predominantly clastic and carbonate rocks.

3. (and Bayer, Kenneth Charles) Eastern projection of Valley and Ridge beneath metamorphic sequences of Appalachian orogene [abstract] : Amer. Assoc. Petroleum Geologists Bull., v. 63, p. 1579, 1979.

4. (and Bayer, Kenneth Charles) Sequential development of the Appalachian orogen above a master decollement--a hypothesis: Geology, v. 7, p. 568-572, illus., 1979.
Surface and seismic-reflection data suggest that the entire southern Appalachian orogen is underlain by an eastward-dipping decollement zone, growing intermittently from east to west during late Proterozoic to late Paleozoic time. There has been at least 280 km of westward displacement.

HARTLEY, MARVIN EUGENE, 3D, 1945-, **see also** Carpenter, Robert Heron, 6; Jones, Lois Marilyn, 3; O'Connor, Bruce James, 2; Whitney, James Arthur, 3, 8

1. (and Walker, Raymond Lloyd, and Jones, Lois Marilyn) Strontium isotope composition of the ultramafic and related rocks in the vicinity of Lake Chatuge, Clay County, North Carolina and Towns County, Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 316-317, 1971.

2. Ultramafic and related rocks in the vicinity of Lake Chatuge, Clay County, North Carolina and Towns County, Georgia: M S Thesis, Univ. Georgia, 1971; Georgia Geol. Survey Bull. 85, 61 p., illus. incl. geol. map, 1973.
A complete geologic description of these rocks is included. The Lake Chatuge sill is composed of a variety of ultrabasic differentiates which have intruded into a variety of metamorphic country rocks. All have been anticlinally folded. Rutile, quartzite, sillimanite, kyanite, corundum, and asbestos are potential mineral resources.

3. (and Penley, H. Michael) The Lake Chatuge sill outlining the Brasstown antiform--Guidebook 9th Ann. Field Trip Georgia Geol. Soc.: Georgia Geol. Survey Guidebook 13, 27 p., illus., 1974.
The trip is for one day in which the origin and deformation of the Lake Chatuge sill are described. The trip begins in Clayton, Rabun County, makes four stops, and ends at Brasstown Bald. The geology at each stop, and along the route, is described.

4. Graves Mountain, in Stratigraphy, structure, and seismicity in slate belt rocks along the Savannah River--Georgia Geol. Soc. 11th Ann. Field Trip (compiled by Timothy Michael Chowns): Georgia Geol. Survey Guidebook 16, p. 42-52, illus., 1976.
A kyanite quartzite, sericite schist, and a metamorphosed quartz-crystal tuff interbedded in thick, Cambrian metatuffs comprise the rocks of this mountain in Lincoln County. Kyanite, rutile, lazulite, pyrite, and few other minerals are present. The kyanite quartzite was a vitric tuff which was intensely leached by ascending volcanic solutions.

HATCHER, ROBERT DEAN, JR., 1940-, **see also** Cook, Frederick Ahrens, 1, 3; Zietz, Isidore, 4

1. The geology of Rabun and Habersham Counties, Georgia: Georgia Geol. Survey Bull. 83, 47 p., illus. incl. geol. map, 1971.
   This is a reconnaissance geological study of both counties. Metamorphic rocks of unknown age, and of Precambrian and Cambrian (?) ages are described. Paleozoic and Triassic igneous rocks are also present. Facies changes and structural complexities within the metamorphic rocks are associated with the Tallulah Falls nappe. The nappe has been breached by erosion.

2. Stratigraphic, petrologic, and structural evidence favoring a thrust solution to the Brevard problem: Amer. Jour. Sci., v. 270, p. 177-202, illus., 1971.
   Repetitious bedding plane faults within the Cambrian-aged Shady Dolomite are interpreted as backlimb thrust movement associated with late Paleozoic Blue Ridge Thrusts.

3. Developmental model for the southern Appalachians: Geol. Soc. America Bull., v. 83, p. 2735-2760, illus., 1972.
   A review of the stratigraphy and structure is included. The rocks are metamorphic and igneous and are Precambrian and Paleozoic in age. The relationship between sedimentation and plate-edge deformation is described. The Piedmont and Blue Ridge of Georgia now occur where the tectonic land was then developed.

4. Recent trends in thought and research on southern Appalachian tectonics: Southeastern Geology, v. 14, p. 131-151, illus., 1972.
   A review of the developments in the thinking of the structural geology of the southern Appalachians includes the Blue Ridge, Piedmont, Valley and Ridge, and Cumberland Plateau provinces of Georgia.

5. (and Price, Vaneaton, Jr., and Snipes, David Strange) Analysis of chemical and paleotemperature data from selected carbonate rocks of the southern Appalachians: Southeastern Geology, v. 15, p. 55-70, illus., 1973.
   Several trace, minor, and major elements in acid-soluble portions of 67 carbonate rocks are clustered; each cluster has a characteristic paleotemperature range. Many of the samples are from the Brevard Zone (Piedmont) and Blue Ridge areas of Georgia.

6. Basement versus cover rocks in the Blue Ridge of northeast Georgia, northwestern South Carolina, and adjacent North Carolina, **in** Geology of the Blue Ridge-Ashland-Wedowee Belt in the southern Piedmont (edited by Thornton Lee Neathery): Amer. Jour. Sci., v. 273, p. 671- 685, illus., 1973.
   Extensive areas of paragneiss in northeastern Georgia, earlier considered to be entirely Precambrian, are shown to be in high-grade, mobilized equivalents of the lower-grade Ocoee Series to the northwest and are late Precambrian and Early Cambrian in age. Older basement rocks occur in the Tallulah Falls dome.

7. Brevard Zone tectonics along the [Piedmont] Georgia-South Carolina border [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 362, 1974.

8. An introduction to the Blue Ridge tectonic history of northeast Georgia--Georgia Geol. Soc. 9th Ann. Field Trip: Georgia Geol. Survey Guidebook 13-A, 60 p., illus. incl. geol. map, 1974.
A general description of the geology in Rabun and Habersham Counties is given. Metamorphic and igneous rocks are folded; there are relatively few faults. Ages of the deformations are Paleozoic. The field trip is for one day, begins and ends in Clayton, and makes eight stops in 62 miles, all in Rabun County. Brief descriptions of the geology at each stop are included.

9. Regional structural relationships of the Chauga Belt-western mobilized Inner Piedmont of the crystalline southern Appalachians of northeast Georgia and South Carolina [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 781, 1974.

10. Special report, second Penrose conference--the Brevard Zone: Geology, v. 3, p. 149-152, illus., 1975.
A conference was convened in August 1974, and a summary of the lectures and field-trip stops is given. The conference included much of the southeastern United States in scope, including the Brevard Zone of the Georgia Piedmont.

11. Introduction to the geology of the eastern Blue Ridge of the Carolinas and nearby Georgia--Carolina Geol. Soc. Guidebook 1976 field trip: Columbia, South Carolina, South Carolina Div. Geology, 53 p., illus. incl. geol. map, 1976.
Older Precambrian Grenville basement rocks are overlain by clastic and volcanic rocks of possible Cambrian age. They have been metamorphosed to the amphibolite facies and intruded by a variety of igneous rocks, all of which are highly deformed. The first day of the trip begins and ends at Clayton and makes 10 stops in 164 miles; many of them are in Rabun County. The second day has one stop in Georgia, at Woodall Shoals on the Chattooga River.

12. (and Howell, David Edward, and Talwani, Pradeep) Eastern Piedmont fault system--speculations on its extent: Geology, v. 5, p. 636-640, illus., 1977.
Magnetic anomalies are associated with known faults and are used to trace them through concealed areas. The fault system extends from southern Virginia, through Georgia to Alabama. The Towaliga, Bartlett's Ferry, Goat Rock, Modoc, Flat Rock, and Belair faults are part of the system in Georgia. Numerous splays are mapped on a small-scale map. An early ductile mylonitic phase was followed by periods of brittle deformation.The faults are in the late Precambrian-early Paleozoic slate-belt island-arc system.

13. The Alto allochthon--a major tectonic unit of the northeast Georgia Piedmont, in Short contributions to the geology of Georgia: Georgia Geol. Survey Bull. 93, p. 83-86, illus., 1978.
An allochthonous sheet of metamorphic rocks lies southeast of the Brevard zone. It is recognized by inverted metamorphic zones, truncation of structures, and geologic contacts. The allochthon is post metamorphism in age (Devonian?) and may be coeval with or later than F2 folding. Its root zone is unclear.

14. Synthesis of the southern and central Appalachians, U.S.A., in Caledonian-Appalachian orogen of the North Atlantic Region--Internatl. Geol. Correl. Prog., Project 27: Canada Geol. Survey Paper 78-13, p. 149-157, illus., 1978.
A review of the Appalachian orogen of the southern United States includes that part in Georgia. Four structural provinces are present: Allegheny Plateau, Valley and Ridge, Blue Ridge, and Piedmont. The latter two contain many distinct subdivisions. The main structural differences of each are outlined.

15. Tectonics of the western Piedmont and Blue Ridge, southern Appalachians--review and speculation: Amer. Jour. Sci., v. 278, p. 276-304, illus., 1978.
At least three periods of thrusting occur; pre-metamorphic, post-metamorphic (Devonian?), and late Paleozoic (Valley and Ridge thrusts). The Blue Ridge thrust sheet is polyphase-deformed, cut by pre- and post-metamorphic thrusts. The Brevard zone is the root for the early Blue Ridge thrusts and was reactivated several times. The Chauga belt and Inner Piedmont also contain polyphase-deformed metamorphic rocks. The orogen is a composite of one or more microcontinent fragments and arcs which were deformed and abducted to North America during Paleozoic time.

16. (and Zietz, Isidore) Thin crystalline thrust sheets in the southern Appalachian inner Piedmont and Blue Ridge--interpretation based upon regional aeromagnetic data [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 417, 1978.

17. The Coweeta Group and Coweeta Syncline--major features of the North Carolina-Georgia Blue Ridge: Southeastern Geology, v. 21, p. 17-29, illus., 1979.
The Coweeta Group in Rabun and Habersham Counties overlies the Tallulah Falls Formation, and is structurally preserved in the Coweeta Syncline. The thickness is uncertain. The Persimmon Creek Gneiss, at the base, may be metaigneous or metasedimentary. This is overlain by the Coleman River Formation and the Ridgepole Formation, both of which are metasedimentary. All are of uncertain age.

18. (and Butler, James Robert) Guidebook for southern Appalachian field trip in the Carolinas, Tennessee and northeastern Georgia--Internatl. Geol. Correlation Prog. 27, The Calodenide orogen: Raleigh, North Carolina Geol. Survey, 117 p., illus., 1979.
A summary of the structure and stratigraphy of the Blue Ridge and Piedmont of Georgia is included. The rocks in the guidebook area are Precambrian through Pennsylvanian in age and are described. Overturned folds, decollements, and imbricated overthrusts are the main structures. Field trip stops are at Rabun Gap, Big Creek Falls, Wiley, and Woodall Shoals, all in Rabun County.

19. (and Acker, Louis Ligon, and Bryan, John Gregory, and Godfrey, Stephen Craig) The Hayesville Thrust of the central Blue Ridge of North Carolina and nearby [Towns County] Georgia--a pre-metamorphic, polydeformed thrust and cryptic suture within the Blue Ridge thrust sheet [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 181, 1979.

20. (and Zietz, Isidore) Interpretation of regional aeromagnetic and gravity data from the southeastern United States, Part 2,--tectonic implications for the southern Appalachians [Blue Ridge and Piedmont Provinces] [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 181-182, 1979.

HATHAWAY, JOHN CUMMINS, 1927-

1. Regional clay mineral facies in estuaries and continental margin of the United States east coast, **in** Environmental framework of Coastal Plain estuaries (edited by Bruce Warren Nelson): Geol. Soc. America Memoir 133, p. 293-316, illus., 1972.
Samples from several rivers and estuaries on the Georgia Coastal Plain are investigated with others from elsewhere. The present rivers are not the only source of sediments in the estuaries. Shoreward bottom drift of marine material occurs also. The clays are predominantly montmorillonite and kaolinite.

HAUCK, STEVEN ARTHUR, 1949-, **see** Greenberg, Jeffrey King, 2; Rogers, John James William, 1

HAY, OLIVER PERRY, 1846-1930.

1. The Pleistocene of the western region of North America and its vertebrated animals: Carnegie Inst. Washington Pub. 322 b, 346 p., illus., 1927.
On pages 275 and 276 are references to the presence of vertebrates recently found in Georgia. Teeth from a horse, a mammoth, and a mastodon are from Baker County. A mammoth tooth from Lithia Spring in Douglas County and teeth from a ground sloth and mastodon from Glynn County are known. The sloth is probably **Megalonyx jeffersoni.**

HAY, WILLIAM DANIEL, 1946-, **see** Smith, James William, 3

HAYDEN, BRUCE PHILLIPS, see also Vincent, Charles Linwood, 1

1. (and Dolan, Robert) Barrier islands, lagoons, and marshes: Jour. Sed. Petrology, v. 49, p. 1061-1072, illus., 1979.
The Georgia coastline is included as part of a larger Atlantic coast study. The width, depth, marsh cover and marsh-water interfaces are recorded for lagoons along 2,000 miles of coastline. Eigenvectors of these variables were calculated and analyzed to identify the characteristic variations of the morphologic attributes. These regions and eight subregions are identified. The concept of barrier island "ensemble" is strongly supported.

HAYDEN, ROBERT STODDARD, 1928-

1. Alterations in the drainage density of small streams on the Georgia Piedmont due to road construction: Ph D Thesis, Univ. Georgia, 1979 [not seen].

HAYES, ARTHUR WESLEY, 1939-, **see** Fountain, Richard Calhoun, 2

HAYES, WILLIS B., 1942-, **see** Carpenter, Robert Heron, 7, 8, 9, 10

HAYKUS, JOSEPH A., **see** Brown, Stephen W., 1

HAZEL, JOSEPH ERNEST, 1933-

1. Cooper Marl in the Coastal Plain of South Carolina and Georgia, **in** Changes in stratigraphic nomenclature by the U. S. Geological Survey, 1975 (by George Vincent Cohee and Wilna Brown Wright): U. S. Geol. Survey Bull. 1422-A, p. A54-A55, 1976.
   The Cooper Marl contains both Upper Eocene and Oligocene foraminifera. It may contain Miocene aged rocks. Continuous deposition is not suggested, however.

HEACOCK, JOHN G., JR., **see** Lachenbruch, Arthur Herold, 1

HEAD, JAMES WILLIAM, 3D, **see** Dennison, John Manley, 3

HEALY, JOHN HELDING, 1929-, **see** Warren, David Henry, 1

HEARD, RICHARD WILLIS, JR., 1939-, **see** Howard, James Dolan, 18

HEATH, RALPH CARR, 1925-, **see** Trainer, Frank Wilson, 1

HECHT, ALAN DAVID, 1944-

1. (and Agan, Benny Edward) Diversity and age relationships in Recent and Miocene bivalves: System. Zoology, v. 21, p. 308-312, illus., 1972.
   Miocene and Holocene pelecypods from Georgia and elseswhere are utilized in a study to show the direction, diversity, and rate of outward expansion of pelecypods in evolutionary development.

HEDLEY, RONALD HENDERSON, 1928-, **see** Todd, Ruth, 1

HEINBOKEL, JOHN FREDERICK, 1949-, **see** Howard, James Dolan, 12

HELLER, DAVID KEITH, 1952-, **see** Schaeffer, Malcolm Francis, 2

HELWIG, JAMES ANTHONY, 1941-

1. Tectonic evolution of the southern continental margin of North America from a Paleozoic perspective, Chapter 6 of Gulf of Mexico and the Caribbean, vol. 3 of The Ocean basins and margins (edited by Alan Eben Mackenzie Nairn and Francis Greenough Stehli): New York, Plenum Press, p. 243-255, illus., 1975. The Paleozoic history of the Gulf of Mexico is discussed, and includes the Georgia Appalachian Mountains and Piedmont. The paucity of data allow for three possible interpretations. The Appalachians, Ouachitas, and Andes Mountains are orogenically related, having been separated after their origin by drift and rotation.

HEMPHILL, DELBERT DEAN, 1918-, **see** Shacklette, Hansford Threlkeld, 3

HENNION, JOHN F., 1919-1961, **see** Sheridan, Robert Edmund, 1

HENRY, VERNON JAMES, JR., 1931-, **see also** Hoyt, John Harger, 1; Nash, Gregory John, 1; Pickering, Samuel Marion, Jr., 12; Woolsey, James Robert, Jr., 1, 4, 5

1. John Harger Hoyt (1928-1970): Amer. Assoc. Petroleum Geologists Bull., v. 55, p. 759, port., 1971; Geol. Soc. America Memorials, v. 3, p. 117-122, port., 1974.

HENSEY, MELVILLE D., see Barr, David John, 1

HERNDON, JAMES MARVIN, 1944-

1. (and Rowe, Marvin Wayne, and Larson, Edwin E., and Watson, Donald E.,) Magnetism of meteorites--a review of Russian studies: Meteoritics, v. 7, p. 263-284, illus., 1972.
   The natural remanent magnetism and magnetic susceptibility of over 900 meteorites are described in a study which includes the Locust Grove meteorite from Henry County and the Putnam County meteorite.

HERNDON, MARK ALLEN

1. (and Bergenback, Richard Edward) Petrology of a core of the Tuscumbia Limestone (Mississippian equivalent of Saint Louis Limestone) taken on Pigeon Mountain southwest of Lafayette in Walker County, Georgia [abstract]: Tennessee Acad. Sci. Jour., v. 50, p. 62, 1975.

HERRICK, STEPHEN MARION, 1904-, **see also** Patterson, Samuel Hunting, 1

1. Age and correlation of the Clinchfield Sand in Georgia: U.S. Geol. Survey Bull. 1354 E, p. E1-E17, illus., 1972.
   The Clinchfield Sand is 10 feet thick at its type section in Houston County. Foraminifera are listed and show it to be Upper Eocene (Jackson) in age. It is widespread and represents the basal sand deposit of a transgressive sea.

2. (and Furlow, James Warren) Revision of Eocene-Oligocene stratigraphy in eastern [Coastal Plain] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 80, 1972.

3. Two foraminiferal assemblages from the Duplin Marl in Georgia and South Carolina: Bulls. Amer. Paleontology, v. 70, p. 120-163, illus., 1976.
   Eighty species in 40 genera of foraminifera are described and illustrated from the Miocene Duplin Marl in Wayne and Chatham Counties.

HERRMANN, FRANK ADOLF, JR., 1935-, **see** Simmons, Henry Brown, 1

HERTWECK, GUENTHER, 1933-, **see also** Howard, James Dolan, 9

1. Distribution and environmental significance of lebenspurren and in-situ skeletal remains, [Part] 5 of Georgia coastal region, Sapelo Island, U.S.A. ...: Senckenberg. Maritima, v. 4, p. 125-161, illus., 1972.
   Sediments from sixty one box-cores from near Sapelo Island, McIntosh County were studied for bioturbation effects. Lebenspurren from 40 animal species were observed, about 15 percent of the living population. The nature and probability of their preservation are discussed.

HERZ, NORMAN, 1923-

1. (and Wenner, David Bruce) The use of oxygen and carbon isotopic signatures on archaeological marble [Pickens County] [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 443, 1979.

HESS, JAMES ROBERT, 1950-, **see also** Ellwood, Brooks Beresford, 2

1. Geochemistry of the Elberton Granite and the geology of the Elberton West Quadrangle [Elbert County] Georgia: M S Thesis, Univ. Georgia, 1979.

HESTER, NORMAN CURTIS, 1933-

1. Post-depositional subaerial weathering effects on the mineralogy of an Upper Cretaceous sand in southeastern United States: Jour. Sed. Petrology, v. 44, p. 363-373, illus., 1974.
   Sections of different sands in Chattahoochee, Marion, and Taylor Counties were channel-sampled. In all of the sections: (1) there is a reduction in the percentages of feldspars and some heavy minerals, particularly garnet, compared with younger sands, (2) ilmenite is partially altered to leucoxene, and (3) the x-ray diffraction peak for the 17-angstrom montmorillonite shortens and broadens.

HESTER, WILLIS GENE, 1935-, **see** Clarke, John Stuart, 1; Cressler, Charles William, 3, 4

HETRICK, JOHN HAROLD, JR., 1936-, **see** Buie, Bennett Frank, 3; Huddlestun, Paul Francis, 4, 5

HEY, MAX HUTCHINSON, 1904-

1. Catalog of meteorites..., 3d ed: London, British Museum (Natural History), 637 p., illus., 1966.
   Brief descriptions of the meteorites in the collection are given. Those from Georgia are: Canton, Dalton, Holland's Store, Locust Grove, Losttown, Lumpkin, Putnam County, and Union County.

HEYL, ALLEN VAN, JR., 1918-

1. (and Bozion, Constantine N.) Some little-known types of massive sulfide deposits in the Appalachian region, U.S.A.--Internatl. Assoc. Genesis of Ore Deposits Proc. and Papers: Soc. Mining Geologists Japan, Spec. Issue 3, p. 52-59, illus., 1971.
   A cursory review of the origin of massive sulfide deposits includes those in the Piedmont and Blue Ridge of Georgia. Little detail is included.

HICKS, DAVID E., see Saunders, Donald Frederick, 1, 2

HICKS, R. G., see Martin, Roger Craig, 1

HICKS, STEACY DOPP, 1925-

1. Vertical crustal movements from sea level measurements along the east coast of the United States: Jour. Geophys. Research, v. 77, p. 5930-5934, illus., 1972.
   Sea-level changes, determined from tide gauges, one of which is in Chatham County, when compared with relative land-level changes, show that no significant movement has occurred.

HIGGINS, BRENDA BAER, see also Gohn, Gregory, Scott, 2; Lyttle, Peter Thomas, 1; Zietz, Isidore, 1, 2

1. (and Higgins, Michael Wicker, and Zietz, Isidore, and Perlman, Stephen H.) Geophysical surveys of the southeastern Coastal Plain, Part 1--preliminary geologic interpretation of new aeroradioactivity maps of part of the Coastal Plain of North Carolina, South Carolina, and Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 7, p. 1114-1115, 1975.

HIGGINS, MICHAEL WICKER, 1940-, **see also** Atkins, Robert Lee, 5, 6; Bentley, Robert Donald, 1; Chowns, Timothy Michael, 10; Higgins, Brenda Baer, 1; Lawton, David Edward, 2; Pickering, Samuel Marion, Jr., 10, 11; Stockman, Kenneth W., 1; Zietz, Isidore, 1, 2

1. Cataclastic rocks: U. S. Geol. Survey Prof. Paper 687, 97 p., illus., 1971. Field and microscopic criteria for the recognition of cataclastic zones and the petrogenesis of rocks in these zones includes examples from the Towaliga, Goat Rock, Bartlett's Ferry, and Brevard fault zones, all in the Piedmont.

2. (and Zietz, Isidore) Geologic interpretation of aeromagnetic and aeroradioactivity maps of northern Georgia: U. S. Geol. Survey Misc. Invs. Map I-783, 3 sheets, scale, 1;500,000, 16 p. text, 1975.
The area is of all of northern Georgia north of Atlanta except for the extreme northeast and northwest corners. An interpretive lithologic map of the crystalline-rock area is included. Radioactivity and magnetic maps are also included.

3. (and McConnell, Keith Ian) The Sandy Springs Group and related rocks in the Georgia Piedmont--nomenclature and stratigraphy, **in** Changes in stratigraphic nomenclature by the U. S. Geological Survey, 1977 (by Norman Frederick Sohl and Wilna Brown Wright): U. S. Geol. Survey Bull. 1457-A, p. 98-105, illus., 1978; **in** Short contributions to the geology of Georgia: Georgia Geol. Survey Bull. 93, p. 50-55, illus., 1978.
The name Sandy Springs Group is proposed for what had earlier been called the Sandy Springs Sequence: the formations in the Group are formally defined. All are in Cobb County, and are, from oldest to youngest: Powers Ferry Formation with the Mableton Amphibolite Member, Chattahoochee Palisades Quartzite, Factory Shoals Formation, and the Rottenwood Creek Quartzite. These are in fault contact with the Long Island Creek Gneiss, and all are late Precambrian and early Paleozoic in age.

4. (and Abrams, Charlotte Elaine) Preliminary geologic map of the Atlanta 2° sheet [Piedmont] Georgia and Alabama: U. S. Geol. Survey Repts. Open File 78-962, scale, 1:250,000, 1978.

HIGHSMITH, PATRICK BURGESS, 1955-

1. Analyses of the replacement of chamosite by hematite in a sedimentary ironstone [Sequatchie Formation, Ordovician] from northwest Georgia [abstract]: Georgia Jour. Sci., v. 35, p. 84, 1977.

2. Chemical changes in chlorite and illite due to burial diagenesis in a Paleozoic shale [northwestern Georgia]: M S Thesis, Georgia Inst. Technology, 1979.

HILL, CARL RICHARD, 1907-

1. Ovoid pools in the Georgia tidal marshes [Coastal Plain]: M S Thesis, Univ. Georgia, 1963.

HILL, JAMES J., see Mutschler, Paul H., 1

HINE, ALBERT CASE, 3D, 1945-, **see** Nummedal, Dag, 1

HINTON, JOHN LEE, 1952-

1. (and Williams, Charles Thomas) Petrology and chemistry of calc-silicate rocks in Fulton and Coweta Counties, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 33, p. 78, 1975.

HOBBA, WILLIAM A., JR.

1. (and others) Geochemical and hydrologic data for wells and springs in thermal-spring areas of the Appalachians: U. S. Geol. Survey Water Resources Invs. 77-25, 41 p., illus., 1977.
   Analyses of water from Warm Springs, in Meriwether County, are included.

2. (and Fisher, Donald William, and Pearson, Frederick Joseph, Jr., and Chemerys, J. C.) Hydrology and geochemistry of thermal springs of the Appalachians: U. S. Geol. Survey Prof. Paper 1044E, iv, p. E1-E35, illus., 1979.
   Warm Springs, in Meriwether County, is included in a lineament investigation based upon satellite imagery. All the springs, including those in Georgia, discharge into valleys whose adjacent ridges are underlain by steeply dipping rocks. Flow systems and water chemistry are discussed. The water is warmed by the geothermal gradient; analyses are included.

HOBBS, HORTON HOLCOMBE, JR., 1914-

1. On the distribution and phylogeny of the crayfish genus **Cambras, in** The distributional history of the biota of the southern Appalachians, part 1, Invertebrates (edited by Perry Cecil Holt): Virginia Polytech. Inst. Research Div. Mon. 1, p. 93-178, illus., 1969.
   A discussion of the biogeographic distribution of many species, subspecies, and subgenera of this crayfish in the Appalachians includes northern Georgia. The early cambarine stock in the United States must have first occupied the lower reaches of the streams along the Late Cretaceous or early Tertiary coastal margins of Georgia, from which it spread northward.

HOBDAY, DAVID KENNETH.

1. Beach- and barrier-island facies in the Upper Carboniferous of northern Alabama, **in** Carboniferous of the southeastern United Stated (edited by Garrett Briggs): Geol. Soc. America Spec. Paper 148, p. 209-223, illus., 1974.
   The Pennsylvanian rocks near Cloudland in Chattooga County are interpreted as being from a barrier-island complex. The source of the sediments was from the northeast.

HOBSON, RICHARD DAVID, 1938-

1. (and others) Sedimentation in the Altamaha River estuary, southeastern Georgia [abstract]: Second Natl. Coastal and Shallow Water Research Conf., Abs. Volume, p. 107, 1971.

HODGSON, ROBERT ARNOLD, 1924-, **see** Drahovzal, James Alan, 1

HOLDAHL, SANDFORD R., see also Davis, George H., 3d, 1

1. (and Morrison, Nancy Lewis) Regional investigations of vertical crustal movements in the U.S., using precise relevelings and mareograph data: Tectonophysics, v. 23, p. 373-390, illus., 1974.
   Releveling and the identification of change for specific periods of time have resulted in preliminary contour maps of rates of change per year in millimeters. The Georgia Coastal Plain is included; here the contours trend roughly east to west. Macon is on the 1 contour, the 0 contour is about halfway southward toward Florida, and the -1 contour is about 3/4 of the way from Macon southward to Florida.

HOLLAND, CHARLES HEPWORTH, see Palmer, Allison Ralph, 1

HOLLAND, JAMES L., see Manley, Frederick Harrison, Jr., 5

HOLLAND, WILLIS A., JR., 1931-, **see also** Schamel, Steven, 1

1. (and Schamel, Steven) Structural relations between the Uchee block and the Goat Rock-Bartlett's Ferry mylonite zone, Alabama-Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 405, 1973.

HOLMAN, J. ALAN, 1931-

1. Paleoclimatic implications of "ecologically incompatible" herpetological species (late Pleistocene--southeastern United States): Herpetologica, v. 32, p. 290-295, illus., 1976.
   The fauna from the Ladd's Quarry fissure in Bartow County allows for an interpretation of a more equable climate for the Pleistocene. Heretofore the mixture was thought to be from heterochronous mixing.

2. Upper Eocene snakes (Reptilia: Serpentes) from Georgia: Jour. Herpetology, v. 11, p. 141-145, illus., 1977.
   A pelobatid frog, two large sea snakes (**Palaeophis** and **Pterosphenus**), and two terrestrial erycinine boids (**Huberophis georgiensis** and **Ogmophis voorheisi**) from the Twiggs Clay in Twiggs County are described and illustrated. They suggest a tropical estuary.

HOLT, PERRY CECIL, 1912-, **see** Hack, John Tilton, 1; Hobbs, Horton Holcombe, Jr., 1

HOOKER, VERNE E., 1921-

1. (and Duvall, Wilbur Irving) Stresses in rock outcrops near Atlanta, Ga. : U. S. Bur. Mines Rept. Invs. 6860, 18 p., illus., 1966.
The secondary, principal horizontal stresses are compressive and are 500 to 3,000 psi. The maximum stress is northeast-southwest in the Stone Mountain district in DeKalb county, but it changes to northwest-southeast near Douglasville in Douglas County. Elastic constants were determined **in situ** and in the laboratory.

HOPKINS, EDGAR MEMBER, 1940-, **see** Hoyt, John Harger, 1

HOPKINS, ROY THOMAS, JR., 1929-

1. (and Meier, Allen L., and Slack, John Frederick) Geochemical analyses of rock, soil, and stream sediment samples from the Big Frog Wilderness study area, Polk County Tennessee and Fannin County, Georgia: U. S. Geol. Survey Repts. Open File 79-543, 16 p., illus., 1979.
Semi-quantitative spectrographic analyses from 31 elements and atomic absorption analyses for gold and zinc on 43 stream sediments, five panned concentrates, 65 soils and 81 rock samples, are given in tabular form. No obvious anomalies were detected.

HOPPE, GUENTER, see Wappler, Gert, 1

HOPPS, HOWARD CARL, 1914-, **see** Anderson, Barbara May, 1; Shacklette, Hansford Threlkeld, 4

HOROWITZ, CAROL GAIL, 1956-

1. Benthic foraminifera of the Oligocene Suwannee Limestone, [Coastal Plain] Georgia and northern Florida: M S Thesis, Univ. Georgia, 1979

HOWARD, JAMES DOLAN, 1934-, **see also** Brokaw, Richard Scott, Jr., 1; Deery, John Richard, 1, 2; dePratter, Chester Burton, 1, 2, 3, 4; Doerjes, Juergen, 1, 2; Frey, Robert Wayne, 4, 5, 7; Mayou, Taylor Vinton, 2, 3; Oertel, George Frederick, Jr., 1, 5, 6; Scott, Richard Murray, 1, 3; Visher, Glenn Shillington, 1; Winker, Charles David, 1, 2, 3

1. (and Elders, Christopher A.) Burrowing patterns of haustoriid amphipods from Sapelo Island, Georgia, **in** Trace fossils (edited by T. P. Crimes and J. C. Harper): Liverpool, Seel House Press, p. 243-262, illus., 1970.
X-ray studies of intertidal-zone amphipod burrows from McIntosh County, in aquaria, show that each of seven species has a distinct burrow pattern.

2. Amphipod bioturbate textures in Recent and Pleistocene beach sediments, **in** Recent advances in paleoecology and ichnology--Amer. Geol. Inst. Short Course 1971: Washington, D.C., Amer. Geol. Inst., p. 213-223, illus., 1971.
Amphipod bioturbation results in abundant, small-scale disturbances of beach stratification; they are preservable, but the presence or absence of bioturbated structures is a function of the nature and composition of the primary stratification. X-radiography of sediments from the Georgia coastline is utilized.

3. Comparison of the beach- to-offshore sequence in modern and ancient sediments, **in** Recent advances in paleoecology and ichnology--Amer. Geol. Inst. Short Course 1971: Washington, D.C., Amer. Geol. Inst., p. 148-183, illus., 1971.
Examples of modern sedimentation and bioturbation features from Sapelo Island in McIntosh county are compared with similar sedimentation and bioturbation features from Cretaceous rocks in Utah.

4. Étude comparée d'îles-barrières pleistocènes et holocènes sur la côte Atlantique sud-est des États Unis [abstract], **in** Les niveaux marins quaternaires, part 2, Pleistocene--Proc. Cong. INQUA no. 8: Quaternaria, v. 15, p. 65, 1971.

5. Nearshore energy variations in modern [Coastal Plain] and ancient sediments [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 606, 1971.

6. Trace fossils as paleoecological tools, **in** Recent advances in paleoecology and ichnology--Amer. Geol. Inst. Short Course 1971: Washington, D.C., Amer. Geol. Inst., p. 184-212, illus., 1971.
Trace fossils, with the emphasis upon tubes formed by burrowing animals, are compared between those of the Pleistocene rocks on the Georgia coast and Cretaceous rocks in Utah. There is a considerable similarity in both the organisms and the environments.

7. (and Doerjes, Juergen) Animal-sediment relationships in two beach-related tidal flats--Sapelo Island, Georgia: Jour. Sed. Petrology, v. 42, p. 608-623, illus., 1972.
Sediments from Nanny Goat flat and Cabretta flat on Sapelo Island, McIntosh County, show the interaction between burrowing organisms and the sediments. The resulting sedimentary record, if preserved, would show as lens- or wedge-shaped sand bodies composed of bioturbated sand. Both would be incorporated into normal beach sequences, but would differ in percentage of mud fraction and type of specific trace-fossil present.

8. (and Frey, Robert Wayne, and Reineck, Hans Erick) Introduction, [part] 1 **of** Georgia coastal region, Sapelo Island, U.S.A., sedimentology and biology: Senckenberg. Maritima, v. 4, p. 3-14, illus., 1972.
A symposium on the biology and sedimentation of the nearshore shelf with a low energy, tide-dominated strand line is described. A general survey of the tides, winds, and geography of Sapelo Island is given.

9. (and Doerjes, Juergen, and Frey, Robert Wayne, and Gadow, Sibylle Little, and Hertweck, Guenther, and Reineck, Hans Erick, and Wunderlich, Friedrick) Usable beach-to-offshore model for tide-dominated shoreline; Sapelo Island [McIntosh County] Georgia [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 56, p. 629, 1972.

10. (and Frey, Robert Wayne) Characteristic physical and biogenic sedimentary structures in Georgia estuaries: Amer. Assoc. Petroleum Geologists Bull., v. 57, p. 1169-1184, illus., 1973.
Nine estuaries show striking variations, yet they contain some broad similarities in grain-size-distribution facies-patterns, physical structures such as ripple marks and cross beds, and biogenic structures such as burrows.

11. (and Reineck, Hans Erick, and Rietschel, Siegfried) Biogenic sedimentary structures formed by heart urchins: Senckenberg. Maritima, v. 6, p. 185-201, illus., 1974.
The lebenspurren of burrowing heart urchins are very distinctive. Samples from Sapelo Island, McIntosh County, and elsewhere are cited. Their paleoecological significance is discussed.

12. (and Elders, Christopher A., and Heinbokel, John Frederick) Animal-sediment relationships in estuarine point bar deposits, Ogeechee River-Ossabaw Sound, Georgia, [Part] 5 of Estuaries of the Georgia coast...: Senckenberg. Maritima, v. 7, p. 181-203, illus., 1975.
Hydrographic and faunal data allow for the identification of three areas of point bars in Chatham County. They are: lower, with high-salinity, stable marine conditions; middle, with great salinity range and unstable conditions; and upper, with low salinity and dominated by stable fresh-water conditions. Preservation of biogenic structures is most likely in the middle area because they are rare in the upper area and are removed by erosion and scouring in the lower area.

13. Conclusions, [Part] 9 of Estuaries of the Georgia coast....: Senckenberg. Maritima, v. 7, p. 297-305, 1975.
This includes summaries of numerous papers included in the symposium, of which this is the printed volume.

14. (and Remmer, George H., Jr., and Jewitt, Jennifer L.) Hydrography and sediments of the Duplin River, Sapelo Island, Georgia, [part] 7 of Estuaries of the Georgia coast...: Senckenberg. Maritima, v. 7, p. 237-256, illus., 1975.
Physical and biogenic structures in the sediments in the river in McIntosh County reflect a gradual increase in physical energy seaward. The sediments are largely of coarse sand and shell fragments with little mud. The river probably acts as a source of coastal sediments rather than as a sediment accumulator.

15. (and Frey, Robert Wayne) Introduction, [Part] 1 of Estuaries of the Georgia coast....: Senckenberg. Maritima, v. 7, p. 1-31, illus., 1975.
Generalized background information about the geology and biology of the Georgia coastal estuaries is given as part of a longer symposium.

16. (and Frey, Robert Wayne) Regional animal-sediment characteristics of Georgia estuaries, [Part] 2 of Estuaries of the Georgia coast...: Senckenberg. Maritima, v. 7, p. 33-103, illus., 1975.
The presence of, and interaction between, primary sedimentary structures and biogenic sedimentary structures allows for the identification of an estuarine environment and an adjacent shelf facies. The environments vary landward and coastwise, and numerous examples are described.

17. The sedimentological significance of trace fossils, in The study of trace fossils... (edited by Robert Wayne Frey): New York, Springer Verlag, p. 131-146, illus., 1975.
A description of the biogenic features in sediments, and the sedimentary rocks as the records of the response of the organism to sedimentation, includes numerous examples from the coastal area of Georgia.

18. (and Mayou, Taylor Vinton, and Heard, Richard Willis, Jr.) Biogenic sedimentary structures formed by [sting]rays: Jour. Sed. Petrology, v. 47, p. 339-346, illus., 1977.
Excavations by rays in the sediments of the Georgia coast are examined, and are shown to be sufficiently distinct so as to be recognized in ancient sediments.

19. (and DePratter, Chester Burton) Archaeological evidence for Holocene shoreline progradation and eustatic sea level changes on the Georgia coast, U.S.A. [abstract]: Proc. Tenth Internatl. Cong. Sedimentology, v. 1 (A-L), p. 316, 1978 [not seen].

20. (and Frey, Robert Wayne) Mud facies from the Georgia coast, U.S.A. [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 424-425, 1978.

21. Amphipod bioturbate textures in Recent and Pleistocene beach sediments, in Recent advances in paleoecology and ichnology (edited by James Dolan Howard, James William Valentine, and John Edward Warme)--[Soc. Econ. Paleontol. and Mineralogists Short Course notes, no. 3]: Washington, D.C., Amer. Geol. Inst., p. 213-223, illus., [1979].
Characteristics of modern beaches and nearshore sedimentary environments from Sapelo Island, McIntosh County, are described and compared with those of Cretaceous rocks in Utah. In addition, beach and nearshore features, including trace fossils from the Pleistocene rocks from Sapelo Island, are described.

22. Trace fossils as paleoecological tools, in Recent advances in paleoecology and ichnology (edited by James Dolan Howard, James William Valentine, and John Edward Warme)--[Soc. Econ. Paleontol. and Mineralogists Short Course notes, no. 3]: Washington D.C., Amer. Geol. Inst., p. 185-212, illus., [1979].
Numerous examples of the value and role of trace fossils in geology are given; many are from near Sapelo Island in McIntosh County. They are used as facies faunas for marine vs. nonmarine environments, indications of life, sedimentation and erosion, lateral variations in energy, tide ranges, shoreline levels, and other field studies.

HOWARD, JAMES HATTEN, 3D, 1939-

1. Hardpans on crystalline rocks of Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 322-323, 1971.

2. Studies of saprolite and its relation to the migration and occurrence of groundwater in crystalline rocks: Georgia Inst. Technology, Envir. Resources Center, 23 p., illus., 1973.
   Saprolite from a variety of rock types in the eastern Piedmont of Georgia shows that a low-permeability horizon is formed by the accumulation of kaolinite, iron oxide, aluminum oxide, and silicon dioxide. This impedes downward circulation of groundwater. The zones form on granite and granite gneiss terranes which have rocks with uniform structure and texture.

HOWARD, KEITH ARTHUR, 1939-

1. (and others) Preliminary map of young faults in the United States as a guide to possible fault activity: U.S. Geol. Survey Misc. Field Invs. Map MF 916, scale, 1:5,000,000, 1978.
   In Georgia, the Andersonville Fault on the Coastal Plain, and a fault on the Piedmont near the Russell Dam site are shown.

HOWARTH, RICHARD J., see Koch, George Schneider, Jr., 1

HOWELL, BENJAMIN FRANKLIN, JR., 1917-

1. Earthquake hazard in the eastern United States, **in** Microzonation Conference, vol. 1: Seattle, Univ. Washington, p. 409-415, illus., 1972; Earth and Mineral Sciences, v. 42, no. 6, p. 41-45, illus., 1973.
   There have been 78 earthquakes of intensity I-VII since 1638 in the eastern United States; 28 percent of these are in the St. Lawrence River valley, and the rest are scattered throughout the eastern United States including Georgia. Statistics show that past activity would not be a good measure of the probability of earthquake activity in the future.

2. Average regional seismic hazard (ARSHI) in the United States, **in** Geology, seismicity, and environmental impact: Los Angeles, California, Assoc. Engineering Geologists, p. 277-285, illus., 1973.
   A new measure of earthquake hazard is given. It is based upon the accumulation of En from each of N earthquakes, and is defined as seismic energy which, if released in the neighborhood of a point of observation, would produce the effects known there. A small scale map shows various ARSHI provinces, including those in Georgia.

HOWELL, DAVID EDWARD, 1938-, **see also** Hatcher, Robert Dean, Jr., 12

1. (and Weisenfluh, Gerald Alan) The McDuffie gold belt--regional geology of volcanogenic sulfide deposits associated with the Carolina slate belt, South Carolina-[Piedmont] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 172, 1978.

HOWELL, JULIAN, see Gelbaum, Carol Sandler, 2

HOYT, JOHN HARGER, 1928-1970, **see also** Hails, John Robert, 1

1. (and Henry, Vernon James, Jr.) Origin of capes and shoals along the southeastern coast of the United States: Geol. Soc. America Bull., v. 82, p. 59-66, illus., 1971; discussion by Edgar Member Hopkins, p. 3537-3540, illus.; reply by authors, p. 3541.
The various capes along the coast are considered to have had a deltaic origin, and to have been associated with large rivers before the present sea-level position. Tybee Island, near the mouth of the Savannah River in Chatham County and Little St. Simon's Island near the mouth of the Altamaha River in Glynn County, are cited as examples. Submergence in the present Holocene cycle has resulted in capes and shoals.

2. (and Hails, John Robert) Regional distortions along the southeastern United States coast, **in** Les niveaux marins quaternaires, part 2, Pleistocene--Proc. Cong. INQUA, no. 8; Quaternaria, v. 15, p. 51-63, illus., 1971.
In Georgia, the four coastal-parallel "terraces" are former barrier islands, with lagoon deposits between them. The uppermost one is Trail Ridge. These terraces are everywhere present and have not been distorted. Georgia, therefore, has been tectonically stable since the Pleistocene.

3. Erosional and depositional estuarine "terraces", southeastern United States, **in** Environmental framework of Coastal Plain estuaries (edited by Bruce Warren Nelson): Geol. Soc. America Memoir 133, p. 465-473, illus., 1972.
After barrier islands form, sediment accumulation in lagoons produce surfaces which, upon sea-level descent, have been called terraces. Four are recognized. Details of the estuarine sedimentation in the lagoons is provided. Much scour and fill is evident.

4. (and Hails, John Robert) Pleistocene stratigraphy of southeastern Georgia, **in** Post-Miocene stratigraphy, central and southern Atlantic Coastal Plain (edited by Robert Quincy Oaks, Jr., and Jules Ramon Dubar): Logan, Utah State Univ. Press, p. 191-205, illus., 1974.
Six formations crop out in belts parallel to the coast. Each is characterized by a barrier-beach-sand deposit with a landward-lying, salt-marsh deposit. They represent six stands of sea level.

HSIAO, HELMUT YANG-AN, 1949-, **see** Long, Leland Timothy, 12

HUBBARD, DENNIS KEITH, 1949-, **see also** Nummedal, Dag, 1

1. Variations in tidal inlet processes and morphology in the Georgia embayment: Ph D Thesis, Univ. South Carolina, 1977; [abstract]: Dissert. Abs. Internatl., v. 38B, p. B5804, 1978.

2. (and Oertel, George Frederick, Jr., and Nummedal, Dag) The role of waves and tidal currents in the development of tidal-inlet sedimentary structures and sand body geometry--examples from North Carolina, South Carolina, and Georgia: Jour. Sed. Petrology, v. 49, p. 1073-1092, illus., 1979.
Variability in the distribution of sand bodies, intertidal and subtidal bedforms, and internal sedimentary structures can be explained as a response predominantly to waves and tides. Tide-dominated, wave-dominated, and transitional inlets are recognized.

HUDDLESTUN, PAUL FRANCIS, 1938-, **see also** Ernissee, John Justus, 1

1. Lower Miocene biostratigraphy along the Savannah River [Coastal Plain] Georgia [abstract]: Gulf Coast Assoc. Geol. Socs. Trans., v. 23, p. 432-433, illus., 1973.

2. Middle to late Tertiary stratigraphy of southeastern [Coastal Plain] Georgia [abstract]: Georgia Acad. Sci. Bull., v. 31, p. 83, 1973.

3. (and Marsalis, William Ephraim, Jr., and Pickering, Samuel Marion, Jr.) Tertiary stratigraphy of the central Georgia Coastal Plain--Geol. Soc. America Southeastern Sec. Field Trip: Georgia Geol. Survey Guidebook 12 [part 2], p. 2-1--2-35, illus., 1974.
Paleocene to Oligocene, and Neogene undifferentiated rocks in the Macon area are described. The trip is 120 miles long, makes seven stops; geological information at each stop is included.

4. (and Hetrick, John Harold, Jr.) Stratigraphy of the Tobacco Road Sand--A new formation, **in** Short contributions to the geology of Georgia: Georgia Geol. Survey Bull. 93, p. 56-77, illus., 1978.
The Tobacco Road Sand is Late Eocene in age and occurs along the Fall Line from near Macon to the Savannah River. It is a belt of coastal sands of sound or lagoon origin and grades downdip into the Cooper Marl and the Ocala Limestone. It averages about 20 feet in thickness.

5. (and Hetrick, John Harold, Jr.) The stratigraphy of the Barnwell Group of Georgia--Georgia Geol. Soc. 14th Ann. Field Trip: Georgia Geol. Survey [Guidebook 18] Open File Rept. 80-1, 89 p., illus., 1979.
The late Eocene Barnwell Group includes the basal Tobacco Road Sand, the Dry Branch Formation (which includes the Griffins Landing Sand, Irwinton Sand, and Twiggs Clay Members) and an uppermost Clinchfield Formation (with Utley Limestone, Albion, Treadwell, and Riggins Mill Members). The field trip is two days long, is 225 miles long, and makes 11 stops. The geology at each stop is described.

HUDSON, STEVEN.

1. The naming of a cave [Bulldog Cave, Dade County]: Georgia Underground, v. 9, p. 15-16, illus. incl. map, 1972.

2. Hunting the hexagons--in search of Georgia beryl: Lapidary Jour., v. 31, p. 1116-1128, illus. incl. ads, 1977.
This is a popular account of the occurrence of beryl in Georgia. All come from pegmatites in the Piedmont and Blue Ridge Provinces.

3. "Jade" in Georgia: Rock and Gem, v. 9, no. 10, p. 16-23, illus. incl. ads, 1979.
This is a popular account of a rock composed of epidote and quartz; it is from Cobb County. Being green, it resembles jade.

HUGHES, THOMAS C., see Cook, Robert Bigham, Jr., 2

HUMPHREY, RONALD CRAWLEY, 1943-, **see** Radcliffe, Dennis, 1

HUNT, CHARLES BUTLER, 1906-

1. Surficial geology of the United States (and accompanying explanation): U. S. Geol. Survey Repts. Open file 77-232, scale, 1:7,500,000, 1977.

HUNT, GRAHAM ROBERT, 1930-

1. (and Salisbury, John William, Jr., and Lenhoff, Charles J.) Visible and near-infrared spectra of minerals and rocks [Part] 3, oxides and hydroxides: Modern Geology, v. 2, p. 195-205, illus., 1971.
Rutile from Graves Mountain in Lincoln County is examined with other minerals from elsewhere. The principal bands are due to electronic processes in the cation, to impurity ions, to vibrational processes in the hydroxyl groups, or to molecular water. Iron is the chief cation of influence; other features are produced by Cr, Cu, and Ti.

HUNT, JESSE LINDSEY, JR., 1948-, **see** Woolsey, James Robert, 5

HUNTER, DONALD, see Bilbo, Raymond E., 1

HUNTINGDON, OLIVER WHIPPLE, 1858-

1. On the crystalline structure of iron meteorites: Amer. Jour. Sci., 3d ser., v. 32, p. 284-303, illus., 1886.
A general discussion of the origin of Weidmanstaetten structures and Neumann lines in iron meteorites includes one example from the Putnam County iron meteorite which shows the Weidmanstaetten structures unusually well.

HUNZIKER, JOHANNES CHRISTOPH, 1937-, **see** Dallmeyer, Ray David, 7

HURST, VERNON JAMES, 1923-, **see also** Crawford, Thomas Jones, 1; McLemore, William Hickman, 1; Needham, Robert Edmund, 1; Jones, Lois Marilyn, 2

1. (and Sandy, John, Jr.) Marl in Burke County, Georgia: U. S. Dept. Commerce Area Redev. Adm., 42 p., illus., 1964.
Marl from the Eocene McBean Formation is described. It is widespread thoughout the county and generally underlies less than 50 feet of overburden; it is about 50 feet thick. Chemical analyses are included as is a structure-contour map of the top of the marl.

2. The Piedmont in Georgia, **in** Studies of Appalachian geology--central and southern (edited by George Wescott Fisher and others): New York, Interscience Pub., p. 383-396, illus., 1970.
A brief summary of the major stratigraphic, tectonic, metamorphic, and chronologic concepts derived from recent work is given. Ten belts of metamorphic rocks, a diagonal "hot belt" of metamorphism, large-scale faulting, regional metamorphism, carbonates, and volcanic rocks are cursorily described.

3. (and Long, Clarence Sumner, Jr.) Geochemical study of alluvium in the Chattahoochee-Flint area, Georgia: Athens, Univ. Georgia Inst. Community and Area Development, 52 p., illus. incl. geol. map, 1971.
Over 1,500 stream samples from nine counties southwest of Atlanta are analysed. Zinc, copper, and lead anomalies are identified and mapped. The more promising areas are in Carroll, Coweta, and Troup Counties. Small- and large-scale maps show the data.

4. Geology of the southern Blue Ridge belt, **in** Geology of the Blue Ridge-Ashland-Wedowee Belt in the southern Piedmont (edited by Thornton Lee Neathery): Amer. Jour. Sci., v. 273, p. 643-670, illus., 1973.
Precambrian to Devonian rocks have been recognized, and faulting and folding are predominant. Metamorphic grades are described and shown on maps. All of the region northwest of the Brevard zone is included.

5. (and Jones, Lois Marilyn) Origin of amphibolites in the Cartersville-Villa Rica area, Georgia: Geol. Soc. America Bull., v. 84, p. 905-912, illus., 1973.
Relict amygdaloidal structures, pillows, and relict porphyritic textures show these Piedmont amphibolites to have originally been extrusive volcanic rocks. They are in the upper part of the Ashland Group and probably correlate with the Ashe Formation of North Carolina.

6. Visual estimation of iron in saprolite: Geol. Soc. America Bull., v. 88, pt. 1, p. 174-176, illus., 1977.
Fifteen saprolite samples from central eastern Piedmont were examined. Color is due to secondary iron compounds and to particle size. Amorphous iron hydroxide and goethite are yellow in submicron sizes; coarse goethite is brown. Submicron hematite is red, and coarse hematite is gray to black.

7. (editor, and others) Field conference on kaolin, bauxite, and fuller's earth: [Bloomington, Indiana], Clay Mins. Soc., 107 p., illus., 1979. Descriptions of the origin and occurrence of the kaolin deposits along the fall line, of the bauxite deposits in the Andersonville area, and of the fuller's earth deposits in southwestern Georgia are given. A two day field trip begins in Macon and ends in northwestern Florida. There are seven stops in Cretaceous and Paleogene rocks around Macon and five stops in Tertiary rocks southward from Macon to Florida. The geology at each of the stops is discussed.

8. (and Shrum, John Wesley) Unusual minerals in Georgia: Rocks and Minerals, v. 54, p. 161-165, illus., 1979. This is a popular account of the occurrence of a wide variety of rather rare minerals in the state, some of which are semiprecious gems. Most are from the Blue Ridge and Piedmont Provinces.

HUSTED, JOHN EDWIN, 1915-

1. Factors influencing occurrence of phosphorite in Georgia's [Miocene] Coastal Plain sediments [abstract]: Dissert. Abs. Internatl., v. 32B, p. B378, 1971.

2. Shaler's Line and Suwannee Strait, Florida and Georgia: Amer. Assoc. Petroleum Geologists Bull., v. 56, p. 1557-1560, illus., 1972. Sediment-size ratios in Miocene rocks indicate that the Central Georgia Uplift can be inferred and that there is a physical gap in the uplift. The Suwannee Strait is on the same trend as is Shaler's Line.

IRWIN, WILLIAM PORTER, 1919-, **see** Williams, Harold, 1

ISPHORDING, WAYNE CARTER, 1937-

1. Primary marine attapulgite clays of the Yucatan Platform and southeastern United States [Coastal Plain] [abstract]: Clay Minerals Conf. 21st. Ann. Mtg., Prog. and Abs., p. 21, 1972.

2. Discussion of the occurrence and origin of sedimentary palygorskite-sepiolite deposits: Clays and Clay Minerals, v. 21, p. 391-401, illus., 1973. The deposits in southwestern Georgia and northern Florida are considered to be the result of direct crystallization rather than the result of the alteration of volcanic ash or structural transformation of smectite. This is indicated by the low concentration of alumina, the high concentration of silica, and the alkaline pH. Lateritic weathering during the Miocene would favor direct precipitation in shallow, marginal seas.

IVANOVA, MICHAIL VLADIMIROVICH, **see** Pertsev, B. P., 1

JABLONSKI, DAVID IRA, 1953-

1. Late Cretaceous gastropod protoconchs [Coastal Plain] [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 49, 1978.

2. Paleoecology, paleobiogeography, and evolutionary patterns of Late Cretaceous Gulf and Atlantic Coastal Plain mollusks: Ph D Thesis, Yale Univ., 1979.

JAHNS, RICHARD HENRY, 1915-

1. Memorial to Donnel Foster Hewett, 1881-1971: Geol. Soc. America Memorials, v. 4, p. 91-101, port., 1975.

JAIN, ANANT VIR, 1940-

1. (and Gordon, Robert Boyd, and Lipschutz, Michael Elazar) Hardness of kamacite and shock histories of 119 meteorites: Jour. Geophys. Research, v. 77, p. 6940-6954, illus., 1972.
   Shock increases kamacite hardness; other physical and chemical properties introduce complications but kamacite hardness is a useful indicator of shock. Included are data from the Holland's Store, Dalton, Canton, and Putnam County meteorites.

JEFFERS, WILLIAM LARRY, 1953-, **see** Sanders, Richard Pat, 2

JEWITT, JENNIFER L., see Howard, James Dolan, 14

JINKS, DOUGLAS DAVID, 1938-, **see** Perkins, Henry Frank, 1

JOEGER, EMILIE, see Dallmeyer, Ray David, 7

JOHNSON, ALBERT SYDNEY, 3D, 1933-

1. (and others) An ecological survey of the coastal region of Georgia: Athens, Univ. Georgia Inst. Nat. Resources, 254 p., 1971.
   This survey of the natural history of the region includes descriptions of and explanations for the barrier islands, marshes, and estuaries. Most of the work is condensed from the reports of others. No new data are included.

JOHNSON, E. ALAN

1. Gypsy Cave [Dade County]: Georgia Underground, v. 7, p. 12-13, illus. incl. map, 1970.

JOHNSON, WARREN, see Arnott, Gemma, 1

JOHNSTON, RICHARD HENRY, 1929-

1. Southeastern Tertiary limestone aquifer study [Coastal Plain] [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 184, 1979.

JONES, CAROL CHARLOTTE, 1943-

1. The biology and evolution of **Chione** (Bivalvia:Veneridae) in the eastern Coastal Plain of North America: Ph D Thesis, Harvard Univ., 1976 [not seen].

JONES, FRANK BURDETTE, 1938-, **see also** Rountree, Roy Gene, 1

1. A geophysical investigation of the Andersonville Fault [Macon, Schley, Sumter Counties] [abstract]: Georgia Acad. Sci. Bull., v. 34, p. 82-83, 1976.

JONES, LOIS MARILYN, 1934-, **see also** Hartley, Marvin Eugene, 3d, 1; Hurst, Vernon James, 5; Whitney, James Arthur, 2

1. (and Walker, Raymond Lloyd) Rb-Sr whole-rock age of the Siloam Granite, Georgia--a Permian intrusive in the southern Appalachians: Geol. Soc. America Bull., v. 84, p. 3653-3658, illus., 1973.
   A Rb-Sr date of about 269 m.y., more or less, from this Greene County granite is determined. It is the youngest intrusive in the southern Appalachians. The Sr isotope ratio suggests an upper mantle affinity with no appreciable crustal contamination.

2. (and Hurst, Vernon James, and Walker, Raymond Lloyd) Strontium isotope composition of amphibolite of the Cartersville-Villa Rica District, Georgia: Geol. Soc. America Bull., v. 84, p. 913-918, illus., 1973.
   The present day strontium-isotope ratios of these Piedmont rocks, assuming a 600 m.y. age, indicate that they have a volcanic origin and that the strontium originated in the upper mantle. Petrographic data also indicate a volcanic origin.

3. (and Hartley, Marvin Eugene, 3d, and Walker, Raymond Lloyd) Strontium isotope composition of alpine-type ultramafic rocks in the Lake Chatuge District, Georgia-North Carolina: Contr. Mineralogy and Petrology, v. 38, p. 321-327, illus., 1973.
   Ultramafic rocks in a sill in Towns County have a strontium ratio of 0.7023 to 0.7047, suggesting a direct, upper mantle source and precluding a multiple differentiation origin. Some ratios from 0.7058 to 0.7068 for some serpentines in the suite apparently reflect the influx of radiogenic strontium 87 from the surrounding rocks during serpentinization.

4. (and Carpenter, Robert Heron, and Whitney, James Arthur, and Walker, Raymond Lloyd) Rubidium-strontium age and origin of the pegmatites associated with the Gladesville Norite, Jasper County, Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 369, 1974.

JONES, PEGGY L., 1951-

1. Atlanta 1° X 2° NTMS area, Alabama and Georgia, data report...: Aiken South Carolina, E.I. DuPont Co. Rept. DPST 79-146-11, [GJBX 129-79], 55 p., illus. incl. geol. map, 1979.
A geologic description of the Piedmont south and west of Atlanta, and the southern part of northwestern Georgia includes a summary of the radioactive and rare-earth-mineral occurrences. Surface water, ground water, and stream-sediment samples are analyzed for geochemical data, which are shown an small-scale maps. The Piedmont metamorphic rocks are undated, whereas Cambrian to Mississippian rocks are present in northwestern Georgia. The distribution of radioactive minerals is described.

2. Augusta 1° X 2° NTMS area, Georgia and South Carolina--data release...: Aiken, South Carolina, E.I. DuPont Co. Rept. DPST 77-146-4, 45 p., illus., 1979.
Stream-sediment samples from throughout the area, on the Piedmont and Coastal Plain, are analyzed for 17 elements. The data are presented in graphs, tables, and maps.

JONES, RICHARD C., **see also** Clark, William Z., Jr., 1; Pickering, Samuel Marion, Jr., 6, 7, 8

1. (and Pickering, Samuel Marion, Jr.) Examples of geologic hazards in Georgia [abstract]: Georgia Acad. Sci. Bull., v. 31, p. 79, 1973.

2. A remote sensing index for Georgia [abstract]: Georgia Acad. Sci. Bull. 31, p. 85, 1973.

JORDAN, DAN HERNDON, 1920-

1. (and others) Soil survey of Cherokee, Gilmer, and Pickens Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 73 p., illus., 1973.
The soils of the counties are mapped and described in great detail. Their origin in relation to the geology is cursorily described.

JORDAN, LARRY EUGENE, 1949-, **see also** Broadhead, Thomas Webb, 2

1. Geology of the Kelleytown [Rockdale, Newton, and Henry Counties] Georgia quadrangle: M S Thesis, Emory Univ., 1974.

JOYCE, LISA GAIL, 1959-, **see** Atkins, Robert Lee, 8

JULIAN, LOUISE CHANDLER, 1948-

1. The Elberton orbicular adamellite, Elbert County, Georgia: M S Thesis, North Carolina State Univ., 1972.

2. An orbicular adamellite, Elbert County, Georgia--a preliminary report [abstract]: Elisha Mitchell Sci. Soc. Jour., v. 88, p. 196-197, 1972.

JUNHAVAT, SUPHACHAI, 1950-

1. Origin of Paleozoic shale of Florida [and southern Georgia]: M S Thesis, Georgia Inst. Technology, 1976.

JUSTUS, PHILLIP STANLEY, 1941-, **see also** Roper, Paul James, 1

1. (and Weigand, Peter Woolson) Distribution of dolerite magma types and variation of dike-swarm pattern--clues to tectonic history of Appalachians in early Mesozoic [Piedmont] [abstract]: Pennsylvania Acad. Sci. Proc., v. 45, p. 202-203, 1971.

KARR, MARILYN L.

1. (and Lewis, Charles Franklin, and Moore, Carleton Bradley) Catalog of meteorites in the collections of Arizona State University, including the Nininger meteorite collection: Arizona State Univ. Center for Meteorite Studies Pub. 10, 257 p., 1970.
   Fragments of Dalton, Forsyth, Holland's Store, Locust Grove, Losttown, Putnam County and Union County meteorites are present.

KAUFMAN, SIDNEY, 1908-, **see** Cook, Frederick Ahrens, 1, 2, 3

KEAN, ALLAN EDWIN, 1953-

1. A crustal seismic refraction study of the southeastern United States: M S Thesis, Georgia Inst. Technology, 1978; (and Long, Leland Timothy) [abstract]: Earthquake Notes, v. 49, no. 3, p. 16-17, 1978.

KEAN, BAXTER FREDERICK, 1947-, **see** Stevens, Robert Keith, 1

KELLER, FREDERICK BRIAN, 1950-, **see** Misra, Kula Chandra, 1

KELLER, WALTER DAVID, 1900-

1. Scan electron micrographs of kaolins collected from diverse environments of origin--[part] 4, Georgia kaolin and kaolinizing source rocks: Clays and Clay Minerals, v. 25, p. 311-345, illus., 1977.
   SEMs of numerous sedimentary, Cretaceous and Paleogene "Georgia kaolins" are included. Also included are SEMs of sequential stages of kaolinization of the Sparta Granite from Greene County (a probable source rock) and from a weathered gneiss in Greene County. The conclusions relate to the SEM features on kaolins of different types.

2. Classification of kaolins exemplified by their textures in scan electron micrographs: Clays and Clay Minerals, v. 26, p. 1-20, illus., 1978.
SEM micrographs of numerous kaolin types are used in the geological classification (origin) of kaolins. Examples from the saprolite of the Sparta Granite in Greene County, weathered gneiss from Greene County, and sedimentary kaolin from Huber, in Twiggs County, are included.

KENDALL, DAVID ROYCE, 1947-

1. The role of macrobenthonic organisms in mercury, cadmium, copper and zinc transfers in Georgia [Coastal Plain] salt marsh ecosystems: Ph D Thesis, Emory Univ., 1978.

KENNEDY, KEITH GORDON, **see** Gregg, Dean Oakley, 3

KERN, RONALD ARTHUR, 1946-

1. A systematic field test of growth and diffusion models of chemical zoning in garnet [Blue Ridge]: Ph D Thesis, Univ. Illinois, 1977.

KESLER, STEPHEN EDWARD, 1940-, **see** Kesler, Thomas Lingle, 1

KESLER, THOMAS LINGLE, 1908-

1. (and Kesler, Stephen Edward) Amphibolites of the Cartersville District, Georgia: Geol. Soc. America Bull., v. 82, p. 3163-3168, illus., 1971.
Amphibolites within schists in Bartow County can be shown, on the basis of chemical data, to be possibly derived from Lower Cambrian dolomitic sediments rich in relatively fresh basaltic material, or from a mixture of sediments typical of the Lower Cambrian units of the area.

2. Rome and Coosa Faults in northwest Georgia: Geol. Soc. America Bull., v. 86, p. 625-631, illus., 1975.
The details of two large, northwest trending overthrusts are given. The Folson Fault, trending northwestward, near Calhoun in Gordon County, is also identified. The genesis of the Coosa and Rome faults is different.

KIEFER, JOHN DAVID, 1940-

1. Pre-Chattanooga Devonian stratigraphy of Alabama and northwest Georgia: Ph D Thesis, Univ. Illinois, 1970; [abstract]: Dissert. Abs. Internatl., v. 31B, p. B7370-B7371, 1971.

2. (and Dennison, John Manley) Palinspastic map of Devonian strata of Alabama and northwest Georgia: Amer. Assoc. Petroleum Geologists Bull., v. 56, p., 161-166, illus., 1972.
Devonian strata are restored to pre-deformation positions to remove the effects of the Alleghenian Orogeny. Foreshortening is seventeen percent in the northern area and increases southwestward. A structural connection with the Ouachita trend is suggested.

KIMBERLIN, JEROME, 1935-, **see** Wasson, John Taylor, 2

KING, ARTHUR FRANCIS, 1937-, **see** Williams, Harold, 2

KING, ELBERT AUBRY, JR., 1935-, **see** Storzer, Dieter, 2

KING, ELIZABETH RAYMOND, 1928-

1. (and Zietz, Isidore) The New York-Alabama lineament--geophysical evidence for a major crustal break in the basement beneath the Appalachian Basin: Geology, v. 6, p. 312-318, illus., 1978; discussion by Robert Hellmuth Barton, p. 575.
Aeromagnetic mapping, augmented by regional gravity data, shows a trend which passes through extreme northwestern Georgia. The linear magnetic gradients bound areas of magnetic rocks in the basement and imply strike-slip displacement along a profound crustal break. Its relation to Bouguer gravity maps and seismotectonic areas is shown, and there appears to be a relationship.

KING, GARY MICHAEL, 1953-

1. (and Wiebe, William John) Methane release from soils of a Georgia salt marsh: Geochim. et Cosmochim. Acta, v. 42, p. 343-345, illus., 1978.
Marsh soils from McIntosh County reveal that ebullition is a significant process. The amount of gas released varies seasonally and botanically.

KING, PHILIP BURKE, 1903-

1. Systematic pattern of Triassic dikes in the Appalachian region--second report, **in** Geological Survey Research 1971: U. S. Geol. Survey Prof. Paper 750D, p. D84-D88, illus., 1971.
The Triassic mafic dikes show a regional pattern. In Georgia they are south of the Brevard zone, are clustered into swarms which are 60 to 80 miles apart, and trend northwestward. Their termination at the Brevard zone may be due to differences in deep crustal structure on the two sides of the zone.

2. (compiler) Geological map of the United States, 3 sheets: U. S. Geol. Survey, scale, 1:2,500,000, 1974.

3. The Ouachita and Appalachian orogenic belts, Chapter 5 of The Gulf of Mexico and the Caribbean, vol. 3 of The ocean basins and margins (edited by Alan Eben Mackenzie Nairn and Francis Greenough Stehli): New York, Plenum Press, p. 201-241, illus., 1975.
This is a very generalized review of the rocks which make up the Valley and Ridge, Blue Ridge, and Piedmont Provinces. Few details, and no new data are included.

4. (and Beikman, Helen Marie) The Paleozoic and Mesozoic rocks--a discussion to accompany the geologic map of the United States: U. S. Geol. Survey Prof. Paper 903, 76 p., illus., 1976.
A very generalized review of the rock units used on the map include those in Georgia. The rationale behind the terminology is explained.

5. Precambrian geology of the United States--an explanatory text to accompany the geologic map of the United States: U. S. Geol. Survey Prof. Paper 902, 85 p., illus., 1976.
A general discussion of the nature and occurrence of Precambrian rocks in the United States includes those in the Blue Ridge and Piedmont of Georgia. The rationale behind the classification system is also included.

6. (and Beikman, Helen Marie) The Cenozoic rocks--A discussion to accompany the geologic map of the United States: U. S. Geol. Survey Prof. Paper 904, 82 p., illus., 1978.
A very generalized description of the Cenozoic rocks of the United States includes those in Georgia. The rationale of the classification is included.

KISH, STEVEN ALEXANDER, 1946-, **see** Greenberg, Jeffrey King, 1; Odom, Arthur LeRoy, Jr., 1; Stein, Holly Jayne, 1

KISSIN, STEPHEN ALEXANDER, 1942-, **see also** Schwarcz, Henry Phillip, 1

1. The sulfide mineralogy of the group IAB iron meteorites [Sardis, Jenkins County] [abstract]: Meteoritics, v. 14, p. 444-447, illus., 1979.

KLITGORD, KIM DONALD, 1947-, **see** Rankin, Douglas Whiting, 4

KNAPP, J., see Whitmore, Frank Clifford, Jr., 1

KNOX, REED, JR., 1916-

1. Where did the Twin City, Georgia meteorite come from?: Meteoritics, v. 12, p. 399-400, 1977.
The Twin City, Emanuel County, meteorite lacks martensite structures and so its origin as having been formed inside of the asteroid belt is difficult to conceive unless it has undergone severe thermal alteration at a later time. There is no evidence for this.

KOCH, GEORGE SCHNEIDER, JR., 1926-

1. (and Howarth, Richard J., and Carpenter, Robert Heron) Development of data enhancement and display techniques for stream-sediment data collected in the National Uranium Resource Evaluation program of the United States Department of Energy: U. S. Dept. Energy Rept. GJBX 28-(80), 223 p., illus., 1979 [not seen].

KOHSMANN, JAMES JOSEPH, 1949-, **see** McGinnis, Lyle David, 1

KOMAROV, ALEXANDR NIKOLAEVICH, see Levsky, Lev Konstantinovich, 1

KONIGSSON, LARS KONIG A., see Colquhoun, Donald John, 3

KOPF, RUDOLPH WILLIAM, 1922-, **see** Patterson, Robert Maskell, 1

KRAMER, TERRY MARTIN, 1947-

1. (and Krause, Richard Emil) The distribution and migration of calcium and magnesium sulfate water from the lower to the upper zone of the Tertiary artesian aquifer in Lowndes County, Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 7, p. 507, 1975.

KRAUSE, RICHARD EMIL, 1944-, **see also** Kramer, Terry Martin, 1

1. Effects of ground-water pumping in parts of Liberty and McIntosh Counties, Georgia, 1966-1970: Georgia Geol. Survey Inf. Circ. 45, 15 p., illus., 1972.
   Potentiometric-surface and water-level-decline maps illustrate the change. Increased industrial pumping and a general regional decline are cited as the reasons. Water analyses are included.

2. (and Gregg, Dean Oakley) Water from the Principal Artesian Aquifer in coastal Georgia: Georgia Geol. Survey Hydrol. Atlas 1, 1 sheet, 1972.
   A brief text and seven small-scale maps of the eastern part of the Coastal Plain display various ground-water data. The maps show: trends in water-table decline from withdrawal, artesian levels, contamination, and structure contours on the principal aquifer.

3. (and Counts, Harlan Bryan) Digital model analysis of the Principal Artesian Aquifer, Glynn County, Georgia: U. S. Geol. Survey Water Resources Invs. 1-75, 4 sheets, text, 1975.
   A computer model, devised to show the effects of pumping in the Eocene-rock aquifer in the Brunswick area, is tested. Maps show the anticipated effects of various rates of pumping.

KRIVOY, HAROLD LLOYD, 1922-

1. (and Eppert, Herbert Charles, Jr., and Pyle, Thomas Edward) Simple Bouguer gravity anomaly map of the Gulf of Mexico and adjacent land areas: U. S. Geol. Survey Geophys. Invs. Map GP 912, scale, 1:250,000, 1976.
   That part of the Coastal Plain south of 32 degrees north latitude is included. The contour interval in 10 milligals.

2. (and Eppert, Herbert Charles, Jr.) Simple Bouguer anomaly representation over a part of the Atlantic continental shelf and adjacent land areas of Georgia, the Carolinas, and northern Florida: U. S. Geol. Survey Repts. Open File 77-316, scale, 1:1,000,000, text, 1977.

KRIZ, JIRI, see Pojeta, John, Jr., 1

KROHN, JAMES PAUL, 1942-

1. (and Slosson, James Edward) Assessment of expansive soils within the United States: Sixteenth Ann. Symposium on Engineering Geology and Soils Engineering, p. 137-151, illus., [1978].
   A small-scale map of the United States shows soils as low, medium, or high expansive. All the soil of Georgia is considered low except for that of the Piedmont which is shown as medium. Small areas of high-expansion occur in the Coastal Plain and Piedmont.

KRUSE, H., see Schultz, Ludolf, 1

KULHAWY, FRED HOWARD, 1943-

1. (and Rose, Donald Charles) Predicted behavior of the MARTA twin tunnels and research chamber, in 20th U. S. symposium on rock mechanics: Austin, Univ. Texas Press, p. 95-107, illus., [?1979].
   The rocks in the Atlanta, Fulton County area are gneisses, schists, granites and quartzites. Various tests indicate that all of the rocks can support a tunnel.

KUNDELL, JAMES EDWARD, 1944-

1. Ground water resources of Georgia: Athens, Univ. Georgia Inst. Government, 139 p., illus., 1978.
   A general review of the occurrence of ground water in Georgia is given. Localities, and the nature of aquifers are also given. The report is designed for the general, informed reader, and no new data are included.

KUTINA, JAN.

1. (and Carter, William Douglas) Tectolinear interpretation of a 1:5,000,000 LANDSAT-1 mosaic compared with the structure of central and eastern United States: Global Tectonics and Metallogeny, v. 1, no. 1, p. 78-81, illus., 1978.
   Linear features identified on LANDSAT-1 photos are superimposed on a simplified geological map of the eastern United States, including Georgia. Lineaments in the Coastal Plain are very pronounced.

LA BASTIE, JAMES GALLEY, 1937-, **see** Pauls, David Edgar, 1

LACHENBRUCH, ARTHUR HEROLD, 1925-

1. (and Sass, John Harvey) Heat flow in the United States and the thermal regime of the crust, **in** The earth's crust (edited by John G. Heacock, Jr.): Amer. Geophys. Union Mon. 20, p. 626-675, illus., 1977.
   Two of 625 data sources are from the Piedmont of Georgia. Heat flow is 0.75 to 0.99 HFU, part of a long band of slightly lower flow along the length of the Appalachians. There is no relationship to seismic activity.

LAMBIASE, JOSEPH JOHN, 1947-

1. The lithologic character of Atlantic Coastal Plain sediments in Georgia, South Carolina, and North Carolina with special reference to the 1978 drilling program, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5648-3, p. C2-C23, illus., 1978.
   A very generalized summary of the stratigraphy of the Atlantic Coastal Plain is given; also included are ground-water characteristics. Most of the rocks are Upper Cretaceous.

LA MOREAUX, PHILIP ELMER, 1920-, **see also** LeGrand, Harry Elwood, 3, 5

1. Memorial to Robert Orion Vernon, 1912-1974: Geol. Soc. America Memorials, v. 6, 5 p., port., 1977.

LANCE, RICHARD JEROME, 1946-

1. (and Fogle, Gerald Howard, and Long, Leland Timothy) Report on the earthquake of December 27, 1976, in southern Georgia: Earthquake Notes, v. 48, nos. 1-2, p. 51-56, illus., 1977.
   An earthquake of 3.5 to 3.7 magnitude and about 5 km deep, in Toombs County is described. The epicentral MM intensity was V, and the earthquake was felt over 5,620 square kilometers.

LANDES, KENNETH KNIGHT, 1899-1982.

1. Memorial to Erwin C[harles] Stumm 1908-1969: Geol. Soc. America Memorials, v. 1, p. 84-86, port., 1973.

LANPHERE, MARVIN ADLER, 1933-, **see** Gohn, Gregory Scott, 2

LARSEN, MATTHEW C., see Oertel, George Frederick, Jr., 17

LARSON, EDWIN E., 1931-, **see** Herndon, James Marvin, 1

LAWRENCE, JAMES ROBERT, 1942-

1. O^{16}/O^{18} and D/H ratios of soils, weathering zones, and clay deposits [Piedmont]: Ph D Thesis, California Inst. Technology, 1970.

2. (and Taylor, Hugh Pettingill, Jr.) Deuterium and oxygen-18 correlation--clay minerals and hydroxides in Quaternary soils compared to meteoric waters: Geochim. et Cosmochim. Acta, v. 35, p. 993-1003, illus., 1971.
   Soils from the Stone Mountain Granite in DeKalb County and the Elberton Granite in Elbert County are examined. The deuterium and oxygen-18 contents correlate directly with those of meteoric water. Gibbsite-bearing soils are isotopically distinct from clay-rich soils.

3. (and Taylor, Hugh Pettingill, Jr.) Hydrogen and oxygen isotope systematics in weathering profiles: Geochim. et Cosmochim. Acta, v. 36, p. 1377-1393, illus., 1972.
   The weathering profile from the Elberton Granite in Elbert County and others from elsewhere show no oxygen and hydrogen isotope exchange with meteoric water for the parent-rock materials. Clay minerals may differ drastically from the isotope-ratios of the parents, and be in equilibrium with the meteoric water.

LAWRENCE, MARK BAUER, 1953-

1. (and Brown, Larry Douglas) Transcontinental profile of recent vertical crustal movements [abstract]: Tectonophysics, v. 52, p. 181, 1979.

LAWTON, DAVID EDWARD, 1942-, **see also** O'Connor, Bruce James, 1, 6

1. (and Pierce, Martha Anne Green) Geologic and mineral resource map index of Georgia: Georgia Geol. Survey Inf. Circ. 44, 43 p., illus., 1972.
   Base maps show the localities of geologic and mineral-resource maps. They are shown by dates of publication, in decades.

2. (and Higgins, Michael Wicker, and Pickering, Samuel Marion, Jr., and Zietz, Isidore) Correspondence between geology and contoured aeroradioactivity in the Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 214-215, 1976.

3. Geologic map of Georgia: Atlanta, Georgia Geol. Survey, scale, 1:2,000,000, 1 sheet, text, 1977.

LEATHERMAN, STEPHEN PARKER, 1947-, **see** Oertel, George Frederick, Jr., 22

LE BLANC, RUFUS JOSEPH, 1917-

1. Memorial to Edward H[arriman] Rainwater, 1909-1972: Geol. Soc. America Memorials, v. 4, p. 164-168, port., 1975.

LEE, CHANG KONG, 1953-

1. (and Dainty, Anton Michael) Crustal structure in central Georgia [Piedmont and Coastal Plain] and South Carolina--preliminary results from synthetic seismogram analysis [abstract]: Earthquake Notes, v. 50, no. 3, p. 27-28, 1979.

LEE, LARRY DOYCE, 1941-

1. A diabase dike in Meriwether County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 29, p. 127, 1971.

LEENHEER, JERRY ALYN, 1944-

1. (and others) Occurrence of dissolved organic carbon in selected ground-water samples in the United States: Jour. Research U. S. Geol. Survey, v. 2, p. 361-369, illus., 1974.
Samples of water from Fulton, Chatham, and Houston County are analyzed with many others from elsewhere. In general, the values of dissolved organic carbon are low.

LEGGO, PETER J., see Odom, Arthur LeRoy, Jr., 1

LE GRAND, HARRY ELWOOD, 1917-

1. (and Stringfield, Victor Timothy, Jr.) Differential erosion of carbonate-rock terranes: Southeastern Geology, v. 13, p. 1-17, illus., 1971.
Numerous examples of karst topography include that of southwestern Georgia where the carbonate rocks from the Dougherty Plain and the cuesta slopes of the Tifton Upland (which is capped by flat-lying sandstones) are present.

2. (and Stringfield, Victor Timothy, Jr.) Tertiary limestone aquifer system in the southeastern states: Econ. Geology, v. 66, p. 701-709, illus., 1971.
The hydrogeology of the Tertiary limestones in the Coastal Plain is given as an example of how the hydrogeology of the Ordovician Knox Group in Tennessee and vicinity might have been. The karst conditions, physical setting, and geological backgrounds of both systems are compared.

3. (and LaMoreaux, Philip Elmer) General hydrologic features of carbonate rocks of the United States [and Coastal Plain Georgia] [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 711-712, 1973.

4. The artesian water gap [Coastal Plain] [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 975-976, 1976.

5. (and Stringfield, Victor Timothy, Jr., and LaMoreaux, Philip Elmer) Hydrologic features of United States karst regions, in Karst hydrology and water resources (edited by Virjica M. Yevjevich): Fort Collins, Colorado, Water Resources Pub., v. 1, p. 31-46, illus., 1976.
A cursory review of karst areas alludes to those of the Coastal Plain of Georgia. Tertiary limestones are the main karst-bearing unit. Problems of water flow, chemistry, and volume, related to karst are reviewed.

LEIFESTE, DONALD K., 1932-

1. Dissolved-solids discharge to the oceans from the conterminous United States: U. S. Geol. Survey Circ. 685, 8 p., illus., 1974.
Values for the Savannah, Ogeechee, and Altamaha Rivers are included. The tables include drainage area, total discharge, dissolved solids in mg per liter, and gross yield of dissolved solids. Sources and suspended bed load are not considered.

LENHOFF, CHARLES J., see Hunt, Graham Robert, 1

LESLIE, KENT ANDERSON, 1942-

1. (and Burbanck, Madeline Palmer) Vegetation of granite outcropping at Kennesaw Mountain, Cobb County, Georgia: Castanea, v. 44, no. 2, p. 80-86, illus., 1979.
The flora found on eight exposures of the gneiss on Kennesaw Mountain are described. Many flora are diverse, and phytological explanations for the differences include different geological settings.

LESTER, JAMES GEORGE, 1897-

1. Gem minerals of Georgia: Rocks and Minerals, v. 49, p. 131-135, illus., 1974; originally published 1959.
A review of the occurrences of gem minerals from the state is given. Most are from the Piedmont and Blue Ridge.

LESURE, FRANK GARDINER, 1927-

1. Residual enrichment and supergene transport of gold, Calhoun Mine, Lumpkin County, Georgia: Econ. Geology, v. 66, p. 178-186, illus., 1971.
Gold is present in fresh schist, and in greater percentage in weathered schist, or saprolite. Gold and arsenic show the most residual enrichment of minor elements tested. Gold is at or just below the level of detection in fresh rock, and is concentrated by weathering. The gold is transported with iron during weathering.

LETZSCH, WALTER STEPHEN, 1942-

1. Erosion and deposition within a salt marsh, Sapelo Island [McIntosh County] Georgia: M S Thesis, Univ. Georgia, 1978.

LEVSKY, LEV KONSTANTINOVICH.

1. (and Komarov, Aleksandr Nikolaevich) He, Ne, and Ar isotopes in inclusions of some iron meteorites: Geochim. et Cosmochim. Acta, v. 39, p. 275-284, illus., 1975.
Nine meteorites, including Sardis from Jenkins County, were examined, particularly for the metal, troilite, schreibersite, and graphite inclusions. Cosmogenic implications are discussed.

LEVY, ALEXANDRO GUSTAVO, 1954-, see also Griffin, George Melvin, Jr., 1

1. Oil and gas maturation zones in the Jurassic and Cretaceous trends of northwest Florida and adjacent parts of [Coastal Plain] Georgia and Alabama: MS Thesis, Univ. Florida, 1977 [not seen].

LEWIS, CHARLES FRANKLIN, 1936-, see also Karr, Marilyn L., 1

1. (and Moore, Carleton Bradley) Catalog of meteorites in the collections af Arizona State University, including the Nininger meteorite collection: Arizona State Univ. Center for Meteorite Studies, Pub. 14, 302 p., 1976.
Included are parts of the Canton (Cherokee County), Cedartown (Polk County), Dalton (Whitfield County), Forsyth (Monroe County), Holland's Store (Chattooga County), Locust Grove (Henry County), Losttown (Cherokee County), Putnam County, and Union County meteorites.

LIBBY, STEPHEN CHARLES, 1947-

1. The petrology of the igneous rocks of Putnam County, Georgia: M S Thesis, Univ. Georgia, 1971.

LIN, KING, L., 1944-

1. Coal data 1977: Washington, D.C., Natl. Coal Assoc., [100 p.], illus., 1979. Much data in tables includes that from Georgia as well as elsewhere in the United States. Georgia is estimated to have 84 million tons of coal in reserve.

LIPSCHUTZ, MICHAEL ELAZAR, 1937-, **see also** Jain, Anant Vir, 1

1. Arsenic, **in** Handbook of elemental abundances in meteorites (edited by Brian Harold Mason): New York, Gordon and Breach, p. 261-269, illus., 1971. Data from the Pitts meteorite from Wilcox County and the Sardis meteorite from Jenkins County are included.

LLOYD, ORVILLE BRUCE, JR., 1934-, **see** Brown, Philip Monroe, 3

LOHSE, EDGAR ALAN, 1922-

1. C.D. Hopkins **et al** no. 2 geothermal well-of-opportunity, Wayne County, Georgia--operational report: U. S. Dept. Energy Rept. NVO 1528-1, 14 p., illus., 1978. An abandoned oil well was deepened from 4,009 to 4,341 feet, and cored from 4,341 feet to 4,371 feet. The bottom-hole temperature was 140 degrees F, and the temperature gradient was 1.61 more or less 25 degrees F per 100 feet.

LOMAN, WILLIAM THOMAS, JR., 1921-, **see also** Brooks, Paula Elizabeth, 1

1. (and Arden, Daniel Douglas, Jr.) Occurrence of chert derived from replacement of the [Eocene] Ocala and [Oligocene] Suwannee limestones in southwestern [Coastal Plain] Georgia [abstract]: Georgia Jour. Sci., v. 37, p. 84-85, 1979.

LONG, CLARENCE SUMNER, JR., 1929-, **see also** Crawford, Thomas Jones, 1; Hurst, Vernon James, 3

1. Mines and prospects of the Chattahoochee-Flint [Rivers] area, Georgia: Univ. Georgia Inst. Community and Area Devel., 143 p., illus. incl. map, 1971. A general review of the geology of the Piedmont counties between the two rivers is followed by a summary of the mineral resource potential. Analyses are included.

LONG, LELAND TIMOTHY, 1940-, **see also** Bridges, Samuel Rutt, 3; Guinn, Stuart Allen, 4; Kean, Allen Edwin, 1; Lance, Richard Jerome, 1; Obaoye, Michael Olajide, 1; Rothe, George Henry, 3d, 2

1. Local magnitudes and recent earthquake activity near the [Lincoln County] Georgia-South Carolina border [abstract]: Earthquake Notes, v. 42, no. 3-4, p. 17, 1971.

2. (and Bridges, Samuel Rutt, and Dorman, Leroy Myron) Bouguer anomaly map of Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 87-88, 1972; reprinted, Washington, D. C., U. S. Dept. Commerce, NOAA, Collected reprints, v. 2. p. 652-653, 1973.

3. (and Bridges, Samuel Rutt, and Dorman, Leroy Myron) Simple Bouguer gravity map of Georgia: Atlanta, Georgia Geol. Survey, scale, 1 inch to about 40 miles, text, 1972.

4. (and Mathur, Uday Prakesh) Southern Appalachian crustal structure from the dispersion of Rayleigh waves and refraction data: Earthquake Notes, v. 43, no. 1, p. 31-40, illus., 1972.
The average crustal thickness for the southern Appalachians is 40 km. Refraction data support a model of 20 km of upper crust with an S wave velocity of 3.45 km/sec and a 20 km-thick lower crust with a velocity of 3.75 km/sec. The mantle velocity is 4.56 km/sec.

5. (and Lowell, Robert Paul) Thermal model for some continental margin sedimentary basins and uplift zones: Geology, v. 1, p. 87-88, illus., 1973.
During rifting, if a portion of the crust were detached from the main continental mass it would settle more slowly because the heat production in the detached portion would be greater relative to that of the surrounding oceanic crust. The Ocala Uplift in Florida is cited as an example. Basement rocks of southern Georgia are included in the structural interpretations.

6. Bouguer gravity anomalies of Georgia, in Symposium on the petroleum geology of the Georgia Coastal Plain (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 141-166, illus., 1974.
A simple Bouguer gravity map of the state shows that isostasy and/or differential crustal uplift are significant factors in contemporary tectonics. Certain areas are shown in detail such as a trend from the northwest corner southeastward to the Monticello area, a diabase dike in Meriwether County, an anomaly near Hawkinsville, and an anomaly near Tifton. Geological explanations are proposed.

7. Investigation of seismic road noise, Atlanta [Fulton County] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 376, 1974.

8. (and Rivers, Wayne Kirby) Field measurement of the electroseismic response: Geophysics, v. 40, p. 233-245, illus., 1975.
A test of the apparent relationship between resistivity and seismicity was conducted in Cretaceous sedimentary rocks near Gordon, in Wilkinson County. The response of resistivity correlates best with Rayleigh surface waves.

9. (and Denman, Harry Edward, Jr.,) The [Lincoln County] Georgia-South Carolina earthquake of 2 August, 1974--foreshock survey and macroseismic events [abstract]: Earthquake Notes, v. 46, nos. 1-2, p. 45, 1975.

10. (and Bridges, Samuel Rutt) The [Lincoln County] Georgia-South Carolina earthquake of August 2, 1974--stress drop evaluation and aftershock locations [abstract]: Earthquake Notes, v. 46, no. 4, p. 50-51, 1975.

11. (and Guinn, Stewart Allan) The Dalton [Whitfield County] earthquake of February 4, 1976 [abstract]: Earthquake Notes, v. 47, no. 4, p. 5, 1976; EOS, v. 57, p. 757, 1976.

12. (and Denman, Harry Edward, Jr., and Hsiao, Helmut Yang-An, and Marion, George Eugene) Gravity and seismic studies in the Clark Hill reservoir area, in Stratigraphy, structure, and seismicity in slate belt rocks along the Savannah River--Georgia Geol. Soc. 11th Ann. Field Trip (compiled by Timothy Michael Chowns): Georgia Geol. Survey Guidebook 16, p. 33-41, illus., 1976.
A small-scale Bouguer anomaly map of the reservoir area is given, and a geological cross section shows possible geologic controls of the map. Seismicity of the area is being monitored.

13. Short-period surface-wave attenuation and intensities in the Georgia-South Carolina Piedmont Province: Earthquake Notes, v. 47, no. 3, p. 3-11, illus., 1976.
The distance-decay of the maximum particle-velocity is determined from quarry explosions. The values obtained are valid only for travel paths 10-15 km from the event, and only in the Piedmont.

14. Speculations concerning southeastern earthquakes, mafic intrusions, gravity anomalies, and stress amplification: Earthquake Notes, v. 47, no. 3, p. 29-35, illus., 1976.
Implied inhomogeneities occurring between mafic intrusives and country rock, accompanied by high gravity gradients, may be the cause of many of the earthquakes in the southeastern United States. Stress amplification by the anomalously rigid intrusives may be the proximate cause for many of the earthquakes; many examples from Georgia are cited.

15. Gravity anomalies, geology, and seismicity in the Clark Hill reservoir [Piedmont] area [abstract]: Geol. Soc. America Abs. with Progs., v. 9, p. 160-161, 1977.

16. (and Marion, George Eugene) Microearthquake spectra in the southeastern United States [Lincoln County] [abstract]: Earthquake Notes, v. 49, no. 1, p. 34-35, 1978.

17. The Carolina slate belt--evidence of a continental rift zone: Geology, v. 7, p. 180-184, illus., 1979.
Gravity and seismic data in and around the belt are interpreted such that the slate belt is part of an old rift system, now filled with volcanic rocks. The rifting occurred in late Precambrian and Cambrian time. Gravity profiles from the Piedmont show the relationships.

18. (and Marion, George Eugene) Spectral characteristics of microearthquakes which occur in the southeastern United States [abstract]: Georgia Acad. Sci. Bull., v. 34, p. 83, 1976.

LOUGHRIDGE, ROBERT HILLS, 1843-1917.

1. Report on the cotton production of the State of Georgia with a description of the general agricultural features of the state, **in** Report on cotton production in the United States..., Part 2, Eastern Gulf, Atlantic, and Pacific States. Washington, D. C., U. S. Census [10th, v. 6], p. 259-450, illus., 1884.
   A complete description of the geology of the state is given, including cotton production by province in which geology is identified as one of the distinguishing characteristics. Soils are analyzed.

LOVERING, TOM GRAY, 1921-, **see** Tidball, Ronald Richard, 1

LOVINGOOD, DANIEL ALAN, 1957-

1. (and Chowns, Timothy Michael) Paleocurrent analysis of [Siluran Red Mountain] sandstone in northwest Georgia [abstract]: Georgia Jour. Sci., v. 37, p. 83, 1979.

LOWELL, ROBERT PAUL, 1943-, **see also** Long, Leland Timothy, 5

1. A convection model for thermal springs in the southeast [Georgia] [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 377, 1974.

LOWRY, WALLACE DEAN, 1917-

1. Memorial to Byron Nelson Cooper, 1912-1971: Geol. Soc. America Memorials, v. 3, p. 77-82, port., 1974.

2. North American geosynclines--test of continental drift theory: Amer. Assoc. Petroleum Geologists Bull., v. 58, p. 575-620, illus., 1974.
   Georgia is included in a discussion of the sedimentation and structural history of North American geosynclines. The Appalachian Geosyncline existed in the late Precambrian and continued through the Paleozoic Era. Rocks in the Suwannee Basin were deposited outside of the orogenic belt.

LUCKETT, MICHAEL AUGUSTUS, 1946-

1. Cretaceous and lower Tertiary stratigraphy along the Flint River [Coastal Plain] Georgia: M S Thesis, Univ. Georgia, 1979.

LUETHE, RONALD D.

1. (and Windisch, T. C.) Geology and sulfide deposits of the McCormick, South Carolina-Lincolnton [Lincoln County] Georgia mineral district [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 174, 1978.

LUTTON, RICHARD JOSEPH, see Hancock, William E., 2

LUTZ, RICHARD ARTHUR, 1949-, **see** Clark, George Richmond, Jr., 1

LYTTLE, PETER THOMAS, 1948-

1. (and Gohn, Gregory Scott, and Higgins, Brenda Baer, and Wright, David S.) Vertical crustal movements in the Charleston, South Carolina-Savannah, Georgia area: Tectonophysics, v. 52, p. 183-189, illus., 1979; **in** Recent crustal movements (edited by Charles Arthur Whitten, R. Green, and Buford Kelly Meade): Amsterdam, Elsevier Pub. Co., 1979.
   The relative sense of modern vertical movement correlates with the sense of the displacement on Tertiary strata on known geologic structures. The amount of relative subsidence remains fairly constant or decreases from west to east across the Tybee High in Chatham County.

MC AULIFFE, LINDA EVON, see Moye, Falma Jean, 1

MC CALLIE, SAMUEL WASHINGTON, 1856-1933.

1. The Franklin gold mine. Consulting report for the Central Bank and Trust Company, Atlanta, Georgia [Cherokee County]: Atlanta, Georgia, 6 p., 1907 [not seen].

MC CLAIN, WILLIAM CHARLES, 1937-

1. (and Myers, Oren Hubert) Seismic history and seismicity of the southeastern region of the United States: Oak Ridge, Tennessee, Oak Ridge Natl. Lab. Rept. ORNL 4582, 46 p., illus., 1970.
   A general discussion of the distribution and classification of earthquakes in the southeast, including Georgia, is followed by a detailed table of information about earthquakes since 1699. Fifteen have had epicenters in Georgia.

MC CLELLAN, GUERRY HAMRICK, 1939-

1. Petrology of attapulgus clay in north Florida and southwest Georgia [Coastal Plain]: Ph D Thesis, Univ. Illinois, 1964.

MC CONNELL, KEITH IAN, 1949-, **see also** Abrams, Charlotte Elaine, 1, 2; Higgins, Michael Wicker, 3

1. (and Abrams, Charlotte Elaine) Geologic guide to Sweetwater Creek State Park [Douglas County], Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 175, 1978.

2. Geology of the Pumpkinvine Creek Amphibolite in northwestern Georgia [Piedmont] [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 175, 1978.

3. (and Abrams, Charlotte Elaine) Structural and lithologic control of Sweetwater Creek in western Georgia, in Short contributions to the geology of Georgia: Georgia Geol. Survey Bull. 93, p. 87-92, illus., 1978.
The drainage of the creek in Cobb, Douglas, and Paulding Counties, northwest of Austell, flows northeastward following the axial trend of the Austell-Frolona antiform; it is the only major stream to do so. South of Austell, the stream flows southeastward to the Chattahoochee River; here its course is influenced more by a set of steeply dipping joints, and lithology is less influential.

4. (and Costello, John Oliver) Large scale crustal shortening in the southwest Georgia Blue Ridge and adjacent Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 205, 1979.

MC CORD, WALLACE ALFRED, 1952-

1. Description of a flood delta thanatocoenose, [Cretaceous] Eutaw Formation, Montgomery County, Alabama [and Muscogee County, Georgia] [abstract]: Alabama Acad. Sci. Jour., v. 50, p. 129, 1979.

MC CREERY, ROBERT ATKESON, 1917-, see Tan, Kim Hong, 1

MC CULLOUGH, JAMES DEWITT.

1. (and Bergenback, Richard Edward) Inferred tidal flat paleoenvironments in Leipers Limestone (Ordovician) of abandoned quarry Dade County, Georgia: Tennessee Acad. Sci. Jour., v. 50, p. 112-115, illus., 1975.
Samples from the formation are described and analyzed. Rocks from low supratidal to high subtidal, high intertidal to low supratidal, and low intertidal to high subtidal facies are identified.

MAC FALL, RUSSELL PATTERSON, 1903-

1. Rocking through Georgia: Lapidary Jour., v. 33, p. 1544-1550, illus. incl. ads, 1979.
This is a popular account of the occurrence of a variety of minerals in Georgia. Most are found in the Piedmont and Blue Ridge.

MC GARR, ARTHUR.

1. (and Vorhis, Robert Carson) Seismic seiches from the March 1964 Alaska earthquake: U. S. Geol. Survey Prof. Paper 544E, 39 p., illus., 1966; reprinted with minor changes as Seismic seiches, in The great Alaska earthquake of 1964, Hydrology, Part A: Washington, D.C., Natl. Acad. Sci., p. 196-236, illus., 1968.
In Georgia there were 28 seiches recorded on rivers and streams as a result of the earthquake waves passing through. The amplitude of the largest was 0.22 feet.

MC GINNIS, LYLE DAVID, 1931-

1. (and Wolf, Michael Gene, and Kohsmann, James Joseph, and Ervin, Clarence Patrick) Regional free air gravity anomalies and tectonic observations in the United States: Jour. Geophys. Research, v. 84, p. 591-601, colored illus., 1979.
Georgia is included within a large, arcuate positive anomaly which extends the length of the Appalachians and to the Gulf of Mexico. The anomalies of the eastern United States suggest that stresses similar to those which formed the Appalachian fold belt are still active.

MC GREW, LAURA MAY WENGER, 1921-, see deWitt, Wallace, Jr., 3

MC INTOSH, WILLARD LYNN

1. (and Eister, Margaret Ford) Geologic index map of Georgia: Washington, D. C., U. S. Geol. Survey, 7 p., illus., 1979.

MC INTYRE, CARLOS L.

1. Soil survey of Dawson, Lumpkin, and White Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 105 p., illus., 1972.
The soils of these counties are mapped and described in great detail. Their origin in relation to the geology is also cursorily described.

MC LAUGHLIN, ROBERT EVERETT, 1919-

1. Devonian plant fossils in deep core sediments from [Early County] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 330, 1971.

2. (and Darrell, James Harris, 2d) Age determination of the bauxite-associated geomorphic surface on the Paleozoic oldland in [Floyd County] northwest Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 90, 1972.

3. Paleozoic geology underlying the southeastern [Georgia] Coastal Plain [abstract], in Symposium on the petroleum geology of the Georgia Coastal Plain, Program and Abstracts: Americus, Georgia, Georgia Southwestern College, p. 9, 1974; Georgia Geol. Survey Bull. 87, p. 19, 1974.

MAC LEMORE, DANIEL N., 3D, 1949-, see Manley, Frederick Harrison, Jr., 2

MC LEMORE, WILLIAM HICKMAN, 1940-

1. (and Hurst, Vernon James) The carbonate rocks in the Coosa Valley area, Georgia: U. S. Dept. Commerce, Area Redev. Admin., 170 p., illus., 1970.
Cambrian, Ordovician, and Mississippian dolomite and limestone formations are described from northwestern Georgia. Analyses are included, as are descriptions of cores and measured sections.

2. Inter-relationships between Mississippian stratigraphy and limestone chemistry in northwest Georgia and southeast Tennessee [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 331, 1971.

3. Depositional environments of Mississippian carbonates in northwest Georgia and southeast Tennessee [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 91, 1972.

4. Depositional environments of the Tuscumbia-Monteagle-Floyd interval in northwest Georgia and southeast Tennessee, in Sedimentary environments in the Paleozoic rocks in northwest Georgia (edited by Timothy Michael Chowns)--Georgia Geol. Soc. 7th Ann. Field Trip: Georgia Geol. Survey Guidebook 11, p. 69-73, illus., 1972.
   Many petrographic descriptions of the rocks are given. The Tuscumbia is a transitional unit from the tidal flat environment of the underlying Fort Payne Formation to the carbonate bank environment of the overlying Monteagle Limestone. The Floyd is a deltaic and pro-deltaic deposit.

5. The geology and geochemistry of the Mississippian System in northwest Georgia and southeast Tennessee: Ph D Thesis, Univ. Georgia, 1971; [abstract]: Dissert. Abs. Internatl., v. 32B, p. B4011-B4012, 1972.

MADELEY, HULON MATTHEWS, 1934-

1. Petrology of the [Cretaceous] Tuscaloosa Formation in west-central Georgia [Coastal Plain]: Ph D Thesis, Ohio State Univ., 1972; [abstract]: Dissert. Abs. Internatl., v. 33B, p. B3717-B3718, 1973.

MAHER, HARMON DROGE, JR.

1. Stratigraphy and structure of the Belair and Kiokee belts, near Augusta, Georgia, in Geological investigations of the eastern Piedmont, southern Appalachians (edited by Arthur Wilmot Snoke)--Carolina Geol. Soc. field trip guidebook: Columbia, South Carolina Geol. Survey, p. 47-54, illus., 1978; M S Thesis, Univ. South Carolina, 1979.
   A summary of recent geological mapping is given. The Belair belt is composed of interlayered felsic and intermediate pyroclastic rocks with subordinate epiclastic rocks, all in the greenschist facies. The Kiokee belt is a high-grade, polyphased deformation terrane separated from the Belair rocks by the Augusta Fault zone. The Belair Fault zone cuts across the Augusta Fault zone. Two structural models are discussed.

2. The Belair belt of South Carolina and [Richmond County] Georgia--stratigraphy and depositional regime as compared to the Carolina Slate belt [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 187, 1979.

MAHER, JOHN CHARLES, 1914-

1. (and Applin, Esther English Richards) Geologic framework and petroleum potential of the Atlantic Coastal Plain and continental shelf: U. S. Geol. Survey Prof. Paper 659, iv, 98 p., illus., 1971.
Georgia is included. A review of the Cretaceous and Cenozoic rocks is given, and structures are discussed. Cross sections, made from well records, are included also. There are few shows of hydrocarbons in the Georgia rocks; these are described. Potential traps, structures, and reservoirs are discussed. The potential is not good.

MAHER, STUART WILDER, 1918-

1. Regional distribution of mineral deposits beneath the pre-Middle Ordovician unconformity in the southern Appalachians: Econ. Geology, v. 66, p. 744-747, illus., 1971.
The Cartersville Bartow County iron-manganese-barite deposits are much older than the unconformity and have been deformed by late Paleozoic movement, so their origin is more obscure. The ores are epigenetic and occur chiefly as open space fillings. Deformation has destroyed or obscured the mineral zonation.

MANKER, JOHN PHILLIP, 1944-, **see also** Rymer, Rodney Keith, 1

1. (and Ponder, Randall Darius) Quartz grain surface features from fluvial environments of northeastern Georgia: Jour. Sed. Petrology, v. 48, p. 1227-1232, illus., 1978.
Quartz grains from the Soque and North Oconee Rivers show surface features on scanning electron micrographs which are not dissimilar to quartz-grain surface-features from beach sands. Investigators should be wary of using these features in and by themselves as environmental indicators.

MANLEY, FREDERICK HARRISON, JR., 1931-, **see also** Owens, Ronald Avery, 1; Schaeffer, Malcolm Francis, 1; Vines, Terry Lee, 1

1. (and Power, Walter Robert, Jr.) Calcite geothermometry in the Georgia Piedmont [and northwestern Georgia] [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 89, 1972.

2. (and Vines, Terry Lee, and MacLemore, Daniel N., 3d) Corundophyllite from Stone Mountain [DeKalb County] pegmatites [abstract]: Georgia Acad. Sci. Bull., v. 30, p. 79, 1973.

3. (and Sewell, Thomas L.) Vermiculite and hydrobiotite in an igneous complex, Elbert County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 31, p. 84, 1973.

4. (and Ogren, David Ernest, and Webb, Lyndall Charles) Mottled Upper Ordovician carbonates in northwest Georgia: Jour. Sed. Petrology, v. 45, p. 615-617, illus., 1975.
Mottled red and gray-green, silty limestones and calcareous siltstones occur in the Sequatchie Formation near Ringgold, in Catoosa County. X-ray diffraction and optical methods show that the red mottles are due to the presence of diagenetic hematite which was formed by the oxidation of iron expelled from detrital chlorite.

5. (and Gaines, [Caines] Gary Lee, and Holland, James L.) Geochemical investigation of the Etowah River drainage system in north-central Georgia [abstract]: Georgia Acad. Sci. Bull., v. 34, p. 85, 1976.

6. (and Power, Walter Robert, Jr., and Guinn, Stewart Allen) Norbergite and lizardite/chrysotile from the Murphy Marble, New York Mine, Marble Hill [Pickens County] Georgia [abstract]: Georgia Jour. Sci., v. 35, p. 90, 1977.

7. (and Martin, Benjamin Franklin) Clay mineralogy of some Ordovician bentonites from the Chickamauga Supergroup, northwest Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 89-90, 1972.

MANN, WILLIAM RHODES, 1948-

1. Geology of coastal Georgia, in Symposium on the petroleum geology of the Georgia Coastal Plain (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 125-134, illus., 1974.
Broad, flat, parallel areas or steps along the coast are salt-marsh-filled lagoons which developed landward of chains of barrier islands. Seven sequences can be mapped in some places. The age varies from possibly Pliocene to Holocene. A discussion of the evidence for the interpretations is given.

MARCUS, HARRIS L., 1931-

1. (and Hackett, LeRoy Huntington, Jr.) Low temperature fracture behavior of iron-nickel meteorites [Putnam County] [abstract]: Meteoritics, v. 9, p. 371-376, illus., 1974.

MARINE, IRA WENDELL, 1927-

1. (amd Siple, George Elmer) Buried Triassic basin in the central Savannah River area, South Carolina and Georgia: Geol. Soc. America Bull., v. 85, p. 311-320, illus., 1974.
Geophysical data and wells show the Dunbarton basin to be about 50 km long, 10 km wide, and trends northeastward from Burke County. At least 902 m of fanglomerates and various fluviatile sediments are present.

2. Geohydrology of buried Triassic basin at Savannah River plant, South Carolina [and Burke County, Georgia]: Amer. Assoc. Petroleum Geologists Bull., v. 58, p. 1825-1837, illus., 1974.
The buried Dunbarton basin contains Triassic rocks which are described. The basin is at least 30 miles long and at least six miles wide; it extends into Burke County. A great deal of hydrological data is included.

3. Structural model of the buried Dunbarton Triassic basin in South Carolina and [Burke County] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 225, 1976.

MARION, GEORGE EUGENE, 1952-, **see also** Long, Leland Timothy, 12, 16, 18

1. A spectral analysis of microearthquakes that occur in the [Clark Hill reservoir area] southeastern United States: M S Thesis, Georgia Inst. Technology, 1977.

MARKEWICH, THELMA HELAINE WALSH, 1947-, **see** Reinhardt, Juergen, 1

MARSALIS, WILLIAM EPHRAIM, JR., 1937-, **see also** Huddlestun, Paul Francis, 3; Pickering, Samuel Marion, Jr., 4

1. A preliminary geologic report on Clay County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 30, p. 80, 1972.

2. (and Pickering, Samuel Marion, Jr.) A suggested coordinated approach to Georgia Coastal Plain stratigraphic correlation [abstract]: Georgia Acad. Sci. Bull., v. 30, p. 84, 1972.

3. (and Friddell, Michael Steven) A guide to selected Upper Cretaceous and lower Tertiary outcrops in the lower Chattahoochee River valley of Georgia--Georgia Geol. Soc. 10th Ann. Field Trip: Georgia Geol. Survey Guidebook 15, 87 p., illus., 1975.
A general description of the Cretaceous and Tertiary rocks of the region is given, and the fossils are illustrated. The first day of the trip begins and ends in Eufaula, Alabama, goes via Columbus, traverses 124 miles, and makes eight stops. The second day begins and ends in Eufaula, goes via Fort Gaines, traverses 119 miles and makes nine stops, all in Paleogene rocks. The geology at each stop and along the way is described.

MARTIN, BENJAMIN FRANKLIN, 1945-, **see also** Dallmeyer, Ray David, 1; Manley, Frederick Harrison, Jr., 7

1. The petrology of the Corbin Gneiss [Bartow and Cherokee Counties]: M S Thesis, Univ. Georgia, 1974.

MARTIN, ROBERT ALLEN, 1944-

1. Fossil history of the rodent genus **Sigmodon** : Ecol. Monographs 2, 36 p., illus., 1979.
   Extinct and extant species of **Sigmodon** are described and illustrated. **S. hispidis** comes from Pleistocene cave formation from Ladd's quarry in Bartow County.

MARTIN, ROGER CRAIG, 1947-

1. (and Hicks, R. G.) An evaluation of offshore sand and gravel deposits as construction or specialty materials: Georgia Marine Sci. Center Tech. Rept. 75-3, 66 p., illus., 1975.
   Engineering analyses were performed on samples taken from Georgia coastal rivers and adjacent shelves and compared with materials now in use. The potential for these materials is very great.

MARTINS, OCTAVIO RABAÇAL

1. Missao de estudo de marmores e granitos nos Estados Unidos da America e no Canada: Boletim de Minas, v. 10, p. 135-169, illus., 1973.
   This is an outline of a journey to the United States to visit the quarries at Elberton in Elbert County and at Tate in Pickens County. Brief descriptions of the rocks are included in what is primarily a description of mines and mining methods, in Portuguese.

MASON, BRIAN HAROLD, 1917-, **see** Buseck, Peter R., 1, 2; Ehmann, William Donald, 1; Lipschutz, Michael Elazar, 1; Morgan, John Walter, 1, 2; Oversby, Virginia McConn, 1; Reed, George W., Jr., 1, 2, 3

MATHENA, ELLEN COOPER, 1946-, **see** Bollinger, Gilbert Arthur, 7, 9, 10

MATHEWS, WILLIAM HENRY, 1919-

1. Cenozoic erosion and erosion surfaces of eastern North America: Amer. Jour. Sci., v. 275, p. 818-824, illus., 1975.
   About 1,250 cubic km of post-Cretaceous sediments per km of coast line occur in the Atlantic Ocean off the coast of Georgia. An average of 1.6 cubic km per square km can be inferred from the drainage area east of the Blue Ridge crest. Survival of any Cretaceous peneplain is exceedingly unlikely.

MATHUR, UDAY PRAKASH, 1945-, see also Long, Leland Timothy, 4

1. Study of the continental structure of southeastern United States by dispersion of Rayleigh waves: M S Thesis, Georgia Inst. Technology, 1971.

MAY, IRVING, 1918-

1. (and Rose, Harry Joseph, Jr., and Dwornik, Edward John) Memorial of Frank Cuttitta, September 14, 1912-November 4, 1974: Amer. Mineralogist, v. 60, p. 505-507, port., 1975.

MAY, JACK TRUETT, 1909-

1. China (kaolin) clays--mining and reclamation, in Environmental management of mineral wastes (edited by Gordon Terence Goodman and Michael John Chadwick): Alphen, Netherlands, Sijthoff and Noordhoff, p. 167-213, illus., 1978.
   A cursory description of the kaolin deposits from along the Fall Line includes physical and chemical properties of the enclosing rocks and the problems which result when this material is cast into spoil banks.

MAY, JAMES PARKER, 1938-

1. The Chattahoochee Embayment: Southeastern Geology, v. 18, p. 149-156, illus., 1977; discussion by Samuel Hunting Patterson, v. 19, p. 133-134; reply by author, p. 135-138.
   This name, proposed in 1891 for a downwarped area in southwestern Georgia and vicinity, is adequate and proper, and should be retained in spite of the numerous others that have been proposed for the same feature.

MAY, PAUL RUSSELL.

1. Pattern of Triassic-Jurassic diabase dikes around the North Atlantic in the context of predrift position of the continents: Geol Soc. America Bull., v. 82, p. 1285-1292, illus., 1971.
   The dikes surrounding the Atlantic, including those in the Piedmont of Georgia, strike toward a common area in the Bahamas when the continents are joined. This is the point source of the separation as shown by the stress field. Those in Georgia are Triassic.

MAYE, PETER ROBERT, 3D, 1945-

1. Some important inorganic nitrogen and phosphorous species in Georgia salt marsh: M S Thesis, Georgia Inst. Technology, 1972; Georgia Inst. Technology Envir. Research Center Rept. ERC-0272, 60 p., illus., 1972.
   Cores from marsh sediments in Chatham County are analyzed. The interstitial water contains ammonium and phosphate, increasing in concentration with depth. The ammonium in the sediment is dependent upon the amount of clay present whereas grain size and salinity influence the amount of the phosphorous.

MAYHEW, MICHAEL ALLEN, 1942-

1. "Basement" to east coast continental margin of North America: Amer. Assoc. Petroleum Geologists Bull., v. 58, p. 1069-1088, 1974.
"Basement", defined as rocks with velocity over 4.5 km per second, of the continental margin of the Bahamas-Blake Plateau is compared with that of the subsurface of the Georgia Coastal Plain.

MAYO, FRANK.

1. Gems of Georgia: Rocks and Minerals, v. 54, p. 148-150, illus., 1979.
This is a popular account of the occurrence of numerous gem minerals from the state. Thirteen different stones are present. All are in the Blue Ridge or Piedmont except for agate which comes from northwestern Georgia.

MAYOU, TAYLOR VINTON, 1942-, **see also** Frey, Robert Wayne, 1; Howard, James Dolan, 18

1. Facies distribution and animal-sediment relationships in Doboy Sound [McIntosh County], a Georgia estuary: Ph D Thesis, Univ. Iowa, 1972; [abstract]: Dissert. Abs. Internatl., v. 33B, p. B3144, 1973.

2. (and Howard, James Dolan) Physical and biogenic characteristics of a closed estuary, Doboy Sound [McIntosh County] Georgia coast [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 380, 1974.

3. (and Howard, James Dolan) Animal-sediment relationships of a salt marsh estuary--Doboy Sound, [Part] 6 **of** Estuaries of the Georgia coast...: Senckenberg. Maritima, v. 7, p. 205-236, illus., 1975.
Five facies can be recognized in this McIntosh County estuary, the smallest on the Georgia coast. They are: bioturbated muddy sand, subtidal and intertidal laminated mud, interbedded sand and mud, crossbedded clear, fine sand, and beds of coarse sand and shells. Sedimentary structures reflect the relative importance of physical and biogenic processes.

MEADE, BUFORD KELLY, 1909-, **see also** Lyttle, Peter Thomas, 1

1. Report of the subcommission on Recent crustal movements in North America, **in** Problems of Recent crustal movement (edited by Yu. H. Bulanzhe): Valgus, Tallinn, p. 131-145, illus., 1975; reprinted **as** no. 65, **in** Reports on geodetic measurements of crustal movement, 1906-1971: Rockville, Maryland, U. S. Dept. Commerce, 1973.
A small-scale, preliminary map shows crustal movement in the United States determined from re-leveling which had begun in 1955. The Atlanta area on the Piedmont is the center of a zone of uplift. No cause is suggested.

MEADE, ROBERT HEBER, JR., 1930-

1. Transport and deposition of sediments in estuaries, **in** Environmental framework of coastal plain estuaries (edited by Bruce Warren Nelson): Geol. Soc. America Memoir 133, p. 91-120, illus., 1972.
The various ways in which sediments may be deposited in estuaries are described. The Savannah River estuary is cited as an example of a moderately stratified one in which sediments are moved progressively landward along the bottom and accumulated near the limit of net landward flow.

2. (and Trimble, Stanley Wayne) Changes in sediment loads of rivers of the Atlantic drainage of the United States since 1900, **in** Symposium, Effects of man on the interface of the hydrological cycle with the physical environment: Internatl. Assoc. Sci. Hydrology Pub. 113, p. 99-104, illus., 1974.
Examples from Georgia Piedmont streams and others from elsewhere are cited to show that stream loads have not been appreciably reduced due to dam building. This is because there had been a substantial sediment-accumulation (due to agricultural practices) which now serves as a source of sediments for the rivers.

MEADOWS, GEORGE RICHARD, 1952-

1. Petrology of Mesozoic age diabase dikes in the Georgia Piedmont: M S Thesis, Emory Univ., 1979; [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 176, 1978.

MEDLIN, JACK HAROLD, 1938-, **see also** Coleman, Sally Lynn, 1; Crawford, Thomas Jones, 2, 3, 4

1. (and Crawford, Thomas Jones) Petrology of the Brevard fault zone rocks in western Georgia [Piedmont] and eastern Alabama [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 331-332, 1971.

2. (and Crawford, Thomas Jones, and Daily, Harold W., and Baldwin, Jeffrey Scott) Structure and stratigraphy along the Brevard fault zone in western Georgia [Piedmont] and eastern Alabama [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 91-92, 1972.

3. (and Crawford, Thomas Jones) Geochemistry of amphibolites and hornblende gneisses in the western Georgia-eastern Alabama Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 419-420, 1973.

4. (and Crawford, Thomas Jones) Stratigraphy and structure along the Brevard fault zone in western Georgia and eastern Alabama, **in** The Byron Nelson Cooper volume (edited by Lynn Glover, 3d, and Paul Hubert Ribbe): Amer. Jour. Sci., v. 273A, p. 89-104, illus., 1973.
Twelve different metasedimentary sequences are identified; they occur in a broad synclinorium. Metamorphism accompanied by folding and faulting occurred toward the end of the events. The Brevard lineament, or zone of intense cataclasis, crosses lithologies and structures.

MEIER, ALLEN L., 1942-, **see** Hopkins, Roy Thomas, Jr., 1

MERTIE, JOHN BEAVER, JR., 1888-

1. Monazite placers in the southeastern Atlantic states: U. S. Geol. Survey Bull. 1390, 41 p., illus., 1975.
   A general summary of the monazite-bearing rocks in the Piedmont and Coastal Plain provinces includes many potential locations in Georgia. Sites in Brantley, Glynn, Camden, and Charlton Counties are described, and heavy mineral concentrates are listed. The Coastal Plain contains the greatest potential for placer monazite.

2. Table of field numbers, localities, and descriptions of source materials for monazite-bearing concentrates from the southeastern Atlantic states: U. S. Geol. Survey Rept. USGS-GD-78-009, 34 p., 1978 [not seen].

3. Monazite in the granitic rocks of the southeastern Atlantic states--an example of the use of heavy minerals in geologic exploration: U. S. Geol. Survey Prof. Paper 1094, iv, 79 p., illus., 1979.
   Panning the saprolite reveals the presence of two monazite-bearing belts passing through the Blue Ridge and Piedmont. Monazite also occurs largely in adamellites which are unrelated to the present belts of distribution. The belts are interpreted as Precambrian valleys that were sinking basins of sedimentation. Subsequent to the deposition, the sediments were metamorphosed and parts of them anatexized.

MERZ, BARBARA ALIDA, 1953-, **see also** Sinha, Krishna Akhaury, 1

1. Siloam Granite, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. 5648-3, p. B2-B7, illus., 1978.
   Fourteen samples from different phases of the granite from Greene County are analyzed for major elements. The data are given in tables. A formative pressure of 2-4 kb is proposed.

MEUNIER, STANISLAUS, 1843-1925.

1. Recherches sur la composition et la structure des météorites: Annales de Chimie et de Physique, 4th ser. v. 17, p. 1-73, 1869.
   Chemical analyses for many meteorites, all of them iron, include that from Putnam County.

MIDDLE GEORGIA AREA PLANNING AND DEVELOPMENT COMMISSION.

1. Natural resources of middle Georgia: Macon, Middle Georgia Area Planning and Devel. Comm, iii, 162 p., illus., 1973.
   A summary of the mineral resources of Bibb, Crawford, Houston, Jones, Monroe, Peach and Twiggs Counties is given. Ground water is included as are analyses of the minerals and water. Small scale maps show the distribution of the various mineral resources.

MIDDLETON, ROYCE G.

1. (and Smith, Ernest Hubert) Soil survey of Miller and Seminole Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 44 p., illus., 1976.
   The soils of these counties are mapped in great detail, and a cursory review of the geology is included.

MIESCH, ALFRED THOMAS, 1927-, see Shacklette, Hansford Threlkeld, 4

MILICI, ROBERT CALVIN, 1931-

1. Stratigraphy and depositional environments of the Upper Mississippian and Lower Pennsylvanian rocks in the southern Cumberland Plateau of Tennessee [and Dade County, Georgia], in Carboniferous of the southeastern United States (edited by Garrett Briggs): Geol. Soc. America Spec. Paper 148, p. 115-133, illus., 1974.
   Allusion to the Carboniferous rocks on Sand Mountain in Dade County is made. A discussion of the nomenclatural history of the rocks is followed by a review of the interpretations that have been formerly made. The rocks represent a suite of littoral sedimentary environments which prograded across the Mississippian carbonate banks from the northeast. They are in part tectonically controlled.

2. Structural patterns in the southern Appalachians--evidence for a gravity slide mechanism for the Alleghanian deformation: Geol. Soc. America Bull., v. 86, p. 1316-1320, illus., 1975.
   The large, northeast-trending overthrust faults of the southern Appalachians, with Georgia implied, do not intersect each other. They are younger to the east, resulting from decollements which are from an uplifting Piedmont region to the east.

3. (and Harris, Leonard Dorrean) Structural subdivision of the Valley and Ridge and Appalachian Plateaus physiographic provinces [northwestern Georgia] [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 229-230, 1976.

4. (and Wedow, Helmuth, Jr.) Upper Ordovician and Silurian stratigraphy in Sequatchie Valley and parts of the adjacent Valley and Ridge, Tennessee: U. S. Geol. Survey Prof. Paper 996, 38 p., illus., 1977.
   The Inman, Leipers, Sequatchie, and Shellmound Formations are Upper Ordovician and, with the overlying Silurian rocks, represent a transgressive-regressive sequence. Upper Ordovician mudflat deposits prograde seaward and laterally into marine deposits. Detailed measured sections from Dade County are included.

MILLER, DAVID WILLIAM, 1929-, **see** Geraghty, James Joseph, 1

MILLER, JOHN C.

1. (and Hackenberry, Paul S., and De Luca, Frank A.) Ground-water pollution problems in the southeastern United States: Ada, Oklahoma, Kerr Environmental Lab. Rept. EPA 600/3-77-012, 361 p., illus., 1977.
   A generalized sketch of the geology of southeastern states includes that of Georgia. Included also is a description of most of the sources of ground-water pollution, and base-line chemical data from the state.

MILLER, RALPH LE ROY, 1909-

1. Oil and gas data from the Upper and Middle Ordovician rocks in the Appalachian Basin: U. S. Geol. Survey Misc. Invs. Map I-917 C, 3 sheets, scale, 1:2,500,000, 1975.
   The isopach map shows the rocks to be 1,750 feet thick in the extreme northwestern corner of the state. Few other data are given.

MILLER, ROBERT ARDELL, 1923-

1. (and Fagan, James Michael, and Hale, Robin Clyde) [Map of] mineral resources of the Tennessee Valley region: Knoxville, Tennessee Valley Authority, Div. Water Control, scale, 1:633,000, 1970.

MINSCH, JOHN H.

1. (and others) Earthquakes in the United States, October-December 1976: U. S. Geol. Survey Circ. 766D, 31 p., illus., 1978.
   The earthquake of December 26, near Reidsville, Toombs County, is included. Its intensity was V.

MISRA, KULA CHANDRA, 1937-

1. (and Keller, Frederick Brian, Jr.) Ultramafic bodies in the southern Appalachians-- a review, in Appalachian geodynamic research (edited by Kenneth Russell Walker and Dietrich Hans Roeder): Amer. Jour. Sci., v. 278, p. 389-418, illus., 1978.
   A survey of ultramafic bodies includes those which are in Georgia. They are in two belts, one in the Blue Ridge northwest of the Brevard zone, and the other, much less well-defined, is southeast of the Brevard zone. All are described petrographically and genetically. Those in the Blue Ridge are related to late Precambrian rifting and those in the Piedmont are pre- or syn-metamorphic diapirs into a back-arc basin.

MITCHELL, GAIL DENENE, 1953-, **see** Gill, Harold Edward, 1

MITCHELL, JEFFREY LEONARD, 1946-

1. Sediment differentiation in the Altamaha river-estuary-marine system [Glynn County]: M S Thesis, Emory Univ., 1972.

MOODY, WILLIS ELVIS, JR., 1924-, **see** Sanders, Thomas Henry B., Jr., 1

MOORE, CARLETON BRADLEY, 1932-, **see** Gibson, Everett Kay, Jr., 1; Karr, Marilyn L., 1; Lewis, Charles Franklin, 1

MOORE, DONALD BENTON, 1936-

1. A review of oil and gas developments in Alabama and Georgia [abstract], **in** Symposium on the petroleum geology of the Georgia Coastal Plain (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 17, 1974.

MOORE, THOMAS PATRICK, 1947-, **see also** Brooks, Paula Elizabeth, 1

1. Microgravity and solution cavity detection in Albany [Dougherty County] Georgia [abstract]: Georgia Jour. Sci., v. 35, p. 85, 1977.

MOREN, ARTHUR EUGENE.

1. (and Goldstein, Joseph Irwin) Cooling rates of Group IVA iron meteorites determined from a ternary Fe-Ni-P model: Earth and Planet. Sci Letters, v. 43, p. 182-196, illus., 1979.
   Numerous meteorites are included in the investigation, including Social Circle from Walton County, and Putnam County. The group IVA irons were accommodated at various depths in an asteroidal-sized body.

MORGAN, BENJAMIN ARTHUR, 3D, 1938-

1. Metamorphic map of the Appalachians: U. S. Geol. Survey Misc. Invs. Map I-724, 1 sheet, scale, 1:2,500,000, 10 p. text, 1972.
   The distribution of metamorphic rocks by grade and mineral facies is shown. They are mapped as metamorphosed during the Paleozoic only, the Precambrian only, and during both the Precambrian and the Paleozoic. The rocks are in the Blue Ridge, Piedmont, and the eastern part of northwestern Georgia.

MORGAN, JAMES PLUMMER, 1919-

1. Memorial to Henry V[an Wagenen] Howe, 1896-1973: Geol. Soc. America Memorials, v. 5, 7 p., port., 1977.

MORGAN, JOHN WALTER, 1932-

1. Rhenium, **in** Handbook of elemental abundances in meteorites (edited by Brian Harold Mason): New York, Gordon and Breach, p. 435-449, illus., 1971.
   Rhenium content of many meteorites, including Canton from Cherokee County, is given.

2. Uranium, **in** Handbook of elemental abundances in meteorites (edited by Brian Harold Mason): New York, Gordon and Breach, p. 529-548, illus., 1971.
   The analyses of many meteorites for uranium includes that from the Sardis meteorite from Jenkins County.

MORGAN, PAUL, 1948-, **see** Swanberg, Chandler Alfred, 1

MORGAN, WARREN PORTER, JR., 1946-, **see also** Pinet, Paul Raymond, 2

1. Clay mineral descriptions and distributions, Altamaha, Doboy, and Sapelo Sounds, Georgia: M S Thesis, Univ. Georgia, 1977.

MORISAWA, MARIE, 1919-, **see** Hack, John Tilton, 1

MORRIS, GEORGE C., JR., **see** Foote, Erick Ensign, 1

MORRISON, NANCY LEWIS, 1948-, **see** Holdahl, Sandford R., 1

MOSE, DOUGLAS GEORGE, 1942-, **see** Whitney, James Arthur, 9

MOUNTAIN STATES RESEARCH AND DEVELOPMENT CORPORATION.

1. (and P. R. C. Toups Corporation) Engineering assessment and feasibility study of Chattanooga Shale as a future source of uranium: U. S. Dept. Energy Rept. GJBX 4-79, 3 vols., 928 p., illus., 1978.
   A regional study, largely of Tennessee but also one locality in Walker County is conducted. The thick uraniferous section is subeconomic, however. Only the Gassaway Member of the shale is present in Georgia.

MOYE, FALMA JEAN, **see also** O'Connor, Bruce James, 1

1. (and Staheli, Albert Clifford, and McAuliffe, Linda Evon) Regional topographic implications of the Stone Mountain-Lithonia District [DeKalb County] Georgia [abstract]: Georgia Acad. Sci. Bull., v. 31, p. 81, 1973.

2. Abstracts of theses on Georgia geology through 1974: Georgia Geol. Survey Bull. 89, 94 p., illus., 1976.
   One hundred and seventy nine theses, both MS and Ph D, are annotated and indexed by county, subject, and geological age.

MUELLER, STEPHAN, 1930-, **see** Warren, David Henry, 1

MUFFLER, LEROY JOHN PATRICK, 1937-, **see** Sammel, Edward Anthony, 1

MULAIK, STANLEY ALLEN, 1935-, **see** Parks, William Scott, 3; Pollard, Charles Oscar, Jr., 4

MULLINS, BALLARD MARVIN, 1936-

1. Geochemical aspects of atmospherically transported trace metals over the Georgia bight: M S Thesis, Georgia Inst. Technology, 1978.

MUNASIFI, WASIM GHAZI AHMAD, 1952-

1. Maximum entropy spectral analysis of surface wave dispersion: M S Thesis, Georgia Inst. Technology, 1979.

MURPHY, CAROL ANNE, 1952-, **see** Bollinger, Gilbert Arthur, 6

MURPHY, JAMES O.

1. Soil survey of Clayton, Fayette, and Henry Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 74 p., illus., 1979.
   The soils of the counties are mapped in great detail, and the geology is very cursorily outlined.

MURRAY, DONALD KEITH, 1930-, **see** Spackman, William, Jr., 2

MURRAY, GROVER ELMER, JR., 1916-

1. [Development of geological knowledge in the coastal province of eastern North America] [in Russian with an English summary], **in** Istoriya Geologii: Yerevan, Akad. Nauk Armenia SST, Mezhdunar Kom. Istorii Geol. Nauk, p. 279-306, 1970.
   Shell Bluff, in Burke County, is cited as one of the five reference, or starting points, for Gulf Coastal geological studies.

MURRAY, HAYDEN HERBERT, 1924-

1. The Georgia sedimentary kaolins, **in** Proceedings of the seventh international symposium on the genesis of kaolin: Tokyo, Internatl. Geol. Corr. Prog. Comm. on correlation of age and genesis of kaolin, p. 114-125, illus., 1976.
   The mineralogy and physical properties of the Cretaceous and Tertiary kaolins are critically analyzed. They were derived as residual weathering deposits from granites and gneisses, were deposited in Cretaceous estuaries, oxbow lakes, and lagoons, and many were reworked and redeposited in the Tertiary along with clays derived from the granites and gneisses.

2. (and Patterson, Samuel Hunting) Kaolin, ball clay, and fire-clay deposits in the United States--their ages and origins, in Proceedings of the international clay conference 1975 (edited by Sturges Williams Bailey): Wilmette, Illinois, Applied Pub. Ltd., p. 511-520, illus., 1976.
A general review of the origin and occurrence of these clays includes those from Georgia. Kaolin occurs as a sediment of the Coastal Plain, and halloysite occurs in Floyd County. No details are included.

MURRAY, JOSEPH BUFORD, 1933-

1. Reconnaissance geology of an area northwest of the Brevard Fault zone, Forsyth County, Georgia--a progress report [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 96, 1972.

2. Geologic map of Forsyth and north Fulton Counties, Georgia: Georgia Geol. Survey Map RM-7, scale, 1 inch to 1 mile, 1973.

MURTHY, VARANASI RAMA, 1933-

1. (and Patterson, Claire Cameron) Primary isochron of zero age for meteorites and the earth: Jour. Geophys. Research, v. 67, p. 1161-1167, illus., 1962.
The geochron of the earth falls within the limits of error of the geochron of meteorites, using lead-lead ratios. Data from the Sardis meteorite of Jenkins County are included.

MUTSCHLER, PAUL H.

1. (and Hill, James J., and Williams, Bradford B.) Uranium from the Chattanooga Shale--some problems involved in development: U. S. Bur. Mines Inf. Circ. 8700, 85 p., illus., 1976.
The Gassaway Member is present in northwestern Georgia; it is over 15 feet thick in at least one place in Walker County, and the uranium content is less than 60 ppm. None of the deposits from Georgia is considered commercially viable.

MYERS, OREN HUBERT, 1919-, **see** McLain, William Charles, 1

MYERS, W. BRADLEY, 1917-, **see** Reed, John Calvin, Jr., 1

NAFE, JOHN ELLIOTT, 1914-, **see** Sheridan, Robert Edmund, 1

NAIRN, ALAN EBEN MACKENZIE, 1927-, **see** Banks, Philip Oren, 1; Helwig, James Anthony, 1; King, Philip Burke, 3

NASH, GREGORY JOHN, 1948-

1. (and Henry, Vernon James, Jr.,) Historical shoreline changes along the south Georgia, north Florida coast [abstract]: Gulf Coast Assoc. Geol. Socs. Trans., v. 25, p. 393, 1975.

NEAL, WILLIAM JOSEPH, 1939-, **see** Windom, Herbert Lynn, 3

NEATHERY, THORNTON LEE, 1931-, **see also** Bentley, Robert Donald, 1; Crawford, Thomas Jones, 3; Fairley, William Merle, 3; Hatcher, Robert Dean, Jr., 6; Hurst, Vernon James, 4; Power, Walter Robert, Jr., 1

1. (and Reynolds, John Wayne) Stratigraphy and metamorphism of the Wedowee Group--a reconnaissance, **in** Geology of the Blue Ridge-Ashland-Wedowee Belt in the southern Piedmont (edited by Thornton Lee Neathery): Amer. Jour. Sci., v. 273, p. 723-741, illus., 1973.
   Metasediments, traced to areas with fossiliferous rocks, and with radiometric dates, are Early Devonian to Early Mississippian age. They are distinctly in a sequence which can be recognized even where they are in different metamorphic grades. They also occur in the western Piedmont of Georgia.

NEEDHAM, ROBERT EDMUND, 1941-

1. (and Hurst, Vernon James) Talc deposits in the Coosa Valley area, Georgia: U.S. Dept. Commerce Econ. Devel. Admin., 58 p., illus., 1970.
   Talc is known from Douglas, Paulding, and Murray Counties; those deposits from near Chatsworth in Murray County are discussed in detail. The geology of the mines, prospects, and general region is described. Analyses are included.

2. The geology of the Murray County, Georgia, talc district: M S Thesis, Univ. Georgia, 1972.

NEELEY, CATHY LOUISE, 1951-, **see** Buie, Bennett Frank, 3

NEIHEISEL, JAMES, 1927-

1. Source of detrital heavy minerals in estuaries of the Atlantic Coastal Plain: Ph D Thesis, Georgia Inst. Technology, 1973.

2. Heavy minerals in aeroradioactive high areas of the Savannah River floodplain and deltaic plain: South Carolina Div. Geology, Geologic Notes, v. 20, p. 45-51, illus., 1976.
   One sample from Effingham County, in the Savannah River floodplain deposits, is analyzed. It is from an area of high gamma radiation, determined from recently-published aeroradioactivity maps. Eleven heavy minerals are identified. Monazite and zircon are the important contributors to the radioactivity.

NELSON, ARTHUR EDWARD, 1922-

1. (and Clarke, James Wood) Preliminary geologic map of the Greenville quadrangle, South Carolina, Georgia, and North Carolina, with annotated bibliography and index map and references: U. S. Geol. Survey Repts. Open File 78-503, scale, 1:250,000, 1978.

NELSON, BRUCE WARREN, 1929-, **see** Hathaway, John Cummins, 1; Hoyt, John Harger, 3; Meade, Robert Heber, Jr., 1; Pevear, David Reckard, 1; Simmons, Henry Brown, 1

NESBITT, BRUCE EDWARD, 1951-

1. Regional metamorphism of the Ducktown, Tennessee massive sulfides and adjoining portions of the Blue Ridge Province: Ph D Thesis, Univ. Michigan, 1979; [abstract]: Dissert. Abs. Internatl., v. 40B, p. B2088-B2089, 1979.

NESTLER, JOHN MICHAEL, 1949-

1. A preliminary study of the sediment hydrology of a Georgia salt marsh using rhodamine WT as a tracer: Southeastern Geology, v. 18, p. 265-271, illus., 1979.
   Dyes in the Sapelo Island, McIntosh County, marshes show that capillary action in the upper 20 cm is the chief source of movement. Sediment microstructure, which controls the water movement, is altered by evaporation, dessication, rainfall, wave action, and other factors.

NEUMANN, ROBERT BALLIN, 1920-

1. Ordovician of the eastern United States, **in** The Ordovician System (edited by Michael G. Bassett): Cardiff, Univ. Wales Press, p. 195-207, illus., 1976; discussion, p. 207.
   A review of the Ordovician tectonism in the eastern United States includes that from Georgia. The Lower Ordovician rocks are largely shelf carbonates and are unconformably overlain by clastic rocks toward the east, where shale is the dominant lithology. The sediments reflect different kinds and times of tectonic activity in different places.

NEUMANN, A., **see** Ride, William Daniel Lindsey, 1

NEWELL, WAYNE LINWOOD, 1942-

1. (and Pavich, Milan Joseph) Weathering, scarp retreat, and the generation of surficial deposits on an inner Coastal Plain landscape, Augusta [Richmond County] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 193, 1978.

NG, LILY MON-SAI, 1946-, **see** Casagrande, Daniel Joseph, 9

NICKENS, DAN ALAN, 1954-

1. Surface textures of quartz sand grains from Trail Ridge and adjacent areas [Coastal Plain]: M S Thesis, Univ. Florida, 1977[not seen].

NIEMEYER, SIDNEY, 1951-

1. ^{40}Ar-^{39}Ar dating of inclusions from IAB iron meteorites: Geochim. et Cosmochim. Acta, v. 43, p. 1829-1840, illus., 1979.
   The Pitts meteorite, from Wilcox County, is included. Its age, from the unetched silicate portion is 4.54 b.y., and from the etched portion, is 4.57 b.y.. Argon retention in the troilite phase is the same initially, but at about 4.25 b.y., the argon from the troilite phase was redistributed.

2. I-Xe dating of silicate and troilite from IAB iron meteorites: Geochim. et Cosmochim. Acta, v. 43, p. 843-860, illus., 1979.
   The Pitts meteorite, from Wilcox County, is included among many from elsewhere. Pitts has an anomalous I-Xe pattern from the silicate phase and a very complex pattern from the troilite. Speculation about the origin of Pitts within the nebula of formation is made.

NIKRAVESH, RASHEL.

1. The foraminifera and paleoecology of the Blufftown Formation (Upper Cretaceous) of Georgia [Coastal Plain] and eastern Alabama: Ph D Thesis, Louisiana State Univ., 1967; [abstract]: Dissert. Abs. Internatl., v. 28B, p. B2902, 1968.

NISHENKO, STUART PAUL, 1954-

1. (and Sykes, Lynn Ray) Fracture zones, Mesozoic rifts and the tectonic setting of the Charleston, South Carolina [and nearby Coastal Plain Georgia] earthquake of 1886 [abstract]: EOS, v. 60, p. 310, 1979.

NISHIMORI, RICHARD KIICHI, 1948-, **see** Rogers, John James William, 1

NIXON, ROY ARTHUR, 3D, 1949-

1. (and Grant, Willard Huntington) A velocity gradient model for weathering profiles [DeKalb County] determined by seismic refraction [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 194, 1978.

2. Differences in incongruent weathering of plagioclase and microcline--cation leaching versus precipitates: Geology, v. 7, p. 221-224, illus., 1979.
Feldspars from many places in Georgia show that the mechanisms of weathering are independent of the weathering environment, and are different for the two minerals. pH controls the rate of weathering, and pH is controlled by the release of cations from the feldspars, the rate of which varies.

3. Formation of allophane from some granitic rocks [Piedmont] [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 207, 1979.

4. Weathering of the Panola Granite [DeKalb County] to gibbsite in an acidic environment--a model for bauxite genesis [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 207, 1979.

NOAKES, JOHN EDWARD, 1930-, **see also** Brandau, Betty Lee, 1, 2, 3

1. (and Brandau, Betty Lee) University of Georgia radiocarbon dates I: Radiocarbon, v. 13, p. 468-474, 1971.
Pleistocene shell deposits from Pumpkin Hammock in the Duplin River in McIntosh County are 27,670 years old whereas dolostone from the Pamlico Lagoon in Glynn County is more than 40,000 years old.

NOLTIMIER, HALLAN COSTELLO, 1937-, **see** Watts, Doyle Robin, 1

NUMMEDAL, DAG, 1943-, **see also** Hubbard, Dennis Keith, 2

1. (and others) Tidal inlet variability--Cape Hatteras to Cape Canaveral, in Coastal sediments 77: New York, Amer. Soc. Civil Engineers, p. 543-562, illus., 1977.
The nature of the inlets along the Georgia coastline is determined by a balance of many forces, such as tidal range, deep-water wave-energy, inner-shelf slope, and percentage of open water in the lagoon. Those in Georgia are ebbtide-dominated.

2. (and Fischer, Ian A.) Process-response models for depositional shorelines--the German and Georgia bights, Chapter 70 of Proceedings of the sixteenth Coastal Engineering Conference, vol. 2: New York, Amer. Soc. Civil Engineers, p. 1215-1231, illus., 1979.
Examples from Georgia tidal inlets show that the sediment dispersal within the inlets is controlled by (1) the tide range, (2) the nearshore wave energy, and (3) the geometry of the back-barrier bay. A classification for simple models of morphology is proposed.

NUNAN, WALTER EDWARD, 1943-

1. Stratigraphy of the Lower Devonian rocks of northwestern Georgia: M S Thesis, Emory Univ., 1971.

2. Sedimentary environment of the Armuchee Chert, northwest Georgia, **in** Sedimentary environments in the Paleozoic rocks of northwest Georgia (edited by Timothy Michael Chowns)--Georgia Geol. Soc. 7th Ann. Field Trip: Georgia Geol. Survey Guidebook 11, p. 57-68, illus., 1972.
The Lower Devonian chert was deposited on a shallow marine shelf as thick accumulations of sponge spicules and spiculitic micrite. Chertification proceeded immediately after deposition.

OAKS, ROBERT QUINCY, JR., 1938-, **see also** Alt, David Dolton, 1; Hoyt, John Harger, 4; Richards, Horace Gardiner, 2

1. (and DuBar, Jules Ramon) Introduction, **in** Post-Miocene stratigraphy, central and southern Atlantic Coastal Plain (edited by Robert Quincy Oaks, Jr., and Jules Ramon DuBar): Logan, Utah State Univ. Press, p. 2-8, illus., 1974.
A review, largely in tabular and bibliographic form, of the studies of the late Neogene rocks and structures of the Atlantic Coastal Plain, includes those from Georgia.

2. (and DuBar, Jules Ramon) Tentative correlation of post-Miocene units, central and southern Atlantic Coastal Plain, **in** Post-Miocene stratigraphy, central and southern Atlantic Coastal Plain (edited by Robert Quincy Oaks, Jr., and Jules Ramon DuBar): Logan, Utah State Univ. Press, p. 232-245, illus., 1974.
The units are correlated by absolute-age geochronology and by lateral, coastwise tracing. An historical perspective is given along with current interpretations. In Georgia, Pleistocene "terraces" rest on Miocene marine rocks. Rocks above 100 feet in elevation have not been studied.

OBAOYE, MICHAEL OLAJIDE, 1949-

1. (and Long, Leland Timothy, and Dainty, Anton Michael) Detailed gravity traverse across northeastern [Piedmont] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 207, 1979.

2. Interpretation of detailed gravity traverses across northeastern [Piedmont] Georgia: M S Thesis, Georgia Inst. Technology, 1979.

O'BYRNE, MICHAEL PATRICK, 1955-, **see** Clarke, John Stuart, 1

O'CONNOR, BRUCE JAMES, 1946-, **see also** Prowell, David Cureton, 3, 4

1. (and Lawton, David Edward, and Moye, Falma Jean) A Brevard quartzite-schist unit extending into the inner Piedmont of Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 383-384, 1974.

2. (and Carpenter, Robert Heron, and Paris, Travis Anthony, and Hartley, Marvin Eugene, 3d, and Denman, Harry Edward, Jr.) Recently discovered faults in the [Piedmont and Coastal Plain] central Savannah River area [abstract]: Georgia Acad. Sci. Bull., v. 32, p. 15, 1974.

3. (and Prowell, David Cureton) The geology of the Belair Fault zone and basement rocks of the Augusta, Georgia area, in Stratigraphy, structure, and seismicity in slate belt rocks along the Savannah River--Georgia Geol. Soc. 11th Ann. Field Trip (compiled by Timothy Michael Chowns): Georgia Geol. Survey Guidebook 16, p. 21-32, illus., 1976.
Gneisses of the Kiokee belt are the oldest rocks of the area in Columbia and Richmond Counties. The Belair-Belt rocks are phyllites and greenstones, and overlie gneisses. Questionable Cretaceous but certainly Tertiary rocks overlie these, and all are described. The fault zone has at least 7 en echelon, eastward dipping, reverse faults. Radiocarbon dates of peat associated with the faults vary from 470 to 2,390 years.

4. (and Prowell, David Cureton) Post-Cretaceous faulting along the Belair Fault zone near Augusta [Richmond County] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 236-237, 1976.

5. A calcite-bearing calcsilicate gneiss marker horizon in the eastern Greater Atlanta region [Piedmont] [abstract]: Georgia Jour. Sci., v. 35, p. 89, 1977.

6. (and Costello, John Oliver, and Lawton, David Edward) Structure, stratigraphy, and lithology of Precambrian basement and cover rocks in the Corbin and Salem Church antiforms, southwestern Blue Ridge thrust sheet, Bartow, Cherokee, and Pickens Counties, Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 194, 1978.

ODOM, ARTHUR LE ROY, JR., 1941-, **see also** Carpenter, Robert Heron, 6; Russell, Gail Sherrer, 1

1. (and Kish, Stephen Alexander, and Leggo, Peter J.) Extension of "Grenville basement" to the southern extremity of the Appalachians--U-Pb ages of zircons [Blue Ridge and Piedmont] [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 425, 1973.

2. (and Russell, Gail Sherrer, and Russell, C. Winston) Distribution and age of Precambrian basement in the southern Appalachians [Piedmont] [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 238, 1976.

ODUM, HOWARD THOMAS, 1924-, **see** Cooper, Arthur Wells, 1

OERTEL, GEORGE FREDERICK, JR., 1944-, **see also** Hubbard, Dennis Keith, 2; Nummedal, Dag, 1

1. (and Howard, James Dolan) Hydrodynamics and sedimentation at tidal inlets on the Georgia coast [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 663-664, 1971.

2. Patterns of sediment transport at nearshore zones influenced by wave and tidal currents--a study utilizing fluorescent tracers: Georgia Marine Sci. Center Tech. Rept. 72-7, 28 p., illus., 1972.
The interaction of wave surge with river flow and tidal currents produces sand concentrations which nourish shoals and inhibit wave erosion. The patterns of grain transport are not always reflected by bedform configurations. Examples from the southern end of Sapelo Island in McIntosh County are cited.

3. Sediment-hydrodynamic interrelationships at the entrance of Doboy Sound estuary, Sapelo Island [McIntosh County] Georgia: Ph D Thesis, Univ. Iowa, 1971; [abstract]: Dissert. Abs. Internatl., v. 32B, p. B2800, 1972.

4. Sediment transport of estuary entrance shoals and the formation of swash platforms: Jour. Sed. Petrology, v. 42, p. 857-863, illus., 1972.
Sand shoals, seaward of estuary entrances, are largely the result of the interaction between waves and tidal currents. Wave bores interact with ebb-tidal currents. The seaward-moving sediment is diverted landward in gyral paths, resulting in distinctively shaped and textured shoals.

5. (and Howard, James Dolan) Water circulation and sedimentation at estuary entrances on the Georgia coast, in Shelf sediment transport--process and pattern (edited by Donald Josiah Palmer Swift, David Bierlein Duane, and Orrin Hendren Pilkey): Stroudsburg, Pennsylvania, Dowden, Hutchinson, and Ross, p. 411-427, illus., 1972.
The origin and distribution of estuary-entrance shoals are related to currents, tides, and wind. Numerous examples from various estuaries of Georgia are cited.

6. (and Howard, James Dolan) Working model for barrier-island development along low-energy coast of Georgia [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 56, p. 642-643, 1972.

7. Examination of textures and structures of mud in layered sediments at the entrance of a Georgia tidal inlet: Jour. Sed. Petrology, v. 43, p. 33-41, illus., 1973.
X-radiographs from mud layers at the entrance to Doboy Sound, McIntosh County, show three different kinds of mud layers, and each is described. They form in response to hydrodynamically different depositional processes.

8. Observations of net shoreline positions and approximations of barrier island sediment budgets: Georgia Marine Sci. Center Tech. Rept. 73-2, 23 p., illus., 1973.
Studies of older and recent aerial photographs, and transects perpendicular to the shoreline of each of the major barrier islands, reveal changes wrought throughout the years. Relative rates of accretion and erosion are shown. Fourteen time-periods are identified, and different events are placed in perspective.

9. Patterns of sediment dispersion on the shoreline of an eroding barrier island: Georgia Marine Sci. Center Tech. Rept. 74-2, 88 p., illus., 1974.
Fluorescene-dyed sand was used to show that wave-induced and tidal currents both affect the sediment budget on the beach on Tybee Island, Chatham County. Wave-induced dispersion and accretion are seasonal. The source of the sand is from ebb-tidal deltas and offshore shoals.

10. Residual currents and sediment exchange between estuary margins and the inner shelf, southeast coast of the United States, **in** Relations sedimentaires entre estuaries et plateaux continentales: Inst. géol. Bassin Aquitaine Mém. 7, p. 135-144, illus., 1974.
Waves and currents control the dissemination of sediments from inlets onto the shelf in front of the islands, the geometry of which is distinctive. Seaward, wave turbulence and residual currents move the sediments; nearer to shore, residual currents establish sedimentary patterns; and closest to the inlets, the asymmetry and intensity of residual currents are the most pronounced.

11. A review of the sedimentologic role of dunes in shoreline stability, Georgia coast: Georgia Acad. Sci. Bull., v. 32, p. 48-56, illus., 1974.
Dune ridges are barriers, preventing flooding and large-wave surges onto the coastline; they dissipate energy, and serve as reservoirs of sand to restore beaches.

12. (and Chamberlain, Charles Franklin) Differential rates of shoreline advance and retreat at coastal barriers of Chatham and Liberty Counties, Georgia: Gulf Coast Assoc. Geol. Socs. Trans., v. 25, p. 383-390, illus., 1975.
Historical changes in the shoreline of Tybee, Little Tybee, Wassaw, Ossabaw, and St. Catherine's Islands are noted. The net growth or retreat is different, and no cause for the differences is given. Since 1897 Tybee and Little Tybee underwent net retreats of 0.3 and 0.7 m per year, respectively. Net advances for Wassaw and Ossabaw are 2.8 and 2.9 m per year, respectively, whereas St. Catherine underwent a net retreat of 4.0 m per year.

13. Ebb tidal deltas of Georgia estuaries, **in** Estuarine research (edited by Lewis Eugene Cronin): New York, Academic Press, v. 2, p. 267-276, illus., 1975.
Tidal-delta configurations are determined by interactions between inlet tidal drainage and longshore currents. Examples of different kinds are illustrated from the barrier-island area of Georgia.

14. Natural shifts in offshore shoal morphology and respective effects upon patterns of shoreline erosion and accretion [Coastal Plain] [abstract]: Amer. Assoc. Petroleum Geologists Abs. Ann. Mtg., v. 2, p. 57, 1975.

15. Post Pleistocene island and inlet adjustment along the Georgia coast: Jour. Sed. Petrology, v. 45, p. 150-159, illus., 1975.
Holocene beach-ridge development has produced sequential constriction of tidal inlets: from encroachment on both sides by marginal spits as a result of retreating shorelines, by seasonal reversals in sediment transport, by localized flood-channel deposits, and by decreasing lagoonal tidal-prisms by marsh deposition.

16. Characteristics of suspended sediments in estuaries and nearshore waters of Georgia: Southeastern Geology, v. 18, p. 107-118, illus., 1976.
Ratios of organic to inorganic components are measured. In estuaries the ratio is variable whereas landward it is 30:70. The percentage of inorganic material decreases seaward beyond the turbid zone. Many variables are present, and quantitative predictions cannot be made.

17. (and Larsen, Matthew C.) Developmental sequences in Georgia coastal dunes and distribution of dune plants: Georgia Acad. Sci. Bull., v. 34, p. 35-48, illus., 1976.
Transects of dune ridges of Tybee, Wassaw, Ossabaw, and St. Catherine's Islands show distinct geomorphic zones and distinct vegetative types associated with each zone. The causes of the differences in plants on each zone are not known. Larger plants are on larger dunes, and the different plants may affect the dip angle of the dune foreset beds.

18. Patterns of sediment transport at nearshore zones influenced by wave and tidal currents--a study utilizing fluorescent tracers: Southeastern Geology, v. 15, p. 77-92, illus., 1976.
The interaction of tidal, longshore, and wave-surge currents result in distinctive sediment patterns. Examples from Sapelo Island, McIntosh County are cited.

19. Geomorphic cycles in ebb deltas and related patterns of shore erosion and accretion: Jour. Sed. Petrology, v. 47, p. 1121-1131, illus., 1977.
Small inlets on the sea islands of Georgia generally have arcuate ebb deltas with radially distributed channels. Several have spits parallel to the shore that direct the river-water flow downdrift, thus causing erosion. Major inlets along the coast have pronounced shore-normal orientations. The proximal ends of the spits may be attached to or separated from the shore and so affect the erosion and deposition in the inlet.

20. (and Harding, James Lombard) Sand stabilization on the dunes, beach, and shoreface of a historically eroding barrier island--Wassaw Island erosion study, Part 3: Georgia Marine Sci. Center Tech. Rept. 77-3, 46 p., illus., 1977.
The effects of snow fences, sandbags, and other artificial mats on different parts of the sand terrane of Wassaw Island, Chatham County are noted.

21. Sedimentary framework of a channel margin shoal of an ebb delta, Wassaw Sound, Georgia--Wassaw Island erosion study, Part 1: Georgia Inst. Marine Sci. Tech. Rept. 77-1, 18 p., illus., 1977.
The sediment carpet on the shoal is analyzed from box cores made on a 2 by 4 mile grid. The distribution of the various sand sizes is shown on small-scale contour maps. Bioturbation percentages are also included. The fine and very fine grained sands are carried seaward by ebb tidal currents; the coarse sand is concentrated in the lag.

22. Barrier island development during the Holocene recession, southeastern United States, in Barrier islands from the Gulf of St. Lawrence to the Gulf of Mexico (edited by Stephen Parker Leatherman): New York, Academic Press, p. 273-290, illus., 1979.
Transgressing shorelines resulted in young barrier islands being welded to Pleistocene barrier islands and in the sea reoccupying the relict embayments. The modification and development of the Holocene barriers were controlled by (1) rise in sea level, (2) the relict Pleistocene topography, (3) inlet tidal-current patterns, (4) seasonal storms, and (5) sand availability.

OGLEY, DAVID S.

1. (and Fallaw, Wallace Craft) Lineaments in northeastern Georgia and northwestern South Carolina, and associated mineralization [abstract]: South Carolina Acad. Sci. Bull., v. 38, p. 98-99, 1976.

OGREN, DAVID ERNEST, 1930-, **see** Manley, Frederick Harrison, Jr., 4; Staheli, Albert Clifford, 3

OKADA, AKIHIKO.

1. (and Yabuki, Hideo, and Shima, Makoto) X-ray and Moessbauer studies of troilite in iron meteorites: Japanese Assoc. Mineralogists, Paleontologists, and Econ. Geologists Jour., v. 66, p. 76-81, illus., 1971.
   The Sardis meteorite, from Jenkins County, is among those being investigated. A 2C type structure is obtained, and its deviation from the stoichiometric ratio of Fe:C is very slight.

O'KEEFE, JOHN ALOYSIUS, 1916-

1. Tektites and their origin--Developments in petrology, v. 4: New York, Elsevier Pub. Co., 254 p., illus., 1976.
   A complete review of tektites, their origin, properties, distribution and chemistry is given. Those from the Georgia Coastal Plain are included. They are considered to be lunar in origin.

OLIVER, JACK ERTLE, 1923-, **see** Brown, Larry Douglas, 2; Cook, Frederick Ahrens, 1, 2, 3; York, James Earl, 3d, 1

OLIVIER, JAMES P.

1. (and Sennett, Paul) Particle size-shape relationships in Georgia sedimentary kaolins--[Part] 2: Clays and Clay Minerals, v. 21, p. 403-412, illus., 1973.
   Georgia kaolin examined by SEM and transmission microscopy has a wide distribution of particle size. The particle diameter deviates from diameters determined from Stokes' law. The larger particles contain microporosity due to irregular stacking of crystals.

OLSEN, KENNETH H., see Gohn, Gregory Scott, 1

OLSON, NORMAN KEITH, 1932-

1. Carolinas-Georgia offshore potential for oil and gas, **in** Report of the conference on marine resources of the Coastal Plains states...1974: Wilmington, North Carolina, Coastal Plains Center for Marine Development Services, p. 7-16, illus., 1975.
   A summary of the offshore hydrocarbon potential of the Carolinas and Georgia includes a brief summary of the onshore Coastal Plain Mesozoic and Cenozoic stratigraphy.

ORLEANS, ALICE JULIA, 1949-, **see** Wooten, James Singleterry, 3d, 1

ORTIZ, ALAN SALVADORE, 1954-

1. (and Chowns, Timothy Michael) A new reference section for the Knox Group in [Dade County] northwest Georgia [abstract]: Georgia Jour. Sci., v. 36, p. 89, 1978.

ORVILLE, PHILIP MOORE, 1930-1980, **see** Rankin, Douglas Whiting, 1

OSTROM, JOHN HAROLD, 1928-, **see** Rankin, Douglas Whiting, 1

OTVOS, ERWIN GEORGE, JR., 1935-

1. Mississippi Gulf Coast Pleistocene beach barriers and the age problem of the Atlantic-Gulf coast "Pamlico"-"Ingleside" beach-ridge system: Southeastern Geology, v. 14, p. 241-250, illus., 1972.
   The Pamlico terrace on the Georgia Coastal Plain is about seven meters above sea level, is Sangamon interglacial age, and represents the highest stand of the sea during the Pleistocene. None of the data are from Georgia, however.

OVERSBY, VIRGINIA MC CONN, 1943-

1. Lead, **in** Handbook of elemental abundances in meteorites (edited by Brian Harold Mason): New York, Gordon and Breach, p. 499-510, illus., 1971.
   Analyses from the Sardis meteorite from Jenkins County are included.

OWENS, JAMES PATRICK, 1924-

1. Post-Triassic tectonic movements in the central and southern Appalachians as recorded by sediments of the Atlantic Coastal Plain, **in** Studies of Appalachian geology--central and southern (edited by George Wescott Fisher and others): New York, Interscience Pub., p. 417-427, illus., 1970.
   The tectonic setting and sediment distribution for large sequences of rocks are shown on small-scale maps; Georgia is included. The sequences are (a) Lower Cretaceous (and Jurassic?) , (b) Upper Cretaceous, (c) Early and Middle Tertiary, (d) Miocene and younger? sediments, and (e) youngest Cenozoic. Tectonism in identified from the clastic wedges in otherwise carbonate sequences.

OWENS, RONALD AVERY, 1948-

1. (and Manley, Frederick Harrison, Jr.) Hydrothermal veins in the Cambrian Conasauga Formation [Bartow County], Valley and Ridge Province, northwest Georgia [abstract]: Georgia Acad. Sci. Bull., v. 30, p. 77, 1972.

P.R.C. TOUPS CORPORATION, see Mountain States Research and Development Corporation, 1

PADGETT, EDGAR ALLEN, JR., see also Beck, Barry Frederic, 1

1. Fallen Place (GGS no. 116) [cave], a Pleistocene pit [Dade County] Georgia Underground, v. 8, p. 39-41, illus. incl. map, 1971.

2. The Georgia Speleological Survey [abstract]: Georgia Acad. Sci. Bull., v. 29, p. 129-130, 1971.

3. Pearson's Pit [cave] [Dade County]: Georgia Underground, v. 8, p. 52-53, illus. incl. map, 1971.

4. (and others) [Map of] Reeve's Crawlway [cave] (GSS 126), Trenton Quadrangle, Dade County, Georgia: GSS Bull. 1970, p. 54, 1971.

5. (and Smith, Marion Otis) [Map of] Shale Dirt cave, GSS 142, Tallapoosa Quadrangle, Polk Co., Georgia: GSS Bull. 1970, p. 52, 1971.

PALMER, ALLISON RALPH, 1927-

1. The Cambrian of the Appalachian and eastern New England regions, eastern United States, **in** Cambrian of the new world (edited by Charles Hepworth Holland): New York, Wiley-Interscience, p. 169-217, illus., 1971.
   In northwestern Georgia there is a lower, predominantly clastic sequence (the Weisner, Shady and Rome Formations) and an upper, predominantly carbonate sequence (the Conasauga and Knox Formations). All were deposited in a subsiding marine basin at the eastern margin of the craton.

PARIS, TRAVIS ANTHONY, 1949-, **see also** O'Connor, Bruce James, 2; Whitney, James Arthur, 3, 8

1. The geology of the Lincolnton 7 1/2' Quadrangle [Lincoln County] Georgia-South Carolina: M S Thesis, Univ. Georgia, 1976.

2. The Lincolnton Metadacite, **in** Stratigraphy, structure, and seismicity in the slate belt rocks along the Savannah River--Georgia Geol. Soc. 11th Ann. Field Trip (compiled by Timothy Michael Chowns): Georgia Geol. Survey Guidebook 16, p. 13-15, 1976.
   This unit is in Lincoln County and is a felsic, quartz porphyry which can be subdivided into porphyritic coarse-grained metadacite, porphyritic fine-grained metadacite, fine-grained and granophyric metadacite, and gneissic metadacite. Each type is described petrologically.

PARK, ALTON DRENNAN, 1949-

1. Groundwater in the Coastal Plains region, a status report and handbook: Charleston, South Carolina, Coastal Plains Regional Comm., 160 p., illus., 1979.
   This is a very generalized summary of the origin and occurrence of ground water and geology of the Coastal Plains region of the United States; those of Georgia are included. No new data are given.

PARK, KJUNGJA, 1950-, **see** Casagrande, Daniel Joseph, 7

PARKER, WILLIAM CHARLES, 1952-, **see** Raymond, Anne, 1

PARKHURST, JUDITH IRENE, 1932-, **see** Eyton, John Ronald, 1

PARKS, WILLIAM SCOTT, 1946-, **see also** Pollard, Charles Oscar, Jr., 4

1. The clay minerals of the Ocmulgee River [Coastal Plain]: M S Thesis, Emory Univ., 1971.

2. (and Pollard, Charles Oscar, Jr.) X-ray petrofabric analysis of cataclastic quartzites from the Brevard Zone in north [Piedmont] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 385, 1974.

3. (and Mulaik, Stanley Allen, and Pollard, Charles Oscar, Jr.) Multivariate classification of Georgia Coastal Plain groundwaters [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 242, 1976.

PARRISH, FRED KENNETH, 1927-

1. (and Rykiel, Edward Joseph, Jr.) Okefenokee Swamp origin--review and reconsideration: Elisha Mitchell Sci. Soc. Jour., v. 95, p. 17-31, illus., 1979.
   The various theories for the origin of the swamp are reviewed. Most of the earlier theories are variations on a marine origin. Recent theories suggest that it has always been a fresh-water body, entirely Holocene in age.

PATRICK, DAVID MAXWELL, 1938-

1. (and Pickering, Samuel Marion, Jr.) The laterization of the Flint River Formation (Oligocene) in [Coastal Plain] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 765-766, 1973.

PATTERSON, CLAIRE CAMERON, 1922-, **see** Murthy, Varanasi Rama, 1

PATTERSON, ROBERT MASHELL, 1787-1854.

1. Ueber die Beschaffenheit und das Vorkommen des Goldes, Platins und der Diamanten in den Vereinigten Staaten: Deutsches geol. Gesell. Zeitschr., v. 2, p. 60-64, 1850; translated to English by Rudolph William Kopf: U. S. Geol. Survey Repts. Open File 79-1223, 7 p., 1979.

PATTERSON, SAMUEL HUNTING, 1918-, **see also** Buie, Bennett Frank, 3; May, James Parker, 1; Murray, Hayden Herbert, 2; Tschudy, Robert Haydn, 1

1. (and Herrick, Stephen Marion) Chattahoochee anticline, Apalachicola embayment, Gulf trough and related structural features, southwestern Georgia, fact or fiction: Georgia Geol. Survey Inf. Circ. 41, 16 p., illus., 1971.
The existence and/or orientation of these and other structural features are questioned. Data are re-evaluated and, in some cases, new data are utilized. The anticline and trough are probably not structural features.

2. Fuller's earth and bentonite in the southeastern states, **in** Proceedings of the seventh forum on the geology of industrial minerals (edited by Harbans Singh Puri): Florida Geol. Survey Spec. Pub. 17, p. 37-46, illus., 1972.
A cursory description of the fuller's earth deposits from the Georgia Coastal Plain includes brief descriptions of the deposits from the Miocene Hawthorn Formation and the Eocene Twiggs Clay.

3. (and Buie, Bennett Frank) Field conference on kaolin and fuller's earth, November 14-16, 1974--Guidebook, Soc. Econ. Geologists: Georgia Geol. Survey Guidebook 14, 53 p., illus., 1974.
A short discussion of the kaolin deposits in the Cretaceous and Tertiary rocks of the Macon area is given. A road log for a one-day field trip of 19 miles beginning in Macon and ending in Gordon is included. Several possible stops are indicated. There is also a discussion of the Miocene rocks in southwestern Georgia and of the enclosed attapulgite clays. A field trip of 239 miles, from Macon to Tallahassee, with 3 stops is also included. The geology en route is described.

4. Fuller's earth and other industrial mineral resources of the Meigs-Attapulgus-Quincy district, Georgia and Florida: U. S. Geol. Survey Prof. Paper 828, 45 p., illus., 1974.
A review of the geological setting and occurrence of clay minerals is given. Palygorskite occurs in lenses in the Miocene Hawthorn Formation. Kaolinite occurs in the upper parts of the deposit and is from the weathering of the palygorskite. Sand and gravel and brick clay are also present. The structure of the region, in part, controls the occurrence of the clays. Many analyses are included. Oligocene to Holocene rocks are present.

PAULK, HERSCHEL LEVERNE, 1934-

1. Soil survey of Montgomery, Toombs, and Wheeler Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 63 p., illus., 1973.
The soils in these counties are mapped in great detail, and the geology is cursorily described.

PAULS, DAVID EDGAR, 1937-

1. (and LaBastie, James Galley) Rock slopes in an urban environment--(a case history), **in** Rock engineering for foundations and slopes, vol. 1: New York, Amer. Soc. Civil Engineers, p. 182-199, illus., 1976.
   A discussion of the rock-mechanic problems associated with the excavation for the Peachtree Plaza Hotel, in Atlanta, Fulton County includes a description of the metamorphic rocks of the site. Joints are influential in the stability of the artificial slope created by the excavations.

PAULSON, GARY DAVID, 1954-

1. Origin of terrarossa soils and iron ores through weathering of the [Paleocene] Clayton Formation, Randolph County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 34, p. 87, 1976.

PAULUS, FREDERICK JOSEPH, 1925-, **see** Griffin, George Melvin, Jr., 1

PAVICH, MILAN JOSEPH, 1947-, **see** Newell, Wayne Linwood, 1

PAYNE, HARLEY H.

1. Soil survey of Baldwin, Jones, and Putnam Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 72 p., illus., 1977.
   The soils of these counties are mapped in great detail, and their origin in relation to the geology is discussed.

PEARSON, CHARLES EDWARD, 1946-

1. (and DePratter, Chester Burton) Archeological dating of Holocene island formation in [Coastal Plain] Georgia [abstract]: Georgia Acad. Sci. Bull., v. 32, p. 35, 1974.

PEARSON, FREDERICK JOSEPH, JR., 1935-, **see** Hobba, William A., Jr., 2

PEDLOW, GEORGE WESLEY, 3D.

1. Palinspastic base map--central and southern Appalachians: Geol. Soc. America Bull., v. 87, p. 133-136, illus., 1976.
   A base map based upon crustal-shortening data includes northwestern Georgia. Lines of 29, 17, and 23 percent crustal shortening are shown.

PENLEY, H. MICHAEL, 1945-, **see also** Hartley, Marvin Eugene, 3d, 3; Sandrock, George S., 1

1. The Brasstown antiform, Towns and Union Counties, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 32, p. 15, 1974.

2. (and Schott, Erik Hans, and Sewell, John Michael) Preliminary report of the uranium favorability of shear zones in the crystalline rocks of the southern Appalachians: U. S. Dept. Energy Rept. GJBX 128-78, 30 p., illus., 1978.
The metamorphic rocks in the Warwoman Lineament area of Rabun County are described, and their potential for uranium accumulation is discussed. Three occurrences of uranium are known. Precambrian granites, which are transected by the lineament, are the probable sources of the uranium.

PERDUE, EDWARD MICHAEL, 1947-, **see** Reuter, Johannes Helmut, 1

PERKINS, DAVID M., see Algermissen, Sylvester Theodore, 1

PERKINS, HENRY FRANK, 1921-, **see also** Gallaher, Raymond Noel, 1; Tan, Kim Hong, 1; Wood, Bruce Wade, 1, 2

1. (and Jinks, Douglas David, and Tan, Kim Hong) Mineralogical and chemical properties of Piedmont-derived entisols: Georgia Acad. Sci. Bull., v. 29, p. 229-240, illus., 1971.
Particle-size distribution and gross mineralogy differences in water-transported residuum of granite, granite-gneiss, and amphibolite from Georgia Piedmont are described.

2. (and Shaffer, Morris E.) [Map of] Soil associations and land use potential of Georgia soils: Univ. Georgia Agric. Exper. Sta., scale, 1:750,000, table, 1977.

PERLMAN, STEPHEN H., see also Higgins, Brenda Baer, 1

1. (and others) Ground radioactivity measurements in South Carolina and Georgia with radioelement analyses of surficial sediments: U. S. Geol. Survey Repts. Open File 76-478, [10 p.] 1976.
Samples of soils were collected from those areas shown to have radioactivity anomalies on recently-published aeroradioactivity maps. The samples from Georgia were measured for numerous radioactivity sources; the gamma radiation in cpm is given. All are from the Coastal Plain, and no interpretations are included.

2. (and Christopher, Raymond Anthony, and Bunker, Carl Maurice, and Bush, Charles A.) Uranium, thorium, and potassium concentrations and their relationship to total gamma-ray intensity in the Coastal Plain of South Carolina and Georgia [abstract]: EOS, v. 58, p. 539, 1977.

PERRY, LAWRENCE DUNNINGTON, 1947-, **see** Costain, John Kendall, 1, 4, 6, 7

PERRY, WILLIAM J., JR., see DeWitt, Wallace, Jr., 1

PERTSEV, B. P.

1. (and Ivanova, Mikail Vladimirovich) Allowing for the effect of ocean tides on gravimetric earth-tide observations in the eastern part of the U.S.A.: Acad. Sci. USSR Isvest., Physics of the solid earth (English edition), v. 12, p. 691-693, illus., 1976.
   Actual and corrected values of delta on the M-2 and O waves for the Atlanta, Fulton County area are included.

PEVEAR, DAVID RECKARD, 1940-

1. Source of Recent nearshore marine clays, southeastern United States, **in** Environmental framework of Coastal Plain estuaries (edited By Bruce Warren Nelson): Geol. Soc. America Memoir 133, p. 317-335, illus., 1972.
   Clays from Georgia rivers and others from elsewhere are largely kaolinite, followed in decreasing abundance by vermiculite, illite and chlorite; montmorillonite is present in minor amounts. The abundance and proportions of nearshore clays are different, so that a significant amount of these marine clays must be from non-river sources.

PFERD, JEFFREY WILLIAM, 1946-

1. Engineering and related physical properties of some salt-marsh sediments in McIntosh Co., Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 207, 1973.

PICKERING, SAMUEL MARION, JR., 1938-, **see also** Bentley, Robert Donald, 1; Chowns, Timothy Michael, 10; Cooper, James Dean, 1, 2; Huddlestun, Paul Francis, 3; Jones, Richard C., 1; Lawton, David Edward, 2; Marsalis, William Ephraim, Jr., 2; Patrick, David Maxwell, 1; Stockman, Kenneth W., 1; Wells, J. Robert, 2, 3, 4; White, Doss Hurdle, Jr. 1

1. Lithostratigraphy and biostratigraphy of the north central Georgia Coastal Plain--Georgia Geol. Soc. 6th Ann. Field Trip: Georgia Geol. Survey Guidebook 10], [p. 12-26], illus., 1971.
   A description of Cretaceous, Eocene, and Oligocene rocks in the area south from Macon is given. Fossils are listed. A field trip log of 22 miles includes seven stops which are described.

2. (and Schneeberger, Frederick J., 3d) General geology of the Soapstone Ridge mafic intrusive area [DeKalb County] [abstract]: Georgia Acad. Sci. Bull., v. 30, p. 78-79, 1972.

3. Geologic features of Georgia as photographed from Apollo 9 space satellite [abstract]: Georgia Acad. Sci. Bull., v. 30, p. 83, 1972.

4. (and Marsalis, William Ephraim, Jr., and Harris, B. B., Jr.) A lightweight aggregate and brick clay prospect in Clay County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 31, p. 83, 1973.

5. An apparent domal structure in Wayne County, Georgia, in Symposium on the petroleum geology of the Georgia Coastal Plain (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 189-191, illus., 1974.
A dome is interpreted by topographic expression deduced from high-altitude aerial photography. It is about 20 miles in diameter.

6. (and Jones, Richard C.) Distribution and characteristics of "Carolina Bays" in [Coastal Plain] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 387, 1974.

7. (and Jones Richard C.) Geologic evaluation and applications of ERTS-1 imagery over Georgia, Paper G 21, of Third Earth Resources Technology Satellite-1 symposium: Natl. Aeron. Space Admin. Spec. Pub. 351, p. 857-868, illus., 1974; also in vol. 2, Summary of results: Spec. Pub. 356, p. 40-49, colored illus., 1974.
Examples of geological phenomena which can be interpreted from high-altitude photographs from satellites are given. Faults, folds, joints, geomorphological features, and numerous other phenomena are described.

8. (and Jones, Richard C.) Morphology of aeolian parabolic sand features along streams in southeast [Coastal Plain] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 387-388, 1974.

9. Petroleum potential of Georgia, in Symposium on the petroleum geology of the Coastal Plain of Georgia (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 11-14, 1974.
About 70 percent of Georgia is underlain by sedimentary rocks, into which 148 holes have been drilled, of which less than 50 have been drilled to a significant depth. This averages to about one hole per 800 square miles, so that much testing remains to be done. The Cretaceous and Cenozoic rocks of the Coastal Plain and the Paleozoic rocks in northwestern Georgia are the targets.

10. (and Higgins, Michael Wicker, and Swanson, David Eugene) Fold-related fracture patterns in crystalline rocks near Atlanta [Piedmont] Georgia, and their relation to ground-water availability [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 245, 1976.

11. (and Higgins, Michael Wicker, and Zietz, Isidore) Relation between the Southeast Georgia Embayment and the onshore extent of the Brunswick magnetic anomaly [Coastal Plain] [abstract]: EOS, v. 58, p. 432, 1977.

12. (and Henry, Vernon James, Jr., and Giles, Robert Talmage) Williamson Island [Chatham County]--a new island on Georgia's coast [abstract]: Georgia Jour. Sci., v. 35, p. 88, 1977.

PIERCE, JACK WARREN, 1927-, **see** Colquhoun, Donald John, 1

PIERCE, KENNETH LEE, 1937-, **see** Colman, Steven Michael, 1

PIERCE, MARTHA ANNE GREENE, 1945-, **see** Greene, Martha Anne; Lawton, David Edward, 1

PIERCE, ROBERT, 1946- **see also** Basan, Paul Bradley, 2

1. Animal-sediment relationships on small tidal-creek point bars, Sapelo Island [McIntosh county] Georgia: M S Thesis, Univ. Georgia, 1976.

PILGER, REX HERBERT, JR., 1948-

1. A closed Gulf of Mexico, pre-Atlantic Ocean plate reconstruction and the early rift history of the Gulf and North Atlantic: Gulf Coast Assoc. Geol. Socs. Trans., v. 28, pt. 2, p. 385-393, illus., 1978.
   South America was adjacent to the Gulf coast of the United States in earliest Mesozoic time. The opening of the Gulf and the Atlantic Ocean resulted in a series of rifts. The rift system resulting in the Florida-Bahamas platform and the Triassic grabens below the Coastal Plain are part of a larger system.

PILKEY, ORRIN HENDREN, 1934-, **see also** Oertel, George Frederick, Jr., 5

1. (and Field, Michael Ehrenhart) Onshore transportation of continental shelf sediment--Atlantic southeastern United States, in Shelf sediment transport--process and pattern (edited by Donald Josiah Palmer Swift, David Bierlein Duane, and Orrin Hendren Pilkey): Stroudsburg, Pennsylvania, Dowden, Hutchinson and Ross, p. 429-446, illus., 1972.
   The presence of shelf-derived sediments such as phosphorite grains and calcareous ooids on beaches indicates landward transport of the material; some is found on Georgia beaches. There is much more than is being supplied by the rivers from erosion upstream.

PILKINTON, JERRY A.

1. Soil survey of Schley and Sumter Counties, Georgia: U.S. Dept. Agric. Soil Conserv. Service, 67 p., illus., 1974.
   The soils of the counties are described; their geological origin is discussed.

2. Soil survey of Lee and Terrill Counties, Georgia: U.S. Dept. Agric. Soil Conserv. Service, 63 p., illus., 1978.
   A brief description of the geology of the counties is included in a detailed discussion of the distribution and properties of the soils.

PINDER, GEORGE FRANCIS, 1942-, **see** Bredehoeft, John Dallas, 1, 2

PINET, PAUL RAYMOND, 1944-

1. (and Frey, Robert Wayne) Distribution of organic carbon in surface sands seaward of Altamaha and Doboy Sounds [Coastal Plain] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 247, 1976.

2. (and Morgan, Warren Porter, Jr.) Implications of clay-provenance studies in two Georgia estuaries: Jour. Sed. Petrology, v. 49, p. 575-580, illus., 1979.
The percentage of fluvially derived clay in the Altamaha estuary is not appreciably different from the percentage in the river; therefore, not much, if any, is marine derived. Mud in Sapelo Island Sound is from the erosion of coastal outcrops, and clay flux from the sea is minimal.

PIRKLE, FREDERIC LEE, 1949-

1. Evaluation of possible source regions of Trail Ridge sands: Southeastern Geology, v. 17, p. 93-114, illus., 1975.
The area of high-terrace sands to the west of Trail Ridge in southeastern Georgia is the most likely source of Trail Ridge sediments. Heavy-mineral composition and texture are the criteria used for the interpretation.

2. Characterization of variation in grain size and heavy mineral content of Trail Ridge sediments [Charlton County]: Ph D Thesis, Pennsylvania State Univ., 1977; [abstract]: Dissert. Abs. Internatl., v. 38B, p. B559-560, 1977.

PIRKLE, WILLIAM ARTHUR, 1945-

1. Trail Ridge, a relic shoreline feature of Florida and [Coastal Plain] Georgia: Ph D Thesis, Univ. North Carolina, 1972; [abstract]: Dissert. Abs. Internatl., v. 33B, p. B1621, 1973.

PLUMMER, GAYTHER LYNN, 1925-

1. The Alapaha-St. Clair le[l]i]nearity [Coastal Plain]--an old fault? [abstract]: Georgia Acad. Sci. Bull., v. 34, p. 83, 1976.

2. Georgia's geo-botanical ecosystems [abstract]: Georgia Acad. Sci. Bull., v. 34, p. 58, 1976.

PODWYSOCKI, MELVIN HENRY, 1942-, **see** Gabelman, John Warren, 1

POJETA, JOHN, JR., 1935-

1. (and Kriz, Jiri, and Berdan, Jean Milton) Silurian-Devonian pelecypods and Paleozoic stratigraphy of subsurface rocks in Florida and Georgia and related Silurian pelecypods from Bolivia and Turkey: U. S. Geol. Survey Prof. Paper 879, 33 p., illus., 1976.
Quartzitic sandstones and micaceous shales, dark gray shale, and red-gray siltstones in southern Georgia range in age from Early Ordovician to Middle Devonian. A well in Early County contains pelecypods of probable Middle Devonian age; these are described and illustrated. Rocks from Echols County are Early and Middle Ordovician in age.

POLLARD, CHARLES OSCAR, JR., 1937-, **see also** Parks, William Scott, 2, 3; Pollard, Lin Davis, 1

1. (and Weaver, Charles Edward, and Beck, Kevin Charles) Anatomy of a silica nodule [Grady County] [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 340-341, 1971.

2. (and Weaver, Charles Edward) Electron microscope study of cavity-filling silica [Georgia] [abstract]: Georgia Acad. Sci. Bull., v. 31, p. 84, 1973.

3. (and Weaver, Charles Edward) Opaline spheres--loosely packed aggregates from silica nodule in diatomaceous Miocene fuller's earth: Jour. Sed. Petrology, v. 43, p. 1072-1076, illus., 1973.
   Spheres of opaline silica occur individually and in small aggregates around diatom cavities in a nodule in the Hawthorn Formation in Grady County. They are high-silica opal and form in voids which are relatively inaccessible to other ions.

4. (and Mulaik, Stanley Allen, and Parks, William Scott, Jr.) Multivariate analysis of Georgia Coastal Plain groundwaters: Georgia Inst. Technology Envir. Research Center, 87 p., illus., 1976.
   Data from 589 wells in the Coastal Plain were analyzed by discriminate analyses for 14 variables. Seventeen clusters were obtained. Silicon dioxide, pH, and fluorine are the three most useful chemical variables. Sodium and chlorine are the least important. Most of the waters were equilibrated with their surroundings.

POLLARD, LIN DAVIS, 1937-, **see also** Sonderegger, John Lawrence, Jr., 1

1. (and Pollard, Charles Oscar, Jr.) Microcrystalline habits of iron-bearing phases of pseudomorphs after pyrite from the Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 100, 1972.

2. (and Grantham, Rodney Gordon, Jr., and Blanchard, Harry Eugene, Jr.) A preliminary appraisal of the impact of agriculture on ground water availability and quality in southwest Georgia: U. S. Geol. Survey Water Resources Invs. 79-7, 22 p., illus., 1978.
   The ground water of the region is extensively used for irrigation. Analyses show that if the amount used increases, the water chemistry could be affected because of leachates in the recharging water from fertilizers, etc.

3. (and Vorhis, Robert Carson) Geohydrology of the Cretaceous aquifer system in Georgia: U. S. Geol. Survey Water Resources Inv. 79-30, illus., 1979 [not seen].

PONDER, RANDALL DARIUS, 1957-, **see** Manker, John Phillip, 1

POORT, JON MICHAEL, 1935-, **see also** Richards, Larry Walter, 1; Swann, Charles Travis, 2, 3

1. Occurrence of **Ophiomorpha** in the basal Upper Cretaceous Providence Formation of Stewart County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 29, p. 124-125, 1971.

2. (and Chambley, Michael James) Stratigraphic, x-ray and chemical analysis of the [Mississippian] Maury Formation in the northwestern Georgia area [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 100-101, 1972.

3. Effects of Walter F. George reservoir on the Cretaceous outcrops along the Chattahoochee River, **in** Symposium on the petroleum geology of the Georgia Coastal Plain (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 101-110, illus., 1974.
The Walter F. George dam, closed in 1962, has created a reservoir, the waters of which have covered much of the Cretaceous section exposed along the banks of the river. Illustrations of some of the pre-dam exposures are included.

POOSER, WILLIAM KENNETH, 1931-, **see** Siple, George Elmer, 1

POPE, TIMOTHY ALEXANDER, 1944-, **see** Carpenter, Robert Heron, 4

POPENOE, PETER, 1933-, **see also** Rankin, Douglas Whiting, 4; Zietz, Isidore, 1, 2

1. A probable major Mesozoic rift system in South Carolina and [Coastal Plain] Georgia [abstract]: EOS, v. 58, p. 432, 1977.

2. (and Zietz, Isidore) The nature of the geophysical basement beneath the Coastal Plain of South Carolina and northeastern Georgia, **in** Studies related to the Charleston, South Carolina earthquake of 1886, a preliminary report (edited by Douglas Whiting Rankin): U. S. Geol. Survey Prof. Paper 1028-I, p. 119-137, illus., 1977.
The northeastern part of the Georgia Coastal Plain is included. Interpretations of aeromagnetic and gravity surveys show two distinct patterns. The northwestern part is similar to that of the Piedmont whereas the southeastern part is different; the two are separated by postulated faults.

POTLURI, RAMAMOHAN RAO, 1943-

1. Petrology of the Atlantic Coastal Plain phosphate deposits: M S Thesis, Univ. Georgia, 1971.

POWER, WALTER ROBERT, JR., 1924-, **see also** Atkins, Robert Lee, 4; Manley, Frederick Harrison, Jr., 1, 6

1. (and Forrest, Joseph T., Jr.) Stratigraphy and paleogeography in the Murphy Belt, **in** Geology of the Blue Ridge-Ashland-Wedowee Belt in the southern Piedmont (edited by Thornton Lee Neathery): Amer. Jour. Sci., v. 273, p. 698-711, illus., 1973; discussion by Jarvis Bardwell Hadley, v. 275, p. 857-859, 1975; reply by authors, p. 860-862.
   The rock sequence in the Murphy belt can be explained as the result of a northward-transgressing shoreline. The age of the rocks is not given, but they correlate with the rocks in the upper part of the Great Smoky Group.

2. Economic geology of the Georgia marble district, **in** Twelfth forum on the geology of industrial minerals: Georgia Geol. Survey Inf. Circ. 49, p. 59-68, illus., 1978.
   This is a generalized summary of the occurrence of marble in Pickens and Gilmer Counties. The marble is in lower Paleozoic metasedimentary rocks, occupying a long, synclinal trough. The rocks are complexly folded and faulted. Three distinct zones are described.

PRATHER, JESSE PRESTON, JR., 1935-, **see also** Carpenter, Robert Heron, 2

1. The geology of eastern Monroe County, Georgia: M S Thesis, Univ. Georgia, 1971.

PRATT, WALDEN PENFIELD, 1928-, **see** Brobst, Donald Albert, 1

PREDNEY, ROBERT M., 1941-, **see** Casagrande, Daniel Joseph, 10

PRICE, EDWIN HENRY, 1949-

1. Stratigraphic, structure, and metamorphic history of the southern half of the Nottely Dam Quadrangle [Union County] Georgia-North Carolina: M S Thesis, Univ. Georgia, 1977.

2. Temporal relations of metamorphism and tectonics in the Nottely Dam area [Union County] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 195, 1978.

PRICE, MC GLONE, 1927-

1. Floods in the vicinity of Ellijay, Georgia: U. S. Geol. Survey Hydrol. Atlas HA 418, scale, 1:6,000, text, 1971.
   A map shows the geographic distribution of floods in the Coosawattee, Cartacay, and Ellijay Rivers in the Blue Ridge Province.

PRICE, REX CLAYTON, 1950-

1. (and Whetstone, Kenneth N.) Lateral stream migration as evidence for regional geologic structures in the eastern Gulf Coastal Plain: Southeastern Geology, v. 18, p. 129-147, illus., 1977.
   The entrenchment of Chattahoochee River, the asymmetrical distribution of low-order tributaries to Flint River, and other features from Alabama, are interpreted to be the result of tectonism in the Chattahoochee River area of the Coastal Plain of Georgia. The Chattahoochee Uplift is identified within the Chattahoochee Embayment.

PRICE, VANEATON, JR., 1942-, **see also** Ferguson, Robert Bury, 1; Hatcher, Robert Dean, Jr., 5

1. National Uranium Resource Evaluation program (NURE) hydrogeochemical and stream sediment survey program in the eastern United States [and central Georgia]--a progress report [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 249, 1976.

2. Raw data from orientation studies in crystalline rock areas of the southeastern United States: U. S. Energy Resources Dev. Admin. Rept. GJBX-9(76), variously paged, illus., 1976.
   These are examples of how data are accumulated for a pending regional uranium-distribution study. Lamar County was selected because uranium is known to be present. Examples of sample-locality maps, tables of field data, and tables of analytical data are included.

PROWELL, DAVID CURETON, 1949-, **see also** O'Connor, Bruce James, 3, 4; Reinhardt, Juergen, 1

1. (and Grant, Willard Huntington) Ultramafic body near Stone Mountain, DeKalb County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 29, p. 127, 1971.

2. Ultramafic plutons in the central Piedmont of Georgia: M S Thesis, Emory Univ., 1972.

3. (and O'Connor, Bruce James, and Rubin, Meyer) Preliminary evidence for Holocene movement along the Belair Fault zone near Augusta, Georgia: U. S. Geol. Survey Repts. Open File 75-680, 16 p., illus., 1975.
   An overthrust fault, in which Cretaceous metamorphic rocks rest upon Mesozoic sedimentary rocks in Richmond County, is described. Organic matter in surficial peat deposits, cut and dragged into the fault plane, are dated younger than 2,500 years.

4. (and O'Connor, Bruce James) Belair Fault zone--evidence of Tertiary fault displacement in eastern Georgia: Geology, v. 6, p. 681-684, illus., 1978.
   The zone consists of a series of at least eight en echelon, northeast trending, oblique-slip, reverse faults which intersect the Coastal Plain-Piedmont boundary. As much as 30 m of apparent vertical offset is evident since the Late Cretaceous-Middle Tertiary deposition, and about 25 km of apparent left lateral offset has occurred since Paleozoic metamorphism.

5. Distribution of crystalline rocks around Augusta, Georgia, and their relationship to the Belair Fault zone, in Geological investigations of the eastern Piedmont, southern Appalachians (edited by Arthur Wilmot Snoke)--Carolina Geol. Soc. field trip guidebook: Columbia, South Carolina Div. Geology, p. 55-60, illus., 1978.
The fault zone is composed of at least eight en echelon reverse faults at least 15 miles long. Post-Cretaceous vertical displacement is at least 100 feet. The metavolcanic and volcaniclastic phyllite (greenschist facies) of the Belair belt and the amphibolite-facies gneisses and granite of the Kiokee belt are offset. Their petrography is discussed, and the effects of the fault are shown. The Augusta fault, in part revealed by geophysical data, is also offset.

PRYOR, WAYNE ARTHUR, 1928-, see Frey, Robert Wayne, 7

PURI, HARBANS SINGH, 1925-, see Bates, Robert Latimer, 1; Carver, Robert Elliott, 1; Furlow, James Warren, 1; Patterson, Samuel Hunting, 2

PYLE, THOMAS EDWARD, 1941-, see Krivoy, Harold Lloyd, 1

QUELLMALZ, WERNER, 1934-

1. Katalog der Meteoriten ... Dresden: Deutsch Gesell. geol. Wiss. Berlin Beihefte, Reihe B, v. 15, p. 395-404, 1970.
Fragments of the Dalton (Whitfield County), Locust Grove (Henry County), and the Putnam County meteorites are present in this museum.

RADBRUCH-HALL, DOROTHY HILL, 1920-

1. (and others) Preliminary landslide overview map of the conterminous United States: U. S. Geol. Survey Misc. Field Studies Map MF-771, scale, 1:7,500,000, text, 1976.
There is more landslide susceptibility in the Blue Ridge than in the Piedmont, and virtually none on the Coastal Plain.

RADCLIFFE, DENNIS, 1938-

1. (and Humphrey, Ronald Crawley) Chemistry of the Siloam Granite, Greene County, Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 342, 1971.

2. (and Bailey, Arthur Clay, Jr.) Beryl from the Oxford Mine, Troup County, Georgia: Amer. Mineralogist, v. 57, p. 272-276, 1972.
Beryl from the Oxford pegmatite mine shows distinct variations in crystal morphology. These include aquamarine which exhibits fractures filled with a second generation beryl growth, crystals elongated on the C axis, and crystals flattened parallel with a. The variations cannot be related to a systematic variation in cell dimension or chemistry.

3. Geology of kyanite, **in** Twelfth forum on the geology of industrial minerals: Georgia Geol. Survey Inf. Circ. 49, p. 69-78, illus., 1978.
A general discussion of the nature and origin of kyanite includes a description of the deposits at Graves Mountain in Lincoln County. Here it occurs in quartzite which is within a metavolcanic sequence in the Little River Series. The kyanite probably has a metamorphic origin.

RADO, BRUCE Q.

1. An examination of the potential applications of automatic classification techniques to Georgia management problems, **in** vol. 1-C, Land use, **of** NASA Earth Resources Survey symposium: U. S. Natl. Aeronaut. Space Admin. Tech. Memo. X-58168, p. 1525-1540, illus., [1975] [not seen].

RAGLAND, PAUL CLYDE, 1936-, **see also** Fullagar, Paul David, 2; Greenberg, Jeffrey King, 2; Rogers, John James William, 1

1. (and Weigand, Peter Woolson, and Brunfelt, Arild O.) Rare-earth element abundance patterns in Mesozoic dolerites from eastern United States [Piedmont] [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 342-343, 1971.

2. Uranium potential of the crystalline rock areas of the southeastern U. S., **in** 1977 N.U.R.E. uranium geology symposium: U. S. Dept. Energy Rept. GJBX 12(78), p. 173-182, illus., 1978.
The Lithonia Gneiss in DeKalb County is cited as an example of a Roessing-type uranium occurrence. No details are included.

RAHILL, RAMONA L., see Shacklette, Hansford Threlkeld, 5

RAINWATER, EDWARD HARRIMAN, 1909-1972.

1. Possible future petroleum potential of peninsular Florida and adjacent continental shelves, **in** Possible future petroleum provinces of the United States--their geology and potential (edited by Ira Higgins Cram, Sr.): Amer. Assoc. Petroleum Geologists Mem. 15, vol. 2, p. 1311-1345, illus., 1970.
The rocks of the Georgia Coastal Plain are included in this review of the area. The pre-Coastal Plain basement is described, as are the Cretaceous and Cenozoic rocks and structures. Small-scale isopach maps are included.

2. Frontiers for oil and gas exploration in the Gulf Coastal Plain and the adjacent continental shelf of the Gulf of Mexico [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 102-103, 1972.

RANDICH, ERIK.

1. (and Goldstein, Joseph Irwin) Cooling rates of seven hexahedrites: Geochim. et Cosmochim. Acta, v. 42, p. 221-233, illus., 1978.
The Walker County meteorite, based upon a cooling rate determined by the exsolution of plate phosphides in the kamacite phase, was formed in or close to the core of the parent body which was about 150 km in diameter.

RANKIN, DOUGLAS WHITING, 1931-, see also Popenoe, Peter, 2

1. The continental margin of eastern North America in the southern Appalachians--the opening and closing of the proto-Atlantic Ocean, in The John Rodgers volume (edited by John Harold Ostrom and Phillip Moore Orville): Amer. Jour. Sci., v. 275A, p. 298-336, illus., 1975.
Evidence from the Georgia Piedmont and Blue Ridge, and elsewhere, shows the Ocoee Group being deposited in a broad graben to the west, with volcanic and sedimentary rocks being deposited toward the east. These were juxtaposed by later thrusting, with the Brevard zone being the suture. Later rifting, east of the Brevard, created the present Atlantic. The first rifting was south and/or east of the Pine Mountain area which contains Grenville basement rocks.

2. Appalachian salients and recesses--Late Precambrian continental breakup and the opening of the Iapetus Ocean: Jour. Geophys. Research, v. 81, p. 5605-5619, illus., 1976.
Late Precambrian-Early Cambrian rocks in extreme northern Blue Ridge Georgia are included in the discussion. They are thick and regionally very limited, and may have been deposited in one of the arms of a rift originating at a triple point. Similar rocks occur farther to the north in the Appalachians.

3. Repeated opening and closing of the Atlantic Ocean basin--evidence from the southern Appalachian Mountains [Piedmont] [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 920, 1974.

4. (and Popenoe, Peter, and Klitgord, Kim Donald) The tectonic setting of Charleston, South Carolina [and Piedmont and Coastal Plain, Georgia] [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 195, 1978.

RANSOM, JAY ELLIS, 1914-

1. The gold hunter's field book...: New York, Harper and Row, 367 p., illus., 1975.
A generalized, popular discussion of the occurrence, origin, and distribution of gold is followed by descriptions of localities in the United States; the Georgia Piedmont and Blue Ridge are included.

RAPP, JOHN RICHARD, 1921-, see Stringfield, Victor Timothy, Jr., 2

RAVASZ, CSABA.

1. Catalog of meteorites of the Hungarian Natural History Museum: Fragmenta Mineral. Paleontol. no. 1, p. 3-109, 1969.
   Pieces of the Losttown (Cherokee County) and the Putnam County meteorites are included in this musuem.

RAWLS, WALTER JOYNER, 1944-

1. Analysis of the shallow subsurface flow process in the Georgia Coastal Plain: Ph D Thesis, Georgia Inst. Technology, 1976; [abstract]: Dissert. Abs. Internatl., v. 37B, p. B670-B671, 1976.

RAY, CLAYTON EDWARD, 1933-

1. **Chelonia couperi** Harlan, 1842, a supposed turtle based on the clavicle of a megathere (Mammalia:Edentata): Acad. Nat. Sci. Philadelphia Notulae Naturae 455, 16 p., illus., 1979.
   A reexamination of this bone from Pleistocene rocks in Glynn County, shows it to be part of a giant ground sloth rather than of a turtle as heretofore considered.

RAYMOND, ANNE, 1955-

1. (and Parker, William Charles) Paleoecological implications of quantitative analysis of plant remains from modern swamp communities [Coastal Plain] [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 254, 1979.

REDINGTON, ROBERT J.

1. Survey of the Appalachians: South Edgemont, Massachusetts, Taconic Pub. Co., 132 p., illus., 1978.
   A very generalized, popular review of the geology of the entire mountain chain is given. No new data are included.

REED, GEORGE W., JR., 1920-

1. Bromine, in Handbook of elemental abundances in meteorites (edited by Brian Harold Mason): New York, Gordon and Breach, p. 279-284, illus., 1971.
   The bromine content of the Sardis meteorite from Jenkins County is included.

2. Chlorine, in Handbook of elemental abundances in meteorites (edited by Brian Harold Mason): New York, Gordon and Breach, p. 143-148, illus., 1971.
   Analyses of the chlorine content of the Sardis meteorite from Jenkins County are included.

3. Iodine, **in** Handbook of elemental abundances in meteorites (edited by Brian Harold Mason): New York, Gordon and Breach, p. 401-406, illus., 1971.
Analyses of the Sardis meteorite from Jenkins County are included.

REED, JOHN CALVIN, JR., 1930-, **see also** Bryant, Bruce Hazelton, 1

1. (and Bryant, Bruce Hazelton, and Myers, W. Bradley) The Brevard Zone--a reinterpretation, **in** Studies of Appalachian geology--central and southern (edited by George Wescott Fisher and others): New York, Interscience Pub., p. 261-269, illus., 1970.
Structural data, largely from North Carolina, suggest that the Brevard zone is a large fault zone, there having been strike-slip movement along with the thrusting.

REEL, DAVID ANDERSON, 1945-

1. (and Griffin, George Melvin, Jr.) Potentially petroliferous trends in Florida as defined by geothermal gradients: Gulf Coast Assoc. Geol. Socs. Trans., v. 21, p. 31-36, illus., 1971.
Southernmost Georgia is included. Here, a petroleum-potential zone occurs in those rocks above the basement and below the depth which contains the minimum temperature for maturation. A "potential"-section, a small scale map for an area in Lowndes County, and the geothermal gradient in degrees per 100 feet are shown.

REICHENBACH, KARL FRIEDRICH, VON, 1788-1869.

1. Anordnung und Eintheilung der Meteoriten [Part] 9: Annalen der Physik und Chemie, ser. 2, v. 107, p. 155-183, illus., 1859; summary, Canadian Jour. Industry, Science and Art, v. 5, p. 206-209, 1860.
Union County and Putnam County meteorites are classified with those that contain Weidmanstaetten structures, as part of a classification based upon physical characteristics.

2. Ueber das Gefuege der Steinmeteoriten [Part] 11: Annalen der Physik und Chemie, ser. 2, v. 108, p. 291-311, 1859.
A discussion of the stuctures in meteorites includes some data about the Putnam County meteorite.

3. Ueber die chemische Beschaffenheit der Meteoriten [Part] 10: Annalen der Physik und Chemie, ser. 2, v. 107, p. 353-374, 1859.
Putnam County meteorite is included with data from others in a table of chemical analyses. It is relatively high in zinc.

4. Ueber die Zeitfolge und die Bildungsweise der naehern Bestandtheile der Meteoriten [Part] 12: Annalen der Physik und Chemie, ser. 2, v. 108, p. 452-465, illus., 1859.
Information about the Putnam County meteorite is included.

5. Meteoriten in Meteoriten [Part] 13: Annalen der Physik und Chemie, ser. 2, v. 111, p. 353-386, 1860.
In a study of the classification of stony iron meteorites, information from Forsyth meteorite, from Monroe County, is included.

6. Ueber das innere Gefuege der naehern Bestandtheile des Meteoreisens [Part] 15: Annalen der Physik und Chemie, ser. 2, v. 114, p. 99-132, 1860.
Putnam County and Union County meteorites, along with others from elsewhere, are used for structural studies in the classification of meteorites.

7. Ueber die naehern Bestandtheile des Meteoreisens [Part] 16, Das Bandeisen: Annalen der Physik und Chemie, ser. 2, v. 114, p. 250-263, 1861.
A study of taenite includes data from the Putnam County meteorite.

8. Ueber die naehern Bestandtheile des Meteoreisens [Part] 17, Das Fuelleisen: Annalen der Physik und Chemie, ser. 2, v. 114, p. 264-274, 1861.
Plessite in iron meteorites is described; the Union County iron meteorite is included.

9. Ueber die naehern Bestandtheile des Meteoreisens [Part] 18, Die Wuelste und das Glanzeisen: Annalen der Physik und Chemie, ser. 2, v. 114, p. 477-491, 1861.
Information from the Putnam County meteorite is included.

10. Ueber die naehern Bestandtheile des Meteoreisens [Part] 20, Ueber das Schwefeleisen: Annalen der Physik und Chemie, ser. 2, v. 115, p. 620-636, 1862.
Information about Putnam County and Union County meteorites is included.

11. Ueber die naehern Bestandtheile des Meteoreisens [Part] 21, Der Graphit und das Eisenglas: Annalen der Physik und Chemie, ser. 2, v. 116, p. 576-591, 1862.
Graphite and mica in Putnam County and Union County meteorites are discussed.

REID, BARRY JAMES, 1956-, **see also** Sanders, Richard Pat, 2

1. (and Chowns, Timothy Michael) Depositional environment of [Cambrian] algal stromatolites [Whitfield County] [abstract]: Georgia Jour. Sci., v. 37, p. 83, 1979.

REID, MARJORIE S., see Brown, Philip Monroe, 3

REINECK, HANS ERICK, 1918-, **see** Howard, James Dolan, 8, 9, 11

REINHARDT, JUERGEN, 1946-

1. (and Prowell, David Cureton, and Christopher, Raymond Anthony, and Markewich, Thelma Helaine Walsh) Cenozoic tectonics in the southeast--evidence from sediments near Warm Springs [Meriwether County] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 209, 1979.

REMMER, GEORGE H., JR., see Howard, James Dolan, 14

RESIO, DONALD THOMAS, 1946-, **see** Vincent, Charles Linwood, 1

REUSING, STEPHEN PAUL, 1950-

1. Geology of the Graves Mountain area, Lincoln and Wilkes Counties, Georgia: M S Thesis, Univ. Georgia, 1979.

REUTER, JOHANNES HELMUT, 1930-, **see also** Beck, Kevin Charles, 2

1. (and Perdue, Edward Michael) Chemical characterization of dissolved organic matter and its influence on the chemistry of river waters [Coastal Plain] [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 345, 1971.

2. (and Beck, Kevin Charles) Geochemical effects of organic-rich swamp effluents from the Okefenokee Swamp-Marsh complex of southern [Charlton County] Georgia [abstract], **in** Interdisciplinary studies of peat and coal origins (edited by Peter Hervey Given and Arthur David Cohen): Geol. Soc. America Microform Pub. 7, p. 160, 1977; Geol. Soc. America Abs. with Progs., v. 6, p. 924-925, 1974.

REVETTA, FRANK ALEXANDER, 1928-, **see** Diment, William Horace, 1

REYNOLDS, JOHN WAYNE, 1946-, **see** Neathery, Thornton Lee, 1

RIBBE, PAUL HUBERT, 1935-, **see** Bergstroem, Stig Magnus, 1; Bollinger, Gilbert Arthur, 2; Griffen, Dana Thomas, 1; Medlin, Jack Harold, 4; Roper, Paul James, 1

RICH, FREDERICK JAMES, 1951-, **see also** Spackman, William, Jr., 3

1. (and Cohen, Arthur David) Pollen stratigraphy and peat petrography of a tree island in the Okefenokee Swamp [Charlton County] [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 1067, 1976.

2. The distribution of plant communities and their peat types in the Okefenokee Swamp [Charlton and Ware Counties]--a modern analogue to guide exploration of Fort Union coals in Wyoming [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 503, 1979.

3. (and Spackman, William, Jr.) Modern and ancient pollen sedimentation around tree islands in the Okefenokee Swamp: Palynology, v. 3, p. 219-226, illus., 1979.
   Pollen in the tree islands of Chesser Prairie in Charlton County is different from the pollen in the surrounding marsh. This is also true in cores, suggesting that the islands are more or less "permanent" and that the plant succession which led to the islands can be deduced.

4. The origin and development of tree islands in the Okefenokee Swamp, as determined by peat petrography and pollen stratigraphy [Charlton County]: Ph D Thesis, Pennsylvania State Univ., 1979; [abstract]: Dissert. Abs. Internatl., v. 40B, p. B1596, 1979.

RICH, MARK, 1932-

1. Early Mississippian plant and trilobite remains from northwestern Georgia: Jour. Paleontology, v. 47, p. 1116-1118, illus., 1973.
A fragment of **Griffithides** and specimens of **Confervites** and **Archaeocalamites,** terrestrial plants, are described and illustrated. They are from the Lavender Shale Member of the Fort Payne Formation in Catoosa County.

2. Upper Mississippian (Carboniferous) calcareous algae from northeastern Alabama, south-central Tennessee, and northwestern Georgia: Jour. Paleontology, v. 48, p. 360-374, illus., 1974.
Nineteen genera, one new, and at least twenty-one species are described and illustrated. Those from Georgia are from the Monteagle Limestone in Walker County.

RICHARDS, HORACE GARDINER, 1906-1984.

1. Recent studies on the marine Quaternary of eastern North America [Coastal Plain] [abstract]: Amer. Quaternary Assoc. Second Natl. Conf., Abstracts, p. 45-46, 1972.

2. Structural and stratigraphic framework of the Atlantic Coastal Plain, **in** Post-Miocene stratigraphy, central and southern Atlantic Coastal Plain (edited by Robert Quincy Oaks, Jr., and Jules Ramon Dubar): Logan, Utah State Univ. Press, p. 11-20, illus., 1974.
The entire Atlantic Coastal Plain is discussed, including that part in Georgia. The Southeast Georgia Embayment is the main feature; the Ocala Uplift is on the western edge of the embayment. Cretaceous to Holocene rocks are cursorily described.

RICHARDS, LARRY WALTER, 1948-

1. (and Poort, Jon Michael) Paleoenvironmental interpretation of the Upper Cretaceous Ripley Formation, Stewart and Quitman Counties, Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 345, 1971.

RIDE, WILLIAM DAVID LINDSEY, 1926-

1. (and Neumann, A., editors) Catalog of Western Australian meteorite collections: Western Australia Mus. Spec. Pub. 3, 138 p., illus., 1965.
A piece of the Sardis meteorite from Jenkins County is in the collection.

RIETSCHEL, SIEGFRIED, **see** Howard, James Dolan, 11

RIFE, DAVID LEROY, 1941-

1. Barite fluid inclusion geothermometry, Cartersville Mining District, northwest Georgia: Econ. Geology, v. 66, p. 1164-1167, illus., 1971; discussion by Edwin Woods Roedder, v. 67, p. 821-822, 1972; reply by author, p. 822-824, illus., 1972.
Primary barite veins and barite-filled breccias were emplaced during late Paleozoic magmatization. Fluid inclusions show the temperature range to have been from 126 to 297 degrees C, compatible with a hydrothermal emplacement.

RIGDON, THOMAS A.

1. Soil survey of Appling and Jeff Davis Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 65 p., illus., 1975.
The soils of the counties are mapped and described in great detail. Their origin, in relation to the geology, is cursorily described.

RIHANI, RUSHDI FRIEH, 1935-

1. Geochemistry of Holocene salt marsh deposits in the vicinity of Sapelo Island, [McIntosh County] Georgia, U.S.A.: Ph D Thesis, Univ. Georgia, 1971; [abstract]: Dissert. Abs. Internatl., v. 32B, p. B5873, 1972.

RIPY, BRUCE JOHNSON, -1980.

1. Potentiometric levels of [Coastal Plain] aquifers at historic lows [abstract]: Georgia Jour. Sci., v. 37, p. 87, 1979.

RIVERS, WAYNE KIRBY, 1930-, **see** Long, Leland Timothy, 8

ROBERTSON, EUGENE CORLEY, 1915-, **see** Diment, William Horace, 1

ROBERTSON, JOHN BROWN, 1938-, **see** Bredehoeft, John Dallas, 3

ROBERTSON, STANLEY M., 1918-

1. Soil survey of Clarke and Oconee Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 55 p., illus., 1968.
The soils of these counties are mapped in great detail, and a cursory summary of the geology is included.

ROBINSON, EDWIN SIMMONS, 1935-

1. A reconnaissance of tidal gravity in southeastern United States: Jour. Geophys. Research, v. 79, p. 4418-4424, illus., 1974.
   A gravity station in Atlanta, Fulton County, and others from other states, is part of a regional study. The value of Δ M-2/ Δ O-1 for Atlanta is 1.006 $\pm$ 0.006. There is a relationship to the lunar diurnal and semidiurnal tidal gravity constituents.

ROBINSON, GENE DEADRICK, JR., 1943-, **see also** Carpenter, Robert Heron, 7

1. (and Carpenter, Robert Heron) Investigation of trace copper and nickel in the Gladesville Norite, Jasper County, Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 429, 1973.

2. Partitioning of certain trace metals in soils in the southeastern United States [Piedmont]: Ph D Thesis, Univ. Georgia, 1978; [abstract]: Dissert. Abs. Internatl., v. 39B, p. B1167, 1978.

3. (and Carpenter, Robert Heron) Distinguishing significant from false copper and nickel anomalies in soil overlying the Gladesville Norite, Jasper County, Georgia: Jour. Geochem. Explor., v. 11, p. 157-173, illus., 1979.
   Anomalies of copper and nickel in stream alluvium and soil in the norite terrane are investigated. There is a partitioning effect in the B-soil-horizon clay between copper and nickel. Montmorillonite scavenges copper and holds it in the weathering environment.

4. (and Carpenter, Robert Heron) Partitioning of copper, zinc, and lead in soil overlying a base-metal sulfide deposit in eastern Georgia: Geochemical exploration 1978--Proc. of the seventh Internatl. Geochem. Exploration Symposium (edited by John Robert Watterson and Paul K. Theobald): Rexford, Ontario, Soc. Explor. Geochemists, p. 301-308, illus., 1979.
   Weathering from the sphalerite-galena-chalcopyrite mineralization of the Chambers prospect in Wilkes County is investigated. The distribution of the various metals in the soil profile geographically shows the effect of the various soil components on the residences of trace copper, lead, and zinc.

ROBINSON, GLORIA, 1924-

1. Charles Upham Shepard [1804-1886], **in** Benjamin Silliman and his circle... (edited by Leonard Gilchrist Wilson): New York, Sci. History Pubs., p. 85-103, illus., 1979.

ROBSON, STANLEY GENE, 1939-, **see** Bredehoeft, John Dallas, 3

RODDA, JOHN C., **see** Bredehoeft, John Dallas, 3

RODGERS, JOHN, 1914-

1. The clastic sequence basal to the Cambrian System in the central and southern Appalachians, **in** Adventures in earth history (edited by Preston Ercelle Cloud): San Fransisco, W. H. Freeman and Co., p. 489-496, illus., 1970; edited from original publication, 1956.
   The rocks below the Weisner Quartzite in northwestern Georgia and in the Blue Ridge, are described. An uncertain, but possibly Cambrian age is proposed for the Ocoee Series.

2. Latest Precambrian (post-Grenville) rocks of the Appalachian region: Amer. Jour. Sci., v. 272, p. 507-520, illus., 1972.
   Most of the post-Grenville rocks in the Blue Ridge province are sedimentary and volcanic; they were not metamorphosed during the Precambrian or Early Cambrian. The rocks of the Carolina Slate belt in the Piedmont are Precambrian and Early Cambrian; deformation and metamorphism came later in the Paleozoic.

ROEDDER, EDWIN WOODS, 1919- **see** Rife, David Leroy, 1

ROEDER, DIETRICH HANS, see also Gilbert, Oscar Edward, Jr., 1; Misra, Kula Chandra, 1

1. (and Gilbert, Oscar Edward, Jr., and Wielchowsky, Charles Carl) Collision models for the southernmost Appalachians [Piedmont] [abstract]: Geol. Soc. America Abs. with Progs., v. 9, p. 178-179, 1977.

ROGERS, JOHN JAMES WILLIAM, 1930- **see also** Greenberg, Jeffrey King, 2

1. (and Ragland, Paul Clyde, and Nishimori, Richard Kiichi, and Greenberg, Jeffrey King, and Hauck, Steven Arthur) Varieties of granitic uranium deposits and favorable exploration areas in the eastern United States: Econ. Geology, v. 73, p. 1539-1555, illus., 1978.
   A general discussion of the occurrence of primary uranium deposits in granitic rocks is given. The most favorable locations for uranium deposits in Georgia are the Lithonia Gneiss in DeKalb County and the belt of 300-million-year-old plutons to the south and east in the Piedmont.

ROGERS, LEWIS FRANK, 1939-

1. The petrology-mineralogy of six Georgia kaolins: Ph D Thesis, Univ. Georgia, 1979; [abstract]: Dissert. Abs. Internatl., v. 40B, p. B1601, 1979.

ROPER, PAUL JAMES, 1939-

1. (and Justus, Philip Stanley) Polytectonic evolution of the Brevard Zone, **in** The Byron Nelson Cooper volume (edited by Lynn Glover, 3d, and Paul Hubert Ribbe): Amer. Jour. Sci., v. 273A, p. 105-132, illus., 1973.
A review of the history of the ideas about the origin of the Brevard zone is followed by structural and stratigraphic details, most of which come from the Piedmont of Georgia. The zone has had several origins in different places. Late Precambrian to Ordovician rocks are present. Two periods of mobilization and folding followed this deposition, probably Taconic and Acadian. Late Paleozoic overthrusting and retrogressive metamorphism followed the folding and faulting.

2. Evidence for post-Jurassic tectonism in eastern North America: Gulf Coast Assoc. Geol. Socs. Trans., v. 29, p. 179-186, illus., 1979.
A review of the evidence includes some from Georgia. The uplift of the Atlanta area, Cretaceous volcanic rocks, much faulting, and some seismic activity are cursorily described as examples of such tectonism in Georgia.

ROSE, DONALD CHARLES, 1901-, **see** Kulhawy, Fred Howard, 1

ROSE, HARRY JOSEPH, JR., 1925-, **see** May, Irving, 1

ROTHE, GEORGE HENRY, 3D, 1949-

1. Geophysical investigation of a diabase dike [Meriwether County]: M S Thesis, Georgia Inst. Technology, 1973.

2. (and Long, Leland Timothy) Geophysical investigation of a diabase dike swarm in [Meriwether County] west-central Georgia: Southeastern Geology, v. 17, p. 67-79, illus., 1975.
Gravity and magnetic surveys show the Meriwether County dike swarm to be about 750 m wide. The dip is 70-80 degrees toward the east. The remanent magnetism, Q, is 1.0

ROTSTEIN, H.

1. Geophysical evidence for a Triassic rift system in the eastern United States [Coastal Plain] [abstract]: EOS, v. 59, p. 391, 1978.

ROUNTREE, ROY GENE, 1947-

1. (and Arden, Daniel Douglas, Jr., and Jones, Frank Burdette) Evidence for faulting in Sumter County, Georgia [abstract]: Georgia Jour. Sci., v. 36, p. 94, 1978.

ROWE, MARVIN WAYNE, 1937-, **see** Herndon, James Marvin, 1

ROWLAND, RICHARDS ATWELL, 1910-, **see** Steinfink, Hugo, 1

ROZEN, ROBERT WALTER, 1951-, **see also** Whitney, James Arthur, 7

1. The geology of the Elberton East quadrangle [Elbert County]: M S Thesis, Univ. Georgia, 1978.

2. (and Whitney, James Arthur) The Middleton [Elbert County] cataclastic zone--a previously unrecognized fault zone within the eastern Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 196, 1978.

RUBIN, MEYER, 1924-, **see** Prowell, David Cureton, 3

RUSSELL, C. WINSTON, see Odom, Arthur LeRoy, Jr., 2

RUSSELL, GAIL SHERRER, 1947-, **see also** Odom, Arthur Leroy, Jr., 2

1. (and Odom, Arthur LeRoy, Jr.) Can the Blue Ridge Province be extended into Alabama [from Georgia]? [abstract]: Geol. Soc. America Abs. with Progs., v. 7, p. 528, 1975.

2. Rb-Sr evidence from cataclastic rocks for Devonian faulting in the southern Appalachians [Piedmont and Blue Ridge] [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 1081, 1976.

3. U-Pb, Rb-Sr, and K-Ar isotopic studies bearing on the tectonic development of the southernmost Appalachian orogen, Alabama [and Georgia Piedmont]: Ph D Thesis, Florida State Univ., 1978; [abstract]: Dissert. Abs. Internatl., v. 40B, p. B640-B641, 1979.

RYKIEL, EDWARD JOSEPH, JR., 1944-, **see** Parrish, Fred Kenneth, 1

RYMER, RODNEY KEITH, 1956-

1. (and Manker, John Phillip) Vertical and lateral variations in mineralogy and chemistry of kaolin bodies of the Andersonville Mineral District [Sumter County]--a correlative and paleoenvironmental indicator [abstract]: Georgia Jour. Sci., v. 36, p. 88-89, 1978.

SALISBURY, JOHN WILLIAM, JR., 1933-, **see** Hunt, Graham Robert, 1

SAMMEL, EDWARD ANTHONY, 1921-

1. Occurrence of low-temperature geothermal waters in the United States, in Assessment of geothermal resources of the United States--1978 (edited by Leroy John Patrick Muffler): U. S. Geol. Survey Circ. 790, p. 86-131, illus., 1979.
   Information on low temperature (less than 90 degrees C) geothermal waters at depths of less than 1 km are tabulated, and includes some information about Georgia. There are some warm springs in the Piedmont related to buried thrusts at great depth. Also several buried plutons in the Coastal Plain are producing warmer-than-regional water.

SAMS, RICHARD HOUSTON, 1935-

1. Oil seeps in Georgia--a reinvestigation: Georgia Geol. Survey Geol. Rept. 2, 18 p., illus., 1971.
   Eight oil seeps, all on the Coastal Plain, have been reported. Seven were investigated, and no clear evidence of active seeping was found. The sites are described, and location maps are included.

SANDERS, CHARLES LEONARD, JR., 1938-

1. (and Sauer, Vernon B.) Kelly Barnes dam flood of November 6, 1977 near Toccoa, Georgia: U. S. Geol. Survey Hydrol. Invs. Atlas HA 613, 2 sheets, text, illus., 1979.
   Several maps show the geological and hydrological setting of the broken Stephens County dam. Hydrologic and topographic details are included.

SANDERS, RICHARD PAT, 1943-

1. Major element chemical variation in several bodies of granite gneiss of the Piedmont of west Georgia [abstract]: Georgia Jour. Sci., v. 35, p. 89, 1977.

2. (and Jeffers, William Larry, and Reid, Barry James) Petrology of elliptical calcareous pods in metagraywackes [Douglas County] [abstract]: Georgia Jour. Sci., v. 37, p. 88, 1979.

SANDERS, THOMAS HENRY B., JR., 1943-

1. (and Spooner, Stephen, and Moody, Willis Elvis, Jr.) Neutron diffraction investigation of well crystallized kaolinite [Twiggs County] [abstract]: Clay Minerals Conf. 19th Ann. Mtg., Prog. and Abs., p. 33, 1970.

SANDO, THOMAS WILLIAM, 1954-

1. Trace elements in Hercynian granitic rocks of the southeastern Piedmont, U.S.A.: M S Thesis, Univ. North Carolina, 1979 [not seen].

SANDROCK, GEORGE S.

1. (and Penley, H. Michael) Geologic map of the Pine Mountain Series and adjacent areas in the southwest Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 395, 1974.

SANDY, JOHN, JR., 1934-, **see** Hurst, Vernon James, 1

SANS, BARBARA URBAN, 1950-, **see** Costain, John Kendall, 6

SANTOLIQUIDO, PATRICIA M., 1944-

1. (and Ehmann, William Donald) Bismuth in stony meteorites and standard rocks: Geochim. et Cosmochim. Acta, v. 36, p. 897-902, illus., 1972; reprinted **in** Geochemistry of bismuth: Stroudsburg, Pennsylvania, Dowden, Hutchinson and Ross, p. 102-107, illus., 1979.
   Data from the Sardis meteorite in Jenkins County are included.

SAPP, CECIL DANIEL, 1940-

1. A comparative geomorphology of fluvial and marine terraces, Bulloch County, Georgia: M A Thesis, Univ. Georgia, 1973.

SASS, JOHN HARVEY, 1937-, **see also** Lachenbruch, Arthur Herold, 1

1. (and others) A new heat-flow contour map of the conterminous United States: U. S. Geol. Survey Repts. Open File 76-756, 24 p., illus., 1976.

SAUER, HERBERT IRVIN, 1910-, **see** Shacklette, Hansford Threlkeld, 4

SAUER, VERNON B., 1933-, **see** Sanders, Charles Leonard, Jr., 1

SAUNDERS, DONALD FREDERICK, 1924-

1. (and Hicks, David E.) Regional lineament map of the United States: Dallas, Texas Instruments Co., scale, 1:2,500,000, 1976.

2. (and Hicks, Donald E.) Regional geomorphic lineaments on satellite imagery--their origin and application, **in** Second international conference on the new basement tectonics: Newark, Delaware, p. 326-346, illus., 1979.
   Examples of lineaments as surface expressions of crustal deformation are cited. Several are in Georgia, where the Brevard lineament is particularly obvious.

SBAR, MARC LEWIS, 1944-, **see also** Fletcher, Jon Peter Bodman, 1

1. (and Sykes, Lynn Ray) Contemporary compressive stress and seismicity in eastern North America--an example of intra-plate tectonics: Geol. Soc. America Bull., v. 84, p. 1861-1882, illus., 1973.
   Fault plane solutions, **in situ** stress measurements, some from Georgia, and regional observations of post glacial deformation show the orientation of stresses. Earthquake distribution may be related to regions of high stress. The driving mechanism of plate motions may also be related.

SCHAEFFER, MALCOLM FRANCIS, 1951-

1. (and Manley, Frederick Harrison, Jr.) Clay mineralogy of Etowah River sediments, north Georgia [abstract]: Georgia Jour. Sci., v. 35, p. 84, 1977.

2. (and Heller, David Keith) Clay mineralogy of infilling material in joints within the Brevard Zone near Atlanta [Fulton County] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 9, p. 181, 1977.

SCHAFER, K.

1. Current folding of the Appalachians [abstract]: Internatl. Union Geod. and Geophysics, 17th Gen. Assembly, Abstracts, p. 3.12, 1979 [not seen].

SCHAMEL, STEVEN, 1941-, **see also** Holland, Willis A., Jr., 1

1. (and Bauer, David Thomas, and Holland, Willis A., Jr.) Structure of the Pine Mountain Belt and adjacent terranes, west central Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 260-261, 1976.

SCHAUDY, RUDOLF.

1. (and Wasson, John Taylor, and Buchwald, Vagn Fabritius) The chemical classification of iron meteorites [Part] 6, A reinvestigation of irons with Ge concentrations lower than 1 ppm: Icarus, v. 17, p. 174-192, illus., 1972.
   Ni, Ga, Ge, and Ir concentrations for meteorites with Ge concentrations less than 1 ppm are given in tabular form. Information is in part from Putnam County and Social Circle (Walton County) meteorites.

SCHIEBOUT, JUDITH ANN, 1946-

1. An overview of the terrestrial Early Tertiary of southern North America--fossil sites and paleopedology: Tulane Studies Geology and Paleontology, v. 15, p. 75-93, illus., 1979.
   A snake from a mixed fauna of marine and terrestrial vertebrates from the Late Eocene Twiggs Clay in Twiggs County suggests tropical or semi-tropical conditions at that time. Paleopedological data from the southeastern United States is scarce.

SCHILT, FRANK STEVE, 1952-

1. (and others) The COCORP seismic reflection project--probing the continental crust [Piedmont] [abstract]: Earthquake Notes, v. 49, no. 3, p. 25, 1978.

2. (and others) The heterogeneity of the continental crust--results from deep crustal seismic reflection profiling using the Vibroseis technique: Revs. Geophysics and Space Physics, v. 17, p. 354-368, illus., 1979.
A discussion of the technique and some of the accumulated results from the COCORP program includes a preliminary description of the results of a traverse from near Augusta northwestward toward Tennessee. Folded sedimentary rocks are interpreted to be below the Piedmont and Blue Ridge metamorphic rocks. If this is true, overthrusting of at least 225 km is possible, with the Brevard zone rooted in the sole.

SCHLEE, JOHN STEVENS, 1928-

1. Stratigraphy and Tertiary development of the continental margin east of Florida, in Drilling on the continental margin off Florida: U. S. Geol. Survey Prof. Paper 581F, p. F1-F25, illus., 1977.
A discussion of the tectonic setting of offshore drill holes includes a generalized description of the geology of the Georgia Coastal Plain in the Southeast Georgia Embayment.

SCHMIDT, WALTER, 1950-, see also Wise, Sherwood Willing, Jr., 1, 4

1. A paleonenvironmental study of the Twiggs Clay (Upper Eocene) of Georgia using fossil microorganisms: M S Thesis, Florida State Univ., 1977 [not seen].

SCHNEEBERGER, FREDERICK J., 3D, see Pickering, Samuel Marion, Jr., 2

SCHNEIDER, HARVEY IRA.

1. Mineral variations and textural development along dominant S-surfaces of amphibolite [Piedmont]--a preliminary report [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 210-211, 1979.

SCHNEIDER, ROBERT, 1921-

1. Distortion of the geothermal field in aquifers by pumping, in Geological Survey Research, 1972: U. S. Geol. Survey Prof. Paper 800C, p. C267-C270, illus., 1972.
A geothermal profile from a well at Brunswick, Glynn County shows a distortion of the geothermal field caused by a horizontal flow of relatively warm water. This is probably derived from a region some distance away, where the warm, deeper water moves into the shallow (-600 feet) water-bearing zone.

SCHOT, ERIK HANS, 1940-, **see** Penley, H. Michael, 2

SCHREIBER, RICHARD WALTER, 1943-

1. Georgia's long caves list as of December 31, 1970: GSS Bull. 1970, p. 14-17, 1971.
There are twelve long caves in Georgia, all but two of which are in northwestern Georgia. A list of the caves for which maps exist is also included; those maps on file at the Georgia Speleological Survey are listed.

SCHRODER, CHARLES HAROLD, 1944-

1. Trace fossils of the Upper Cretaceous-Lower Tertiary (formerly Tuscaloosa Formation) and basal Jackson Group, east central [Coastal Plain] Georgia: M S Thesis, Univ. Georgia, 1979.

SCHULTZ, LUDOLF, 1937-

1. (and Kruse, H.) Light noble gases in stony meteorites, a compilation: Nucl. Track Detection, v. 2, p. 65-103, illus., 1978.
Included are analyses of helium, argon, and neon from the Forsyth meteorite from Monroe County.

SCHWARCZ, HENRY PHILIP, 1933-

1. (and Scott, Steven Donald, and Kissin, Stephen Alexander) Pressures of formation of iron meteorites from sphalerite compositions: Geochim. et Cosmochim. Acta, v. 39, p. 1457-1466, illus., 1975.
Four meteorites, including Sardis, from Jenkins County, are examined for the FeS content of sphalerite. All are in Ga-Ge group I, and the formation pressure is calculated. Temperatures and the depth of the formation within the parent body are discussed.

SCOTT, EDWARD ROBERT DALTON, 1947-

1. (and Wasson, John Taylor) The chemical classification of iron meteorites--[Part] 7, A reinvestigation of irons with Ge concentration between 25 and 80 ppm: Geochim. et Cosmochim. Acta, v. 37, p. 1957-1983, illus., 1973.
Ni, Ga, Ge, and Ir concentrations in 193 meteorites are determined. Included are Dalton (Whitfield County) and Canton (Cherokee County). Both are in group IIIAB.

2. (and Wasson, John Taylor) Classification and properties of iron meteorites: Revs. Geophysics and Space Physics, v. 13, no. 4, p. 527-546, illus., 1975.
Iron meteorites are classified on the basis of systematic variations of their chemical, mineralogical, and structural properties. The ratio Ga-Ni, or Ge-Ni is most easily utilized, but other categories can be defined using other characters. Those meteorites from Georgia which have been classified are: Aragon, Canton, Cedartown, Dalton, Elberton, (part of Smithonia?), Holland's Store, Locust Grove, Pitts, Putnam County, Sardis, Smithonia, Social Circle, Twin City, and Union County.

3. (and Wasson, John Taylor) Chemical classification of iron meteorites--[Part] 8, Groups IC, IIE, IIIF, and 97 other irons: Geochim. et Cosmochim. Acta, v. 40, p. 103-115, illus., 1976.
The Ni, Ga, Ge, and Ir contents of many meteorites are determined, including those from Union County, Walker County, Cedartown, Forsyth, Holland's Store, Locust Grove, Sardis, and Smithonia.

4. Tungsten in iron meteorites: Earth and Planet. Sci. Letters, v. 39, p. 363-370, illus., 1978.
Information about the Pitts meteorite from Wilcox County is included with many others from elsewhere. It is a group IB iron, and contains 12.8 percent nickel.

SCOTT, RALPH CARTER, JR., 1944-

1. The geomorphic significance of debris avalanching in the Appalachian Blue Ridge Mountains: Ph D Thesis, Univ. Georgia, 1972.

SCOTT, RICHARD MURRAY, 1946-, **see also** Carver, Robert Elliott, 4; Frey, Robert Wayne, 2

1. (and Howard, James Dolan) Depositional characteristics of a Pleistocene barrier island beach sequence--[Camden County] Georgia coast [abstract]: Amer. Assoc. Petroleum Geologists Ann. Mtg. Abstracts, v. 2, p. 66-67, 1975.

2. Examination of selected Holocene-Pleistocene beach environments: M S Thesis, Univ. Georgia, 1976.

3. (and Howard, James Dolan) Sedimentary environments of tidal flats created by shoreline erosion in tidal estuary [Chatham County] [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 60, p. 720-721, 1976.

SCOTT, ROBERT WILLIAM, 1936-, **see** Broadhead, Thomas Webb, 7

SCOTT, STEVEN DONALD, 1941-, **see** Schwarcz, Henry Philip, 1

SCRUDATO, RONALD JOHN, 1940-

1. Kaolin and associated sediments of east-central [Coastal Plain] Georgia: Ph D Thesis, Univ. North Carolina, 1969; [abstract]: Dissert. Abs. Internatl., v. 31B, p. B256, 1970.

2. (and Bond, Thomas Alden) Cretaceous-Tertiary boundary of east-central Georgia [Coastal Plain] and west-central South Carolina: Southeastern Geology, v. 14, p. 233-239, illus., 1972.
Paleobotanical evidence shows that Middle Eocene rocks rest disconformably upon the Upper Cretaceous Middendorf Formation. Large-scale cross bedding of kaolinitic sand is at the base of the Middle Eocene McBean Formation and equivalents.

3. Coastal marsh-depositional environment for the [Coastal Plain] Georgia and South Carolina kaolin deposits [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 433-434, 1973.

SEARS, DEREK WILLIAM, 1948-

1. The composition of iron meteorites--a study by factor analysis: Meteoritics, v. 14, p. 297-305, illus., 1979.
Factor analyses on nickel and trace-element data for 67 iron meteorites, including Canton, from Cherokee County, show that the distribution of trace elements is the result of three processes.

SEDIVY, ROBERT ALAN, 1954-

1. (and Broekstra, Bradley Robert) K/Ar age analysis of size-fractionated samples of [Cambrian] Conasauga Shale [northwestern Georgia] [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 197, 1978.

SELLARS, BARBARA DIANE, 1956-

1. (and Chowns, Timothy Michael) Petrology of ironstones from the Deaton Member of the Lenoir Limestone (Middle Ordovician), Polk County, Georgia [abstract]: Georgia Jour. Sci., v. 36, p. 90, 1978.

SÉLO, MADELINE, see Storzer, Dieter, 3

SENNETT, PAUL, see Olivier, James P., 1

SEVER, CHARLES WILLIAM, JR., 1931-

1. Ground-water resources and geology of Cook County, Georgia: U. S. Geol. Survey Repts. Open File [unnumbered], 40 p., illus., 1972.
Potable water comes from the uppermost 400 to 500 feet of Oligocene and Miocene limestones. Below these, the water is highly mineralized. Wells are logged, and analyses are included.

SEWELL, JOHN MICHAEL, see Penley, H. Michael, 2

SEWELL, THOMAS L., see also Manley, Frederick Harrison, Jr., 3

1. Migmatite in Elbert County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 31, p. 81, 1973.

SHACKLETTE, HANSFORD THRELKELD, 1914-, **see also** Connar, Jon James, 1

1. (and Hamilton, John Christie, and Boerngen, Josephine Graham, and Bowle, Jesse M.) Elemental composition of surficial materials in the conterminous United States: U. S. Geol. Survey Prof. Paper 574D, p. D1-D71, illus., 1971.
   Soils and other regoliths from throughout the United States, including Georgia were sampled, and the concentration of 30 different elements are shown on small-scale maps.

2. (and Boerngen, Josephine Graham, and Turner, Robert Lawrence) Mercury in the environment--surficial materials of the conterminous United States: U. S. Geol. Survey Circ. 644, 5 p., illus., 1971.
   Mercury, in ppb, is shown on a small-scale map of the United States. Some of the data are from Georgia.

3. A U. S. Geological Survey study of elements in soils and other surficial materials in the United States, **in** Trace substances in environmental health--IV (edited by Delbert Dean Hemphill): Univ. Missouri Conf. on Trace Substances in Envir. Health Proc. 4th Ann. Conf., p. 35-45, illus., 1971.
   Results of spectrographic and chemical analyses of 30 elements in soils from a grid of fifty mile intervals throughout the United States are given on small-scale maps. Georgia is included. The distribution is given in percent and ppm for five of the elements.

4. (and Sauer, Herbert Irvin, and Miesch, Alfred Thomas). Distribution of trace elements in the environment and the occurrence of heart disease in Georgia **in** Geochemical environment in relation to health and disease (edited by Helen Leighton Cannon and Howard Carl Hopps): Geol. Soc. America Spec. Paper 140, p. 65-70, illus., 1972; Geol. Soc. America Bull., v. 83, p. 1077-1082, illus., 1972.
   A nine-county area in the Blue Ridge and a nine-county area in the Coastal Plain were investigated. Soil, rocks, and vegetation were analyzed for 20 different trace elements. The geochemistry of the soils of each area is very distinct whereas that of the vegetation is not. The differences in the mortality rates (low in the Blue Ridge, high on the Coastal Plain) are not due to geochemical differences in the vegetable diets.

5. (and Boerngen, Josephine Graham, and Cahill, James P., and Rahill, Ramona L.) Lithium in surficial materials of the conterminous United States and partial data on cadmium: U. S. Geol. Survey Circ. 673, 8 p., illus., 1973.
   A small-scale map, showing lithium distribution in ppm, includes Georgia.

SHAFFER, MORRIS E., see Perkins, Henry Frank, 2

SHELBURNE, ORVILLE BERLIN, JR., 1932-, **see** Spivak, Joseph, 1

SHEPARD, FRANCIS PARKER, 1897-

1. (and Wanless, Harold Rollin) Straight barrier coasts, Cape Romain to Florida Keys, **in** Our changing coastlines (by Francis Parker Shepard and Harold Rollin Wanless): New York, McGraw Hill, p. 132-161, illus., 1971.
The origin of coastal features of Georgia includes some details of changes wrought on Ossabaw, Blackbeard, and Sapelo Islands. Comparisons of older with current airphotos and maps are made.

SHERIDAN, ROBERT EDMUND, 1940-

1. (and Drake, Charles Lum, and Nafe, John Elliott, and Hennion, John F.) Seismic-refraction study of continental margin east of Florida: Amer. Assoc Petroleum Geologists Bull., v. 50, p. 1972-1991, illus., 1966.
Numerous wells on the Atlantic Coastal Plain of Georgia are used to correlate seismic lines offshore.

SHILLER, GERALD I., see Cummings, David, 1

SHIMA, MAKOTO, 1923-, **see** Okada, Akihiko, 1

SHIMA, MASAKO.

1. The distribution of germanium and tin in meteorites: Geochim. et Cosmochim. Acta, v. 28, p. 517-532, illus., 1964; **in** Geochemistry of germanium: Stroudsburg, Pennsylvania, Dowden, Hutchinson and Ross, p. 224-239, 1973.
Tin and germanium in the Sardis meteorite from Jenkins County are measured. These, with data from other meteorites, are used in a classification scheme.

SHMAKHIN, BORIS MATVEEVICH.

1. Composition and structural state of K-feldspars from some U. S. pegmatites: Amer. Mineralogist, v. 64, p. 49-56, illus., 1979.
Pegmatites from the Gladesville, Jasper County area are included with others from elsewhere. The trace-element contents, monoclinic and triclinic ordering, and albite content suggest various circumstances of origin.

SHOTTS, REYNOLD QUINN, 1909-

1. Possible correlation of coal beds on Sand and Lookout Mountains: Alabama Acad. Sci. Jour., v. 37, p. 15-21, illus., 1966.
Allusions and references are made to coal-bearing rocks and coals in northwestern Gerogia. The Castle Rock coal seam of Georgia is correlated with an unnamed seam at Norwood Cove, Alabama.

2. The Upper Cliff coal beds on northeast Sand Mountain: Alabama Acad. Sci. Jour., v. 38, p. 143-154, illus., 1967.
Correlations of various coal beds on Sand Mountain, including that part in Dade County, are suggested. A small-scale, structure-contour map of one of the conglomerate formations and an isopach map of the strata between the Underwood coal and the upper conglomerate are also included.

SHRUM, JOHN WESLEY, 1925-, **see** Hurst, Vernon James, 8

SIEFERT, KRISTINE S., 1948-, **see** Casagrande, Daniel Joseph, 5, 6

SIEMS, DAVID F.

1. (and others) Geochemical data for Cohutta Wilderness, Georgia-Tennessee: U. S. Geol. Survey Repts. Open File 79-1352, 74 p., illus., 1979.
Results of trace-element measurements are given in tabular form. The data are from stream-sediment, soil, and rock-chip samples which are analyzed by semiquantitative spectrographic and atomic absorption techniques. Thirty different elements are investigated from this area in Fannin, Gilmer, and Murray Counties.

SIMMONS, HENRY BROWN, 1915-

1. (and Herrmann, Frank Adolf, Jr.) Effects of man-made works on the hydraulic, salinity, and shoaling regimens of estuaries, **in** Environmental framework of Coastal Plain estuaries (edited by Bruce Warren Nelson): Geol. Soc. America Memoir 133, p. 555-570, illus., 1972.
The Savannah River estuary is cited as an example of one which shows these effects. Shoaling (deposition) occurs at that point in the estuary where the saline-water flow ceases to be stronger than the overlying fresh-water flow. Dredging has caused this shoaling area to form farther upstream where it is more troublesome and expensive to combat.

SINHA, KRISHNA AKHAURY, 1941-

1. (and Merz, Barbara Alida) The bearing of lead isotopes on the origin of Hercynian granites, eastern U. S. [Piedmont] [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 493, 1978.

SINKANKAS, JOHN, 1915-

1. Gemstones of North America, in two volumes: New York, Van Nostrand, 494 p., illus., 1976.
Georgia is discussed in volume 2. Numerous gemstones are described, and many are from diverse places in Georgia, although most are from the Piedmont and Blue Ridge. This is a popular account, and little detail is included.

SIPLE, GEORGE ELMER, 1914-, **see also** Marine, Ira Wendell, 1

1. (and Pooser, William Kenneth) Proposal of the name Orangeburg Group for outcropping beds of Eocene age in Orangeburg County and vicinity, South Carolina, in Changes in stratigraphic nomenclature by the U. S. Geological Survey, 1973: U. S. Geol Survey Bull. 1395-A, p. 55, 1975.
   The Barnwell Formation of Late Eocene age, and the McBean Formation (restricted) of Middle Eocene age, from the Savannah River area, are included in the Orangeburg Group.

SLACK, JOHN FREDERICK, 1947-, **see also** Gair, Jacob Eugene, 1; Hopkins, Roy Thomas, Jr., 1

1. (and Gazdik, Gertrude Christie, and Dunn, Maynard L., Jr.) Mineral resources of the Big Frog Wilderness study area, Polk County, Tennessee and Fannin County, Georgia: U.S. Geol. Survey Repts. Open File 79-1209, 38 p., illus., 1979.
   The rocks are entirely metamorphic and of Late Precambrian age. A major thrust fault is present, and north- and northeast-trending folds are common. Minor deposits of Quaternary sand and gravel occur. No metallic mineral resources are known, although minor sulfide minerals are disseminated throughout the rocks.

SLATER, RANDY, **see also** Bilbo, Raymond E., 1

1. Van Wert [Polk County] sinks [sinkholes]: Georgia Underground, v. 8, p. 118-119, illus. incl. maps, 1971; Speleo Digest 1971, p. 176, illus., 1978.

SLAYMAKER, SUSAN CLARK, 1943-

1. (and Watkins, Joel Smith, Jr.) Three dimensional gravity models of hypothetical Paleozoic subduction zones in the southern Appalachians [Georgia] [abstract]: EOS, v. 55, p. 447, 1974.

SLOSSON, JAMES EDWARD, 1923-, **see** Krohn, James Paul, 1

SMITH, CHARLES CULBERSON, 1938-, **see** Sohl, Norman Frederick, 3

SMITH, DOUGLAS LEE, 1943-

1. Uranium, thorium, and potassium abundances in rocks of the Piedmont of Georgia [abstract]: EOS, v. 56, p. 467, 1975.

2. (and Gregory, Robert George, and Emhof, John Warren) Heat flow in the southern Appalachians [Piedmont] and southeastern Coastal Plain [abstract]: Geol. Soc. America Abs. with Progs., v. 9, p. 185, 1977.

3. (and Gregory, Robert George, and Garvey, Michael Joseph) A thermal reconnaissance of Georgia--heat flow and radioactive heat generation, **in** Short contributions to the geology of Georgia: Georgia Geol. Survey Bull. 93, p. 93-104, illus., 1978.
Values of radioactive-heat generation from various areas in the Piedmont and Blue Ridge are calculated from the abundance of radioactive minerals from over 130 igneous and metamorphic rocks. The heat flow from six boreholes and heat generation are compared, and there is in general a linear relationship. The data are given in graphs and curves.

SMITH, ERNEST HUBERT, see Middleton, Royce G., 1

SMITH, JAMES WILLIAM, 1934-

1. Disposal of solid, low level radioactive waste in eastern United States [Greene County] [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 349, 1971.

2. [Cambrian] Rome Formation and Shady Dolomite in Bartow County, Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 435, 1973.

3. (and Hay, William Daniel, and Evans, Leonard Newton, 3d, and Aldridge, Robert Samuel) Hydrology and geology of proposed Kinchafoonee Lake drainage basin [Coastal Plain] [abstract]: Georgia Acad. Sci. Bull., v. 31, p. 82, 1973.

SMITH, MARION OTIS, 1942-, **see also** Griffin, William, 1; Padgett, Edgar Allen, Jr., 5

1. Floyd County's longest cave [Quarles Bluff cave II]: Georgia Underground, v. 8, p. 84-85, illus. incl. map, 1971.

2. Georgia cave literature--a bibliography: GSS Bull. 1970, p. 28-46, 1971 [not seen].

3. A history of Kingston Saltpeter cave [Bartow County]: GSS Bull. 1971, p. 16-21, maps, [1972].

4. Anthony's cave [Bartow County]: Georgia Underground, v. 10, p. 126-127, illus. incl. map, 1973.

5. Cave hunting in central Georgia [Perry area, Macon and Houston Counties]: Georgia Underground, v. 10, p. 9-11, illus. incl. maps, 1973.

6. The exploration and survey of Running Water cave [Dade County]: Georgia Underground, v. 10, p. 139-144, illus. map, 1973.

7. A new Walker County, Georgia pit [Dean's Pit cave]: Georgia Underground, v. 11, no. 4, and v. 12, nos. 1-4, p. 146-147, illus. incl. map, 1975.

8. Bumblebuzz pit [cave] and Matthew Sink [cave] [Walker County]: Georgia Underground, v. 8, p. 128-130, illus. incl. map, 1971; Speleo Digest 1971, p. 170, illus., 1978.

9. A new Floyd County cave [Braden's cave]: Georgia Underground, v. 8, p. 120-121, illus. incl. map, 1971; Speleo Digest 1971, p. 175, illus., 1978.

10. Rock Shelter pit [cave, Dade County]: Georgia Underground, v. 8, p. 22, illus. map, 1971; Speleo Digest 1971, p. 175, illus., 1978.

SMITH, RALPH G., 1920-, **see** Windom, Herbert Lynn, 4

SMITH, ROBERT LINCOLN, 1947-, **see** Carpenter, Robert Heron, 4; Whitney, James Arthur, 1

SNIDER, FREDERIC GIRVAN, 1950-, **see also** DeBoer, Jelle, 1

1. Analysis of magnetic and chemical data from Mesozoic diabase dikes of the Piedmont Appalachians, with implications for the presence of a Triassic hot spot in the Carolinas: M S Thesis, Wesleyan Univ., 1975 [not seen].

SNIPES, DAVID STRANGE, 1928-, **see** Hatcher, Robert Dean, Jr., 5

SNOKE, ARTHUR WILMOT, 1945-, **see** Maher, Harmon Droge, Jr., 1; Prowell, David Cureton, 5

SOHL, NORMAN FREDERICK, 1924-, **see also** Higgins, Michael Wicker, 3

SOHL, NORMAN FREDERICK, 1924-, **see also** Higgins, Michael Wicker, 3

1. North American Cretaceous biotic provinces delineated by gastropods, **in** Proceedings of the North American paleontological convention, vol. 2: Lawrence, Kansas, Allen Press, p. 1610-1638, illus., 1971.
A general discussion of the distribution of gastropods during the Cretaceous includes data from the Ripley Formation in Georgia. Biotic provinces are shown to be repeated longitudinally by land areas, whereas a normal, latitudinal transition can be shown to exist in each of the provinces. The Ripley Formation, Campanian and/or Maastrichtian, contains a uniform biotic province.

2. Molluscan biostratigraphy of the Upper Cretaceous rocks of [Coastal Plain] Georgia [abstract], **in** Symposium on the petroleum geology of the Georgia Coastal Plain (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 99, 1974.

3. (and Smith, Charles Culberson, and Christopher, Raymond Anthony) Middle Cretaceous rocks of the Atlantic seaboard and eastern Gulf Coastal Plain of North America, in Évenements de la partie moyen du Cretace--rapports sur la biostratigraphie des regions cles: Mus. Nat. Hist. Nice Annals, v. 4, p. xxiv-1 - xxiv-16, illus., 1976.
A general review of the age and correlation of what is called the Tuscaloosa Formation in Georgia shows it is primarily cross-bedded sand and gravel, of terrestrial origin. In central Georgia, what is called Tuscaloosa Formation contains Cenozoic palynomorphs, and the Cretaceous portion may be absent.

SOMAYAJULU, B. L. K.

1. Concerning mercury in meteorites: Indian Acad. Sci. Proc. sec. A., v. 81, p. 137-142, illus., 1975.
Analyses of many meteorites, including Cedartown from Polk County, show an increasing amount of mercury present with increasing age.

SONDEREGGER, JOHN LAWRENCE, JR., 1942-

1. (and Pollard, Lin Davis, and Cressler, Charles William) Quality and availability of ground water in Georgia: Georgia Geol. Survey Inf. Circ. 48, 25 p., illus., 1978.
Ground water quality and availability are summarized on charts and tables. The ranges of concentration of major chemical constituents and physical properties are shown on small-scale maps. The distribution and yield of major ground-water reservoirs are summarized by physiographic province and rock type.

SPACKMAN, WILLIAM, JR., 1919-, see also Rich, Frederick James, 3; Yeakel, Jesse David, 1

1. (and Cohen, Arthur David, and Given, Peter Hervey, and Dolsen, Jane P.) A field trip guidebook to aid in the comparative study of the Okefenokee Swamp and the everglades-mangrove swamp-marsh complex of southern Florida--Geol. Soc. America field trip guidebook no. 6, 1974: [Miami], 265 p., illus., [1974].
A brief introduction to the coal-forming aspects of swamps is followed by field trip logs. The trip in the Okefenokee is for one day in Charlton County. There is a stop on St. Mary's River south of Folkston and seven others to various places in the swamp which are reached by boat. The geology and biology of each stop are given. Cores are described, and carbon-14 dating results are included.

2. Coal forming processes in the swamps and marshes of Georgia and Florida [abstract], in Geology of Rocky Mountain coal (edited by Donald Keith Murray): Colorado Geol. Survey Resources Ser. 1, p. 173, 1977 [not seen].

3. (and Rich, Frederick James) A comparison of modern and ancient pollen sedimentation around tree islands in the Okefenokee Swamp [Charlton County] [abstract]: Amer. Assoc. Stratigraphic Palynologists 10th Ann. Mtg., Abs. with Prog., p. 25, 1977.

SPEER, JOHN ALEXANDER, 1948-

1. Description of the Siloam pluton [Greene County], **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5648-1, p. A43-A70, illus., 1977.
Five facies are present: porphyritic, medium grained, coarse grained, garnet-bearing, and fine grained. Each facies is described petrographically, and the heat production is determined. Aplite and pegmatite dikes cut the granite. Analyses are included.

2. (and Becker, Susan Ward) Description of the Palmetto pluton, Georgia, **in** Evaluation and targeting of geothermal energy resources in the southeastern United States--Progress report (by John Kendall Costain and others): U. S. Dept. Energy Geothermal Energy Rept. VPI-SU 5648-4, p. A38-A60, illus., 1978.
Several bodies are in Fulton, Coweta, and Fayette Counties. The Tyrone pluton is part of the same body as is the Palmetto. All are mapped and described petrographically and chemically. The rock varies from monzogranite to granodiorite. Contact metamorphic effects on the country rock south of the Brevard zone are described. Heat flow measurements are made and tabulated.

SPIVAK, JOSEPH, 1912-

1. (and Shelburne, Orville Berlin, Jr.) Future hydrocarbon potential of Atlantic Coastal Province, **in** Future petroleum provinces of the United States--their geology and potential (edited by Ira Higgins Cram, Sr.): Amer. Assoc. Petroleum Geologists Mem. 15, vol. 2, p. 1295-1310, 1342-1345, illus., 1971.
A summary of the Mesozoic and Cenozoic rocks of the Atlantic Coastal Plain includes those of Georgia. Each unit is cursorily described and its hydrocarbon potential discussed. Much of the speculation alludes to the offshore area. Onshore, Georgia contains 28.6 thousand square miles, with an average thickness of 0.60 miles, and so 17.0 thousand cubic miles of rocks. These have a potential hydrocarbon recovery of 0.26 billion barrels of oil, 1.7 trillion cubic feet of gas, and 0.05 billion barrels of natural-gas condensate.

SPOONER, STEPHEN, 1937-, **see** Sanders, Thomas Henry B., Jr., 1

STAATZ, MORTIMER HAY, 1918-

1. (and others) Principal thorium resources of the United States: U. S. Geol. Survey Circ. 805, 42 p., illus., 1979.
A discussion of the origin, occurrence, and distribution of thorium-bearing deposits in the United States includes a brief summary of the beach-placer deposits in the southeastern Georgia Coastal Plain and Florida. Thorium is a by-product of titanium mining operations.

STAFFORD, LYNDA PLUNKETT, see also Brown, Philip Monroe, 1; Cramer, Howard Ross, 2; Dorman, LeRoy Myron, 4; Long, Leland Timothy, 6; Mann, William Rhodes, 1; Moore, Donald Benton, 1; Pickering, Samuel Marion, Jr., 5, 9; Poort, Jon Michael, 3; Sohl, Norman Frederick, 2; Taylor, Patrick Timothy, 2; Vorhis, Robert Carson, 7; Wise, Sherwood Willing, Jr., 4; Woolsey, James Robert, 4

1. The Georgia Geological Survey sample library, **in** Symposium on the petroleum geology of the Georgia Coastal Plain (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 15-16, 1974.
   Samples from over 2,000 water and oil wells are available for study, and so are geophysical logs for many of the oil tests. Other useful data pertaining to the subsurface are also available.

2. (compiler) Symposium on the petroleum geology of the Georgia Coastal Plain: Georgia Geol. Survey Bull. 87, 196 p., illus. incl. maps, 1974.
   This symposium, held at Georgia Southwestern College, contains 20 papers, most of which are cited separately by author.

STAHELI, ALBERT CLIFFORD, 1939-, **see also** Moye, Falma Jean, 1

1. Marine terracing on the Georgia Piedmont [abstract]: Georgia Acad. Sci. Bull., v. 31, p. 80, 1973.

2. South Atlanta ridge [Piedmont] [abstract]: Georgia Acad. Sci. Bull., v. 31, p. 80, 1973.

3. (and Ogren, David Ernest, and Wharton, Charles Heizer) Age of swamps in the Alcovy River drainage basin: Southeastern Geology, v. 16, p. 103-106, illus., 1974; discussion by Stanley Wayne Trimble, v. 18, p. 191-194, illus., 1977; reply by authors, p. 195-198.
   Six samples from the floodplain in Walton, Newton, and Gwinnett Counties contain organic matter. These date from 6,750 BC to 1,785 AD. The swamps pre-date human activity in the region.

4. Stone Mountain [DeKalb County] Georgia--monadnock or sea stack? [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 965, 1974.

5. Topographic indications of marine terracing on the Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 400, 1974.

6. Topographic lineations on the Georgia Piedmont and their possible relationship to the Brevard Zone lineament [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 400-401, 1974.

7. Origin of swamps on the Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 274-275, 1976.

8. Topographic expression of superimposed drainage on the Georgia Piedmont: Geol. Soc. America Bull., v. 87, p. 450-452, illus., 1976.
Trellis drainage patterns north of the Brevard zone are subsequent, controlled by the rock structures, whereas the dendritic patterns south of the Brevard zone were developed upon a thin veneer of Coastal Plain sediments. These were Oligocene, and have since been removed by erosion.

9. Geologic significance of riverine swamp distribution on the Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 9, p. 186, 1977.

STAUB, JAMES RODNEY, 1953-, **see** Cohen, Arthur David, 7

STEHLI, FRANCIS GREENOUGH, 1924-, **see** Banks, Philip Oren, 1; Helwig, James Anthony, 1; King, Philip Burke, 3

STEIN, HOLLY JAYNE, 1954-

1. (and Kish, Stephen Alexander) The age and origin of ore deposits in the Carolina slate belt [Piedmont] [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 497, 1978.

STEINFINK, HUGO, 1924-

1. (and Rowland, Richards Atwell) Memorial of William Frank Bradley, January 29, 1908-January 16, 1973: Amer. Mineralogist, v. 59, p. 404-408, port., 1974.

STEPHENSON, DAVID ARTHUR, 1936-, **see** Stringfield, Victor Timothy, Jr., 2

STEVENS, DOUGLAS NELSON, 1935-, **see** Earth Resources, Inc., 1; Fountain, Richard Calhoun, 2

STEVENS, JOSEPH G., see also Calhoun, John W., 2

1. Soil Survey of Berrien and Lanier Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 66 p., illus., 1973.
The soils of the counties are mapped and described in great detail. A cursory description of the geology of the counties is included.

2. Soil survey of Lowndes County, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 77 p., illus., 1979.
The soils of the county are mapped and described in great detail. A cursory description of the geology of the county is included.

STEVENS, ROBERT KEITH, 1939-

1. (and Strong, David Frederick, and Kean, Baxter Frederick) Do some eastern Appalachian ultramafic rocks represent mantle diapirs produced above a subduction zone?: Geology, v. 2, p. 175-178, illus., 1974.
   The ultramafic rocks of the Georgia Piedmont are included with those that are diapirs. Others from elsewhere are obducted ophiolites.

STEWART, JOSEPH WILLIAM, 1918-

1. Dewatering of the Clayton Formation during construction of the Walter F. George Lock and Dam, Fort Gaines, Clay County, Georgia: U. S. Geol. Survey Water Resources Invs. Rept. 2-73, 23 p., illus., 1973.
   The effects from the dewatering of a dam-site during construction are described; particularly significant is the change in artesian pressure. The Paleocene Clayton Limestone is the major aquifer of the area, and details of its petrology and stratigraphy are included.

STOCKMAN, KENNETH W.

1. (and Pickering, Samuel Marion, Jr., and Higgins, Michael Wicker, and Zietz, Isidore) Application of contoured aeroradioactivity maps for heavy-mineral exploration in Georgia's coastal area [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 277-278, 1976.

STOKES, WILLIAM RUSSELL, 3D, 1936-, **see** Grantham, Rodney Gordon, Jr., 1

STONE, PETER ALAN, 1947-, **see** Andrejko, Michael John, 1

STONEBRAKER, JACK DOUGLAS, 1944-

1. (and Harper, Charles Thomas) Potassium-argon retention ages across the Brevard Fault zone in Alabama and [Piedmont] Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 4, p. 108, 1972.

STORMER, JOHN CHARLES, JR., 1941-, **see** Ellwood, Brooks Beresford, 2; Wenner, David Bruce, 1, 2; Whitney, James Arthur, 1, 4, 5, 6, 9

STORZER, DIETER

1. (and Wagner, Guenter Adolf) Fission track ages of North American tektites: Earth and Planet. Sci. Letters, v. 10, p. 435-440, illus., 1971.
   Those tektites from Irwin and Dodge Counties are included and they are by far the youngest. They are 6.3 and 1.0 m.y. old and do not have the same origin as the Libyan desert glasses.

2. (and Wagner, Guenter Adolf, and King, Elbert Aubrey, Jr.) Fission track ages and stratigraphic occurrence of Georgia tektites: Jour. Geophys. Research, v. 78, p. 4915-4919, illus., 1973.
New fission-track data from the Georgia tektites take into account thermal fading; they are in agreement with previously-determined potassium-argon ages of 35 m.y.. Several of the specimens examined had been heated at various times since their formation, and they have been reworked from older into younger sediments.

3. (and Sélo, Madeline) Dosage et repartition de l'uranium par la méthode des traces de fission dans les tectites et impactites associées: Acad. Sci. Paris C. R., ser. D, v. 278, p. 1931-1934, illus., 1974.
The tektites from Georgia are included with those analyzed from many places. They contain less than 2 ppm uranium, and are homogenous with the others.

STOVER, CARL W., see also Coffman, Jerry Lee, 1

1. Seismicity map of the conterminous United States and adjacent areas, 1965-1977: U. S. Geol. Survey Misc. Field Studies Map MF 812, scale, 1:7,500,000, 1977.

2. (and others) Seismicity map of the State of Georgia: U. S. Geol. Survey Misc. Field Studies Map MF 1060, scale, 1:1,000,000, text, 1979.

STRINGFIELD, VICTOR TIMOTHY, JR., 1902-, **see also** Legrand, Harry Elwood, 1, 2, 5

1. Memorial to Charles Wythe Cooke, 1887-1971: Geol. Soc. America Memorials, v. 3, p. 69-76, port., 1974.

2. (and Rapp, John Richard, and Anders, Robert Bernard) Effects of karst and geologic structure on the circulation of water and permeability in carbonate aquifers, in Contemporary hydrogeology, The George Burke Maxey memorial volume (edited by William Back and David Arthur Stephenson): Jour. Hydrology, v. 43, p. 313-332, illus., 1979.
A generalized review of karst-controlled ground-water phenomena includes many examples from the Coastal Plain of Georgia.

STRONG, DAVID FREDERICK, see Stevens, Robert Keith, 1

SULLIVAN, GERALD V., see Davis, Edward G., 1

SUMMEROUR, JOSEPH.

1. The petrology and petrography of the gneiss and associated diabase dikes at the Vulcan Materials Company quarry, Norcross [Gwinnett County], Georgia, with a special emphasis on the mineralogical effects of the emplacement of the dikes into the gneiss [abstract]: Georgia Jour. Sci., v. 36, p. 88, 1978.

SUNDELIUS, HAROLD WESLEY, 1930-

1. The Carolina Slate Belt, in Studies of Appalachian geology--central and southern (edited by George Wescott Fisher and others): New York, Interscience Pub., p. 351-367, illus., 1970.
   A review of this sequence of rocks thoughout the southern Appalachians includes those in Georgia where they are called the Little River Series. They are Cambrian-aged volcanic and clastic-sedimentary rocks metamorphosed to the greenschist facies.

SUTTON, NELL E. LANG-LUTLEN, 1936-, see Casagrande, Daniel Joseph, 6

SWAIN, FREDERICK MORRILL, JR., 1916-

1. Marsh gas from the Atlantic Coastal Plain, United States, in Advances in organic geochemistry 1973: Paris, Technip., p. 673-687, illus., 1974; discussions, p. 687.
   Marsh gas from the Okefenokee Swamp is mostly methane, and occurs more where the Eh is moderately negative. These values are compared with values determined from elsewhere to show the relationship between gas production, Eh, and swamp-origin.

SWANBERG, CHANDLER ALFRED, 1942-

1. (and Morgan, Paul) The linear relation between temperatures based on the silica content of groundwater and regional heat flow-- a new heat flow map of the United States: Pure and Applied Geophysics, v. 117, p. 227-241, illus., 1978.
   Some of the data come from Georgia. There is a correlation between the average silica geotemperature and the known regional heat flow. The contour between < 1.0 and 1.5 degrees C per kilometer passes north-south through Georgia. A geopressurized area occurs in the southeastern part of the state.

SWANN, CHARLES TRAVIS, 1954-

1. Stratigraphic analysis of the Eocene-Oligocene sediments in the Carnegie and Martin's Crossroads Quadrangles, Randolph County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 34, p. 86-87, 1976.

2. (and Poort, Jon Michael) Significance of [Eocene] petrified wood in [Clay County] southwestern Georgia [abstract]: Georgia Jour. Sci., v. 35, p. 82, 1977.

3. (and Poort, Jon Michael) Early Tertiary lithostratigraphic interpretation of southwest Georgia: Gulf Coast Assoc. Geol. Socs. Trans., v. 29, p. 386-395, illus., 1979.
   The Paleocene and Early Eocene rocks are described; facies are explained. A pre-Tuscahoma unconformity is identified; a basal Tuscahoma deltaic sequence is recognized, and a lithologic association for the bauxite deposits is described.

SWANSON, DAVID EUGENE, 1943-, **see also** Pickering, Samuel Marion, Jr., 10

1. A summary of ground water conditions, coastal Georgia, Chapter 5 **of** The value and vulnerability of coastal resources... background papers for review and discussion: Atlanta, Georgia Dept. Nat. Resources, p. 137-170, illus., 1975.
   A generalized review of the principles of ground-water occurrence is given, and is followed by a summary of the conditions in Georgia. The aquifers and some of the potential problems are noted. No new data are included.

2. (and Gernazian, Andrea M.) Petroleum exploration wells in Georgia: Georgia Geol. Survey Inf. Circ. 51, 67 p., illus., 1979.
   One hundred and sixty three wells have been drilled to date; most are in the Coastal Plain. The wells are listed by county, and various bits of information about each are given, including a stratigraphic summary, if known.

SWEET, WALTER CLARENCE, 1927-

1. (and Bergstroem, Stig Magnus) Provincialism exhibited by Ordovician conodont faunas [northwestern Georgia] [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 56, p. 657, 1972.

SWIFT, DONALD JOSIAH PALMER, JR., 1935-, **see** Oertel, George Frederick, Jr., 5; Pilkey, Orrin Hendren, 1

SYKES, LYNN RAY, 1937-, **see** Fletcher, Jon Peter Bodman, 1; Nishenko, Stuart Paul, 1; Sbar, Marc Lewis, 1

TALKINGTON, RAYMOND WILLIS, 1951-, **see** Williams, Harold, 1

TALWANI, PRADEEP, see Hatcher, Robert Dean, Jr., 12

TAN, KIM HONG, 1926-, **see also** Gallaher, Raymond Noel, 1; Perkins, Henry Frank, 1

1. (and Perkins, Henry Frank, and McCreery, Robert Atkeson) Kaolinite-gibbsite thermodynamic relationship in utisols: Soil Sci., v. 116, p. 8-12, illus., 1973.
   Chemical, mineralogical, and thermodynamic analyses of soils from the Blue Ridge, southern Piedmont and the Coastal Plain show the interaction of the clays with NaOH and silicon. The formation and stability of kaolinite and gibbsite in the utisols are dependent upon successively increasing/decreasing levels of H_4SiO_4 and upon the gibbsite potential/pH ratio.

TANNER, WILLIAM FRANCIS, JR., 1917-

1. The importance of modes in cross-bedding data: Jour. Sed. Petrology, v. 29, p. 221-226, illus., 1959.
   Cross-bedding data from the Pennsylvanian Pottsville Formation in northwestern Georgia are used with others from elsewhere to show that modal vectors are more useful than vector sums for paleogeographic purposes. Pottsville cross-bedding is trimodal; the source directions are indicated.

2. Geothermal exploration from deep-well data [Coastal Plain] [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 60, p. 1616-1617, 1976.

TARVER, GEORGE ROBERT, 1928-, **see** Cederstrom, Dagfin John, 1

TASKER, GARY D., **see** Dyar, Thomas Robert, 1

TATE, RAY JAMES, 1928-

1. Soil survey of Gwinnett County, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 94 p., illus., 1967.
   The soils of the county are mapped and described in great detail. A very cursory review of the geology is also included.

2. Soil survey of Chattooga, Floyd, and Polk Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 151 p., illus., 1978.
   The soils of the counties are mapped and described in great detail. A very cursory description of the geology is included.

TAYLOR, HUGH PETTINGILL, JR., 1932-, **see** Lawrence, James Robert, 2, 3

TAYLOR, MARSHALL.

1. [Map of] Rockhouse Cave, Crisp County, Georgia: Speleotype, v. 8, no. 4, 1973 [not seen].

TAYLOR, PATRICK TIMOTHY, 1938-

1. (and Dorman Leroy Myron) Relationship between the east coast magnetic anomaly and a coincident free-air gravity anomaly across the 31st parallel [Camden County] [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 729-730, 1971.
2. (and Dorman, Leroy Myron) Magnetic and gravity data from the Georgia continental shelf [and Wayne County] [abstract], in Symposium on the petroleum geology of the Georgia Coastal Plain (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 137, 1974.

TERRIS, LINDA, **see** Cousminer, Harold Leopold, 1

TERYAKOV, V. A.

1. (and others) Uranium in bauxites: Geochem. Internatl., v. 12, no. 6, p. 173-177, illus., 1975; translated into English from Geochimiya, no. 12, p. 1900-1903, illus., 1975.
   Bauxite from Georgia, presumably from the Coastal Plain, is included with many other bauxites from elsewhere in a discussion of the occurrence of uranium.

TEXAS INSTRUMENTS, INC.

1. Aerial radiometric and magnetic reconnaissance survey of portions of Alabama and Georgia--Atlanta Quadrangle: Dallas, Texas Instruments Inc., [Rept. GJBX 47 (80)] 2 vols., 493 p., illus. incl. variously paged atlas, geol. maps, appendices, 1979.
   This includes a summary of the geology of the Atlanta NTMS map and discussions of potential radioactive-bearing rock units. Computer-enhanced survey lines are plotted and compared with the maps; the anomalies are identified as potential uranium prospects. None of the deposits is considered economic.

THEOBALD, PAUL K., see Carpenter, Robert Heron, 10

THOMAS, ADRIAN WESLEY, 1939-, **see** Berger, Zeev, 1

THOMAS, GROVER JEHUE, JR., 1926-

1. Soil survey of Cobb County, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 70 p., illus., 1973.
   The soils of the county are mapped and described in great detail, and a very cursory geology description is included.

THOMAS, ROGER ELY, 1955-

1. Landslides and related features, Alabama, [northwestern] Georgia, and Tennessee--Rome 1^{o}x 2^{o} sheet: U. S. Geol. Survey Repts. Open File 79-944, 7 maps, scale, 1:24,000, 1979 [not seen].

THOMAS, WILLIAM ANDREW, 1936-, **see also** Drahovzal, James Alan, 2

1. Evolution of Appalachian-Ouachita salients and recesses from reentrants and promontories in the continental margin: Amer. Jour. Sci., v. 277, p. 1233-1278, illus., 1977; discussion by Harold Williams and Barry Lee Doolan, v. 279, p. 92-95, 1979; reply by author, p. 95-96.
   Rocks from Georgia are included in a discussion of those of the entire Appalachian-Ouachita tectonic-depositional system. A zig-zag continental margin was established in Late Precambrian time by transform faults along a rift. The reentrants and promontories are the sites of Paleozoic salients and recesses respectively. A basal clastic-volcanic sequence laps farthest cratonward in the salients. Carbonate banks follow a sinuous trace of the salients and recesses, and the clastic wedges are thickest in the salients.

2. (and Cramer, Howard Ross) The Mississippian and Pennsylvanian (Carboniferous) Systems in the United States--[Part] H, Georgia: U. S. Geol. Survey Prof. Paper 1110-H, p. H1-H37, illus., 1979.
An historical summary of the Mississippian and Pennsylvanian rocks in northwestern Georgia is given. The Mississippian is characterized by two facies, an eastern clastic and a western carbonate facies. Pennsylvanian rocks are almost entirely clastic. Coal is the major mineral resource present.

THOMPSON, ALLAN MC MASTER, 1940-

1. The relation between paleoenvironments and red rock colors in the Sequatchie Formation (Ordovician) of the Tennessee-[northwestern] Georgia Valley and Ridge [abstract]: Geol. Soc. America Abs. with Progs., v. 3, p. 352, 1971.

THOMSON, ROBERT DON, 1926-

1. (and York, Harold F.) The reserve base of U. S. coals by sulfur content (in two parts), [Part] 1, The eastern states: U. S. Bur. Mines Inf. Circ. 8680, 537 p., illus., 1975.
Data about coals of Georgia are included in tables reflecting many parameters of coal occurrence. Georgia's reserves are considered negligible, being 1/2 million tons. Most of it is low-sulfur-bearing, however.

THURMOND, CAROL JOHNSON, 1945-

1. (and Whitney, James Arthur) Structural and stratigraphic development of the Charlotte and northern Slate Belts within the Chennault Quadrangle [Elbert, Lincoln, and Wilkes Counties] Georgia and South Carolina [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 215, 1979.

TIDBALL, RONALD RICHARD, 1930-

1. Lead in soils, **in** Lead in the environment (edited by Tom Gray Lovering): U. S. Geol. Survey Prof. Paper 957, p. 43-52, illus., 1976.
A small-scale map is included which shows analyses of lead in soils from thoughout the United States including Georgia. The concentrations range from 15 to 24 ppm.

TILMANN, STEPHEN EDWARD, see Bennett, Hugh Frederick, 1

TING, FRANCIS TA-CHUAN, 1934-, **see** Cohen, Arthur David, 2

TITCOMB, EARL FRANKLIN, JR., 1935-, **see also** Erwin, James Walter, 1; Hancock, William E., 1

1. Evaluation of water well drilling program at the West Point project [Piedmont] [abstract]: Georgia Jour. Sci., v. 35, p. 86, 1977.

2. (and Hancock, William E.) Structural geology of the Patterson Branch area in the Clark Hill lake [Piedmont] [abstract]: Georgia Jour. Sci., v. 36, p. 92-93, 1978.

TODD, RUTH, 1913-

1. Joseph Augustine Cushman, 1881-1949, **in** Foraminifera, vol. 2 (edited by Ronald Henderson Hedley): New York, Academic Press, p. 237-244, 1976.

TOMPKINS, F. VERNON.

1. (and Auvil, Jesse Herbert, Jr.) The mineral industry of Georgia, **in** Minerals yearbook 1969, vol. 2: Washington, D.C., U. S. Bur. Mines, p. 221-231, illus., 1971.

TOULMIN, LYMAN DORGAN, JR., 1904-

1. Stratigraphic distribution of Paleocene and Eocene fossils in the eastern Gulf Coast region: Alabama Geol. Survey Mon. 13, 2 vols., 602 p., illus. incl. atlas, 1977.
   A review of the Paleocene and Eocene formations of the Gulf Coastal Plain include those in southwestern Georgia. Many fossils, mostly mollusks, are described and illustrated, and much stratigraphic information is included.

TRAINER, FRANK WILSON, 1921-

1. (and Heath, Ralph Carr) Bicarbonate content of groundwater in carbonate rock in eastern North America: Jour. Hydrology, v. 31, p. 37-55, illus., 1976.
   The bicarbonate content of groundwater from the Savannah and Brunswick areas, along with other water from elsewhere, is used to show that latitude is not as significant a factor in composition as previously thought. Biogenic production and storage of carbon dioxide in the soil, later leached downward, are important.

TREADWELL, GILBERT LEE, 1953-, **see** Cramer, Howard Ross, 4

TRIMBLE, STANLEY WAYNE, 1940-, **see also** Meade, Robert Heber, 2; Staheli, Albert Clifford, 3

1. Culturally accelerated sedimentation on the middle Georgia Piedmont: Fort Worth, Texas, U. S. Soil Conserv. Service, 110 p., illus., 1971.

2. A geographic analysis of erosive land use on the southern Piedmont, 1700-1970: Ph D Thesis, Univ. Georgia, 1973; [abstract]: Dissert. Abs. Internatl., v. 34B, p. B3852, 1974.

3. Man-induced soil erosion on the southern Piedmont, 1700-1970: Ankeny, Iowa, U. S. Soil Conserv. Service, 180 p., illus., 1974.
Historical evidence is cited to suggest that erosion was not particularly severe before farming began. It increased substantially with farming, but has decreased in recent years due to soil conservation measures and a reduction in agricultural activity.

4. A volumetric estimate of man-induced soil erosion on the southern Piedmont: U. S. Dept. Agric., Agric. Research Service Pub. 5-40, p. 142-154, 1975 [not seen].

5. Denudation studies--can we assume stream steady state?: Science, v. 188, p. 1207-1208, illus., 1975.
Numerous drainage basins are analyzed, including those of the Chattahoochee, Ocmulgee, Oconee, and Savannah Rivers. Of the material eroded from the uplands since the time of settlement, only about five percent has been exported. Most remains as alluvium and colluvium and will probably be retained by excessive reservoir impoundment. Present studies of sediment volume at discharge should not be used to extrapolate back into time.

6. The fallacy of stream equilibrium in contemporary denudation studies: Amer. Jour. Sci., v. 277, p. 876-887, illus., 1977.
Computed rates of upland erosion in the basins of Chattahoochee, Ocmulgee, Oconee, Savannah and other rivers exceed the measured rates of stream transport. Much sediment must therefore be stored in the stream as alluvium and on the slopes as colluvium.

TROISE, FRED L., see Geraghty, James Joseph, 1

TSCHUDY, ROBERT HAYDN, 1908-

1. (and Patterson, Sam Hunting) Palynological evidence for Late Cretaceous, Paleocene, and Early and Middle Eocene ages for strata in the kaolin belt, central Georgia: Jour. Research U. S. Geol. Survey, v. 3, p. 437-445, illus., 1975.
Palynomorphs from lignitic clay in the Tuscaloosa Formation indicate that the formation in central Georgia is much younger than theretofore thought. The kaolin deposits are Cretaceous and younger, and the rocks are terrestrial and estuarine.

TUREKIAN, KARL KAREKIN, 1927-, **see** Wright, Herbert Edgar, Jr., 1

TURNER, ROBERT LAWRENCE, see Shacklette, Hansford Threlkeld, 2

UNDERWOOD, SUSAN ELIZABETH, 1952-, **see** Broadhead, Thomas Webb, 5

U. S. ARMY CORPS OF ENGINEERS.

1. Logs of geologic explorations to accompany plans and specifications for [Carter's] reregulation dam: U. S. Army Corps of Engineers, Mobile Dist., unpaged, 1970.

U. S. BUREAU OF MINES.

1. Mineral facts and problems, 1975 edition: Washington, D. C., U. S. Dept. Interior, 1259 p., illus., 1976.
   A review of the mineral resources of the entire United States includes Georgia. No new data are included.

U. S. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION.

1. National uranium resource evaluation, preliminary report: U. S. Energy Res. Devel. Adm. Rept. GJO 111 (76), 132 p., illus., 1976.
   A survey of the uranium potential in the United States is given by physiographic province; Georgia is included. There are no uranium deposits in the Coastal Plain, nor are any favorable sites suggested except as by-products of the phosphate industry. Paleozoic granitic rocks in the Piedmont and the Owharrie Formation in the Blue Ridge require further study.

U. S. GEOLOGICAL SURVEY, see also Coastal Plains Regional Commission, 1, 2, 3, 4

1. Preliminary reconnaissance for uranium in Alabama, Georgia, Mississippi, Tennessee, Virginia, and West Virginia, 1950-1955: U. S. Atomic Energy Comm. Rept. RME 4104, 77 p., illus., 1968.
   Surveys of Burke, Elbert, Lamar, McDuffie, and Towns Counties are included, but no radioactivity of any consequence is reported.

2. [Shaded relief map of] Georgia: U. S. Geol. Survey, scale, 1:500,000, 1970.

3. Ground-water levels in the United States, 1964-1968, southeastern States: U. S. Geol. Survey Water-Supply Paper 1978, 258 p., illus., 1971.
   Most of the data are from observation wells in the Atlanta metropolitan area and in the coastal zone. The data are in tables, and the levels are given in feet below the land surface. One chapter is given over to the data from Georgia.

4. Composite aeromagnetic map, northcentral Georgia [Piedmont]: U. S. Geol. Survey Repts. Open File [unnumbered], scale, 1:250,000, 1973.

5. Ground water levels in the United States, 1969-1973, southeastern states: U. S. Geol. Survey-Water Supply Paper 2171, v, 250 p., illus., 1975.
   Wells from many parts of Georgia, but largely from the metropolitan Atlanta and the coastal areas, are monitored for maximum and minimum levels of water in feet below the surface. The data are in tables and by county.

6. [Slope map of] Ben Hill Quadrangle [Fulton and Douglas Counties]: U. S. Geol. Survey, scale, 1:24,000, 1975.

7. [Slope map of] Chamblee Quadrangle [Fulton, DeKalb, and Gwinnett Counties]: U. S. Geol. Survey, scale, 1:24,000, 1975.

8. [Slope map of] Duluth Quadrangle [Forsyth, Fulton, and Gwinnett Counties]: U. S. Geol. Survey, scale, 1:24,000, 1975.

9. [Slope map of] Kennesaw Quadrangle [Cherokee and Cobb Counties]: U.S. Geol. Survey, scale, 1:24,000, 1975.

10. [Slope map of] Mabelton Quadrangle [Cobb, Douglas, and Fulton Counties]: U.S. Geol. Survey, scale, 1:24,000, 1975.

11. [Slope map of] Marietta Quadrangle [Cobb County]: U. S. Geol. Survey, scale, 1:24,000, 1975.

12. [Slope map of] Mountain Park Quadrangle [Cherokee, Cobb, and Fulton Counties]: U. S. Geol. Survey, scale, 1:24,000, 1975.

13. [Slope map of] Norcross Quadrangle [DeKalb, Fulton, and Gwinnett Counties]: U. S. Geol. Survey, scale, 1:24,000, 1975.

14. [Slope map of] Northeast Atlanta Quadrangle [DeKalb and Fulton Couties]: U. S. Geol. Survey, scale, 1:24,000, 1975.

15. [Slope map of] Northwest Atlanta Quadrangle [Cobb and Fulton Counties]: U. S. Geol. Survey, scale, 1:24,000, 1975.

16. [Slope map of] Redan Quadrangle [DeKalb, Henry, and Rockdale Counties]: U. S. Geol. Survey, scale, 1:24,000, 1975.

17. [Slope map of] Roswell Quadrangle [Cherokee, Forsyth, and Fulton Counties]: U. S. Geol. Survey, scale, 1:24,000, 1975.

18. [Slope map of] Sandy Springs Quadrangle [Cobb and Fulton Counties]: U. S. Geol. Survey, scale, 1:24,000, 1975.

19. [Slope map of] Southeast Atlanta Quadrangle [Clayton, DeKalb, Fulton, and Henry Counties]: U. S. Geol. Survey, scale, 1:24,000, 1975.

20. [Slope map of] Southwest Atlanta Quadrangle [Clayton and Fulton Counties]: U. S. Geol. Survey, scale, 1:24,000, 1975.

21. [Slope map of] Stone Mountain Quadrangle [DeKalb and Gwinnett Counties]: U. S. Geol. Survey, scale, 1:24,000, 1975.

22. Aeromagnetic map of parts of the Brunswick and Savannah 1^{o} by 2^{o} Quadrangles [Coastal Plain] Georgia and South Carolina: U. S. Geol. Survey Repts. Open File 76-155, scale, 1:250,000, 1976.

23. NASA, LANDSAT-1 satellite image mosaic, State of Georgia: U. S. Geol. Survey, scale, 1:500,000, 1976.

24. Slope map of Georgia: U. S. Geol. Survey, scale, 1:500,000, 1976.

25. Aeromagnetic map of part of northern [! northeastern] Georgia [Piedmont and Blue Ridge]: U. S. Geol. Survey Repts. Open File 77-190, scale, 1:250,000, 1977.

26. Aeromagnetic map of parts of the Rome, Atlanta, and Phenix City 1^{o} by 2^{o} Quadrangles [Piedmont and northwestern Georgia]: U. S. Geol. Survey Repts. Open File 77-345, scale, 1:250,000, 1977.

27. Aeroradioactivity map of part of northern [! northeastern] Georgia: U. S. Geol. Survey Repts. Open File 77-191, scale, 1:250,000, 1977.

28. Aeroradioactivity map of parts of the Rome, Atlanta, and Phenix City 1^{o} by 2^{o} Quadrangles[Piedmont] and northwestern Georgia : U. S. Geol. Survey Repts. Open File 77-344, scale, 1:250,000, 1977.

29. Ground-water levels in the United States, 1974, southeastern states: U. S. Geol. Survey Water-Supply Paper 2165, v, 116 p., illus., 1977.
Wells from many parts of Georgia, but largely metropolitan Atlanta, are monitored for maximum and minimum level of water below the surface, in feet. The data are in tables, by county.

30. Preliminary report on Belair exploratory trench no. 10-76, near Augusta, Georgia: U. S. Geol. Survey Repts. Open File 77-411, 20 p., illus., 1977.
A trench of about 120 m was cut normal to the Belair fault in Richmond County. The bedrock and overlying soil zones are shown in detail in cross sections. Details of the fault are described, and soil at least 2,000 years old overlies the bedrock. Charcoal at the fault plane, and on top of the Cretaceous rocks, is about 26,000 years old.

31. Ground-water levels and quality data for Georgia, 1977: U. S. Geol. Survey Repts Open File 79-213, 88 p., illus., 1978.
Maps and graphs show the water-level fluctuations in observation wells throughout the state. Industrial areas, largely on the Coastal Plain, are discussed in detail. Results of chloride-content monitoring in wells near Savannah and Brunswick are included.

32. Aeromagnetic map of northwest Georgia: U. S. Geol. Survey Repts. Open File 79-1369, scale, 1:250,000, 1979.

33. Aeromagnetic map of part of the Chattahoochee National Forest [Blue Ridge] Georgia: U. S. Geol. Survey Repts. Open File 79-1371, scale, 1:250,000, 1979.

34. Aeromagnetic map of southwest Georgia, 3 sheets: U. S. Geol. Survey Repts. Open File 79-756, scale, 1:250,000, 1979.

35. Aeroradioactivity map of part of the Chattahoochee National Forest [Blue Ridge] Georgia: U. S. Geol. Survey Repts. Open File 79-1370, scale, 1:250,000, 1979.

36. Aeroradioactivity map of southwest Georgia, 3 sheets: U. S. Geol. Survey Repts. Open File 79-757, scale, 1:250,000, 1979.

URBAN, THOMAS CHARLES, 1944-, **see** Diment, William Horace, 1

VALENTINE, JAMES WILLIAM, 1926-, **see** Howard, James Dolan, 21, 22, 23

VALENTINE, PAGE CLIMENSON, JR., 1936-

1. Regional stratigraphy and structure of the Southeast Georgia Embayment, in Geological studies of the COST GE-1 well, United States South Atlantic outer continental shelf area: U. S. Geol. Survey Circ. 800, p. 7-17, illus., 1979.
   A summary of the geology of southeastern Georgia is given as part of the background for a discussion of an offshore stratigraphic test well. Cretaceous and Cenozoic rocks, cross sections, structures, and related correlations are included.

VAN DER LEEDEN, FRITS, see Geraghty, James Joseph, 1

VARNES, KATHERINE LUTZ, 1923-, **see** Craig, Lawrence Carey, 1

VINCENT, CHARLES LINWOOD, 1947-

1. (and Dolan, Robert, and Hayden, Bruce Phillip, and Resio, Donald Thomas) Systematic variations in barrier-island topography: Jour. Geology, v. 84, p. 583-594, illus., 1976.
   Five hundred and thirty eigenvector analyses of barrier-island profiles include several from Georgia; those of Georgia are classified as type III, with a high variance and negative weight. These and others show coastline trends, but no explanation is offered for the pattern.

VINCENT, WENDY E. J., see Angel, Brian Reginald, 1

VINES, TERRY LEE, 1950-, **see also** Manley, Frederick Harrison, Jr., 2

1. (and Manley, Frederick Harrison, Jr.) Comparative x-ray analyses of allanites [Elbert County] [abstract]: Georgia Acad. Sci. Bull., v. 30, p. 78, 1972.

VISHER, GLENN SHILLINGTON, 1930-

1. (and Howard, James Dolan) Dynamic relationship between hydraulics and sedimentation in the Altamaha estuary: Jour. Sed. Petrology, v. 44, p. 502-521, illus., 1974.
   Flood and ebb tidal cycles produce differing bed forms, sedimentary structures, thickness of sedimentary units, and grain size distribution. The estuary is an effective mechanism for grain size-segregation.

VOKES, EMILY HOSKINS, 1930-

1. Cenozoic Muricidae of the western Atlantic region, Part 5-- **Pterynotus** and **Poirieria** : Tulane Studies Geology and Paleontology, v. 8, p. 1-50, illus., 1970.
A systematic survey of the two genera is given. The members are described and illustrated. Included is **Pterynotus (Pterynotus) rufirupicolus** , from the Oligocene Flint River Formation, Decatur County.

VOLZ, WILLIAM RICHARD, 1954-

1. Travel time inversion of teleseismic waves in the southeastern United States [Georgia] [abstract]: Earthquake Notes, v. 49, no. 4, p. 7, 1978.

VOORHIES, MICHAEL REGINALD, 1941-, see also Frey, Robert Wayne, 5

1. The Watkins quarry--a new Late Pleistocene [megathere] mammal locality in Glynn County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 29, p. 128, 1971.

2. A family group (?) of megatheres from [Glynn County] Georgia [abstract]: Soc. Vert. Paleontology, 32d Ann. Mtg., Prog., [p. 9], 1972.

3. Late Miocene terrestrial mammals, Echols County, Georgia: Southeastern Geology, v. 15, p. 223-235, illus., 1974.
Beaver, horse, and rhinoceros teeth and bones occur with shark and ray teeth in phosphorite-rich deltaic sediments. They are similar to the Florida fauna. It differs from the Texas fauna at the species level.

4. Pleistocene vertebrates with boreal affinities in the Georgia Piedmont: Quaternary Research, v. 4, p. 85-93, illus., 1974.
A fauna from floodplain sediments in Wilkes County is described and discussed. Fish and six different mammals are present, including **Mastodon.** The total aspect of this fauna is one of considerably cooler temperatures than those prevailing now.

5. The Pliocene horse **Nannipus minor** in Georgia--geologic implications: Tulane Studies Geology and Paleontology, v. 11, p. 109-113, illus., 1974.
Cheek teeth of **Nannipus minor** from high-level gravel in Taylor County are described and discussed. These are the first positively-identified Pliocene rocks in Georgia.

VORHIS, ROBERT CARSON, 1917-, see also McGarr, Arthur, 1; Pollard, Lin Davis, 3

1. Earthquake-induced water-level fluctuations from a well in Dawson County, Georgia: Seismol. Soc. America Bull., v. 54, p. 1023-1033, illus., 1964.
Over 40 water-level changes in response to earthquakes have been recorded from a well at the Georgia Nuclear Reactor site. The earthquakes are identified. This well, for unclear geological reasons, is especially sensitive to earthquakes.

2. Earthquake magnitudes from hydroseismic data: Ground Water, v. 3, no. 1, p. 12-20, illus., 1965; reprinted with minor changes, **as** Calculation and use of hydroseismic magnitudes, **in** The great Alaska earthquake of 1964, Hydrology, Part A: Washington, D.C., Natl. Acad. Sci., p. 237-245, illus., 1968.
The formula Ms + log C is devised to compare earthquake magnitudes with hydroseismic effects in water wells. An especially sensitive well in Dawson County is used to compare the formula with figures from real events.

3. Hydrologic effects of the earthquake of March 27, 1964, outside Alaska: U. S. Geol. Survey Prof. Paper 544C, 49 p., illus., 1966; reprinted with minor changes, **as** Effects outside Alaska, The great Alaska earthquake of 1964, Hydrology, Part A: Washington D. C., Natl. Acad. Sci., p. 140-189, illus., 1968.
The effects of the Alaskan earthquake in Georgia are described. Hydroseisms and various other effects on the ground water are noted.

4. Geohydrology of Sumter, Dooly, Pulaski, Lee, Crisp, and Wilcox Counties, Georgia: U. S. Geol. Survey Hydrol. Invs. Atlas HA-435, 2 sheets, 1972.
A geohydrological map shows water-level contours in relation to the Tertiary rock units. A table gives the water-bearing characteristics of each rock unit.

5. Review of the [Tertiary] genus **Nummulites** in the Americas [abstract]: Georgia Acad. Sci. Bull., v. 30, p. 81, 1972.

6. **Nummulites** and **Sulcoperculina** in the Americas, a stratigraphic and nomenclatural review: Georgia Acad. Sci. Bull., v. 31, p. 161-182, illus., 1973.
The stratigraphic occurrence of these two genera and a revision of many of the species are given. Many are from Tertiary rocks in the Coastal Plain of Georgia.

7. Some structural patterns in sediments of the Georgia Coastal Plain, **in** Symposium on the petroleum geology of the Georgia Coastal Plain (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 87-97, illus., 1974.
Structure contours on the top of the Cretaceous and Tertiary formations in Sumter, Crisp, and Wilcox Counties indicate that strike rotates 28 degrees clockwise from the Cretaceous to the Upper Eocene and the dip decreases from 60 to 12 feet per mile. Thickness of the rocks suggests that the depositional basins migrated eastward.

VOSHAGE, HANS, 1929-

1. (and Feldmann, H.) Iron meteorites--new results on cosmic-ray exposure ages [Polk County] [abstract]: Meteoritics, v. 11, p. 376-379, illus., 1976.

2. (and Feldmann, H.) Investigations on cosmic-ray-produced nuclides in iron meteorites, [Part] 1, The measurement and interpretation of rare gas concentrations: Earth and Planet. Sci. Letters, v. 39, p. 25-36, illus., 1978.
Cedartown meteorite, from Polk County, is included with many others. The data are in tabular form.

3. Investigations on cosmic-ray-produced nuclides in iron meteorites, [Part] 2, New results on $^{41}K/^{40}K-^{4}He/^{21}Ne$ exposure ages and the interpretation of age distribution: Earth and Planet. Sci. Letters, v. 40, p. 83-90, illus., 1978.
Cedartown meteorite, from Polk County, is included among many others. It belongs to class H II A and has an exposure age of 180 plus or minus 80 Ma.

4. (and Feldmann, H.) Investigations on cosmic-ray-produced nuclides in iron meteorites, [Part] 3, Exposure ages, meteoroid sizes and sample depths determined by mass spectrometric analyses of potassium and rare gases: Earth and Planet. Sci. Letters, v. 45, p. 293-308, illus., 1979.
The Cedartown (Polk County) and Putnam County meteorites are included with many others. Cedartown has an exposure age of 180 Ma plus or minus 80, and Putnam County has an exposure age of 435 Ma plus or minus 70.

WADSWORTH, JOSEPH ROGERS, JR., 1950-

1. (and Berger, Zeev) Geomorphic characteristics of tidal drainage networks on the Duplin River, Sapelo Island [McIntosh County], Georgia [abstract]: Georgia Jour. Sci., v. 37, p. 86, 1979.

WAGNER, GUENTER ADOLF, 1940-, **see** Storzer, Dieter, 1, 2

WAIT, ROBERT LYLE, 1923-, **see also** Dyar, Thomas Robert, 1

1. (and Gregg, Dean Oakley) Hydrology and chloride contamination of the Principal Artesian Aquifer in Glynn County, Georgia: Georgia Geol. Survey Hydrol. Rept. 1, 93 p., illus., 1973.
The aquifer, of Eocene- and Oligocene-aged limestone, is 500 feet thick and is at a depth of about 500 feet. It contains a zone of brackish water which is confined by dolomite, but which is rising through a locally porous portion of the dolomite to contaminate the rest of the aquifer. The contamination is not related to seawater encroachment.

WALKER, KENNETH RUSSELL, 1937-, **see** Misra, Kula Chandra, 1

WALKER, RAYMOND LLOYD, 1927-, **see** Hartley, Marvin Eugene, 3d, 1; Jones, Lois Marilyn, 1, 2, 3, 4; Whitney, James Arthur, 2

WALLACE, BLANCHE MARIE, 1943-

1. (and Chowns, Timothy Michael) Calcite and aragonite crystal fabrics in speleothems from Ladd's Quarry, Bartow County, Georgia [abstract]: Georgia Jour. Sci., v. 36, p. 90, 1978.

WALLACE, LAURE GWEN, see De Witt, Wallace, Jr., 1

WALPER, JACK LOUIS, 1916-

1. (and others) Sedimentation an a trailing plate margin--the northern Gulf of Mexico: Gulf Coast Assoc. Geol. Socs. Trans., v. 29, p. 188-201, illus., 1979.
Marine invasion from the south did not reach Georgia until the Early Cretaceous, at which time southern Georgia was inundated.

WAMPLER, JESSE MARION, 1936-, **see** Dooley, Robert Ervin, 1, 2, 3; Weaver, Charles Edward, 1

WANLESS, HAROLD ROLLIN, 1899-1970, **see** Shepard, Francis Parker, 1

WAPPLER, GERT.

1. (and Hoppe, Guenter) Katalog der Meteoriten...Berlin: Deutsche Gesell. geol. Wiss. Berlin Berichte, Reihe B, v. 14, p. 359-381, 1969.
This collection contains pieces of Canton, Dalton, Forsyth, Holland's Store, Locust Grove, Losttown, Putnam County, and Union County meteorites.

WARME, JOHN EDWARD, 1937-, **see** Howard, James Dolan, 21, 22, 23

WARREN, DAVID HENRY, 1930-

1. (and Healy, John Helding) Structure of the crust in the conterminous United States: Tectonophysics, v. 20, p. 203-213, illus., 1973; also in The structure of the earth's crust based on seismic data (edited by Stephan Mueller): Amsterdam, Elsevier Sci. Pub. Co., Developments in tectonics, no. 8, p. 203-213, illus., 1974.
A small-scale map of the United States shows the depth to the Mohorovicic discontinuity. The 40 km contour passes from east to west across northern Georgia.

WARREN, GREGORY F., see Bergenback, Richard Edward, 3

WASLENCHUK, DENNIS GRANT, 1951-

1. The geochemical controls on arsenic concentrations in southeastern United States rivers: Chem. Geology, v. 24, p. 315-325, illus., 1979.
Waters from ten, mostly Coastal-Plain draining, rivers from Georgia and elsewhere are examined. The nature of the arsenic occurrence, its variations and origins, is discussed. The drainage-basin soils, weathering, and erosion-rates affect the concentration of arsenic.

WASSON, JOHN TAYLOR, 1934-, **see also** Chou, Chen-Lin, 1; Schaudy, Rudolf, 1; Scott, Edward Robert Dalton, 1, 2, 3

1. A study of iron meteorites with low concentrations of gallium and germanium [with comments], [Part 1] **of** The chemical classification of meteorites, **in** Geochemistry of germanium: Stroudsburg, Pennsylvania, Dowden, Hutchinson, Ross, p. 129-148, illus., 1973; originally published 1967.

2. (and Kimberlin, Jerome) Irons and pallasites with germanium concentrations between 8 and 100 ppm [with comments], Part 2 **in** Geochemistry of germanium: Stroudsburg, Pennsylvania, Dowden, Hutchinson, and Ross, p. 149-178, illus., 1973; originally published 1967.

3. Hexahedrites and other irons with germanium concentrations between 80 and 200 ppm, [Part] 3 **of** The chemical classification of iron meteorites, **in** Geochmistry of germanium: Stroudsburg, Pennsylvania, Dowden, Hutchinson, and Ross, p. 179-198, illus., 1973; originally published 1969.

4. Irons with Ge concentrations greater than 190 ppm and other meteorites associated Group I [with comments], Part 4 **of** The chemical classification of iron meteorites, **in** Geochemistry of germanium: Stroudsburg, Pennsylvania, Dowden, Hutchinson, and Ross, p. 199-215, illus., 1973; originally published 1970.

WATERS, JOHNNY ARLTON, 1951-, **see also** Chowns, Timothy Michael, 9

1. (and Chowns, Timothy Michael) The occurrence of Kinkaid age **Pterotocrinus** species at Rising Fawn, [Dade County] Georgia [abstract]: Georgia Jour. Sci., v. 35, p. 83, 1977.

WATKINS, JOEL SMITH, JR., 1932-, **see also** Slaymaker, Susan Clark, 1

1. Tectonic framework of southern Appalachians--evidence from gravity and magnetic data [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 56, p. 2110, 1972.

2. Plate tectonics and evolution of the southern Appalachians [abstract]: Amer. Assoc. Petroleum Geologists Ann. Mtg. Abstracts, v. 1, p. 95, 1974.

WATSON, DONALD E., see Herndon, James Marvin, 1

WATSON, THOMAS WILLIAM, 1947-

1. The geohydrology of Ben Hill, Irwin, Tift, Turner, and Worth Counties, Georgia: Georgia Geol. Survey Hydrol. Atlas 2, 3 sheets, 1976.
   A brief text is included, as are isopach maps of Neogene rocks overlying the principal aquifer which is composed of Oligocene and Eocene-aged limestones. Structure-contour maps of the top of the aquifer, water-levels in the aquifer, cross sections, analyses and water-chemistry maps are included.

WATTERSON, JOHN ROBERT, 1938-, **see** Carpenter, Robert Heron, 10

WATTS, DOYLE ROBIN, 1949-

1. A Paleomagnetic study of four Mesozoic dike swarms of the Southern Appalachian Mountains: M S Thesis, Ohio State Univ., 1975; (and Noltimier, Hallam Costello)[with slightly different title][abstract]: EOS, v. 55, p. 675, 1974.

WATTS, WILLIAM ARTHUR, 1930-

1. Postglacial and interglacial vegetation history of southern Georgia and central Florida: Ecology, v. 52, p. 676-690, illus., 1971.
   Cores from Lake Louise, a sinkhole in Lowndes County, show that from 8,500 to 5,000 radiocarbon years ago the vegetation of this region was sclerophyllous oak with small patches of prairie. It changed gradually from 5,000 years ago by the elimination of upland herbs and the substitution of pines for oaks. Unconformably below these beds are pollen-less clastics below which are undatable organic deposits. The unconformity is interpreted as resulting from an interglacially low water-table due to the lower sea level of the Wisconsin Stage. The lowermost deposits are therefore Sangamonian.

2. The vegetation record of a mid-Wisconsin interstadial in northwest Georgia: Quaternary Research, v. 3, p. 257-268, illus., 1973.
   Pollen diagrams from 3 cores in Green Pond, a sinkhole in Bartow County, are studied. The lowermost organic silt, before a 29,630 radiocarbon date, contains a **Pinus-Quercus** -herb flora and is xeric woodland. Between 29,630 and about 25,000 years BP, **Pinus** and herbs are sparse, and **Quercus** and **Carya** dominate. From 25,000 to 23,000 years BP, when the sedimentary record ends, a more diverse forest, with **Picea,** became established. **Taxodium** was present at this time also.

3. Vegetation record for the last 20,000 years from a small marsh on Lookout Mountain, northwestern Georgia: Geol. Soc. America Bull., v. 86, p. 287-291, illus., 1975.
   Pollen spectra from a pond on Pigeon Mountain in Walker County show no forest to have been present during glacial time, from 19,250 to 10,280 years BP. Mesic forest appears after that time, and then the modern forest appears later.

WEAVER, CHARLES EDWARD, 1925-, **see also** Broekstra, Bradley Robert, 2; Pollard, Charles Oscar, Jr., 1, 2, 3

1. (and Wampler, Jesse Marion) The illite-phosphate association: Geochim. et Comochim. Acta, v. 36, p. 1-13, illus., 1972.
   Phosphate-bearing rocks (Miocene) from unspecified localities on the Coastal Plain are included. Insoluble residue is largely K-feldspar and K-mica. Only illite occurs in the phosphate grains; the other clays are in the matrix. K-Ar dates show most of the K-silicates to be detrital. Much amorphous material is present in the grains. Phosphate fixation by clay minerals, prior to their destruction, may be a significant mechanism for the formation of the phosphate grains.

2. Construction of limpid dolomite: Geology, v. 3, p. 425-428, illus., 1975. Dolomite from Thomas County grows layer by layer as long as magnesium is present. If the Mg decreases, growth stops. Various intermediate stages are preserved to show this relationship.

3. The nature of TiO_2 in kaolinite: Clays and Clay Minerals, v. 24, p. 215-218, illus., 1976.
SEM, TEM, and electron-probe studies show that anatase in Georgia kaolins occurs as pellets 0.05 to 1.0 microns in size. It may be pseudomorphic after ilmenite, or from the alteration of biotite. Chemical mechanisms are described.

4. Waste storage potential of Triassic basins in southeast United States: Oak Ridge, Tennessee, Union Carbide Corp. Office of Waste Isolation Rept. Y(OWI) SUB 7009/2, 23 p., illus., 1976.
A review of the occurrence, stratigraphy, mineralogy, and waste-storage potential of these sediment-filled grabens includes those buried below the Georgia Coastal Plain. There is only one basin which contains arkosic sands on the northwest flank and shale and siltstone on the southeast. It is too deep to be of potential interest for waste storage.

5. (and Beck, Kevin Charles) Miocene of the S.E. United States--a model for chemical sedimentation in a peri-marine environment: Sed. Geology, v. 17, p. 1-234, illus., 1977; discussion by Rex Arthur Couture, v. 21, p. 149-154, 1978; reply by authors, p. 154-157; **as** Developments in sedimentology, v. 22: New York, Elsevier, 234 p., illus., 1978.
A review of the Miocene deposits throughout the southeastern United States includes those of the Georgia Coastal Plain. Numerous transgressions and regressions are recognized. The geochemical environment and origin of attapulgite and sepiolite are described. Many small-scale isopach maps and structure-contour maps are included.

WEAVER, FRED MARTIN, 1947-, **see also** Wise, Sherwood Willing, Jr., 1, 2, 3, 4

1. (and Wise, Sherwood Willing, Jr.) Opaline sediments of the southeastern Coastal Plain and horizon A-- biogenic origin: Science, v. 184, p. 899-901, illus., 1974.
Examples include the diatomaceous Late Eocene Twiggs Clay from near Wrens, Jefferson County. It is not altered volcanic ash but is a transgressive sedimentary deposit.

WEAVER, OSCAR DAVID, JR., 1923-

1. Prediction of future exploratory trends in Appalachian basin [northwestern Georgia] [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 56, p. 2110-2111, 1972.

WEBB, ELMER JAMES, 1925-

1. Geologic history of the Cambrian System in the Appalachian Basin: Kentucky Geol. Survey, ser. 10, Spec. Pub. 18, p. 7-15, illus., 1969.
   A survey of the Cambrian rocks and correlations of the Appalachians includes those of northwestern Georgia. Regional correlations are shown, and small-scale isopach maps show that there are over 10,000 feet of Cambrian strata in Georgia.

WEBB, LYNDALL CHARLES, 1943-, **see** Manley, Frederick Harrison, Jr., 4

WEDOW, HELMUTH, JR., 1917-, **see** Milici, Robert Calvin, 4

WEIGAND, PETER WOOLSON, see also Justus, Philip Stanley, 1; Ragland, Paul Clyde, 1

1. Major and trace element geochemistry of the Mesozoic dolerite dikes from eastern North America [Piedmont]: Ph D Thesis, Univ. North Carolina, 1970; [abstract]: Dissert. Abs. Internatl., v. 31B, p. B4784-B4785, 1971.

WEIMER, ROBERT HENRY, SR.

1. A geologic investigation of the Talledega Group in Polk and Haralson Counties, Georgia: M S Thesis, Florida State Univ., 1976.

WEISENFLUH, GERALD ALAN, 1953-, **see** Howell, David Edward, 1

WELLS, J. ROBERT.

1. (and Auvil, Jesse Herbert, Jr.,) The mineral industry of Georgia, **in** Minerals yearbook 1970, vol. 2: Washington, D. C., U. S. Bur. Mines, p. 207-218, illus., 1972.
   The total value of minerals from Georgia for this year is over 200 million dollars, six percent higher than it was in 1969.

2. (and Pickering, Samuel Marion, Jr.) The mineral industry of Georgia, **in** Minerals yearbook 1971, vol. 2: Washington, D. C., U. S. Bur. Mines, p. 219-231, illus., 1973.
   The value of the minerals produced from the state exceeded 200 million dollars, over 10 percent greater than in 1970.

3. (and Pickering, Samuel Marion, Jr.) The mineral industry of Georgia, **in** Minerals yearbook 1972, vol. 2: Washington D. C., U. S. Bur. Mines, p. 195-209, illus., 1974.
   The value of the minerals from Georgia for that year was over 258 million dollars, about 12 percent over the value for the previous year (1971).

4. (and Pickering, Samuel Marion, Jr.). The mineral industry of Georgia, **in** Minerals yearbook 1973, vol. 2: Washington, D. C., U. S. Bur. Mines, p. 189-204, illus., 1976.
The value of all of Georgia's minerals for the year exceeded 300 million dollars, an increase of 18 percent from the previous year (1972).

WENNER, DAVID BRUCE, 1941-, **see also** Ellwood, Brooks Beresford, 2; Gonzales, Serge, 2; Herz, Norman, 1; Whitney, James Arthur, 4, 9

1. (and Whitney, James Arthur, and Stormer, John Charles, Jr.) Oxygen isotopic evidence for the genesis of two distinctive suites of 300 my granitic plutons from the southern Appalachian Province [Piedmont] [abstract]: Geol. Soc. America Abs. with Progs., v. 9, p. 1221, 1977.

2. (and Whitney, James Arthur, and Stormer, John Charles, Jr.) Oxygen isotope studies of post-metamorphic granitic plutons from the Piedmont province of Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 201, 1978.

3. (and Whitney, James Arthur) Oxygen isotope compositions of Hercynian age granites in the southern Piedmont and their relationship to subcrustal lithologies and structures [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 538, 1979.

WEST, MARETA

1. Nuclear power reactor sites in the southeastern United States: U. S. Geol. Survey Repts. Open File 78-256, 8 p., tables, 1978.
The geological setting for Plant Hatch, Appling County, is described, as is the Plant Vogtle site in Burke County. Both rest on Cenozoic rocks of the Coastal Plain.

WEST, RONALD ROBERT, 1935-, **see** Broadhead, Thomas Webb, 7

WHARTON, CHARLES HEIZER, 1923-, **see also** Staheli, Albert Clifford, 3

1. The natural environments of Georgia: Atlanta, Georgia Dept. Nat. Resources, 227 p., illus., 1978.
A description of many natural environments is given. Most of them are sites with distinctive animal and/or plant setting, but some also have a distinct geomorphological setting.

WHEELER, WALTER HALL, 1923-, **see** Dennison, John Manley, 1

WHETSTONE, KENNETH N., see Price, Rex Clayton, 1

WHITE, DOSS HURDLE, JR., 1937-

1. (and Pickering, Samuel Marion, Jr.) The mineral industry of Georgia, 1976, **in** Minerals yearbook 1976, vol. 2: Washington, D. C., U. S. Bur. Mines, p. 193-207, illus., 1979.
   A record-high production of minerals, valued at 428 million dollars, is reported.

WHITE, GEORGE WILLARD, 1903-

1. Memorial to Harold Rollin Wanless, 1898-1970: Geol. Soc. America Memorials, v. 2, p. 116-128, port., 1973.

WHITE, JOHN SAMPSON, 1933-

1. Boehmite exsolution of corundum: Amer. Mineralogist, v. 64, p. 1300-1302, illus., 1979.
   Corundum from the Laurel Creek area in Rabun County, and from elsewhere, show that the parting is due to a weakness of the corundum-boehmite contact. The boehmite is a product of exsolution.

WHITEHURST, BRYAN BENNETT, 1952-

1. Duration magnitude of eastern United States earthquakes at World Wide Standard Seismograph Network stations: M S Thesis, Virginia Polytech. Inst., 1977 [not seen].

WHITMORE, FRANK CLIFFORD, JR., 1915-

1. (and Knapp, J.) Remington Kellogg, October 5, 1892-May 8, 1969: Natl. Acad. Sci. Biog. Mem., v. 46, p. 158-189, illus., 1975; Geol. Soc. America Memorials, v. 4, p. 117-129, port., 1975.

WHITNEY, JAMES ARTHUR, see also Ellwood, Brooks Beresford, 2; Jones, Lois Marilyn, 4; Rozen, Robert Walter, 2; Thurmond, Carol Johnson, 1; Wenner, David Bruce, 1, 2, 3

1. (and Stormer, John Charles, Jr., and Smith, Robert Lincoln) Feldspar thermal history for three post-metamorphic granites from the Georgia Piedmont [abstract]: Geol. Soc. America Abs. with Progs., v. 7, p. 549, 1975.

2. (and Jones, Lois Marilyn, and Walker, Raymond Lloyd) Age and origin of the Stone Mountain Granite, Lithonia District, Georgia: Geol. Soc. America Bull., v. 87, p. 1067-1077, illus., 1976.
   A Rb/Sr age of about 291 m.y. is determined from 10 whole-rock and 3 mineral samples. The granite was formed by anatexis of older, peraluminous granitic crustal material during Late Pennsylvanian time. The intrusion depth was around 12 km, with magma temperatures being 700 degrees centigrade or less. The Lithonia Gneiss is a likely source.

3. (and Paris, Travis Anthony, and Hartley, Marvin Eugene, 3d, and Carpenter, Robert Heron) Petrology and geochemistry of the southwestern extension of the slate belt near Lincolnton [Lincoln County] Georgia and McCormick, South Carolina [abstract]: Geol. Soc. America Abs. with Progs., v. 9, p. 196, 1977.

4. (and Wenner, David Bruce, and Stormer, John Charles, Jr.) Two distinctive suites of 300 m.y. old granitic plutons from the southern Appalachian province [Piedmont] [abstract]: EOS, v. 58, p. 531, 1977.

5. (and Stormer, John Charles, Jr.) Two-feldspar geothermometry, geobarometry in mesozonal granitic intrusions--three examples from the Piedmont of Georgia: Contr. Mineralogy and Petrology, v. 63, p. 51-64, illus., 1977.
Equilibrium temperatures for coexisting plagioclase and potassium feldspar pairs are calculated for the Danburg Granite (Wilkes and Lincoln Counties), Siloam Granite (Greene County), and Stone Mountain Granite (DeKalb County). Crystallization temperatures were between 650 and 780 degrees centigrade.

6. (and Stormer, John Charles, Jr.) Rare earth distribution and fractionation within post-metamorphic granites of the southern Appalachian Piedmont [abstract]: EOS, v. 59, p. 393, 1978.

7. (and Carpenter, Robert Heron, and Rozen, Robert Walter) The transition from inner Piedmont to slate belt in eastern Georgia and its role in the tectonic development of the southern Appalachians [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 202, 1978.

8. (and Paris, Travis Anthony, and Carpenter, Robert Heron, and Hartley, Marvin Eugene, 3d) Volcanic evolution of the southern slate belt of Georgia and South Carolina -- a primitive oceanic island arc: Jour. Geology, v. 86, p. 173-192, illus., 1978.
Rocks of the Little River Series in Lincoln County are low-grade metamorphosed, felsic, pyroclastic rocks underlain by metadacite, and overlain by banded argillite. The petrogenetic suite is similar to that found in primitive island arcs thoughout the world where oceanic crust is being subducted without the presence of thick continental basement. The rocks may have been deposited in a marginal basin between a primitive island arc and a continent.

9. (and Ellwood, Brooks Beresford, and Mose, Douglas George, and Wenner, David Bruce, and Stormer, John Charles, Jr.) Correlation of Rb/Sr whole rock and paleomagnetic data for the Elberton Granite, eastern Georgia [Elbert County], and its implication for tectonic rotation of the southern Appalachians [abstract]: EOS, v. 60, p. 817, 1979.

10. (and Ellwood, Brooks Beresford) Tectonic rotation and paleomagnetic age of the Elberton Granite--northeast Georgia Piedmont [Elbert County] [abstract]: EOS, v. 60, p. 395-396, 1979.

WHITTEN, CHARLES ARTHUR, 1909-, **see** Lyttle, Peter Thomas, 1

WHITTEN, ERIC HAROLD TIMOTHY, 1927-

1. Geodynamic significance of spasmodic, Cretaceous, rapid subsidence rates, continental shelf, U. S. A.: Tectonophysics, v. 36, p. 133-142, illus., 1976.
   There were two periods of relatively high sedimentation and subsidence rates; that of Coniacian/Santonian time can be identified in rocks from the Georgia Coastal Plain. Rates exceeding 30 meters per million years occur sporadically. Since the rocks are a shallow water facies, the thickness reflects the rate of settling. A global phenomenon is needed to explain the circumstances.

2. Rapid Aptian-Albian subsidence rates in eastern United States: Amer. Assoc. Petroleum Geologists Bull., v. 61, p. 1522-1524, illus., 1977.
   Data from the Atlantic Coastal Plain of Georgia are included. Rates of Cretaceous sedimentation for the various stages are graphed and compared with the scales of Hinte and of Cobban and Obradovich.

WHITWORTH, LAWRENCE, **see** Arnott, Gemma, 1

WIEBE, WILLIAM JOHN, 1935-, **see** King, Gary Michael, 1

WIEDEMANN, HARTMUT U.

1. Shell deposits and shell preservation in Quaternary and Tertiary estuarine sediments in Georgia, U.S.A.: Sed. Geology, v. 7, p. 103-125, illus., 1972.
   Shell-deposit preservaton in the Coastal Plain estuaries and marshes, notably those around Sapelo Island, McIntosh County, is studied. Leaching and borers are the chief shell-destroying agents. Oysters are distinctly resistant, as the Late Pleistocene and Middle Tertiary oyster banks are similar to the recent ones.

WIELCHOWSKY, CHARLES CARL, 1947-, **see also** Gilbert, Oscar Edward, Jr. 1; Roedder, Dietrich Hans, 1

1. (and Gilbert, Oscar Edward, Jr.) The pre-Mesozoic rocks of southeastern Alabama-southern Georgia [Coastal Plain]-Florida subsurface and their bearing on the origin of the southernmost Appalachians [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 452, 1973.

WIEWIORA, ANDRZEJ.

1. Kaoliny Georgii i Karoliny Poludniowej [Kaolins in Georgia and South Carolina]: Przeglad Geol., v. 21, p. 38-41, illus., 1973.
   In Czech. A generalized description of the origin of the Fall Line kaolin deposits is given.

WILKES, ROBERT L.

1. Soil survey of Bryan and Chatham Counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 71 p., illus., 1974.
The soils of the counties are mapped and described in great detail. The origin of the soils in relation to the geology is cursorily reviewed.

WILLIAMS, BRADFORD B., see Mutschler, Paul H., 1

WILLIAMS, CHARLES THOMAS, 1948-, see Hinton, John Lee, 1

WILLIAMS, HAROLD, 1934-, see also Thomas, William Andrew, 1

1. (and Talkington, Raymond Willis) Distribution and tectonic setting of ophiolites and ophiolitic melanges in the Appalachian orogen, in North American ophiolites (edited by Robert Griffin Coleman and William Porter Irwin): Oregon Geol. Survey Bull. 95, p. 1-11, illus., 1977.
A general review of the occurrence of ophiolite melanges in the western Appalachians includes a description of those in Georgia. Mafic-ultramafic rocks southeast of the Brevard zone are of unknown significance. Those to the northwest were emplaced during the closing of the Iapetus Ocean.

2. (and King, Arthur Francis) Geologic development of the Appalachians: Newfoundland Jour. Geol. Education, v. 3, p. 17-35, illus., 1977.
A very generalized review of the geology of the Appalachians includes that in Georgia. No new data are included.

WILSON, LEONARD GILCHRIST, 1928-

1. (editor) Benjamin Silliman [Sr., 1799-1864] and his circle....: New York, Science History Pub., 227 p., illus. incl. port., 1979.

WILSON, ROBERT LAKE, 1924-

1. Lower Pennsylvanian strata of the northern part of Sand Mountain, Alabama, Georgia, and Tennessee: Tennessee Acad. Sci. Jour., v. 50, p. 20-24, illus., 1975.
An upper sandstone is the Warren Point Sandstone; a lower sandstone is a member of the Raccoon Mountain Formation rather than the Sewannee Conglomerate as previously identified. The Flat Rock and Norwood Cove Members of the Raccoon Mountain Formation are also identified. There is no erosional unconformity between the Mississippian and Pennsylvanian Systems. Sections are measured.

2. Karst induced subsidence in the Chattanooga Rossville area, Hamilton County Tennessee and Walker County, Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 218, 1979.

WILSON, VINCENT VICTOR.

1. The systematics and paleoecology of two late Pleistocene herptofaunas from the southeastern United States [Bartow County]: Ph D Thesis, Univ. Michigan, 1975; [abstract]: Dissert. Abs. Internatl., v. 36B, p. B2686, 1975.

WINDISCH, T. C., **see** Luetke, Ronald D., 1

WINDOM, HERBERT LYNN, 1941-, **see also** Barnes, Steven Charles, 1; Beck, Kevin Charles, 1

1. Chemical analysis of biological, water, and sediment samples from the Altamaha and a control estuary: Georgia Marine Sci. Center Tech. Rept. 71-1, 20 p., 1971.
   Sediments from the Altamaha estuary in Chatham County and St. Catherine's estuary in Liberty County are analyzed for 21 elements; the results are in tables. The variations are due to mineral composition of the sediments and the concentration of organic matter.

2. Fluoride concentration in coastal and estuarine waters of Georgia: Limnology and Oceanography, v. 16, p. 806-810, illus., 1971.
   Surface waters do not obtain normal ocean values for the Fl:Cl ratio until chlorinity of 10 to 11 percent is obtained. Interstitial water is enriched in fluoride relative to surface water of the same chlorinity. Bacterial breakdown releases fluorine into sediments from plants.

3. (and Neal, William Joseph, and Beck, Kevin Charles) Mineralogy of sediments in three Georgia estuaries: Jour. Sed. Petrology, v. 41, p. 497-504, illus., 1971.
   The Altamaha, Ogeechee, and Satilla estuaries have fluvially-derived clastic sediments; some material is derived from the continental shelf. Heavy-mineral composition reflects the Piedmont and the Coastal Plain drainage basins.

4. (and Beck, Kevin Charles, and Smith, Ralph G.) Transport of trace metals to the Atlantic Ocean by three southeastern rivers: Southeastern Geology, v. 12, p. 169-181, illus., 1971.
   Waters of the Altamaha, Ogeechee, and Satilla rivers are analyzed for numerous trace metals. Considering volumes, drainage basin size, and time, it is shown that the river-transport of trace metals cannot account for all of the trace metals found in sea water.

WINKER, CHARLES DAVID.

1. (and Howard, James Dolan) A new look at the Pleistocene coastal morphology of Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 414, 1974.

2. (and Howard, James Dolan) Depositon, deformation and heavy mineral distribution on the southern Atlantic Coastal Plain interpreted from relict shorelines [abstract]: Amer. Assoc. Petroleum Geologists Bull., v. 60, p. 734, 1976.

3. (and Howard, James Dolan) Correlation of tectonically deformed shorelines on the southern Atlantic Coastal Plain: Geology, v. 5, p. 123-127, illus., 1977.
Topographic shoreline features of the Atlantic states, including Georgia, are differentiated into age groups on the basis of progradational discontinuities, preservation-state contrasts, and changes in coastal morphology. Three shoreline sequences are preserved, permitting paleogeographic reconstruction. All three sequences have been deformed, the deformation continuing thoughout Pleistocene time.

WISE, SHERWOOD WILLING, JR., 1941-, **see also** Weaver, Fred Martin, 1

1. (and Ciesielski, Paul Frank, and Schmidt, Walter, and Weaver, Fred Martin) Altered Upper Eocene diatomite in the Coastal Plain of Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 6, p. 414-415, 1974.

2. (and Weaver, Fred Martin) Chertification in oceanic sediments, **in** Pelagic sediments--on land and under the sea--Internatl. Assoc. Sedimentologists Spec. Pub. 1: Oxford, England, Blackwell Sci. Pubs., p. 301-326, illus., 1974.
A general discussion of the origin of bedded chert in marine sediments includes examples from the Eocene rocks of Georgia. The Twiggs Clay contains highly altered diatomite and is not volcanic in origin as theretofore thought.

3. (and Weaver, Fred Martin) Eocene diatomites in Gulf Coastal Plain [abstract]: Amer. Assoc. Petroleum Geologists Ann. Mtg. Abstracts, v. 1, p. 101, 1974.

4. (and Ciesielski, Paul Frank, and Schmidt, Walter, and Weaver, Fred Martin) Opaline claystones of the Alabama-Georgia-South Carolina Coastal Plain--environmental interpretation [abstract], **in** Symposium on the petroleum geology of the Georgia Coastal Plain (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 123, 1974.

WOLF, MICHAEL GENE, 1953-, **see** McGinnis, Lyle David, 1

WOOD, BRUCE WADE, 1951-

1. (and Perkins, Henry Frank) Plinthite characterization in selected southern Coastal Plain soils: Soil Sci. Soc. America Jour., v. 40, p. 143-146, illus., 1976.
Plinthic horizons from soils of five different localities on the Coastal Plain are examined for iron. The amount and position in the soil horizons varies as does the particle-size distribution. Kaolinite also varies between plinthic and non-plinthic soils.

2. (and Perkins, Henry Frank) A field method for verifying plinthite in southern Coastal Plain soils: Soil Sci., v. 122, p. 240-241, illus., 1976.
Plinthite, an iron-rich, humus-poor mixture of clay, quartz, and other soil materials in the B soil zone, does not slake in water. Red mottles and other non-plinthic materials do. Examples from Georgia are discussed.

WOOD, GARNET J., see Calhoun, John W., 1

WOODS, JOHN CRAWFORD, 1919-

1. Soil survey of Houston and Peach counties, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 73 p., illus., 1967.
   The soils of the counties are mapped in great detail and described. The geology is very cursorily reviewed.

2. Soil survey of Bibb County, Georgia: U. S. Dept. Agric. Soil Conserv. Service, 88 p., illus., 1979.
   The soils of the county are mapped and described in great detail, and their origin in relation to the geology is discussed.

WOODS, RAYMOND DOUGLAS, 1910-

1. (and Addington, James William) Pre-Jurassic geologic framework northern Gulf basin: Gulf Coast Assoc. Geol. Socs. Trans., v. 23, p. 92-108, illus., 1973.
   The Georgia Coastal Plain is underlain by Paleozoic rocks in the southwestern corner and in a small area toward the southeastern margin. Volcanic rocks of uncertain age underlie most of the southeast, and Triassic rocks underlie much of the central part of the Coastal Plain. Little detail is given.

WOOLSEY, JAMES ROBERT, JR., 1936-, **see also** Harding, James Lombard, 1

1. (and Henry, Vernon James, Jr.) Holocene reversal of island/inlet migration in the sea islands of southeastern U.S.A. [abstract]: Proc. second national coastal and shallow water research conf., vol. of abstracts, p. 274, 1971 [not seen].

2. The geology of Clarke County, Georgia: M S Thesis, Univ. Georgia, 1973.

3. (and Harding, James Lombard) Investigation of potential aggregate resources in [Coastal Plain] Georgia estuaries [abstract]: Geol. Soc. America Abs. with Progs., v. 5, p. 452-453, 1973.

4. (and Henry, Vernon James, Jr.) Shallow, high resolution seismic investigations of the Georgia coast and inner continental shelf, **in** Symposium on the petroleum geology of the Georgia Coastal Plain (compiled by Lynda Plunkett Stafford): Georgia Geol. Survey Bull. 87, p. 167-187, illus., 1974.
   Seismic and drilling records show the shoreline and near-shore distribution of Miocene to Holocene rocks.

5. (and Henry, Vernon James, Jr., and Hunt, Jesse Lindsey, Jr.) Backshore heavy-mineral concentration on Sapelo Island, Georgia: Jour. Sed. Petrology, v. 45, p. 280-284, illus., 1975.
   Deposition of heavy minerals results from the storm-wave erosion of dune-beach ridges. The period of most efficient mineral concentration occurs during moderate-surf-energy levels attending storm waves. High-velocity, aeolian winnowing during low-tide periods is an important complimentary effect.

6. Neogene stratigraphy of the Georgia coast and inner continental shelf: Ph D Thesis, Univ. Georgia, 1977; [abstract]: Dissert. Abs. Internatl., v. 38B, p. 3098B-3099B, 1978.

WOOTEN, JAMES SINGLETERRY, 3D, 1949-

1. (and Orleans, Alice Julia, and Grant, Willard Huntington) Chemical weathering of a biotite quartz diorite near Haralson, Coweta County, Georgia [abstract]: Georgia Acad. Sci. Bull., v. 30, p. 79-80, 1972.

WOOTEN, RICHARD MARK, 1951-, **see** Dallmeyer, Ray David, 6

WRIGHT, DAVID S., see Lyttle, Peter Thomas, 1

WRIGHT, HERBERT EDGAR, JR., 1917-

1. Late Quaternary vegetational history of North America, **in** Late Cenozoic glacial ages (edited by Karl Karekin Turekian): New Haven, Connecticut, Yale Univ. Press, p. 425-464, illus., 1971.
   A summary of the information about Pleistocene vegetation in North America includes Georgia. Pollen spectra show climatic changes. Pines and some boreal spruce species were present during the early Wisconsin. During full-glacial stage, deciduous forests were present. During the Holocene, pollen shows prairie-like openings in an oak-pine forest which gave way about 6,000 years ago to pine-dominated forests. In the southern coastal plain area cypress is at the top of the spectra.

WRIGHT, WILNA BROWN, 1928-, **see also** Hazel, Joseph Ernest, 1; Higgins, Michael Wicker, 3

WUNDERLICH, FRIEDRICH, 1933-, **see also** Howard, James Dolan, 9

1. Beach dynamics and beach development, [Part] 3 **of** Georgia coastal region...: Senckenberg. Maritima, v. 4, p. 47-69, illus., 1972.
   Beach stratification on Sapelo Island, McIntosh County, is a product of the rising and falling of the tide which causes migration of the energy zones. There are several erosional and depositional cycles in the ridge and runnel system. A comparison with an ancient beach is made.

YABUKI, HIDEO, see Okada, Akihiko, 1

YEAKEL, JESSE DAVID, 1952-

1. (and Spackman, William, Jr.) Sources and compositon of inorganic materials in the peats of the Okefenokee Swamp-marsh complex [Coastal Plain] [abstract]: Ninth Internatl. Cong. Carb. Stratigraphy and Geology Abs. Volume, p. 240, 1979.

YEVDJEVICH, VIYICA, 1913-, **see** LeGrand, Harry Elwood, 5

YORK, HAROLD F., see Thomson, Robert Don, 1

YORK, JAMES EARL, 3D, 1950-

1. (and Oliver, Jack Ertle) Cretaceous and Cenozoic faulting in eastern North America: Geol. Soc. America Bull., v. 87, p. 1105-1114, illus., 1976.
   Modest intraplate tectonism is shown by recent faulting; the Belair fault, in Richmond County, is the chief example from Georgia. Coastal Plain, Cretaceous-aged sediments are included and are offset at the Fall Line. The Belair is a thrust fault and may include strike-slip movement.

2. Seismotectonics in interplate and intraplate regions--eastern North America [Richmond County], eastern Taiwan, China, and the New Hebrides: Ph D Thesis, Cornell Univ., 1977.

ZARILLO, GARY ANTHONY, 1948-

1. Energy dissipation over a salt marsh and its effect on estuarine sediment transport and tidal dynamics [McIntosh County] [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 218-219, 1979; Amer. Assoc. Petroleum Geologists Bull., v. 63, p. 556, 1979.

2. Interrelation of bedform geometry and hydrodynamic balance in a tidal estuary [McIntosh County] [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 204, 1978.

3. Interrelation of hydrodynamics and sediment transport in a salt marsh estuary [McIntosh County]: Ph D Thesis, Univ. Georgia, 1979.

ZDENEK, RANDA, see Bouska, Vladimir, 1

ZEITNER, JUNE CULP.

1. Appalachian mineral & gem trails, 2d ed.: San Diego, Lapidary Jour., Inc., 134 p., illus., 1975.
   A popular version of the occurrence and location of many different minerals and gems from Georgia is included. Most of the localities are in the Piedmont and Blue Ridge.

ZELLARS, MICHAEL E.

1. The genesis and occurrence of Tertiary phosphorites in the southeastern United States: Mining Engineering, v. 30, p. 1652-1656, illus., 1978.
   The southeastern Miocene-aged phosphate deposits occur in structurally controlled basins that were open to the sea. The deposits between the Barwick and Ocala arches, and those in the Ridgeland basin are cited as examples.

ZENON, ALEXANDER C.

1. Spectral excitation of Lg within the south central Appalachian region: M S Thesis, Pennsylvania State Univ., 1979 [not seen].

ZIEGLER, ROBERT E., see also Dorman, LeRoy Myron, 4

1. (and Dorman, LeRoy Myron) The Georgia gravity base net: Georgia Geol. Survey Bull. 86, 33 p., illus., 1976.
   Station descriptions and values, along with the data-reduction and adjustment methods, are given for 58 gravity base stations. Other values in the area are compared with these results.

ZIETZ, ISIDORE, 1919-, **see also** Bentley, Robert Donald, 1; Daniels, David Lee, 2; Hatcher, Robert Dean, Jr., 16, 20; Higgins, Brenda Baer, 1; Higgins, Michael Wicker, 2; King, Elizabeth Raymond, 1; Lawton, David Edward, 2; Pickering, Samuel Marion, Jr., 11; Popenoe, Peter, 2; Stockman, Kenneth W., 1

1. (and Higgins, Michael Wicker, and Popenoe, Peter, and Higgins, Brenda Baer) Geophysical surveys of the southeastern Coastal Plain, Part 2--Preliminary geologic interpretation of new aeromagnetic maps of part of the Coastal Plain of North Carolina, South Carolina, and Georgia [abstract]: Geol. Soc. America Abs. with Progs., v. 7, p. 1327-1328, 1975.

2. (and Popenoe, Peter, and Higgins, Brenda Baer) Regional structure of the southeastern United States as interpreted from new aeromagnetic maps of part of the Coastal Plain of North Carolina, South Carolina, Georgia, and Alabama [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 307, 1976.

3. Regional basement mapping of the eastern United States from detailed aeromagnetic data [abstract]: Geol. Soc. America Abs. with Progs., v. 10, p. 522, 1978.

4. (and Hatcher, Robert Dean, Jr.) Interpretation of regional aeromagnetic and gravity data from the southeastern United States, Part 1--Crustal evaluation [Piedmont and Blue Ridge] [abstract]: Geol. Soc. America Abs. with Progs., v. 11, p. 219, 1979.

ZIMMERMAN, EVERETT ALFRED, 1927-, **see also** Gregg, Dean Oakley, 2

1. Ground-water resources of Colquitt County: U. S. Geol. Survey Repts. Open File 77-56, 70 p., illus., 1977.
   A generalized review of the geology of the county is given. Eocene to Holocene rocks are present; they are discussed, and their water-bearing properties are described. Analyses are included.

ZIMMERMAN, ROBERT ALLEN.

1. (and Faul, Henry) Fission-track tectonics--regional uplift in eastern North America [Piedmont and Blue Ridge] [abstract]: Geol. Soc. America Abs. with Progs., v. 8, p. 1181-1182, 1976.

ZISA, ARNOLD CHARLES, 1943-, **see** Clark, William Z., Jr., 1, 2

ZOHDY, ADEL ABD RAHMAN, 1935-, **see** Bisdorf, Robert James, 1

ZWART, PETER ALLEN.

1. An investigation of the stratigraphic occurrence of Georgia tektites [Coastal Plain]: M S Thesis, Univ. Delaware, 1978 [not seen].

ANONYMOUS, Y. B.

1. Shaledirt cave [Polk County], GSS 142: GSS Bull. 1970, p. 25-27,

Index

by Subject, Geography, and Geologic Age

GEORGIA-COASTAL PLAIN, see also

absolute ages

areas described

economic geology

engineering geology

groundwater

maps

mineralogy

soils

stratigraphy

structural geology

weathering

GEORGIA-NORTHWESTERN, see also

Georgia, and individual counties

absolute ages

areas described

economic geology

engineering geology

sedimentation

stratigraphy

structural geology

GEORGIA-PIEDMONT, see also Georgia, and individual counties

absolute age

areas described

groundwater

maps

mineralogy

petrology

sedimentation

soil

stratigraphy

structural geology

weathering

GEOTHERMAL INVESTIGATIONS, see also Geophysical investigations, and Heat flow

GUIDEBOOKS

geomorphology

structure

structure-contour

OSTRACODES, see also Invertebrata

PALEOBIOGEOGRAPHY

PALEOBOTANY, see also Paleontology, and Palynology, and individual groups

PALEOCENE, see also Cenozoic, and Tertiary

PALEOCLIMATOLOGY

PALEOECOLOGY

PALEOMAGNETIC INVESTIGATIONS, see also Magnetic investigations

Paleocene

Paleozoic

Pleistocene

Pliocene

Quaternary

Silurian

Tertiary

PALEOZOIC, see also individual periods

PALYNOLOGY, see also Paleobotany, and Paleontology, and individual groups

PAULDING COUNTY, see also Georgia, and Georgia-Piedmont

economic geology

geochemical investigations

geomorphology

petrology

structural geology

PEAT, see also Mineral resources