

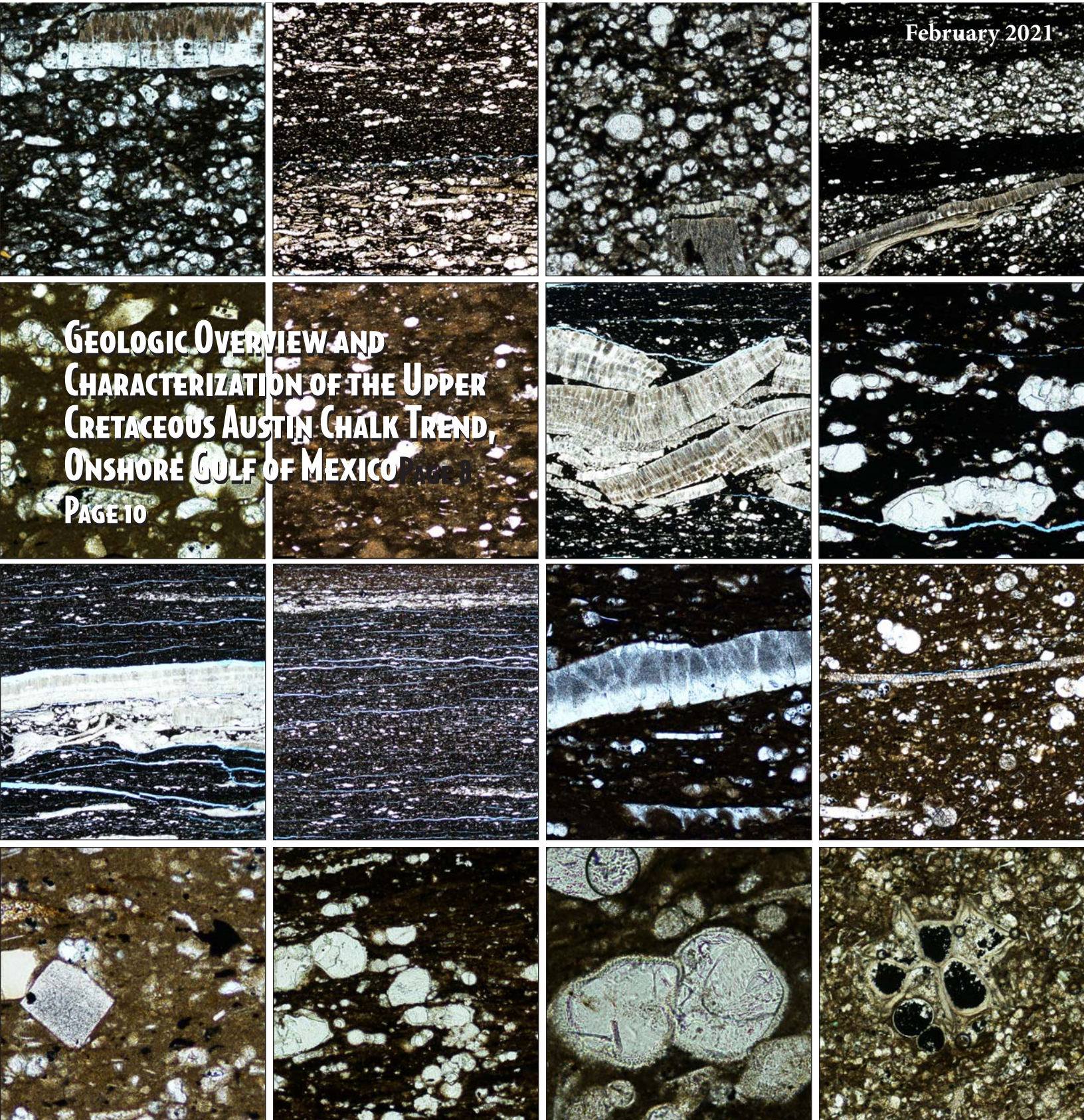
HGS Bulletin

Volume 63, Number 6

Houston Geological Society

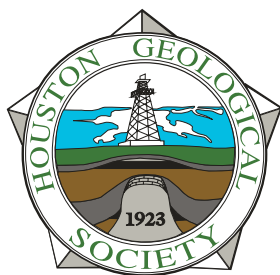
February 2021

**GEOLOGIC OVERVIEW AND
CHARACTERIZATION OF THE UPPER
CRETACEOUS AUSTIN CHALK TREND,
ONSHORE GULF OF MEXICO** PAGE 8
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Houston Geological Society

Volume 63, Number 6

February 2021

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The Houston Geological Society Bulletin (ISSN-018-6686) is published monthly except for July and August by the Houston Geological Society, 14811 St. Mary's Lane, Suite 250, Houston, Texas 77079-2916. Phone: 713-463-9476; fax: 281-679-5504

Editorial correspondence and material submitted for publication should be addressed to the Editor, Houston Geological Society Bulletin, 14811 St. Mary's Lane, Suite 250, Houston, Texas 77079-2916 or to editor@hgs.org.

Subscriptions: Subscription to a digital version of this publication is included in the membership dues (\$30.00 annually). The subscription price for non-members is \$160.00. The printed Bulletin for 10 issues for HGS members is \$150.00 or \$15.00 per issue while supplies last. Periodicals postage paid in Houston, Texas.

POSTMASTER: Send address changes to Houston Geological Society Bulletin, 14811 St. Mary's Lane, Suite 250, Houston, Texas 77079-2916

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About the Cover: Series of microphotographs from the Upper Cretaceous Austin Chalk producing trend along the onshore northern Gulf of Mexico. Photomicrographs show the large variation in textures and fabric in the siliciclastic-rich chalk. Photomicrographs from Regional Austin Chalk producing trend study by Robert Loucks and Chris Zahm, Carbonate Reservoir Characterization Research Laboratory (RCRL), Bureau of Economic Geology, the University of Texas at Austin.



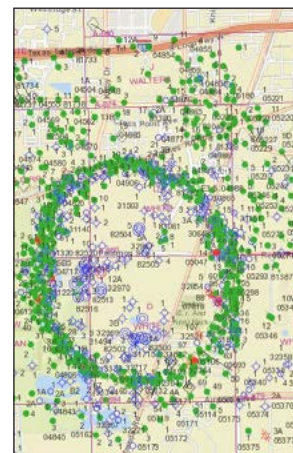
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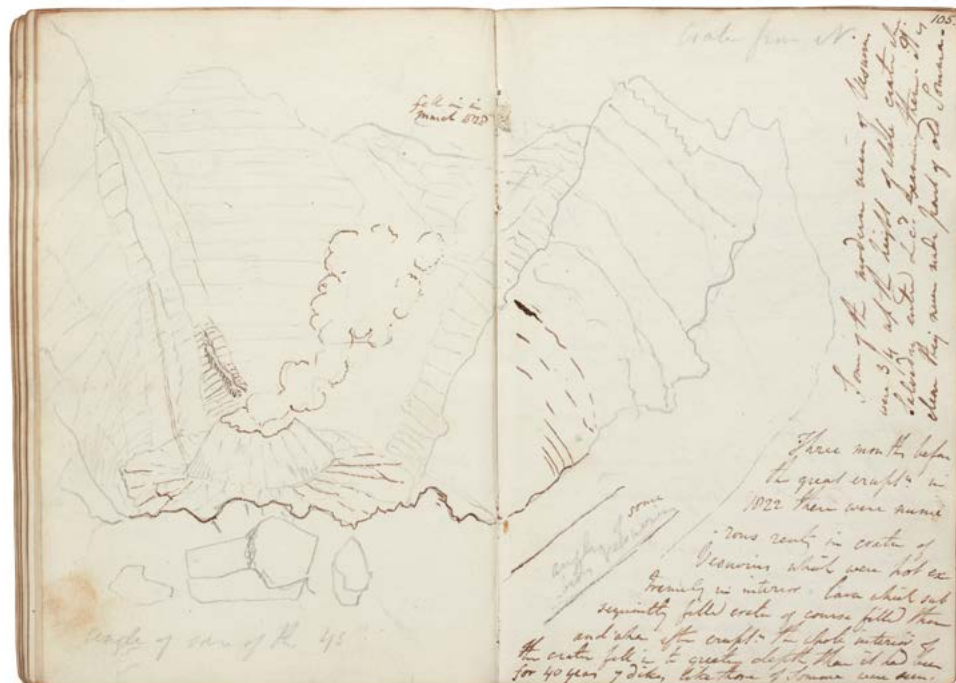
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Houston Geological Society

We Invite You to the Online Event

Introducing Charles Lyell's World Online

The remarkable nineteenth century work and writings of Sir Charles Lyell did much to create modern geology. His travels throughout Britain, Europe and North America provided an accumulation of evidence to advance his thinking and share his theories. His travels in Eastern America were particularly memorable and his lectures there helped develop the earth sciences.

Lyell's fascinating archival collection of notebooks, lecture notes, literary papers and letters have recently been brought together at the University of Edinburgh Library, whose plans to make them accessible to all, you can learn about in the online event *Introducing Charles Lyell's World Online* repeated on February 9th and 16th booking available via Eventbrite.

Introducing Charles Lyell's World Online Tickets, Multiple Dates | Eventbrite

Tuesday 9 February 2021, GMT: 1900-2000, EST: 1400-1500, CST: 1300-1400

Tuesday 16 February 2021, GMT: 1700-1800, EST: 1200-1300, CST: 1100-1200

We hope you can join us.

David McClay

Philanthropy Manager, Library and University Collections

Email: david.mcclay@ed.ac.uk

Website: [The Sir Charles Lyell Collection](#) | [The University of Edinburgh](#)

Blog: [Through Lyell's Eyes](#) | [Charles Lyell, Geologist](#) (ed.ac.uk)



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Jim Tucker
president@hgs.org

Refreshing the Profession

This afternoon I meet an early-career geologist, fairly new to Houston. I naturally sent her information for joining at the Society. And this week I learned of another early-career geologist that is being surplused due to a merger. So, there is still employment churn in our profession, and the Society is here to help where we can. We are participating in the semiannual *Members in Transition* hiring event started by the local SPE section and has about thirty professional association participating. Information on participating and volunteering for this event may be found elsewhere in this *Bulletin*.

On the evening of 8 February we will have our annual Scholarship Night, where we can virtually meet this year's recipients of our undergraduate HGS Foundation and graduate Calvert Foundation scholarships. This is always a fun evening, and we will see how it is different in this virtual world. The virtual meeting eliminates some of the recipients' travel challenges of the past. And we will also announce the proposed candidate slate of Members standing for election to the 2021-2022 HGS Board.

Earlier today I watched a HGS lunchtime presentation on very fine grained rocks in the Appalachians, and earlier a panel on financing by the HGS North American group. Last week we had a very well-received HGS short course on aspects of petroleum engineering for geoscientists. So, we are trying to help Members and colleagues maintain their skills at affordable costs.

Please check the HGS website for the description of awards to recognize HGS volunteers (<https://www.hgs.org/houston-geological-society-awards-criteria>) and the listing of past awardees (<https://www.hgs.org/awards-list>). If you know a volunteer who should

be recognized with an award, please send their name to the HGS office, and they will be reviewed by the Board as we prepare the list of Awardees for this year. We are all volunteers, and the HGS Members are involved in so many professional and educational activities that the Board needs your help to recognize worthy volunteers.

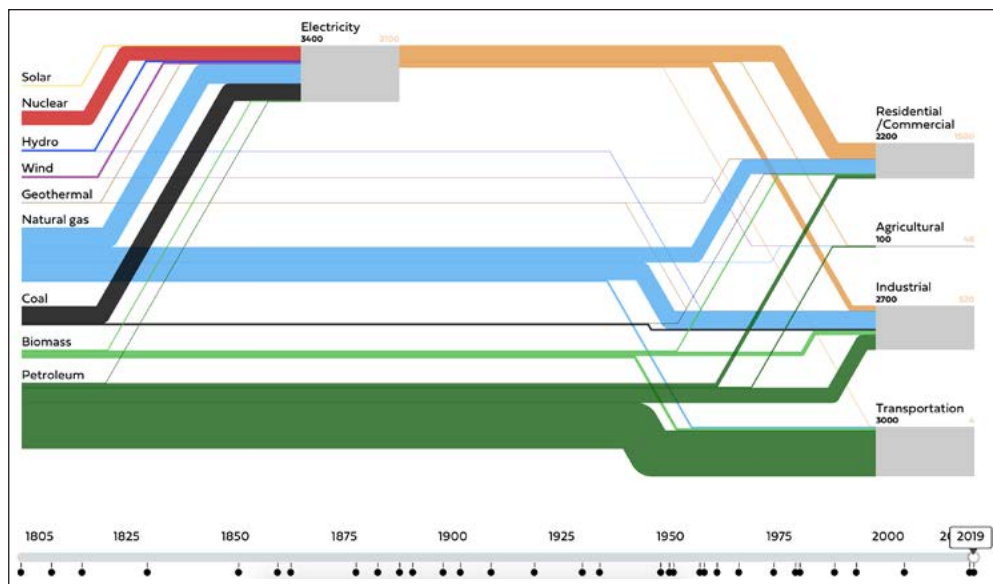
I have always enjoyed charts showing the changes over time for a value or values, particularly for resources. I recently found out that they are called Sankey diagrams. Below is one for energy use I found, and the animation it relates to is at: https://us-sankey.rcc.uchicago.edu/?utm_source=newsletter&utm_medium=email&utm_campaign=weekly-planet&utm_content=20201208&silverid=NzAwNjY2OTM3NDMxS0.

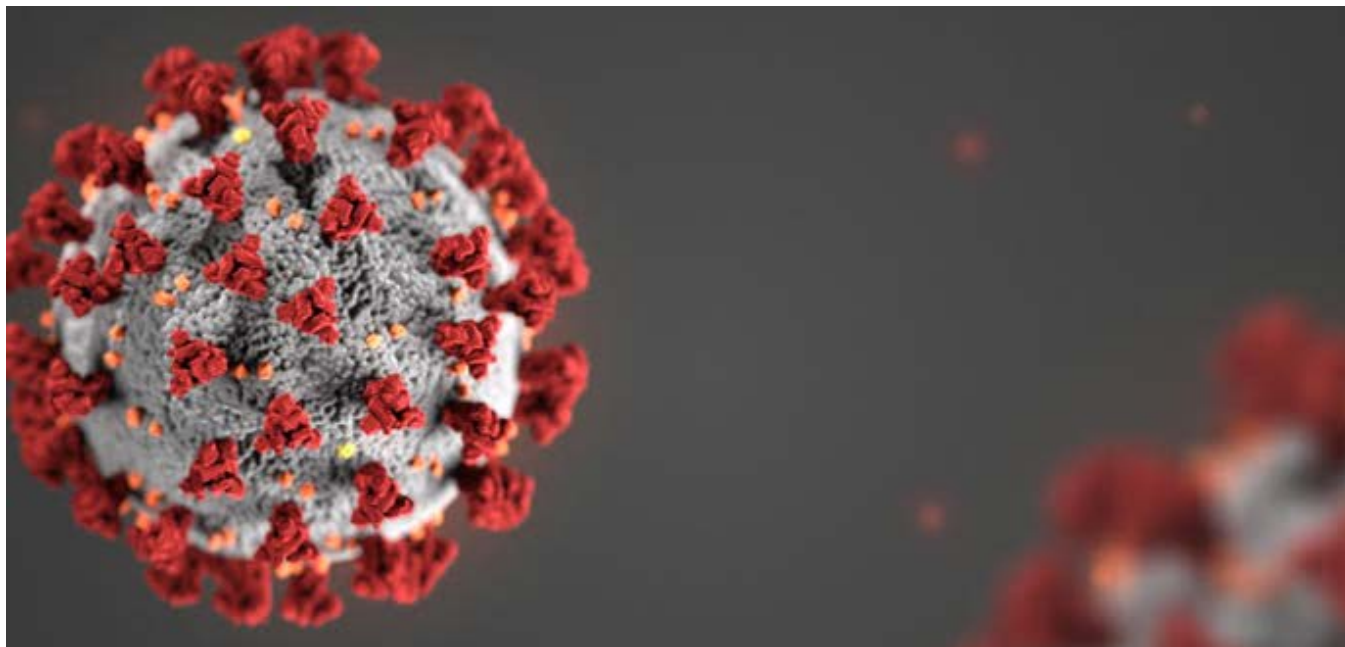
It is interesting to see the delays in "discovery" to effective use.

We have several openings for volunteers in committees. Look at the inside front cover of this *Bulletin* for the committee list, and see what interests you, and give it a try. ■

Be safe and volunteer for something.

Jim Tucker





Coronavirus (COVID-19) Policy Statement: Updated Monday, February 1, 2021

Because of the ongoing coronavirus (COVID-19) situation, all in-person HGS events in the near term are cancelled/postponed or will be substituted by online events. Please check the HGS website on a regular basis for all HGS online event opportunities.

The HGS Board will continue to monitor the situation and determine whether to extend the cancellation or postponement of HGS in-person events as the new year begins.

Please monitor hgs.org and your email for further communication concerning HGS events.

For more information about how you can help to prevent the illness, visit the CDC website: <https://www.cdc.gov/>.

2020-2021 HGS Board



Ceri Davies
editor@hgs.org

Houston's Hidden Gem

Hello friends of geology, This month I'm continuing with my theme of hidden gems in and around Houston. With restrictions and uncertainty about indoor activities still ever present, one of the few silver linings has been finding the parks and campgrounds I didn't know existed. This month I was introduced to a new park by a Kingwood native. On the very northwestern tip of Lake Houston lies Lake Houston Wilderness Park. Situated within two tributaries, the 4,787 acre park provides hikes akin to something our more mountainous friends would appreciate, or at least acknowledge as a hike! Some of you will recognize the site as the former Peach Creek Girl Scout Camp.

The map below shows the main hike offered (taken from www.hikingproject.com, the images are captured from Google Maps), totaling just over 10 miles with easy yet variable terrain to overcome. The hike begins with the Ameri-Trail, a ~5-mile

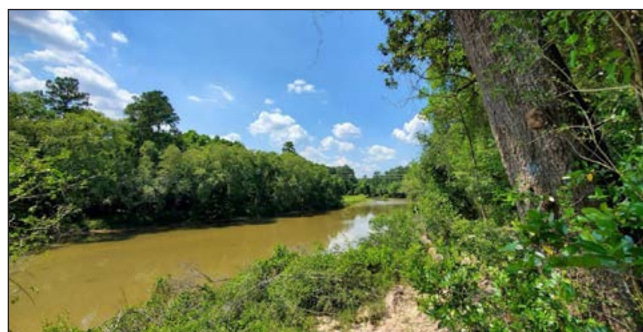
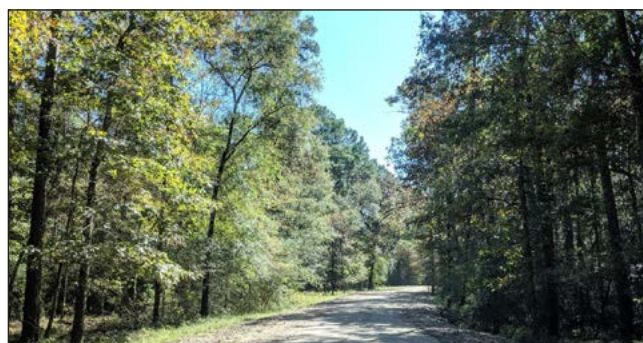
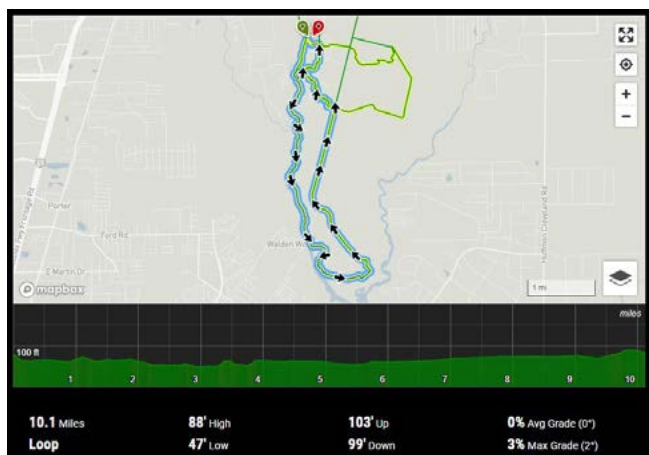
route that hugs the western tributary bounding the park, with the path changing from woodlands, to sandy trails to effectively step-stoning our way through a swap. Just to note – the path had basked in a week of January sunshine yet was still submerged in many places.

With restrictions and uncertainty about indoor activities still ever present, one of the few silver linings has been finding the parks and campgrounds I didn't know existed.

At the southern most tip of the hike, you lean away from the tributaries and soon head north along the most descriptive path; 5 Mile Road. Whilst the path is every bit of 5 miles, the "road" component of the name is a mis-representation of the peaceful nature of the hike. Vehicles are not allowed on the first 4.9 miles and instead you have solid footing and a clear walkway in the middle of the forest to enjoy. Park website: <http://www.houstontx.gov/parks/parksites/lakehoustonpark.html> ■

www.houstontx.gov/parks/parksites/lakehoustonpark.html ■

Keep well, hopefully see you soon,
Ceri



THE HOUSTON GEOLOGICAL
SOCIETY PRESENTS

SCHOLARSHIP NIGHT 2021

The HGS Scholarship Night has a long tradition of engaging inspiring, visionary, and entertaining speakers. This year the star presenters will be the student scholarship winners themselves. Each will be given an opportunity to briefly share with us their goals, aspirations, and how they see the future. This talented group of young people will entertain, engage, and inspire us all with their talent and passion for making a difference. All event profits benefit the HGS Scholarship Funds.

FEBRUARY 8, 6:30 PM TO 8:30 PM
ZOOM WEBINAR

SPONSORSHIP OPPORTUNITIES AVAILABLE!
Email office@hgs.org for more information.

To register, visit www.hgs.org or call the HGS office at 713-463-9476.



Monday, February 8, 2021

Virtual Meeting via Zoom
6:30 –8:30 p.m.

HGS Members \$20 Non-Members \$30 Students \$5

<https://www.hgs.org/civicrm/event/info?id=2257>

Registered Attendees: A confirmation email will be sent upon registration with meeting links.

Event contact: Bryan Guzman – bryanguzman85@gmail.com

****Non-Members can submit an application and pay their dues before registering to get the member price. Please call the HGS office at 713-463-9476 to be registered only AFTER your application and dues are submitted.****

HGS General Virtual Dinner Meeting

HGS General Virtual Dinner Meeting

HGS Scholarship Night

The HGS Scholarship Night has a long tradition of engaging inspiring, visionary, and entertaining speakers. This year the star presenters will be the student scholarship winners themselves. Each will be given an opportunity to briefly share with us their goals, aspirations, and how they see the future. This talented group of young people will entertain, engage, and inspire us all with their talent and passion for making a difference.

There is limited space available so reserve your spot early for our first ever virtual Scholarship Night! As winners of the HGS Foundation Scholarship and the Calvert Memorial Fund receive their awards, they will engage the audience in stimulating discussion on career paths and ambitions. Don't miss this fantastic opportunity to meet the students and encourage the next generation of our industry! Enjoy the evening from the comfort of your home while meeting the award winners and supporting the HGS Foundation Scholarship and the Calvert Memorial Funds!

Our Vision

The Houston Geological Society Foundation was established in 1984 with the intent of providing scholarships to deserving

undergraduate geosciences majors. The Foundation was incorporated in 1985 and achieved tax-exempt status from the IRS later the same year as a nonprofit Section 501c (6) organization for charitable, scientific, or educational purposes. The Foundation uses a variety of means to try to raise scholarship funds. Direct donations, HGS membership dues, Vendors Corner proceeds, matching-fund donations, and golf tournaments all produce funds that help support our scholarship program. Since 2011, the HGS has also allowed the Foundation and Calvert Memorial (graduate) scholarship programs to recruit sponsors for Legends/Scholarship Night and has hosted a special dinner meeting to honor the scholarship recipients. Profits from these events are split between the two scholarship funds and are a significant source of funding.

The Warren L. and Florence W. Calvert Memorial Scholarship Fund was started in 1974 with a donation from the Calvert family and awarded its first scholarship in 1978. The stated purpose of the fund is "to assist worthy and needy geological students to pursue graduate studies in some branch of Economic Geology leading to a master's or doctor's degree at any accredited university of his choice". The growth of the fund comes from contributions from HGS members and interest earned on fund investments. Several appreciative recipients of Calvert scholarships later donated amounts to the fund that matched or exceeded the awards they received. ■

Featured Sponsors Corporate Silver Sponsors



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2020 Scholarship Night



HOUSTON GEOLOGICAL SOCIETY SCHOLARSHIP NIGHT

Zoom Webinar
HGS Foundation Scholarship & Calvert Memorial Fund

FEBRUARY 8, 2021 | 6:30PM - 8:30PM



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All event profits benefit the HGS Scholarship Funds.

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Gabriel Collins

*Baker Botts Fellow in Energy &
Environmental Regulatory Affairs
at Rice University's Baker Institute*

Oilfield Water Infrastructure Connectivity: The Case for a “Hydrovascular” Network in the Permian Basin

The current phase of oilfield water infrastructure buildout in the Permian generally emphasizes each operator or midstream provider building its own water transportation and disposal systems. Accordingly, the overall market is balkanized and inefficient compared to the performance a more interconnected system could achieve. A hydrovascular grid in the Permian Basin could lower oil & gas production costs, conserve scarce freshwater by promoting greater recycling and reuse of produced water, help mitigate seismicity risks, and facilitate movement of produced water at large scale for use outside the oilfield. The paper realistically assesses the barriers to such integration. It concludes by offering a set of practical ideas to overcome these challenges and help transform oilfield water into a resource for West Texas and Southeast New Mexico. ■


Biographical Sketch




GABRIEL COLLINS is the Baker Botts Fellow in Energy & Environmental Regulatory Affairs at Rice University's Baker Institute. Collins' research portfolio is global. His work currently focuses on legal, environmental and economic issues relating to water — including the food-water-energy nexus — as well as unconventional oil and gas development, and the intersection between global commodity markets and a range of environmental, legal and national security issues. His analysis draws from a broad swath of geospatial and other data streams, and often incorporates insights from sources in Chinese, Russian and Spanish.

Collins received his BA from Princeton University and a JD from the University of Michigan Law School. He is licensed to practice law in Texas.

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Greater Oilfield Water Infrastructure Connectivity: The Case for a 'Hydrovascular' Network In the Permian Basin



Gabriel Collins, J.D.
Baker Botts Fellow for Energy & Environmental Regulatory Affairs
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gabe.collins@rice.edu

Please cite as:
Gabriel Collins, "Greater Oilfield Water Infrastructure Connectivity: The Case for a 'Hydrovascular' Network In the Permian Basin," *Houston Geological Society*, 10 February 2021.



Wednesday, February 24, 2021

Virtual Meeting via Zoom

12:00 – 1:00 p.m.

HGS Members \$10 Non-Members \$25 Students \$5

<https://www.hgs.org/civicrm/event/info?id=2262>

Registered Attendees: A confirmation email will be sent upon registration with meeting links.

Event contact: Bryan Guzman – bryanguzman85@gmail.com

HGS General Virtual Lunch Meeting

Robert Loucks

Chris Zahm

*Bureau of Economic Geology,
The University of Texas at Austin*

Geologic Overview and Characterization of the Upper Cretaceous Austin Chalk Trend, Onshore Gulf of Mexico

The Austin Chalk Trend along the onshore Gulf of Mexico is an active exploration and production trend, yet little has been published on the detailed reservoir geology. The Carbonate Reservoir Characterization Research Laboratory (RCRL) at the Bureau of Economic Geology, The University of Texas at Austin has undertaken a comprehensive core-based regional investigation of the Austin Chalk for the past five years. The study covers the trend from the Texas-Mexico border through Louisiana. For this study, we have described ~40 cores and several well-exposed outcrops and we have constructed a large interactive database of core and thin-section descriptions, mineralogy XRD data, total organic carbon (TOC) and rock pyrolysis data, porosity and permeability data, SEM analyses, XRF analyses, and unconfined compressive strength (UCS) analyses.

The Austin Chalk is composed of marly chalks to chalky marls along the producing trend and the major biological component is fragments of coccolithophores (algae) that lived in the shallower water column on the deeper open-marine shelf. Planktic foraminifers are also common. Updip of the producing trend some shallower water components are present such as oysters, echinoid fragments, and benthic foraminifers.

Five general lithofacies were defined that generally describe the Austin Chalk throughout the trend. The burrowed slightly marly chalk was deposited in an oxic setting and minor amounts TOC (< 0.5%). The highly burrowed very marly chalk to chalky marl was deposited in dysoxic conditions and can be TOC-rich (mean of ~1%). The poorly laminated chalky marl is slightly burrowed and was deposited under dysoxic to anoxic conditions and has a mean TOC of ~1.5%. The well-laminated chalky marls were deposited under anoxic conditions and has a mean TOC of ~2%. Another lithofacies is common in South Texas and on the San Marcos Arch and is composed of glauconite-rich debrites interpreted to be related to volcanism. In many cores, these lithofacies illustrate an up-section transition from laminated more anoxic lithofacies into burrowed dysoxic to oxic lithofacies.

Variable mineralogy is noted in all the cores. Calcite is the most common component as the chalk is primarily comprised of coccolith hash. The siliciclastic content can be greater than 50% and is composed of an approximate ratio of 80% clay minerals to 20% quartz plus feldspars. All the mineral components are in the finer silt- to clay-size range. The mineralogy ternary diagram shows a mixing trend running between the calcite apex to the clay apex. The depositional mechanism of the siliciclastic material is likely eolian dust.

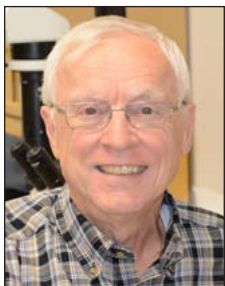
Source rock quality is closely related to lithofacies. The burrowed lithofacies have poor to fair source rock quality and the laminated lithofacies have fair to excellent source rock quality. Kerogen is generally Type II algal, except for the cleaner burrowed chalks that have Type III woody kerogen. As noted previously, the Austin Chalk may in part be self-sourcing.

Production is related to fractures and matrix pores. The matrix pore network of the Austin Chalk is composed predominantly of nano- to micropores between coccolith fragments (interparticle pores). Some intraparticle pores exist in clay platelets and fossil components. Organic matter pores occur in solid bitumen where the cores are in the downdip oil window. Reservoir quality of the matrix is low. Porosity is generally less than 8% and permeability is less than 0.02 mD. Our analyses of reservoir quality have shown that special methods of permeability measurements are needed to obtain accurate values compared to conventional core-plug and GRI crushed rock analyses, which typically have anomalously high-permeability values. Rare fractures are observed in the cores and fractures are high angle to bedding. Fractures commonly terminate at boundaries between high and low UCS rocks.

The Austin Chalk is a complex mixture of lithofacies with wide ranging mineral compositions, lithofacies-related TOC values, and poor reservoir quality. The basic geology must be defined to explore and exploit this terrigenous-rich chalk trend and to understand reservoir quality, source rock variability, and rock

strength or brittleness. Our regional study has developed this basic understanding and our large geologic characterization database provides the range of expected basic parameters and characteristics. ■

Biographical Sketch



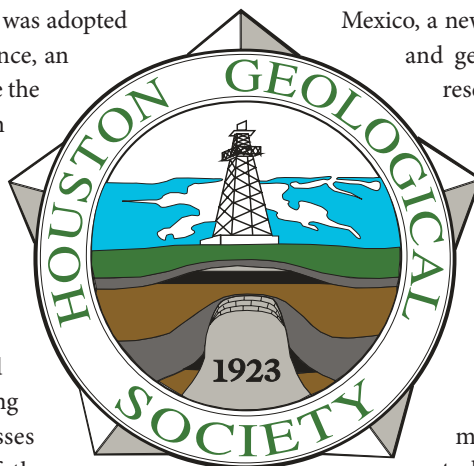
ROBERT LOUCKS is a Senior Research Scientist at the Bureau of Economic Geology. He received his BA degree from the State University of New York at Binghamton in 1967 and his PhD from the University of Texas at Austin in 1976. He worked over 20 years in industry. He has managed and is a member of the Carbonate research group at the

BEG (RCRL). He has done research and published on carbonate, mudstone, evaporite, and siliciclastic sequence stratigraphy, depositional systems, diagenesis, and reservoir characterization. Over the last five years he has been conducting a regional investigation of the Austin Chalk Trend along the onshore GOM. He is the author or co-author of more than 200 papers. He has twice received the Wallace E. Pratt Award for best AAPG Bulletin paper, twice received the A. I. Levorsen Award for best paper at GCSSEPM and WTGS, and three time the *GCAGS Journal* Best Paper award. He was awarded the AAPG Bob Berg Outstanding Research Award and the Karst Water Institute Research Award. He was also a MidEast AAPG Dean A. McGee International Distinguished Lecturer.

HGS Insignia How Our Logo Originated

The official insignia of the society was adopted in 1949. At Phil Martyn's insistence, an emblem contest was started to provide the society with an official insignia. On January 29, 1949 the late Walter J. Osterhoudt was named the winner of the contest. The HGS emblem is best described in his own words.

"The oil derrick is firmly established upon the Gulf Coast plain overlooking Galveston Bay, through which passes much of the oil to the markets of the world. Beyond Galveston Bay is the Gulf of



Mexico, a new province, which challenges geologists and geophysicists to almost unlimited new reserves. Under the oil derrick is a cross section of a typical Gulf Coast salt dome. The words 'Houston Geological Society' are arranged upon a circle which is symbolical of the world, because our geologists come from and travel to all places on the earth in search of oil and other minerals. The five points of the design are a pleasant reminder that we, the members of the Society, are privileged to live in Texas. Then 1923 is the year in which the Society was organized." ■

February 2021

Sunday

Monday

Tuesday

Wednesday



| | | | |
|-----------|--|---|--|
| | 1 Virtual Pre-registered Prices: Virtual Meetings members \$10/15 Emeritus/Honorary members..... \$10/15 Student members \$5 Nonmembers \$30/35 | 2 | 3 2021 SWS AAPG Bill Hailey Continuing Education Short Course <i>Page 20</i> Webinar – Prospects for Mining and Minerals Processing in the U.S. <i>Page 18</i> |
| 7 | 8 HGS General Dinner Virtual Zoom Meeting <i>Scholarship Night Page 7</i> | 9 HGS Board Meeting <i>6 p.m.</i> | 10 HGS Environmental and Engineering Dinner Virtual Zoom Meeting <i>“Oilfield Water Infrastructure Connectivity: The Case for a “Hydrovascular” Network in the Permian Basin”; Gabriel Collins Page 9</i> |
| 14 | 15 | 16 | 17 |
| 21 | 22 HGS International Dinner Virtual Zoom Meeting <i>TBA</i> | 23 A Live Webinar Basic Seismic Interpretation <i>Page 18</i> | 24 HGS General Lunch Virtual Zoom Meeting <i>“Geologic Overview and Characterization of the Upper Cretaceous Austin Chalk Trend, Onshore Gulf of Mexico Robert Loucks and Chris Zahm, Page 10</i> |
| 28 | | | |

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- **\$4,700,000** Jury verdict, oil company violates geologist non-compete contract. Settled later on confidential terms.
- **\$2,000,000** Settlement for downhole failure of casing results in loss of well bore, net to client \$1,372,411.79.
- **\$1,175,000** Settlement for geologist and family where oil company drilled too close to geologist property. Case filed 18 years after well drilled. Net to client \$664,822.51.
- **\$986,000** Cash settlement, net to clients \$657,207.60, plus future mineral interest valued at \$500,000.00. Dispute over mineral interest ownership from thirty year old contract.

Robert A. Chaffin

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GEOEVENTS

Thursday
Friday
Saturday

| | | |
|--|---|----|
| 4 | 5 <div> Don't wait, make your reservations online at hgs.org </div> | 6 |
| 11 | 12 | 13 |
| 18 | 19 | 20 |
| 25 | 26 | 27 |
| <div> Reservations: <p> The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org. If you have no Internet access, you can e-mail office@hgs.org, or call the office at 713-463-9476. Reservations for HGS meetings must be made or cancelled by the date shown on the HGS Website calendar, normally that is 24 hours before hand or on the last business day before the event. If you make your reservation on the Website or by email, an email confirmation will be sent to you. If you do not receive a confirmation, check with the Webmaster@hgs.org. Once the meals are ordered and name tags and lists are prepared, no more reservations can be added even if they are sent. No-shows will be billed. </p> </div> | | |



March 6, 2021
GSH Sporting Clays
American Shooting Center
Page 20

April 7, 2021
SPE-GCS Spring Hiring Event
Page 14

RENEW

YOUR HGS MEMBERSHIP

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SPE-GCS SPRING 2021 HIRING EVENT



April 7, 2021 (TBC)

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A virtual event for Energy Professionals in partnership with Texas Workforce Solutions



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Event, candidates must:

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- . Have previous full-time position in support of an energy and/or upstream discipline

Here is Your Chance to Represent HGS at the High School Science Fair *It's Easier Than You Think*

By Mike Erpenbeck, Science Fair Committee Chair

February has rolled around...the time for the Science and Engineering Fair of Houston. Every year HGS supplies judges to the Fair. It's a great way for us as geologists to contribute to the community, and to encourage the younger folks who will follow in our footsteps as the world's scientists.

Judging has traditionally involved spending a few hours on-site at the Fair, walking around the students' exhibits with a clipboard, assigning ranking numbers and talking with the students. It was an easy gig, and now it is even easier, thanks to the influence of Covid 19 on our society. The science fair, too, will be a virtual event this year, conducted totally online. Judging will be conducted from your computer at a time of your choosing within a two week period (February 13th to 27th). The details are still being worked out by the science fair organization committees, but you can sign up now, and receive the updates directly. Here at HGS we are particularly looking for the earlier-career members to get involved with the Fair.

Judges in former years have recently received their reminder to sign up, but those who have not judged before will need to contact the Science Fair of Houston (SFOH) directly to sign up. You can do this in either of two ways.

1. Sign up to be a judge by simply going to the following link:
<https://www.aitracq.com/placeawardsjudge.php> Here you can

register as a "place award" judge, in which you select exhibits to judge in a category of your choosing and submit your results directly to the Science Fair organizers. The sign-up is easy and straightforward; you provide only basic information about yourself, most notably your college degree and year. You can choose a category to judge within a wide area of subjects in Physical Sciences, Life Sciences, and Engineering. Within the Physical Sciences, for example, there are: Chemistry, Computer Science, Earth & Space Science; Energy & Transportation, Physics & Astronomy, and Mathematics.

2. Alternately, we would like to invite HGS members to sign up to be part of the HGS "Special Agency" team. Here we specifically award the winners we pick in exhibits that are in or closely related to the Earth Sciences. We also award three of our winners with a summer internship at the Houston Museum of Natural Science. There has traditionally been a feeling of camaraderie among members of our judging team and we hope we can continue this tradition, even though we will not be meeting up on-site this year. Again, the earlier-career HGS members are especially welcome to sign up. Please contact Mike Erpenbeck at mike.erpenbeck@hotmail.com or at 832-418-0221 if you are interested in joining the HGS team. ■



HGS Special Agency Judges, 2020 Science and Engineering Fair of Houston

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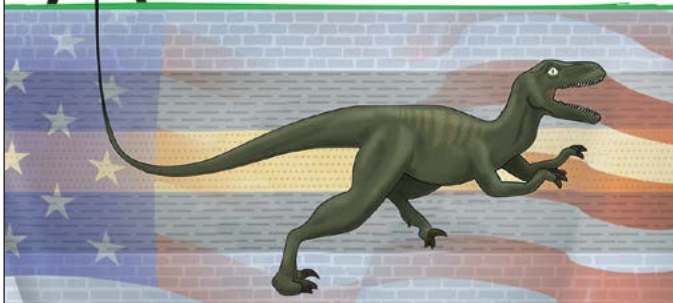


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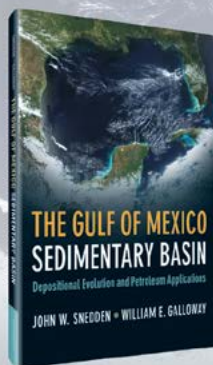
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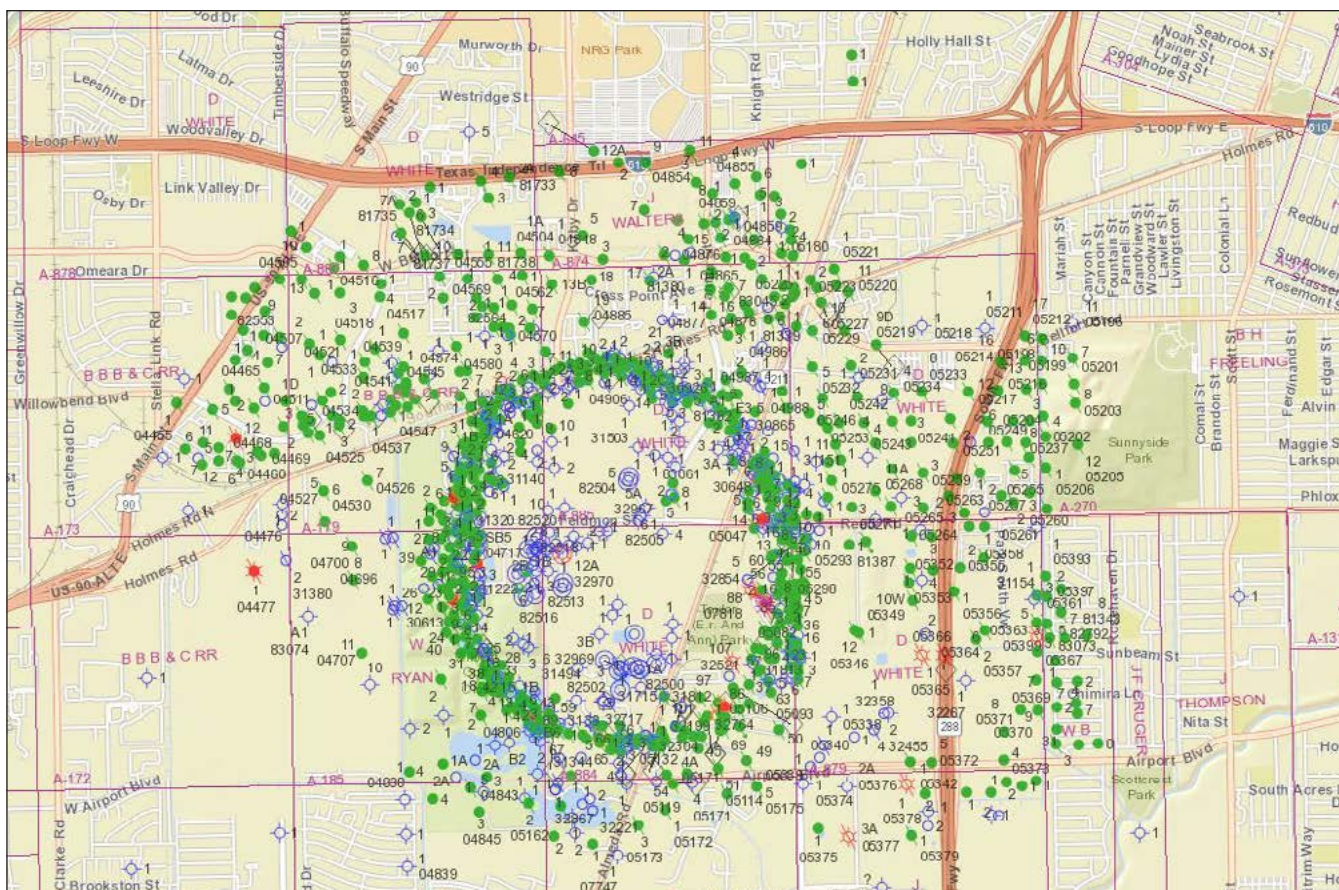
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The Centennial of Discovery (1921-2021)
The Pierce Junction Oil Field, Harris County, Texas

By Jeff Spencer Sentinel Petroleum, GCAGS Historian



Map showing wells at Pierce Junction. Texas RRC

The Pierce Junction oil field celebrates its discovery centennial in 2021. The Gulf Production Company No. 2 Taylor (TD 3520 ft.) is generally considered the field's discovery well. It was completed as a "gasser" at a depth of ~3490 ft. in February 1921. The gas was used in boilers for the drilling of other wells. After a short time, the well began producing oil (40-150 BOPD). In September 1921, the well was deepened and completed at a depth of ~3900 ft. testing at 3000-6000 BOPD.

The Pierce Junction oil field is located in Houston, south of the 610 loop and west of State Highway 288 (top of salt ~2 miles south of NRG Stadium). The field is associated with a shallow salt dome. Halbouty (1965) reports the top of caprock at 630 ft. and the top of salt at 860 ft. Productive sands range from Miocene to Eocene at depths of 3000-9000 ft. Glass (1953). Cumulative oil production for the field is approximately 140 MMBO.

Although 1921 is considered the year of discovery, Pierce Junction had 20 years of prior drilling with oil shows and top of salt encountered as early as 1901 (the discovery year for Spindletop).

As with many Gulf Coast shallow salt domes, Pierce Junction showed slight topographic relief, surface gas seeps, and paraffine dirt. The early operators at Pierce Junction reads like a Who's Who for Houston area oilmen and companies: Sharpe brothers, Howard Hughes, Hugh Roy Cullen, Henry Staiti, Gulf Production Company, and the Rio Bravo Oil Company.

1900-1906

By November 1900 several thousand acres of land were under lease a few miles south of Houston. The *Houston Post* (January 24, 1901, p. 6) reported on a well drilled by Gus Warnecke to a depth of ~400 ft. which had “secured an abundance of gas.” The gas was tested and declared “to be of splendid illuminating quality.” This well is probably the one mentioned in the *Fort Worth Record and Register* (November 11, 1900, p. 2); the “first drill is now down 200 feet.”

In April 1901 a well was spud for the Harris County Development Company. The well was within a half a mile of an abandoned well that had produced gas (*Houston Post*, April 9, 1901, p. 7), probably

The Centennial of Discovery (1921-2021) *continued on page 19*

RESEARCH

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PROGRAMS

STUDENTS

WEBINAR — PROSPECTS FOR MINING AND MINERALS PROCESSING IN THE UNITED STATES

Event Details

Event Files

Materials supply chains have come under closer scrutiny as experts evaluate ideas and plans for expanding alternative energy applications — many of which are materials-sensitive and would necessitate heavy competition with other industrial and consumer product and defense needs. The increased attention to and concerns about the integrity of materials supply chains have raised questions about the ability to achieve supply growth and new domestic capacity.

The view of many is that supply chain risks, including geopolitical tensions, might be alleviated through increased investment at home. However, the U.S. mining and minerals processing industries face the gamut of constraints that all extractive, natural resource businesses are grappling with, ranging from access to resources, including on federal and tribal lands, to workforce and environmental permitting and regulatory oversight. At this next roundtable from the **Energy, Minerals & Materials** program, featured speakers **Michelle Michot Foss**, fellow in energy and minerals at the Baker Institute, and **Michael Moats**, director of the O'Keefe Institute for Sustainable Supply of Strategic Materials at Missouri S&T, will survey the state of the U.S. industry and touch on the complexities and commercial hurdles involved with non-fuel minerals of interest.

The open webinar follows an invitation-only roundtable open to Energy Forum members with featured speakers Michot Foss and Moats as well as **Katie Sweeney**, executive vice president and general counsel for the National Mining Association, and Kathleen Benedetto, former special assistant to the U.S. secretary of the interior with the Bureau of Land Management.

This webinar is sponsored by the Baker Institute **Center for Energy Studies**. Follow @CES_Baker_Inst on Twitter, and join the conversation online with #BakerEnergy.

WHEN?

Wed, Feb. 3, 2021
10:30 a.m. - 11:15 a.m.
(GMT-0600) US/Central

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WHERE?

Online webinar



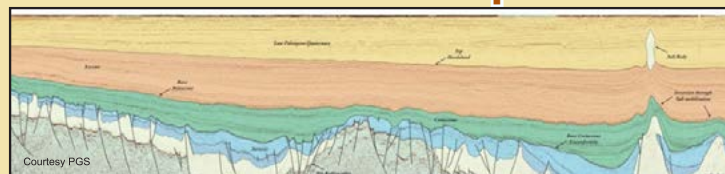
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the Warnecke well. An article in the *Houston Post* (December 28, 1901, p. 5) referred to two earlier wells and the plans to spud a third. One well had encountered cap rock at a depth of 800 ft. and gas at a depth of 350 ft. "Prof. Otley, the geologist" had stated that the gas could supply Houston for many years. J.W. Otley was involved in the Gladys City Oil and Gas Company of Spindletop fame. Warner (1939, p. 194) refers to a 1901 well drilled by Houston artesian well driller, P.M. Granberry for the Harris County Improvement Company which encountered a show oil at 740 ft. and salt at 953 ft.

The *Houston Post* (January 10, 1905, p. 8) reported that the "strike at Humble has stimulated interest in other prospective fields in the vicinity of Houston." "Sharpe Bros. have recently secured large holdings near Pierce Junction and are now drilling." Their well on the "Taylor place" already shows "a heavy gas pressure with signs of oil." The Rio Bravo Oil Company (as subsidiary of the Southern Pacific Railroad) leased 68 acres at Pierce Junction (*The Galveston Daily News*, May 19, 1905). The *Houston Post* (June 4, 1905, p. 7) reported on a well being drilled by Howard R. Hughes, J.D. Crawford, and J.R. Sharp. There was "a big gas blowout" near Pierce Junction in early 1906, but the operator or well name is not reported (*The Times-Democrat*, New Orleans, March 17, 1906, p. 8). The Pierce Junction Oil Company was capitalized with well-known Houston oilman, Henry Staiti as one of the organizers (*Houston Post*, September 1, 1906).

1921

The years 1907-1920 were relatively quiet at Pierce Junction. Drilling continued with sulphur being the objective for some of the

operators. July 1921 saw the first oil gusher at Pierce Junction as the Snowden & McSweeney No. 1 Cain flowed 3000 BOPD from ~3940 ft. This well was followed the next month by the 6000 BOPD Brooks, et al, No. 1 Howe. These two wells were followed by the previously mentioned deepening and completion of the field's discovery well, the Gulf Production Co. No. 2 Taylor. Other oil gushers in 1921 were brought in by Hugh Roy Cullen (2500 BOPD), the Texas Exploration Company (Henry Staiti, vice-president), and Gulf Production Company. The *Houston Post* (October 16, 1921, p. 35) with the headline, "Drillers at Pierce Junction are Racing Night and Day," included a day view and a night view of the field showing sixteen wooden oil derricks. At year-end 1921, Pierce Junction was third in daily oil production (~13,000 BOPD) of Gulf Coast fields, behind West Columbia and Hull, and produced approximately 1.4 MMBO for the year. ■

References:

GLASS, Charles N., 1953, Pierce Junction Field, Harris County, Texas, Guidebook, Field Trip Routes, Houston Geological Society, p. 147-150.

HALBOUTY, Michel T., 1965, *Salt Domes*, Gulf Publishing Co., Houston, Texas, 425 pp.

WARNER, C.A., 1939, *Texas Oil and Gas since 1543*, Gulf Publishing Co., Houston, Texas, 487 pp.



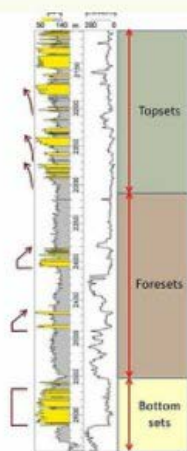
Panoramic postcard view of the Gulf Production Company's Pierce Junction camp by noted Houston oil field photographer Frank G. Allen (1882-1921). Though handwritten in red "1922" this photograph was probably taken in late 1921, as Allen died in December 1921 after a short illness (J. Spencer collection).

2021 SWS AAPG Bill Hailey Continuing Education Short Course

Applied Log Motif to the Interpretation of
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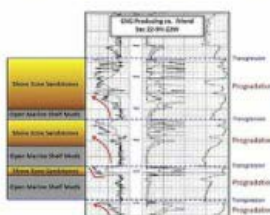
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For questions or sponsorship opportunities, please contact:
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GSH Sporting Clays

March 6th, 2021

American Shooting Center



Remembrance

WALTER VICTOR BOYLE
1931-2020



WALTER VICTOR BOYLE, passed away Friday, December 18, 2020. Walt was born July 23, 1931, to Wilma and Walter Jacob Boyle and grew up in San Antonio, Texas, where he graduated from Thomas Jefferson High School in 1949. He then attended Trinity University, San Antonio, before transferring to the University of Texas, Austin, where he graduated with honors with a B.S. ('54) and M.A. ('55) in Geology. While at UT, he taught Freshman Geology Lab. He joined Shell Oil Company and spent most of his career in New Mexico, Colorado, and Texas. After retiring in the early 90's Walt enjoyed many activities, but especially traveling.

He is survived by his wife of 48 years, Vada Adams Boyle, sister, Marilyn Gray Killinger and sister-in-law, Linda Adams Taylor and their families including several nieces and nephews and great nieces and nephews, also cousins and many friends.

Summarized from the *Houston Chronicle's* Life Tributes section published on January 3, 2021.

Seen on the Street



Each month in this space HGS will display photos of Texas Oil and Gas specialty license plates sent in by our readers to honor oil and gas workers in Texas. Email your photos to the HGS *Bulletin* Editor at editor@hgs.org.

The State of Texas sells specialty license plates with a wide range of designs. One design celebrates the Texas oil and gas business. The design is a black background with TEXAS emblazoned across the top in bold white letters framed by a drilling derrick on the left

and an oil drop superimposed on a gas flame in the upper right. The words OIL AND GAS are proudly displayed at the base with the letter A in the word AND stylized by a pump jack. Up to seven characters are permitted to personalize your plate. Plates can be ordered online at myplates.com or by calling 888-769-7528 to display your pride. A portion of the purchase price is donated to the state general revenue fund that has collected over \$100 million since November 2009. ■

Remembrance

DANIEL L. SMITH

1936-2020



DANIEL L. SMITH, a former President of HGS and past President of AAPG, passed away December 23, 2020 at the age of 84. Dan was a mentor for many geoscientists in HGS, SIPES and AAPG and will be missed.

A native Houstonian, Dan was born on the 23rd of August 1936, to Virgil Lee Smith and Virginia Lee Whipple Smith. He graduated from Lamar High School in 1954. He attended and graduated from the University of Texas at Austin with a B.S. in geology in 1958.

Upon graduation from UT, Dan began his long and distinguished career at Amoco, moved to Roberts and Whitson Corporation, and eventually became Executive Vice President and Exploration Manager for Texoil Company, including having a part ownership of the company. He moved to Texas Meridian Resources Corporation in 1992, where he served as Vice President, Exploration. Dan then joined Sandalwood in 2001. Dan Smith was Executive Vice President of Exploration for Sandalwood Oil & Gas, Inc. when he died. Smith was a widely respected and prominent member of the oil and gas industry in Houston and around the world.

Dan held numerous leadership positions at the highest level, including Chairman of the House of Delegates for American Association of Petroleum Geologists (AAPG); stints as both President and Chairman of the AAPG; Secretary of the Society of Independent Professional Earth Scientists (SIPES); President of the SIPES Foundation; and President of the Houston Geological Society. He also contributed his time and leadership skills to GCAGS, AIPG, NOGS, and LGS.

In addition to being an AAPG Honorary Member, Dan's extensive list of accolades includes being a Distinguished Member of the AAPG House of Delegates, an AAPG Certificate of Merit, a DPA best paper award, the SIPES Outstanding Service Award, HGS Distinguished Service Award, and the HGS Gerald A Cooley Award for "Service above and beyond the call of duty over many years." His greatest achievement was receiving the 2011 Halbouty Outstanding Leadership Award, given in recognition of outstanding and exceptional leadership in petroleum geosciences.

Dan was passionate about promoting education in the field of Petroleum Geology and mentored numerous young geologists through the years. He was a long-serving trustee and former Chairman of the University of Texas Geosciences Endowment Fund and Member of the Geology Foundation Advisory Council for the Jackson School of Geosciences. Those who have worked with Dan found him a true example of inspiration for humility, ethics, diplomacy, and above all, getting the job done. He was the epitome of outstanding leadership.

His love for geology extended into his extracurricular activities where family vacations became educational, rock-hounding excursions. His wit and fun-loving spirit provided hours of entertainment for his family. His annual trips to the Canadian Rockies were the perfect setting for his greatest interests ... hiking, studying rock formations, and taking in the beauty this area has to offer.

In lieu of customary remembrances, memorial contributions may be directed to the scholarship programs of the following organizations: American Association of Petroleum Geologists, 1444 S. Boulder Ave., Tulsa, OK, 74119; the Society of Independent Professional Earth Scientists, 1401 N. Central Expwy., Suite 105, Richardson, TX, 75080; and the UT-Austin Jackson School of Geosciences, 2305 Speedway, Suite C1160, Austin, TX, 78712.

<https://www.dignitymemorial.com/es-es/obituaries/houston-tx/daniel-smith-9965833>



HGS Bulletin Instructions to Authors

All materials are due by the 15th of the month, 6 weeks before issue publication. Abstracts should be 500 words or less; extended abstracts up to 1000 words; articles can be any length but brevity is preferred as we have a physical page limit within our current publishing contract. All submissions are subject to editorial review and revision.

Text should be submitted by email as an attached text or Word file or on a clearly labeled CD in Word format with a hard copy printout to the Editor.

Figures, maps, diagrams, etc., should be digital files using Adobe Illustrator or Adobe Photoshop. Files should be saved and submitted in .ai, .eps, .tif or .jpg format. Send them as separate attachments via email or CD if they are larger than 5 MEGs each, accompanied by figure captions that include the file name of the desired image. DO NOT EMBED them into your text document; they must be sent as separate files from the text. DO NOT USE POWERPOINT, CLIP ART or Internet images (72-DPI resolution) as these do not have adequate resolution for the printed page and cannot be accepted. All digital files must have 300-DPI resolution or greater at the approximate size the figure will be printed.

Photographs may be digital or hard copy. Hard copies must be printed on glossy paper with the author's name, photo or figure number and caption on the back. Digital files must be submitted in .tif, .jpg or .eps format with 300-DPI or greater resolution at the printing size and be accompanied by figure captions that are linked by the file name of the image. The images should be submitted as individual email attachments (if less than 5 MB) or on CD or DVD.

HGS Bulletin Advertising

The *Bulletin* is printed digitally using InDesign. Call the HGS office for availability of ad space and for digital guidelines and necessary forms or email ads@hgs.org. Advertising is accepted on a space-available basis. **Deadline for submitting material is 6 weeks prior to the first of the month in which the ad appears.**

| Random Inside Ad Placement | | | | | Specific Page Color Ad Placement | | | | | |
|--|--------------------|---------------------|------------------|------------------|----------------------------------|-----------------------------|------------------|------------------------------|----------------------------|-----------------------|
| Black & White Prices Shown – Color add 30% to prices below | | | | | | | | | | |
| No. of Issues | Random Eighth Page | Random Quarter Page | Random Half Page | Random Full Page | Inside Front Cover Full Page | Inside Back Cover Full Page | Page 2 Full Page | Outside Back Cover Half Page | Back of Calendar Full Page | Calendar Quarter Page |
| 10 | \$950 | \$1,350 | \$2,550 | \$4,750 | \$8,000 | \$7,500 | \$7,050 | \$6,850 | \$6,650 | \$3,000 |
| 9 | \$800 | \$1,300 | \$2,500 | \$4,700 | | | | | | |
| 8 | \$750 | \$1,250 | \$2,250 | \$4,300 | | | | | | |
| 7 | \$600 | \$1,100 | \$2,200 | \$3,850 | | | | | | |
| 6 | \$550 | \$950 | \$1,800 | \$3,500 | | | | | | \$2,000 |
| 5 | \$500 | \$800 | \$1,600 | \$3,000 | \$4,700 | \$4,500 | \$4,350 | \$4,000 | | |
| 4 | \$450 | \$650 | \$1,300 | \$2,500 | | | | | | |
| 3 | \$300 | \$550 | \$950 | \$2,000 | | | | | | \$1,000 |
| 2 | \$250 | \$400 | \$700 | \$1,500 | | | | | | |
| 1 | \$150 | \$250 | \$450 | \$1,000 | \$1,500 | \$1,400 | \$1,250 | \$1,000 | \$1,250 | \$850 |

Professional Directory Section Business Card Ad: 10 Issues – \$160 (\$30 for each additional name on same card)

Website Advertising Opportunities

There are currently 5 opportunities to help spread the word about your business or event and generate traffic to your website or campaign. Please submit all ad materials five (5) days prior to the go-live date for testing.

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|---------------------------------|--|---|
| HGS Website Home Page Banner Ad | \$800 – Monthly | 275 x 875 pixels; home page top banner ad. All Home Page Banner Ads rotate every 10 seconds. |
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| | \$1200 – 3 Months | |
| | \$1600 – 6 Months | |
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| Geo-Jobs | \$50 – 14 days | Posting of job opportunities on HGS website. Click the Geo-Jobs tab to get started. Must be filled out completed and the dates set appropriately. |
| | \$100 – 30 days | |
| | \$300 – 3 Months | |
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| Vendor Corner | \$250 *4 Pack option with 1 FREE bonus event for \$1000.00 available. Send request to vendorcorner@hgs.org . | Company logo, company website, and company description will be highlighted on HGS Calendar website event. This is an opportunity to display company wares, gain personnel exposure and hand out product information at HGS dinner meetings. |
| Event/Short Course Calendar Ad | \$100 – Monthly | An event ad posted within the HGS website calendar under the Events tab. |
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Application to Become a Member of the Houston Geological Society

Qualifications for Active Membership

- 1) Have a degree in geology or an allied geoscience from an accredited college or university; or
- 2) Have a degree in science or engineering from an accredited college or university and have been engaged in the professional study or practice of earth science for at least five (5) years.

Qualifications for Associate Membership (including students)

- 1) Be involved in the application of the earth or allied sciences.
- 2) Be a full-time student enrolled in geology or in the related sciences.

Apply online at www.hgs.org and click on Join HGS
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Telephone: 713-463-9476 Fax: 281-679-5504

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To the Executive Board: I hereby apply for ☐ Active or ☐ Associate membership in the Houston Geological Society and pledge to abide by its Constitution and Bylaws. ☐ Check here if a full-time student.

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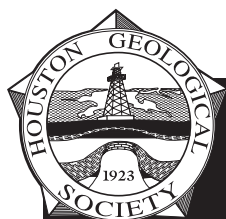
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New Members Effective January 2021

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William Jorgesen

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STUDENT MEMBERS

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Welcome New Members

HGS Welcomes New Members



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