

SAPROLITE

Newsletter of the Southeastern Section The Geological Society of America

Geological Sciences and the Geological Society of America 2001

The nature and mission of the Geological Society of America (GSA) has broadened dramatically over the last twenty years. In the past, our society was more or less content to be high-quality publisher, granter of funds for student research, and an organizer of scientific conferences. This approach was successful and numerous important scientific advances resulted from or were disseminated by these activities. However, today our members expect more from GSA and as a result our society is expanding into K-12 education, outreach, public policy, and geohostels among other things. Does this mean that science and scholarly activity are not sufficient today? Regardless of the answer to the above question, I submit that the expectations that we as members have placed on GSA reflect the demands have been brought about by increased use of mineral resources, increased use of nonrenewable energy resources, and increased pollution of air, water, and land.

In considering the status of human society, it is useful to remember a quote from John F. Kennedy (1961) "Our entire society rests upon -- and is dependent upon - our water, our land, our forests, and our minerals. How we use these resources influences our health, economy, and well being." Much of the increased use of resources and increased pollution result from dramatic population growth during the last century. During this period of Earth history, world population grew from less than 2 billion people to more than 6 billion, today. Additional demands also result from increased per capita use of resources and per capita production of pollutants. For example, per capita use of resources has increased dramatically in the United States during the last 100 years (U.S. Geological Survey). In 1900, U.S. per capita consumption of copper, aluminum, and gold were 5.7, 0.08, and 0.001 pounds, respectively. In 2000, U.S. per capita consumption of copper, aluminum, and gold increased to 26, 208, and 0.002 pounds, respectively. Energy use has also increased dramatically. Per capita U.S. energy consumption increased from ca. 2×10^{17} BTU in 1950 to ca. 2.9 x 10¹⁷ BTU in 1995.

Increases in population and the use of resources as outlined above explain some of the demands that have been placed on geological scientists. I submit that these demands on our profession and GSA result from the numerous problems that mankind faces and which we as geologists are well prepared to confront. I will briefly address three key areas in which geologists are called upon.

Development of and understanding the genesis of mineral resources are intimately tied to the geological profession. Many of the earliest geologists either worked in mines or used mines to make important observations about geology. Recent dramatic increases in rates of mineral consumption and population growth place dramatic demands on the mineral extraction industry. Much of current world mineral production is from high tonnage, but low grade ore deposits that are not located in North America. This results from depletion of resources in well-explored areas (e.g., Europe and North America), dense populations of wealthy people in these areas, and sensitivity to environmental issues. The result has been an increased proportion of mineral exploration outside of North America and Europe. As a result, jobs for economic geologists in North America have dwindled. In 1999, less than 2.5% of all geoscience graduates took jobs with the mining industry (American Geological Institute); however, as of 1993 about 7% of professional geologists were employed by the mining industry. In spite of reduction in the number of jobs within mining, there

will be a continued need for highly-trained and imaginative specialists in the mineral industry.

Exploration and exploitation of energy resources are also intimately tied to the geological profession. However, large-scale exploitation of fossil fuel resources and therefore, links between the geological sciences and societal energy sources are younger than links between the geological sciences and the mineral industry. Most of us have lived through at least one boom and bust cycle related to petroleum industry cycles. The low parts of these cycles have brought despair to many geologists - especially those looking for work at that time. However, it is important to note that a high percentage of geologists have been employed by the petroleum industry even during downturns. In 1999, about 7.5 % of geoscience graduates took jobs with the oil and gas industry, but in 1993 over 28% of all professional geoscientists were employed directly by industry or were employed as consultants and government agencies working in this area (AGI). Nobody can be precisely predict the longevity of our fossil fuel resources, but it is clear that even with increased consumption there are likely to be decades of reserves available. Mankind's demands for energy are likely to continue to grow and the emphasis on use of fossil fuels continue for at least several more decades (e.g., Holland & Petersen, 1995). Therefore, we can expect continued demand for well-trained geoscientists who specialize in oil, gas, and coal resources.

Utilization and pollution of air, soil, and water resources have played important roles in society for many generations. Many of these resource and pollution issues were likely very important on a local issues throughout much of human history. But, world-wide communications, global-scale population issues, and planet-wide pollution problems have forced resource and population issues to the front page. Two examples are prominent: 1) atmospheric pollution and 2) our demand on limited water resources. Atmospheric measurements indicate increases in carbon dioxide from 315 to 355 ppm since 1958 (Halpert et al., 1994) and ice core measurements suggest increases from <280 ppm in 1740. Most scientists agree that this increase results from human activity and that the increase has or will result in global warming. The observations and likely warming have led to research institutes devoted to the study of climate change and a significant percentage of the research is geological. Water resource use has increased dramatically with increased population and per capita use has also climbed. Total water use in the U.S. climbed from ca. 180 to ca. 400 billion gallons per day from 1950 to 1985. Per capita groundwater use in the U.S., increased from 225 (1950) to 325 (1985) gallons per day during the same period (Solley et al., 1988). Dramatic increases in the use of water resources has increased the need for hydrological specialists. This has led to dramatic changes specialization for academic geoscientists and large increases in the number of geoscientists employed in by environmental consulting companies. In 1993, approximately 23% of all professional geoscientists were considered specialists in the field of environmental geoscience (NSCG, 1993).

I conclude my rambling by stating the obvious: we have many problems to solve within the traditional areas of resource exploration and exploitation. Needs for mineral and energy resources and pollution problems are largely driven by rapid population growth and industrial activity. Professional geologists are needed to find resources, extract resources, mitigate environmental problems, and assess the economics of pollution control. In addition, we must continue our fundamental research in order to further understanding of Earth processes and Earth history. Recently, our profession and GSA have moved toward greater involvement with K-12 education and public policy. Many of us would like take our knowledge directly or indirectly to the students in K-12. Others would like to take our knowledge to Washington D.C. and influence the way in which society addresses geological issues. Can we as professionals and as members of GSA accomplish all of these tasks? Some of us, including myself may conclude that GSA does not have the resources to accomplish each and every one of the tasks associated with the issues that I have outlined here. I encourage all members to consider the options, decide on priorities, and participate in decision making that will help GSA move forward.

Hallpert, M.S., Bell, G.D., Kousky, V.E., & Ropelewski, C.F., 1994. eds., Fifth annual climate assessment 1993. Climate Analysis Center National Oceanic and Atmospheric Administration.

Holland H.D., & Petersen, U., 1995. Living Dangerously. Princeton University Press, 490 pp.

National Survey of College Graduates (NSCG), 1993. National Science Foundation, www.agiweb.org/career/geosec.html.

Solley, W.B., Merk, C.F., & Pierce, R.R., 1988. Estimated use of water in the United States, 1985. U.S. Geological Survey Circular 1004.

Harold Stowell Chair, Southeastern Section

Southeastern Section Officers: 2001-2002

| Chair: | Harold Stowell |
|----------------------|-----------------|
| Past Chair: | Larry Woodfork |
| Vice Chair: | John Kiefer |
| Past Vice-Chair: | Edward Stoddard |
| Chair-Elect: | Allen Dennis |
| Secretary-Treasurer: | Donald Neal |

Nominations for Section Officers: 2002-2003

The Nominating Committee submitted the following nominees:

| Chair: | Allen Dennis |
|----------------------|------------------|
| Chair-elect: | Mark Steltenpohl |
| Vice-Chair: | Daniel Larsen |
| Secretary-Treasurer: | Donald Neal |

Financial Status of the Section

At the end of FY 2000, the Section had \$68,348 in its accounts. The total interest realized in 2000 was \$3203. This interest, together with a reported surplus of \$22,673 from the Southeastern Section meeting in Charleston, SC, and Section members' dues, is used to fund the Section's Student Grant Program, Student Travel Program and Educational Grant Program as well as the general operations of the section. The section budgeted for expenditures exceeding income by \$5600 in 2000; however, we realized a profit of \$12,798 for the year.

50th Annual Meeting of the Southeastern Section

The 50th annual meeting of the Section was held April 5-6, 2001, in Raleigh, NC. Edward F. (Skip) Stoddard of North Carolina State University was the Chairman of the meeting. Harry Y. (Hap) McSween of the University of Tennessee presented the keynote address entitled *The Geology of Mars—From Far and Near*. A total of 351 papers were presented in symposia (8), theme sessions (10), and poster sessions. Ten field trips were run. The meeting had 853 registered participants.

51st Annual Meeting of the Southeastern Section

The Kentucky Geological Survey and the Department of Geological Sciences, University of Kentucky, and the Department of Geology, University of Cincinnati will host a joint meeting of the North-Central and Southeastern Sections of the Geological Society of America. The meeting will be held from April 3 through 5, 2002 in Lexington, Kentucky, with premeeting and postmeeting field trips and workshops. Information concerning registration, accommodations, and activities is available on the web at http://www.geosociety.org and in *GSA Today*.

Abstract deadline: December 19, 2001

Abstracts for all sessions should be submitted on-line through the GSA website. Late abstracts or abstracts sent by e-mail or fax will not be accepted. Only one volunteered paper may be presented by an individual; however, a person may be a co-author on other papers. Those invited for symposia may present additional papers.

Important note to oral presenters:

For the first time, the North-Central and Southeast Sections *will* provide computer data projectors in the technical sessions. We will have one (1) data projector and a laptop PC available in each session room. Presenters should bring their Microsoft PowerPoint presentation file on a CD-ROM or 3.5 inch diskette. Personal laptops cannot be used for presentations — you must load your file on the PC set up in the session room. Zip disk drives *will not* be available. Several laptop PC computers will also be available in the speaker ready room to review your presentation. Macintosh users should ensure that their disks and files are compatible with Windows-based PowerPoint software.

Welcome Party

Wednesday, April 3, 2002, 6:00 to 9:00 p.m., Heritage Hall East.

FIELD TRIPS

Both premeeting and postmeeting field trips are planned. Registration for some trips is limited. For additional information please check the Meeting Web site, contact the field trip chair Frank Ettensohn, University of Kentucky, (859) 257-1401, or contact the field trip leader.

1. Carbonate Mud Mounds in the Ft. Payne Formation. (L. Mississippian), Cumberland County, Kentucky

2. Mississippian Stratigraphy and Karst Geology of the Mammoth Cave Region, Kentucky

3. Middle and Upper Mississippian Stratigraphy and Depositional Environments in East-Central Kentucky: The New Big Hill Exposure

4. Silurian through Lower Mississippian Geology, Paleontology and Economic Influence in the Falls of the Ohio Region, North-Central Kentucky

5. The Middlesboro Impact Structure and Regional Geology of the Pine Mountain Thrust Sheet

6. Upper and Middle Pennsylvanian Stratigraphy, Sedimentology and Coal Geology in Eastern Kentucky Sponsored by the GSA Coal Geology Division

7. The Influence of Geology on the Military and Cultural History of the Bluegrass Region, Central Kentucky

8. The Geology of Pound Gap on the Pine Mountain Thrust Sheet: Eastern Kentucky and Virginia

9. Middle and Late Ordovician Seismites from Central Kentucky Sponsored by the Southeast and North-Central Sections, SEPM

10. Middle and Late Ordovician Stratigraphy and Depositional Environments in Central and North-Central Kentucky Sponsored by the Southeast and North-Central Sections, SEPM

SYMPOSIA

1. High-Resolution Event Stratigraphy in the Paleozoic Midcontinent

2. Pander Society Symposium

Oral and poster session on all aspects of conodonts; sponsored by the Pander Society

3. **Shoreline Processes: Ocean Coastal and Great Lakes Issues** *Sponsored by the Southeast and North-Central Sections, SEPM*

4. Lacustrine Geology and Geochemistry

5. Applied Coal Geology

Cosponsored by The Society for Organic Petrology and GSA Coal Geology Division

6. Geology and Public Policy

7. Ancient Basement Faults and Modern Earthquakes

8. A River Runs Through It. (Landscape evolution, glaciation, paleohydrology, geoarcheology, sedimentation, and engineering geology in the Ohio River basin.)

9. Energy and Environmental Geology Issues in the Illinois Basin Sponsored by the Illinois Basin Consortium

10. Large-Scale Glacial Geomorphology — What Can It Tell Us?

11. New Challenges in Paleontological Education

Sponsored by National Association of Geoscience Teachers and the Southeast Section of the Paleontological Society

12. Evolutionary Morphology

Sponsored by the North-Central Section of the Paleontological Society.

THEME SESSIONS

1. **Groundwater Flow and Geochemistry in Carbonate Terranes** Sponsored by the GSA Hydrogeology Division and the National Ground Water Association

2. Geologic Sequestration of CO₂

3. Geologic Hazards

4. Black Shales-Old Problems, New Solutions Sponsored by The Society for Organic Petrology

5. Geology and Human History I: Geological and Regional Perspectives on Historical Events

6. Wetlands Hydrology and Biogeochemistry Sponsored by the GSA Hydrogeology Division

7. Ancient Seismites

Sponsored by the Southeast and North-Central Sections, SEPM

8. Geology and Human History II: Geoarchaeology and Site Formation Studies

9. Precambrian of North-Central and Southeastern United States: Craton to Continental Margin

10. Geologic Data Distribution on the World Wide Web

11. Geology and Public Health

- 12. Technology Transfer and Scientific Communication
- 13. Neotectonics and Liquefaction Phenomena
- 14. Digital Geologic Mapping

15. Regionally Considering Coastal Erosion: Examples from the Southeast United States - POSTERS

16. **Expanding Earth Science Inquiry-Based Education, K-16** Sponsored by the North-Central and Southeast Sections of the National Association of Geoscience Teachers

17. **Technology for Inquiry-Based Earth Science Education** Sponsored by the North-Central and Southeast Sections of the National Association of Geoscience Teachers

18. Undergraduate Research - POSTERS ONLY

Sponsored by the Council for Undergraduate Research

19. Weathering and Landscape Evolution

20. Carboniferous Paleontology and Biostratigraphy

21. Near-Surface Geophysics

WORKSHOPS

Workshops will be held before and after the meeting, on April 1, 2, 3, and 6. Registration for some workshops is limited. For additional information, please check the Meeting Web site, or contact the workshop chair, Steve Greb, (859) 257-5500, or the workshop conveners.

1. Digital Collection of Geologic and Geotechnical data using a Personal Digital Assistant (PDA) and a GPS receiver Sponsored by the Southeast and North-Central Sections, SEPM

2. Earth Science Education and the Development of Reasoning

Sponsored by the North-Central and Southeast Sections of the National Association of Geoscience Teachers

3. Planning and Reviewing for Professional Geology Examinations

- 4. Introduction to ArcView GIS
- 5. RockWare Earth Science Software: Using Rockworks/2002
- 6. Methods in Subsurface Sample Description

Future Section Meetings

2002-joint meeting with NC section, Lexington, NC, John Kiefer will be the Local Chair.

2003 – joint meeting with Sc section, Memphis, TN, Daniel Larsen will be the Local Chair.

2004 – joint meeting with NE section, Washington, DC, Richard Diecchio will be the Local Chair.

2005 - Biloxi, MS, Gail Russell will be the Local Chair.

Student Travel Grants

The Student Ttravel Grant program continues to be very popular. In the Spring of 2001, the Section spent a total of \$5000 (\$2500 from the GSA Foundation) to help cover the travel costs of students who gave papers at the Raleigh, NC, meeting. In the Fall of 2001, the section spent \$ 4930 (including \$2000 from the GSA Foundation) for travel to the Boston meeting. Total student travel expenditures for 2001 was \$9930 thanks to an matching funds by the GSA Foundation. The following students received travel support last year:

Raleigh, NC

Ackerman, Seth Baker, Tiffany Bayona, German Bernstein, David Berguist, Peter Bradley, David Bream, Brendan Bridges, Robert Brown, Chandra Burton, David Campbell, Tara Lee Carrigan, Charles Clark, Jonathan Cooper, John Cox, Brendan Crawford, Matthew Dahnke, William Eyster, Eleanor Ferkler, Matthew Francis, Barbara Freeman, Christopher Goodman, Matthew Hansel, Krisha

University of South Carolina University of Tennessee at Martin University of Kentucky North Carolina State University College of William and Mary State University of West Georgia University of Tennessee Clemson University Georgia Southern University West Virginia University, Parkersburg University of Kentucky University of Michigan University of South Carolina East Carolina University Radford University Eastern Kentucky University University of Tennessee at Martin College of William and Mary West Chester University College of William and Mary UNC-Wilmington College of William and Mary University of Georgia

Hoffmeister, Alan Holm, Christopher Jusczuk, Steven Kissinger, Jennifer Lin, Jih-Pai Lyle, Nichole Mabry, Michele Malizia, Richard Mapes, Russell McGinnis, Benjamin Merschat, Arthur Mize. Kristine Montes, Camilo Moore, B. Roger Nanson, Lynde Nawrocki, Kerri Nelson, Kimberly Reeves, Kristy Scheidt, Matthew Settles, David Shofner, Gregory Stapleton, Colleen Sullivan, Walter Thieme, Donald Thomas, Christopher Volosin, Michelle Waresak, Sandra

Bream, Brendan Whisner, Jennifer Stewart, Alexander K. Holm, Christopher S. Pollock, Meagen Bayona, German Allen, Matthew Tully, Lance S. Reed, Jason S. Maharaja, Amisha Wilson, Crystal G. Godwin, Trenton M. Moses, Christopher S. Mapes, Russell Stapleton, Colleen P. Novakowski, Karyn Levin, Janna M. Garner, Terence State Wood, Julie McWilliams Johnson, Stephanie Watson, Mary E. Hahn, Diedra Tinkham, Douglas Zuluaga, Carlos A. Bradley, David B. Kalbas, James Josef, Jennifer Cowan, Cori Carrigan, Charles

Virginia Tech Florida State University University of Kentucky West Chester University Tennessee Tech. University University of Georgia UNC-Wilmington West Chester University Vanderbilt University West Virginia University University of Tennessee Clemson University University of Tennessee University of Tennessee at Martin Auburn University University of South Florida UNC-Wilmington West Chester University Bucknell University University of Tennessee Tennessee Tech. University University of Georgia Concord College University of Georgia Vanderbilt University East Carolina University Appalachian State University

Boston, MA

University of Tennessee, Knoxville University of Tennessee, Knoxville University of Kentucky Florida State University Marshall University University of Kentucky East Carolina University Marshall University Virginia Tech University of Florida State University of West Georgia Auburn University University of Miami, RSMAS Vanderbilt University University of Georgia University of South Carolina University of Virginia University of West Georgia State University of West Georgia University of Virginia North Carolina State University University of Alabama University of Alabama University of Alabama State University of West Georgia University of Tennessee, Knoxville University of South Carolina Georgia Southern University Vanderbilt University

Student Research Grants

The Section received thirty-one applications for 2001 (8 Ph.D., 21 M.S., and 2 B.S.). Twenty-one student research proposals (3 Ph.D., 16 M.S., and 2 B.S.) were funded for a total amount of \$ 6480.

| Matthew | Kirwan | College of William and Mary |
|-------------|-----------|--|
| Melondee | McInnish | State University of West Georgia |
| Adam | Bedell | University of Georgia |
| Micheal | Crump | University of North Carolina-Wilmington |
| Lucio | D'Alberto | University of North Carolina-Chapel Hill |
| Jean Pierre | Dube | University of North Carolina-Chapel Hill |
| John | Foudy | University of North Carolina-Chapel Hill |
| Elizabeth | Hazelton | East Carolina University |

| Milan | Heath | University of Tennessee |
|----------|-----------|---|
| John | Huntley | University of North Carolina-Wilmington |
| Kevin | Jones | University of Virginia |
| Heyward | Key | University of North Carolina-Wilmington |
| Gayle | Levy | University of Georgia |
| J. Todd | McFarland | University of Kentucky |
| Megan | Murphy | East Carolina University |
| Mark | Pollock | University of Tennessee |
| Jocelyn | Smith | West Virginia University |
| Carlos | Zuluaga | University of Alabama |
| Marcello | Badali | University of Alabama |
| Alfred | Elser | Georgia State University |
| Jonson | Miller | Virginia Polytechnic Institute and State University |
| | | |

Deadlines for Student Support Applications

The Section provides research and travel grants to deserving students. Research awards are available to support undergraduate, M.S., and Ph.D. research for GSA members enrolled in universities in the Section. Research grant applications must be on current GSA forms and comply with all GSA rules. Travel assistance is available for GSA members presenting papers or posters at GSA meetings. Applications for travel grants must include an official form, certification of GSA membership (e.g., copy of membership card), documentation of student enrollment, and documentation that the student is presenting a paper (e.g., abstract Web acceptance). The Section Page (http://www.geology.ecu.edu/geology/segsa/segsa.html) provides travel grant application forms and information.

Dr. Donald W. Neal Secretary, SEGSA Department of Geology East Carolina University Greenville, NC 27858-4353 neald@mail.ecu.edu or (252) 328 4392

The application deadlines are: Research Grants February 1, 2002 Travel Grants toLexington: March 1, 2002 Travel Grants to Denver: October 1, 2002

Election of Officers, 2001-2002

Southeastern Section, GSA

The slate of officers for the Southeastern Section election is presented below with biographic data. Please vote by checking the appropriate box or by writing in the name of a nominee.

Your ballot must be returned to GSA in Boulder no later than January 31, 2002. Please fold your ballot on the line and **tape** (do not staple) it, making certain the address is showing, and affix a first class postage stamp.

| | BALLOT | | | |
|------------------------------------|---|-------------------------------------|------------------------------------|--|
| Chair | Chair-elect | Vice-Chair | Secretary-Treasurer | |
| Allen Dennis() () (write-in) | Mark Steltenpohl () () (write-in) | Daniel Larsen() () (write-in) | Donald Neal () () (write-in) | |

ALLEN J. DENNIS, STRUCTURAL GEOLOGY/TECTONICS. Educ: Colgate Univ, AB 82; Univ of South Carolina, MS 85, Ph.D. 89. Prof Exp: Instr to Prof and Chair UNIVERSITY OF SOUTH CAROLINA, AIKEN 88-present. *Mem:* GSA, AGU, CGS, Sigma Xi. *Res:* Faulting and fault rocks, Appalachian and Himalayan tectonics, *Mailing Add:* Dept of Biology and Geology, Univ. of South Carolina, Aiken, 471 University Parkway, Aiken, SC 29801-6309; email: dennis@sc.edu

MARK G. STELTENPOHL, STRUCTURAL GEOLOGY/TECTONICS. Educ: Univ of Alabama, BS 78, MS 83; Univ of North Carolina-Chapel Hill, Ph.D. 85. Prof Exp: Asst to Prof AUBURN UNIVERSITY 89-present. *Mem:* GSA, AGS, GGS, CGS, Sigma Xi, SGE. *Res:* Structure and tectonic evolution of collisional mtn systems, Appalachian and Caledonide tectonics, *Mailing Add:* Dept of Geology, 210 Petrie Hall, Auburn University, Auburn, AL 36849; email: steltmg@auburn.edu

DANIEL LARSEN, LOW-TEMPERATURE GEOCHEMISTRY/ENVIRONMENTAL GEOLOGY. Educ: Arizona State Univ, BS 85; Ohio State Univ, MS 88; Univ of New Mexico, Ph.D. 94. Prof Exp: Asst to Assoc Prof UNIVERSITY OF MEMPHIS 95-present. *Mem:* GSA, AGU, SEPM, Clay Minerals Society, Association of Ground Water Scientists and Engineers *Res:* Aqueous geochemistry of Memphis aquifer, Sedimentology and water-rock interactions in lacustrine sediments, *Mailing Add:* Dept of Geological Sciences, Univ. of Memphis, Memphis, TN 38152; email: dlarsen@memphis.edu

DONALD W. NEAL, STRATIGRAPHY. *Educ*: College of William and Mary BS 73; Eastern Kentucky Univ, MS 75; West Virginia Univ, Ph.D. 79. *Prof Exp*: Loggiing Geol, Exploration Logging of USA, Inc, 75-76, Research Assoc West Virginia Geol and Econ Survey, 77-79, Asst to Assoc Prof EAST CAROLINA UNIV, 79-present. *Mem*: GSA, SEPM, IAS, SGE, NAGT. *Res*: Appalachian Basin stratigraphy, petrology, petroleum geology. *Mailing Add*: Dept of Geology, East Carolina Univ, Greenville, NC 27858-4353; email: neald@mail.ecu.edu

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Southeastern Section Ballot Geological Society of America P.O. Box 9140 Boulder, CO 80301-9140