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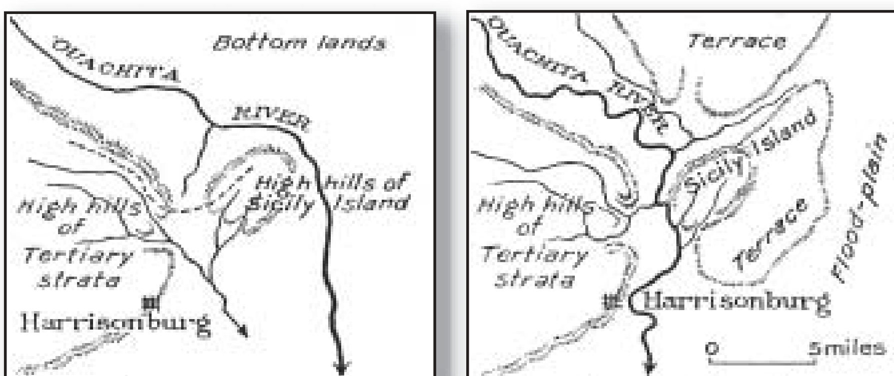
Lineaments and the Separation of Sicily Island from the Chalk Hills by the Ouachita River Valley, Northern Catahoula Parish, Louisiana

Richard P. McCulloh

In a brief section entitled, “Diversion of the Ouachita River near Harrisonburg, La.,” of the Report of 1905 of the Geological Survey of Louisiana (p. 303-304; includes “Fig. 24” on facing page 302), A.C. Veatch (1906) addressed the origin and history of the current course of the Ouachita River flood plain relative to Sicily Island and the Chalk Hills. He set forth the case that the present course was a result of constructional depositional dynamics at the confluence of the Ouachita and Mississippi flood plains in early Quaternary time. During glaciation, he argued, outwash deposition raised the level of the flood plain of the Mississippi and the distal reaches of the flood plains of its tributaries at their confluences with it. At this time the southward-flowing Ouachita ran north and east of Sicily Island. As a result of the voluminous outwash deposition in the Mississippi flood plain, the gap between Sicily Island and the mainland encompassing the Chalk Hills to the west became buried, and was occupied by a flood plain contiguous with that of the Mississippi. This gap was raised as much as 18 m (60 ft) above present stream bottoms, yet was likely somewhat lower than the Mississippi flood plain proper because the depositional cone advancing down the Mississippi course must have been quite large compared to the volume of sediment being transported by the Ouachita system. This difference in elevation made possible the shifting of the Ouachita course into the gap before the onset of the succeeding period of downcutting that sculpted the outwash deposits into the terraces now preserved to the east and north of Sicily Island. The above history inferred by Veatch was his way of explaining the presence of the Catahoula Shoals in the Ouachita River to the west of Sicily Island—after the river shifted and had begun cutting down (Figure 1), it encountered a preexisting low drainage divide between minor north-flowing and south-flowing drainages that had formerly occupied the gap (Figure 2), at the position marked by the shoals. The question, however, remains: what, if anything, originally accounted for the gap itself between Sicily Island and the main region of hills to the west?



A. Drainage in early Quaternary time. B. Present drainage.

Figure 1. “Change in Ouachita River drainage near Harrisonburg, La.,” from Veatch (1906, p. 302, his figure 24).

In his extensive monograph on the Lower Mississippi Valley, Fisk (1944) included a short section on interpreted lineaments, which he referred to individually as fault zones and collectively as a regional fracture pattern. It appears that Fisk and his team were working with small-scale black-and-white aerial photography, and traced drainage lineaments discernible on that imagery to come up with the trends. The lineaments resolve as a single pair of nearly orthogonal sets, oriented NE-SW and NW-SE, forming a rectilinear grid in the Mississippi embayment. This appears to have been the earliest such interpretation in Louisiana. A plot of Fisk’s data by Gay (1973) showed two very tight trends with mean orientations of N39°W and N49°E.

A digital shaded-relief rendering of Louisiana topography (Figure 3) gives a clear suggestion of two intersecting lineaments, oriented approximately N37°W and N51°E, defining the large eastward-projecting promontory that encompasses the Chalk Hills west of Sicily Island. The apparent lineaments follow the pre-Holocene/Holocene contact along the western valley wall of the Ouachita River flood plain (on the north) and of the Mississippi River flood plain (on the south), and correspond essentially to two of the lineaments interpreted previously by Fisk. Many of the Tertiary geologic contacts mapped by Huner (1939), Chawner (1936), and Fisk (1938) in

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LGS Mission Statement

The goals of the Geological Survey are to perform geological investigations that benefit the state of Louisiana by:

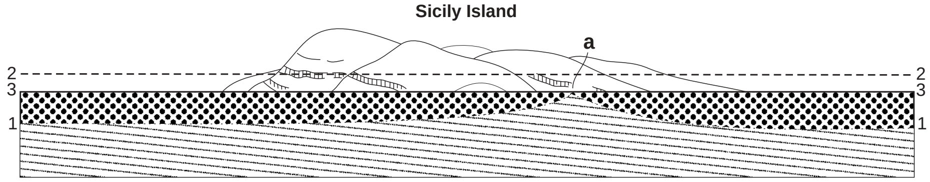
(1) encouraging the economic development of the natural resources of the state (energy, mineral, water, and environmental);

(2) protecting the state and its citizens from natural, geological, and environmental hazards; and

(3) insuring the effective transfer of geological information.

The Louisiana Geological Survey was created by Act 131 of the Louisiana Legislature in 1934 to investigate the geology and resources of the State. LGS is presently a research unit affiliated with the Louisiana State University and reports through the Executive Director of the Center for Energy Studies to the Vice Chancellor for Research and Graduate Studies.

the area enclosed by these two trends show an overall parallelism to them in the recompilation of state geology at 1:500,000 scale (Snead and McCulloh, 1984). The NW-trending segment suggests that one aspect of the separation of Sicily Island by the Ouachita River valley from the mainland to the west may relate to a fracture trend coincident with this topographic lineament.



a. Catahoula Shoals; old divide between north and south flowing drainage.
1-1. Beds of north and south flowing minor streams (First Stage).
2-2. Original level of valley filling (Second Stage).
3-3. Present Ouachita flood plain (Third Stage).

Figure 2. "Diagram illustrating the deflection of Ouachita River and the cause of the formation of the Catahoula Shoals near Harrisonburg, La.," redrawn from Veatch (1906, p. 303, his figure 25).

Louisiana

Figure3. Louisiana digital topography, annotated to show features discussed in text (heavier lines = interpreted lineaments; modified from Chalk Butte Inc. 1994).

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Possible Meteorite Impact Crater in St. Helena Parish, Louisiana

Paul V. Heinrich

Between 1996 and 1997, Richard P. McCulloh, the author, and John Snead of the Louisiana Geological Survey compiled McCulloh et al. (1997). This research revealed an anomalous circular feature, which McCulloh et al. (1997) mapped as "Quaternary undifferentiated," southwest of Greensburg, Louisiana, in the southwest corner of St. Helena Parish. This feature is named the "Brushy Creek feature" for the headwaters of Brushy Creek, which lie within this feature.

The regional landscape consists of narrow, closely spaced ridges and deeply cut valleys. The regional relief is about 90 to 110 ft (27 to 34 m). Drainages exhibit rectilinear patterns that often form well-defined lineaments. Within this area, erosion has destroyed all construction topography except possibly for concordant summits along the major drainage divides.

Within this region of narrow, closely spaced ridges and stream valleys, the Brushy Creek feature occurs as a noticeable circular "hole" about 1.2 mi (2 km) in diameter. Its rim has a relief of about 50 ft (15 m) and exhibits a slightly polygonal shape (Figure 1). The main channel of Brushy Creek has breached the feature's southeast rim and drains its interior.

Figure 1. A digital elevation model of LIDAR (Light Detection and Ranging) data from the southwest quarter of the Greensburg 7.5-minute quadrangle; downloaded from the Atlas: The Louisiana Statewide GIS website (http://atlas.lsu.edu) and viewed with MacDEM Viewer.

The Brushy Creek feature lies in the region, which Snead and McCulloh (1984) and Mossa and Autin (1989) mapped as the "high terraces." Pliocene fluvial sediments of the Citronelle Formation underlie the high terraces. Regionally, they consist largely of varegated and mottled, poorly sorted, fine- to very coarse-grained, sandy gravel, gravelly sand, sand, and minor beds of silt, clay, and mud. Typically, individual beds are have limited vertical and lateral extent. As classified by Folk (1980), the sand within the Citronelle Formation consist of quartzarenites to sublitharenites that completely lack feldspar. Within the area of this feature, the Citronelle Formation is about 300 to 350 ft (91 to 107 m) thick (Campbell 1971, Mossa and Autin 1989).

According to Mossa and Autin (1989), over 6 ft (2 m) of loess blankets the Citronelle Formation within the region of the Brushy Creek feature. This loess consists of both Late Wisconsinan Peoria Loess and underlying older Sicily Island Loess. However, soil descriptions in McDaniel (1996) and examination of local soil profiles indicated that the actual loess thickness within the area of the Brushy Creek feature is about 3 ft (1 m).

Field investigations found that the Citronelle Formation within the area of the Brushy Creek feature consists of poorly sorted, fine- to coarse-grained sand overlying laminated clays and silts. The sand is 30 to 40 ft (9 to 12 m) thick and consists of deeply weathered, reddish brown, fine- to very coarse-grained, moderately well-sorted sand. In outcrops, the sand can be both massive and cross-bedded. About least, 20 ft (6 m) of laminated silts and clays that underlie these sands were found in the Kentwood Brick and Tile Company brick pit lying just east of this feature. They consist of meter-thick, fining upward, cyclic beds of laminated silt and clay. Discussions with the staff at the Kentwood Brick and Tile Company revealed that drilling indicated that these sediments occur on either side of this feature, but are absent within it. Very little is known about the sediments of the Citronelle Formation underlying the silts and clays.

Within the area of the Brushy Creek feature, about 6 to 7 mi (10 to 11 km) of older Cenozoic to Mesozoic sediments underlie the Citronelle Formation. The uppermost 11,000 to 12,000 ft (3,350 to 3,660 m) of these sediments consists of Cenozoic sediments of the Midway, Wilcox, Claiborne, Jackson, and Vicksburg groups and undifferentiated Neogene strata. The undifferentiated Neogene sediments consist of siliclastic sediments lacking any significant carbonates. These strata dip homoclinally to the southwest and lack any indication of major faulting or salt structures (Howe 1962, Bebout and Gutiérrez 1983).

Field studies indicated that the rim of the Brushy Creek feature consists of massive silty sand and sandy silt, in which a mature soil profile with well-developed A and B horizons has developed. The only complete exposure occurs on the feature's northwest distal edge. It consists of 7 to 10 ft (2 to 3 m) of massive silty sand and sandy silt overlying 5- to 12-in (13- to 30-cm) thick bed of gravelly mud. The gravelly mud contains abundant rounded clasts of mud, clay, and frequently magnetic ironstone nodules. It lies directly on the truncated surface of deeply weathered, cross-bedded, and highly fractured Citronelle Formation. Within the silty sand and sandy silt, an 8 in (20 cm) thick zone contains numerous rounded, dime-size, and matrix supported clasts of purple silty clay derived from the underlying Citronelle Formation.

Numerous sediment samples were collected for study from the rim and interior of the Brushy Creek feature. Additional sediments were collected from a bar in Brushy Creek downstream of where it cuts deeply into the rim of this feature. Within a radius of 1.5 to 4.5 miles (2.4 to 7.2 km) of the Brushy Creek feature and at two localities at greater distances, sediment samples were collected from outcrops of the Citronelle Formation. Finally, dozen of ironstone nodules from exposures and streambeds draining this feature were collected.

All samples were processed to separate the sand fraction. Then, the sand from each sample was separated into 18 to 60 mesh (0.0 to 2.0 phi), and 60 to 200 mesh (2.0 to 3.75 phi), fractions by dry sieving. Petrographic thin sections were made from these fractions for each sample and from, for selected samples, intact clods.

Both outside and inside the Brushy Creek feature, the sand consisted of subangular to well-rounded, quartzarenite to sublitharenite sand containing about 90 to 95 percent quartz. Except for two samples from the rim of this feature, neither feldspar nor mica was noted in these samples. Some of the sand associated with the Brushy Creek feature exhibited ragged edges resulting from disintegration of sand grains during processing.

Within samples from the Brushy Creek feature and Brushy Creek, intensely fractured quartz occurred in variable proportions. Both rectilinear fractures and interlocking, irregular network of fractures were found (Figures 2 and 3). Kieffer (1971) and Shoemaker and Kieffer (1979) illustrated similar intensely fractured sand from shocked Coconino

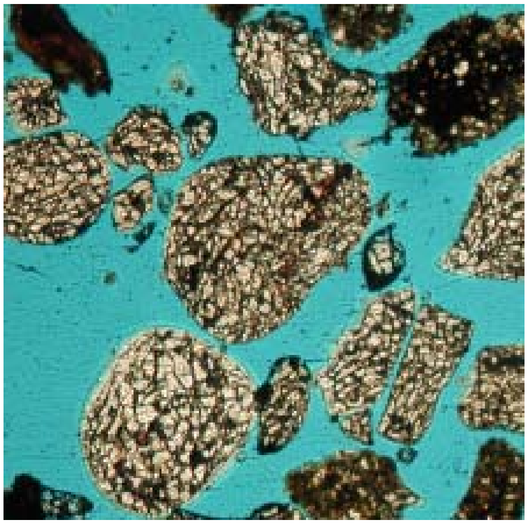

Figure 2. Intensely fractured coarse-grained sand from within the Brushy Creek feature, locality 16SHPQ. Opaque material filling fractures consists of iron-oxides that accumulated along them as the result of later weathering.

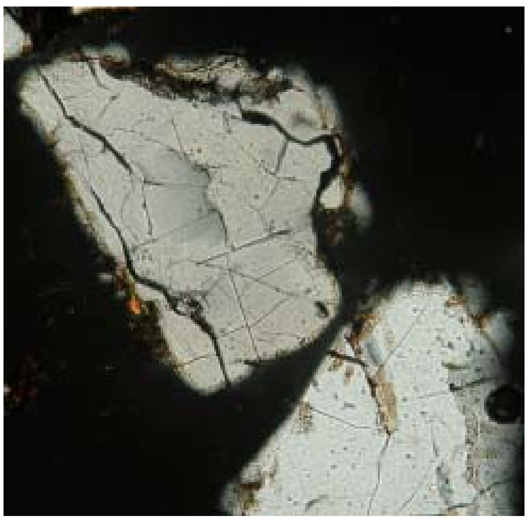

Figure 3. Intensely fractured, coarse-grained quartz exhibiting rectilinear fractures from location 16SAPD. Viewed in polarized light.

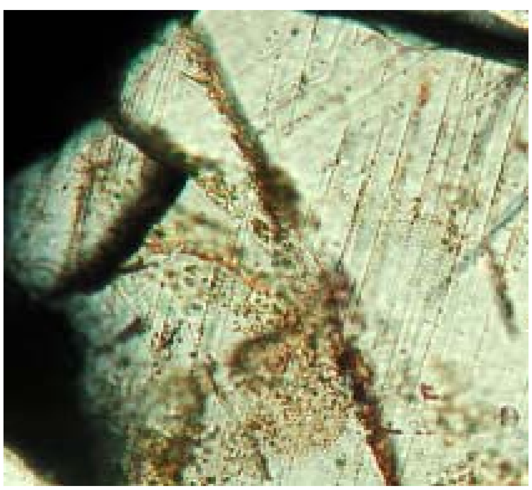

Figure 4. Coarse grain of shocked quartz exhibiting two sets of PDFs from location 16SAPA. Note dissolution of quartz grain and accumulation of iron oxides along PDFs. Viewed in polarized light.

Sandstone from Barringer (Meteor) Crater in Arizona. Also, Dr. W. Feathergale Wilson (2002, per. commun.) has observed similarly fractured quartz from the Bee Bluff Impact Structure in Texas. The presence of iron oxides coating fractures in deeply weathered grain shows that they are not artifacts of thin-section preparation. In contrast, none of the control samples showed the intensity of fracturing observed in samples associated with the Brushy Creek feature.

Shocked quartz occurs in samples from sand collected from the alluvium of Brushy Creek. It consists of several quartz grains with single and two sets of planar features (Figure 4). The average orientation of quartz grains with two sets of planar is 45 degrees and 33 degrees which, respectively, are the {1012} and {1122} crystalligraphic orientations (Stephen Benoist 2003, per. commun.). As discussed by Koerbel (1997) and Stoffler and Langenhorst (1994), both orientations are characteristic of planar deformation features (PDF) created by shock metamorphism. The multiple grains found with PDFs and planar features argued against them having been reworked from distant sources, e.g., a Cretaceous - Tertiary boundary layer. Instead, it indicates that they came from a nearby primary source, i.e., the upstream Brushy Creek feature. Sand from the gravelly mud within the feature's rim contains numerous quartz grains with planar fractures that are currently under study.

Numerous ironstone nodules were cut and examined and, sometimes either thin sectioned or tested for high concentrations of nickel using dimethylglyoxime. Highly weathered meteorites, called "iron shale" or "shale balls" were not found. Instead, the ironstone nodules examined were all pedogenic in origin as the nodules typically found in local soils.

A number of processes, including salt diapirism, solution karst, and volcanism, can produce circular landforms, similar to the Brushy Creek feature. Because this feature lies in a portion of the Louisiana Gulf Coastal Plain devoid of salt diapirs and major salt structures, salt diapirism cannot be invoked to explain this feature. Similar, the complete absence of volcanic sediments from this feature and the complete absence of Pleistocene and Holocene volcanism within Louisiana Gulf Coastal Plain also precludes this feature from being a volcanic maar. Similarly, the lack of significant carbonates within the upper 11,000 to 12,000 ft (3,350 to 3,660 m) precludes carbonate karst processes as an explanation.

Siliciclastic karst can create landforms similar to the Brushy Creek feature, as discussed by (May and Warne 1999) for the origin of the Carolina Bays within the Atlantic Coastal Plain and circular depressions found within the Mississippi and Alabama coastal plains. However, siliciclastic karst develops on flat, poorly drained, and undissected geomorphic surfaces lacking well-defined drainage systems. In contrast, the Brushy Creek feature occurs within an area that is deeply dissected and drains well. Such relief and well-developed drainage systems would cause lateral flow of surface and near-surface water, and erosion and greatly inhibit the vertical-drainage weathering needed to create siliciclastic karst (May and Warne 1999). The Brushy Creek feature also is an isolated circular landform unlike siliciclastic karst, e.g., the Carolina Bays, which occur typically as clusters of multiple depressions. Lastly, the siliciclastic karst hypothesis fails to explain the direct association of shocked and intensively fractured quartz with the Brushy Creek feature.

The hypothesis that the Brushy Creek feature was created by either a meteorite or comet impact and, in fact, is the Brushy Creek Impact Crater, is the most promising hypothesis. The Brushy Creek feature constitutes a well defined unique "hole" in the regional topography, which appears to be associated with a "hole" in the local stratigraphy. The presence of feldspars and mica in two samples from the rim of this feature indicates that less-weathered sediments from strata underlying the Citronelle Formation have been brought to the surface from hundreds of feet below the surface. All of these observations are consistent with the formation of the Brushy Creek feature by impact processes. The intensively fractured nature of the quartz sand from the rim of this feature and the presence of shocked quartz provide direct evidence of impact processes.

If it is an impact crater, the age of the Brushy Creek feature remains unresolved. The age of the Citronelle Formation provides a maximum age of about 1.9 million years for it. Judging from the degree of preservation of constructional landforms on terraces forming the surfaces of the Avoyelles and Deweyville Allogroups, the presence of a recognizable rim on the Brushy Creek feature indicates that it is likely less than 20- to 30-thousand years old. An apparent absence of loess covering its rim would argue for it being less than 13,000- to 11,000-years old. However, loess might only appear to be absent because it has been either mixed by pedogenic processes into the underlying rim deposits; eroded off by surface processes; difficult to distinguish from the silty rim sediments, or some combination of these.

At this time, the author and other researchers are conducting ongoing and planning future research of the Brushy Creek feature. For example, John Wrenn of the Louisiana State University (LSU) Department of Geology and Geophysics and the author are looking at various ways to date it. Douglas Carlson, Richard McCulloh, and the author are considering the use of various geophysical techniques with the LGS Giddings Soil Probe to study the internal structure of this feature. Finally, Stephen Benoit of the LSU Department of Geology and Geophysics and the author are studying evidence of shock metamorphism in samples from the Brushy Creek feature. A preliminary report on the Brushy Creek feature will be presented as a poster at the October 2003 Gulf Coast Association of Geological Societies Annual Convention in Baton Rouge, Louisiana. Additional papers concerning the results of the above ongoing research are planned.

Acknowledgements

Geologic mapping funded by the United States Geological Survey, STATEMAP program, under cooperative agreement 1434-HQ-96-AG-01490, first discovered the Brushy Creek feature. Current research was conducted with the encouragement of Chacko John, director of the Louisiana Geological Survey (LGS) and direct support of the LGS. David T. King Jr., Donald R. Lowe, Don Johnson, W. Feathergale Wilson, and R.P. McCulloh were quite helpful with their opinions and encouragement. I also acquired useful advice about identification of shocked quartz from Christian Koerbel, Scott Harris, and Stephen Benoist. The LSU Department of Geology and Geophysics helped out with access to their photomicroscope and preparation of several thin-sections. The excellent quality of thin-sections prepared by National Petrographic Services, Inc. proved important to my research. Finally, I am very thankful to the Kentwood Brick and Tile Company: William A. McGehee of Greensburg, Louisiana: and Soterra LLC, inc. of Jackson, Mississippi, for access to their property and their excellent and invaluable cooperation.

Dedication

This and ongoing research at the Brushy Creek feature is dedicated to the memory, courage, and curiosity of the crew of Space Shuttle Columbia (STS-107) and to the manned exploration of space by astronauts and cosmonauts of all nations, creeds, and races of which they were a part.

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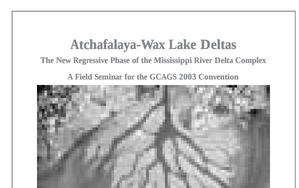

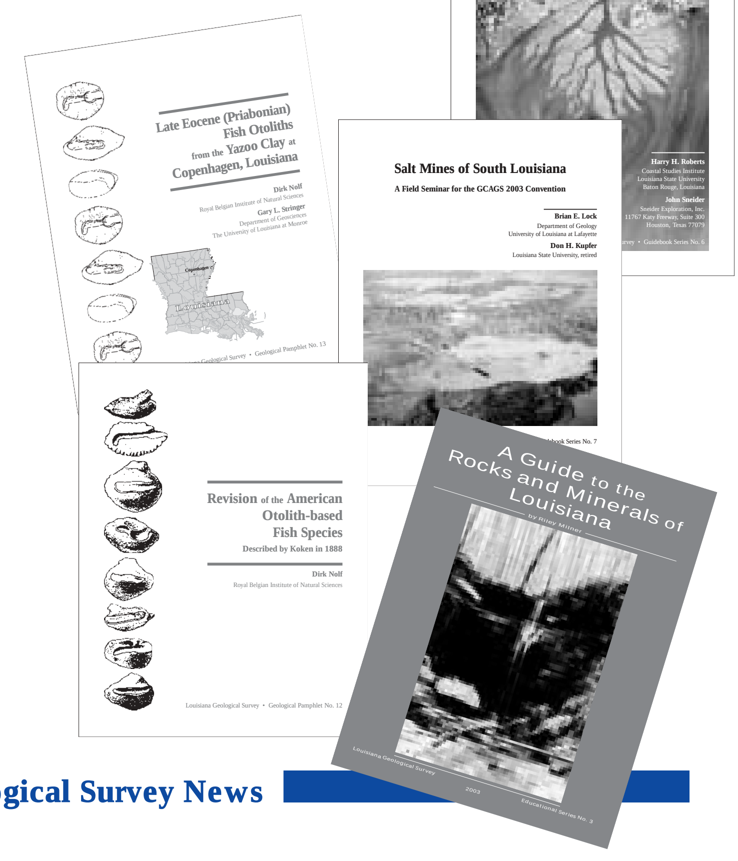

Chicot Aquifer Project, Underway

In response to growing concern regarding a long-term decrease in water levels for Louisiana aquifers, the State of Louisiana created the Groundwater Commission and the Groundwater Advisory Task Force in July, 2001 (Act 446). During the past 24 months, the commission, in conjunction with the task force and an outside consultant, has formulated a groundwater management plan that could be used to better manage this resource. The Louisiana Legislature was charged with the task of taking the recommendations and passing legislation implementing the management structure, which is called the Groundwater Resources Division within the Office of Conservation of the Louisiana Department of Natural Resources. The Louisiana Geological Survey (LGS) which was named a member to the Groundwater Advisory Task Force played a major role in helping develop the Louisiana water policy and has presented numerous groundwater talks to industry leaders, legislators, and the general public.

Concurrent to these activities, the LGS and the LSU Department of Civil and Environmental Engineering will complete the first year of a three-year groundwater investigation entitled ***Evaluation of Aquifer Capacity To Sustain Short-, Long-term Ground Water Withdrawal From Point Sources in the Chicot Aquifer For Southwest Louisiana***, by the end of June 2003. The project is designed to create a high-resolution numerical groundwater model capable of predicting local effects to the Chicot Aquifer caused by pumping from water wells over both a short- and long-term basis. This project, which has been funded by the Louisiana Department of Transportation and Development, Public Works, and Intermodal Transportation, has two interrelated tasks: the development of a detailed understanding of the subsurface geology of the aquifer underlying a 15-parish area in southwest Louisiana and the development of a calibrated, numerical groundwater model for the same area.

Final geological characterization and model calibration for the pilot study area (Acadia Parish) is almost completed. Groundwater model simulations are being performed for the regional aquifer as a whole and work continues on the calibration of the high-resolution models for Jefferson Parish and the eastern portion of the Calcasieu parishes. The development of this high-resolution groundwater model capable of predicting pumping affects at a regional (parish) to local (township) scale will provide the necessary information and data to make informed water resources planning and management decisions regarding sustainability, recharge capabilities, and critical groundwater areas.

Please Note

Due to the increased printing and distribution costs, this newsletter is only being mailed to those who have requested printed copies in response to our survey conducted in our last newsletter (Volume 12, No. 2, December 2002). The newsletter will be available on the LGS website (www.lgs.lsu.edu) for those who did not request printed copies.

Symposium Outlines Oil Industry History

A symposium titled "The History of the Oil Industry" was held March 26 - 29, 2003 in Shreveport, Louisiana. The symposium was sponsored by The Drake Well Foundation, the History of Geology Division/GSA, and the History of Earth Science Society. The Drake Well Foundation, named after Col. Edwin L. Drake who brought in the first commercial oil well near Titusville, Pennsylvania in 1859, is a non-profit organization dedicated to furthering public awareness of the history of the oil industry.

A variety of papers were presented at the symposium ranging from the history of the oil industry, the sociological changes due to oil development in various states and countries, to the artistry of Indian oil artifacts and oil photography. In addition to geologists and engineers, symposium attendees were anthropologists, historians, and authors. Byron Miller (LGS) presented a poster titled ***Jennings Oil Field: The Start of Louisiana's Oil Industry*** at the symposium commemorating the Jennings oil discovery, the first commercial oil discovery in Louisiana. This presentation was co-authored by J.A. Spencer and will be published by the Drake Well Foundation Journal later this year.

The Drake Foundation presented the Col. Edwin L. Drake Legendary Oilman Award to Louisiana native and successful oilman Frank W. Harrison, Jr. and to Lawrence W. Funkhouser, former vice president and director of Chevron Corp. The Drake Well Foundation Keeper of the Flame Award was presented to Samuel T. Pees for his work with the history of petroleum.

Agencies Fund New Research Projects

Basin Analysis and Petroleum System Characterization and Modeling, Interior Salt Basins, Central and Eastern Gulf of Mexico is the title of a new project funded by the U.S. Department of Energy. The project funding is a subcontract from a grant awarded to the University of Alabama through an application of solicitation for financial assistance under DE-PS26-02NT15375 ("Public Resources Invested in Management and Extraction [PRIME]"): Area of interest 3- Advanced Diagnostic and Imaging Systems (ADIS) and Reservoir Characterization. The LGS/LSU portion of the project, which covers the North Louisiana Salt Basin, is $80,000/year for a 5-year term. LSU Center of Energy Studies researcher Don Goddard will be working with Ron Zimmerman of LGS's Basin Research Energy Section on the project.

The north Louisiana portion of the project follows earlier statewide studies by Zimmerman and others, which dealt with the habitat of oil and the potential oil-generation capacity of the hydrocarbon systems that have functioned throughout Louisiana's geologic history. The new study will deal with integrating basin analysis data from all of the interior salt basins of the upper Gulf Coast area-basins from north Florida to east Texas will eventually be covered in the new research.

The University of Texas at Austin, awarded a research project subcontract titled ***Workshop to Establish a Framework for Cooperative Studies Between Gulf Coast Surveys and the USGS.*** This project will focus on establishing a framework for cooperative studies among the geological surveys of the Gulf Coast states: The Gulf Coast states (Louisiana, Alabama, Florida, Texas, and Mississippi) had earlier formed a Gulf Coast States Geological Surveys Consortium to plan and coordinate cooperative coastal-zone research to develop a program that will be of benefit to the Gulf Coast states and the USGS Coastal Zone Program along the Gulf

Coast. Chacko John and John Johnston will be working on this project, which has been funded for $7,000. The main project is funded by the USGS.

The STATEMAP program funded by USGS under the National Cooperative Geologic Mapping Act, and authorized by the U.S. Congress, will continue for the 2003-2004 year. The STATEMAP award for the upcoming fiscal year is $93,155 for two subprojects titled as follows: ***Geologic Mapping of Rock Hill, Rapides, Green Gables, and Libuse 7.5 Minute Quadrangles, and Recompilation and Digital Production of the Alexandria 1:100,000 Geologic Quadrangle.*** Co-principal investigators on this project are Richard McCulloh and Paul Heinrich.

The Louisiana Oil Spill Research and Development Program (OSRADP) has funded two project proposals submitted by LGS. John Snead, Robert Paulsell, and Weiwen Feng's project titled ***Field Investigation and Digital Mapping of the Quachita/Black River System Pipeline Crossings*** was funded for $46,844. The co-principal investigators for the second project funded for $32,848 titled ***Research and Development of a GIS For Oil and Gas Transmission Pipelines in Westlake, Sulphur, and Lake Charles, LA*** are Robert Paulsell, Weiwen Feng, and John Snead. Both projects are scheduled to last a year.

Conferences and Presentations

LGS Staff Attend Variety of Conferences

Ron Zimmerman and **Chacko John** attended the Annual Convention of the American Association of Petroleum Geologists (AAPG) held from May 11-14 in Salt Lake City, Utah. Zimmerman is the delegate from the Baton Rouge Geological Society to the AAPG House of Delegates. John, who is currently the President of the Gulf Coast Association of Geological Societies (GCAGS) is alsopresident-elect of the Energy Minerals Division of AAPG and will take over duties of the president on July 1, 2003.

Weiwen Feng attended the Annual Conference of Association of American Geographers (AAG) held in New Orleans, Louisiana (March 5 - 8, 2003). His presentation was titled ***Development of Web-based GIS for Enhancing Multidisciplinary Study of Public Health Impacts of Hurricanes.*** Co-authors are **Hampton Peele, Sait Ahmet Binselam, John Snead,** and **Robert Paulsell**.

John Snead, Robert Paulsell and **Weiwen Feng** attended the Annual Meeting of Louisiana Remote Sensing and Geographic Information System held in Lafayette, Louisiana from April 29 to May 1, 2003. Feng presented a poster titled ***Integration of Internet Mapping Systems with Environmental, Geological and Epidemiological Studies.*** Co-authors are **Sait Ahmet Binselam, Hampton Peele, Robert Paulsell, John Snead, Ivor van Heerden,** and **DeWitt Braud.**

Clayton Breland and **Byron Miller** attended the South Louisiana Onshore Petroleum Exploration Symposium (May 21-22) organized by the New Orleans Geological Society. The goal of this symposium was to support and encourage current and future exploration activity and research in South Louisiana.

Rick McCulloh (LGS) and **John Wrenn** of the LSU Center of Excellence in Palynology attended the 7th Annual Workshop on Continental Scientific Drilling (June 1-3) at Minneapolis, Minnesota. Wrenn made a presentation for a joint research project idea that is being developed into a research proposal for submission to NSF for funding.

Robert Paulsell attended the Digital Mapping Techniques Workshop hosted by the USGS and the Association of American State Geologists at Millersville, Pennsylvania from June 1-4, 2003. This is an annual workshop where the latest techniques in digital mapping are presented.

Chacko John attended the Annual Meeting of the Association of American State Geologists (AASG) held at Lincoln, Nebraska from June 14 - 18. This meeting is attended by high-level administrators and scientists from several federal and state agencies who make presentations on various aspects of geological work in their respective agencies including the USGS, Department of Energy (DOE), National Park Service (NPS), Bureau of Land Management (BLM), National Science Foundation (NSF), National Research Council (NRC), U.S. Army Corps of Engineers (USACE), American Geological Institute (AGI), American Geophysical Union (AGU), and National Aeronautics and Space Administration (NASA), among others. John is a member of six AASG Committees and Chair of the AASG Continental Margins Committee.

2003 GCAGS Convention Drawing Near

The Baton Rouge Geological Society (BRGS) will host the 2003 GCAGS Annual Convention from October 22-24 in Baton Rouge at the Radisson Hotel. Convention planning is well underway and many LGS staff members are actively involved in this process. Plans for the technical program, short courses, field trips, convention luncheons, teacher workshop, and spouse's program have been almost finalized. LGS staff involved in convention planning include **Dave Pope** (general chairman), **Ron Zimmerman** (exhibits chair), **Riley Milner** (information brochure chair), and **Chacko John** (GCAGS president). Sponsors, advertisers, and volunteers are urgently needed and welcome. Convention plans can be reviewed on the Baton Rouge Geological Society website at www.brgs-la.org. For convention information and other details, please contact Dave Pope at (225) 578-3452 or (225) 578-5320.

The following presentations authored/co-authored by LGS staff are scheduled for the GCAGS Convention:

D. Carlson and R. Milner: A Preliminary Examination of the Hydrogeology of the Chicot Aquifer.

D. Carlson: A Preliminary Examination of the Hydrology of the Sparta Aquifer and Adjacent Aquifers in North Central Louisiana.

D. A. Goddard and R.K. Zimmerman: Shallow Miocene and Oligocene Gas Potential, Southeast Louisiana's Florida Parishes.

C.J. John, B.L. Jones, B.J. Harder, R.T. Bourgeois, and M.B. Miller: Deltaic Reservoirs in the Chandeleur Sound Area, Offshore Louisiana (State waters): Potential for Increased Hydrocarbon Production.

B. Miller and P. Heinrich: Hydrocarbon Production and Surface Expression of the China Segment of the Tepetate Fault Zone, Louisiana.

R Milner: Chicot Aquifer in Jefferson Davis Parish, Louisiana.

J.H. Wrenn, W.C. Elsick and R.P. McCulloh: Palynology of Organic-Rich Shales from the Catahoula Formation, Big Creek, Sicily Island, Louisiana.

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Louisiana Geological Survey Moves to New Building

The Louisiana Geological Survey moved all of its offices to the new LSU Energy, Coast & Environment Building off Nicholson Extension during the first week of April 2003. Our new mailing address is:

Louisiana Geological Survey
3079 Energy, Coast & Environment Bldg.
Louisiana State University
Baton Rouge, LA 70803

Our phone and fax numbers remain the same.
Phone: (225) 578-5320 • Fax: (225) 578-3662

The Louisiana Geological Survey is located on the second and third floors of the west wing of the new Energy, Coast & Environment Building.

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