SOCIETY FOR INDUSTRIAL ARCHEOLOGY
NEWSLETTER

Volume 46 Summer 2017 Number 3

IA in the Lone Star State 2017 Annual Conference Review

SIA's 46th Annual Conference was held in Houston, Texas, May 18 to 21. About 120 SIA members and guests gathered for the first national SIA event to be held in the Lone Star State. Petrochemicals and shipping were the main industries featured in the tours, which were organized around themes of oil & gas, the Houston Ship Channel, NASA's Johnson Space Center, concrete & bridges, and manufacturing & fabrication. The conference headquarters was the high-rise Houston Marriott Medical Center, located just south of Rice University and a short distance from the museum district.

The schedule of this year's conference followed SIA's customary format of pre-conference tours and opening reception on Thursday; process and historic site tours on Friday; paper sessions, business meeting, and evening banquet, held at the Saint Arnold Brewing Co., on Saturday; and post-conference site tours on Sunday. The conference opened with a reception featuring speaker Marty Melosi, author and Director of the Center for Public History at the University of Houston. Drawing from his works including *The Sanitary City: Urban Infrastructure in America from Colonial Times to the Present*, *Energy Capitals*, and *Atomic Age America*, he delivered an insightful overview of Houston's industrial history and how the city was shaped, especially by the refining and petrochemical industries.

Thanks to the many member photographers and reporters who generously volunteered to provide the following tour summaries and photos.

Thursday Pre-Conference Tour: Johnson Space Center (NASA) and Galveston. The **Johnson Space Center**, located just outside Houston, has provided mission control services for NASA space missions from Gemini 4 (1965) until the present day. The tour consisted of a tram ride around the site plus a chance to wander around the visitor center with its many space-related displays. We visited Historic Mission Control (today a National Historic Landmark), familiar from many TV news specials, which controlled Gemini, Apollo, Skylab, and space shuttle missions until 1992. A new control center handles the International Space Station today. The

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Diana Bouchard

The Work, Water, & Recreation tour group poses for a photo at the Genesis test rig.

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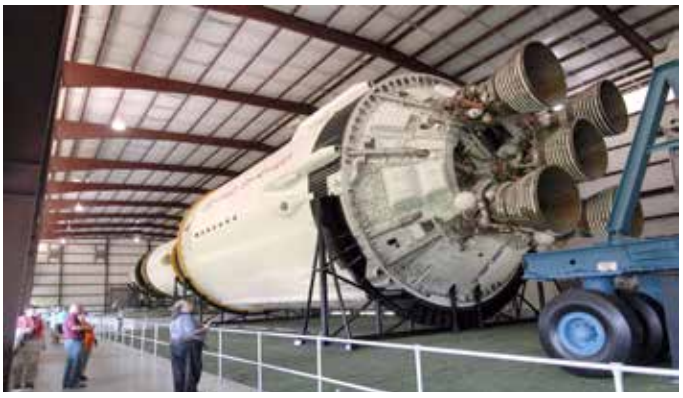
consoles are original and are data monitors, not computers. Back in the day five IBM 360 mainframes in the basement offered a whopping total storage capacity of 9 MB! The Smithsonian now owns the equipment, and plans are to make it operational for the 50th anniversary (2019) of the first lunar landing. Other sights included an entire Saturn V rocket laid on its side inside a huge building (one engine nacelle is considerably taller than a person) and Rocket Park with a number of vintage NASA space vehicles on display.

Then on to **Galveston**, the great Texas port city that was almost wiped out by a hurricane in Sept. 1900. We saw a section of the 10-ft.-high seawall built after that, but Hurricane Ike in 2008 still flooded the city 8-ft. deep in places. Clearly this is an ongoing battle. As a reminder of Galveston's maritime past, the iron-hulled, three-masted, sailing ship ***Elissa*** has been preserved in Galveston harbor. Built in Aberdeen, Scotland in 1877, *Elissa* fulfilled various roles under a number of names before being laid up in the early 1970s. A ship restorer on the lookout for a project saw potential in the old hulk, brought her to Galveston in 1979, and restored her to sailing condition. I did not realize how exceptional it is for a ship this old to survive: their average lifetime was 20 to 25 years. Drawings of similar ships by the same builder, Alexander Hall, (*Elissa*'s having disappeared) were used as a guide to restoration. She is regularly sailed by volunteers from the Galveston Historical Society and rookie sailors who sign on for an instructional trip.

Moving on to modern Galveston industry, we visited the **Ocean Star** drilling rig, formerly operated by Schlumberger, a large oilfield services company, and now run by Offshore Energy Center as a museum. Built in 1969 in Beaumont, Texas, the Ocean Star operated in water up to 173-ft. deep (shallow by modern standards). We went up to the third floor of the rig to see how a drillstring is put together to power a drill bit. On the pipe deck (first floor), 90-ft. pipe sections are screwed together with power tongs in a four-man operation. The work is heavy, dirty, and dangerous, but well paid and much sought after. This visit definitely gave us a new appreciation for the hard work that gives us the petroleum products we all use.

Friday Tour 1: The Oil Industry. Houston native Joe Pratt, professor of history and business at the Univ. of Houston, provided entertaining and informative commentary about the petrochemical industry and some of its key players throughout the 1.5-hr., bumpy bus ride to Beaumont. At the **Texas Energy Museum**, we enjoyed wandering through the museum's exhibits and artifact displays that convey some of the science as well as the history of oil and natural gas in Texas. The collection of original drilling equipment from the Spindletop Strike of 1901 was especially interesting. Our next stop was the **Spindletop-Gladys City Boomtown Museum,** where we met with the Bridges & Concrete tour group for lunch. Next we visited the **Schlumberger Technology Center** (pronounced Shlum-bear-zhay, instructed Joe before letting us off the bus) and the **Genesis Test Rig,** and **Baker Hughes,** a leading supplier of oilfield services and technology. See Friday tours 3 and 4 for further descriptions of the Spindletop and Genesis destinations.

Friday Tour 2: The Houston Ship Channel. Houston, founded on the shores of Buffalo Bayou in 1836, just months after Texas' hard-won independence from Mexico, is the fourth largest city in America and one of its fastest growing and most diverse metropolitan areas. One of the largest drivers of Houston's economy is its port, which includes the largest petrochemical complex in the country. On this tour, SIA



John Reap

SIA conference-goers view the Saturn V Rocket second stage.

The *SIA Newsletter* is published quarterly by the Society for Industrial Archeology. It is sent to SIA members, who also receive the Society's journal, *IA*, published biannually. The SIA through its publications, conferences, tours, and projects encourages the study, interpretation, and preservation of historically significant industrial sites, structures, artifacts, and technology. By providing a forum for the discussion and exchange of information, the Society advances an awareness and appreciation of the value of preserving our industrial heritage. Annual membership: individual $50; couple $55; full-time student $20; institutional $50; contributing $100; sustaining $150; corporate $500. For members outside of North America, add $10 surface-mailing fee. Send check or money order payable in U.S. funds to the Society for Industrial Archeology to SIA-HQ, Dept. of Social Sciences, Michigan Technological University, 1400 Townsend Drive, Houghton, MI 49931-1295; (906) 487-1889; e-mail: *SIA@mtu.edu;* Website: *www.sia-web.org*.

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The *SIA Newsletter* welcomes material and correspondence from members, especially in the form of copy already digested and written! The usefulness and timeliness of the newsletter depends on you, the reader, as an important source of information and opinion.

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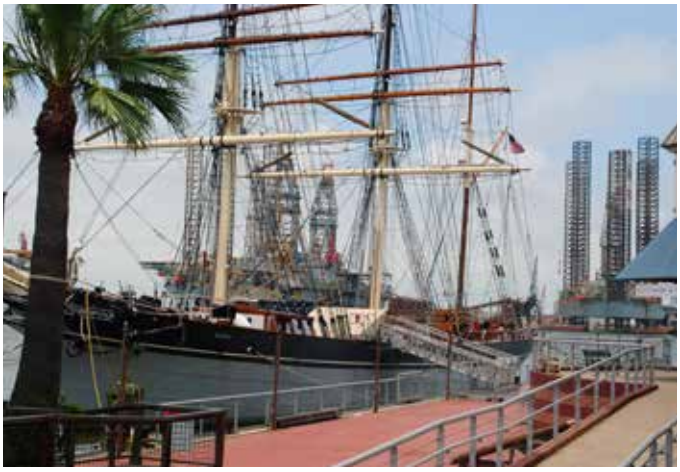

James Bouchard

The tall ship* Elissa*, with jack-up rigs in the background.

James Bouchard

The first shuttle aircraft carrier and a replica shuttle* Independence *mounted on top at Johnson Space Center's Independence Plaza.

conference attendees had a firsthand view of the **Port of Houston** and gained a deeper understanding of the ways our maritime heritage has shaped the modern world.

Departing from the conference hotel at the heart of the Texas Medical Center, the largest complex of hospitals and research institutions in the world, and traveling through rapidly densifying midtown, past downtown with its juxtaposition of historic buildings—like the recently restored Harris County Courthouse—and glittering skyscrapers, the first stop was the **Willow Street Pump Station**. In the 1890s, Houston appealed to the federal government for aid to create a deepwater port, but the government was unwilling to invest due to the high levels of sewage in the bayou. So, in 1902, the city built the station to pump wastewater out of the bayou to a treatment plant. With the reduction in pollution, the federal government was satisfied and agreed to contribute half the cost of dredging the Houston Ship Channel, which finally opened in 1914, marking the beginning of the modern port.

Our next stop was five miles further downstream, where we boarded the Port Authority's M/V *Sam Houston* for a 90-minute guided tour of the **Ship Channel**, a National Historic Civil Engineering Landmark. Beginning at the Turning Basin, we continued downstream about six miles while our guide for the day, Whit Drake, a retired engineer with years of experience working at various sites along the Ship Channel, expertly pointed out the concrete rice silos, massive oil and gas refineries, and bulk terminals as we passed. This small portion of the channel gave a sense of the activity of the port, but it is hard to comprehend the full scale of the overall development, which stretches more than 50 miles, from near downtown Houston to the Gulf of Mexico, and constitutes one of the largest ports in the world.

For lunch, we made a quick stop at the **San Jacinto Monument**, which was built in 1936 to celebrate the centennial of Texas independence, then toured the nearby **USS *Texas*** (BB-35), which was commissioned in 1914 and is the only remaining dreadnought to fight in both world wars. The *Texas*'s pair of four-cylinder, reciprocating steam engines are the largest survivors of this type. She became a permanent battleship memorial museum in 1948 (the oldest in the country), was designated a National Historic Landmark in 1976, and a National Mechanical Engineering Landmark by the American Society of Mechanical Engineers. Today the Texas Parks and Wildlife Dept. is undertaking a series of critical repairs to ensure that her legacy continues for generations.

The final stop of the day was the **Houston Maritime Museum**. Opened in 2000, the museum features exhibits on the history of the ships that have carried the designation USS *Texas*, the importance of the Ship Channel to Houston, a wide array of shipping artifacts, and more than 100 precisely

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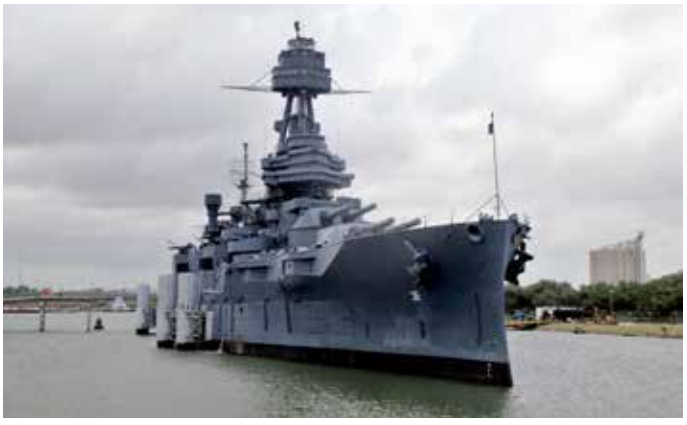
John Reap

The historic mission control room at Johnson Space Center.



Steve Muller

The USS* Texas *(BB-35).

crafted scale models. With Houston's deep ties to the petroleum industry, there is also a unique collection of model oil rigs. The museum is currently planning a new, larger facility on the banks of Buffalo Bayou scheduled to open in 2019.

Friday Tour 3: Work, Water, & Recreation. This tour took us to five sites around Houston. Though disparate in both age and function, each site provided a quick glimpse into a unique facet of the city's history and community development. Arron Kotlensky [SIA], local resident and conference planner extraordinaire, served as our tour guide, providing astute commentary and fun facts throughout the day.

Our first stop was the **Genesis Test Drilling Facility** at the **Schlumberger** complex in Sugar Land. Established more than 80 years ago, Schlumberger Limited is the world's largest oil field services provider. The Genesis Test Drilling Facility was constructed at the Sugar Land campus in 1988. It is a 142-ft.-tall, cantilever-type, skiddable, land-drilling rig. It was designed as a training tool for Schlumberger employees, as well as a product testing platform to assess the feasibility and reliability of new products. The rig is used to reproduce field conditions for various types of tests including mud viscosity and flow, and downhole tool vibration and rotation. Employees also use the rig to practice their "fishing" skills: the term fishing here is used to describe the process by which rig operators attempt to draw out (often very expensive) materials and tools that become stuck in the well hole.

A quick trip down the highway brought us to our next stop at one of Houston's most iconic sites, the "Eighth Wonder of the World"—the **Astrodome**! The world's first multi-purpose, domed sports complex, the Astrodome opened in 1965 and was used until 2009. Over the years it has been host to numerous sports teams, political conventions, musical events, and rodeos. To facilitate all of the different events, the Astrodome's engineers installed movable platforms that could rotate around the edge of the arena making room for more, or less, seating as needed. The Astrodome was listed on the National Register of Historic Places in 2014. Moving forward, the municipality of Houston hopes to find a way to repurpose the stadium for public use. According to our tour guide, among the more interesting ideas that have been floated to the planning board are sealing the stadium and filling it with water to recreate naval battle scenes, or making it into the world's largest animatronic doll museum.

After a quick lunch break at Hermann Park in downtown Houston, our tour headed to the **Frost Town** site, where archeologists from the Texas DOT have been involved in ongoing investigations since 2004. Adjacent to the Buffalo Bayou, the 15-acre Frost Town community was established in 1837. One of the city's first additions, Frost Town was a working-class, ethnically diverse community until the early 1990s. Excavations at the site have provided a fascinating snapshot of daily life for those living at the edge of Houston's urban development.

Our next stop took us further down the Buffalo Bayou to the **Buffalo Bayou Cistern**. Built in 1926, the 15-million-gallon, underground, concrete cistern provided Houston's residents with drinking water and a means of fire suppression. It was decommissioned in 2007 after an irreparable leak was discovered. Since then it has been refurbished and repurposed as an interpretive site and backdrop for numerous art installations. The cistern has amazing acoustics, which we sampled by shouting out over the concrete pillars. The resulting echo lasted an impressive 17 seconds!

Our final stop of the day brought us to the **Yellow Rose Distillery** for a site tour and whiskey tasting. Founded in 2010, the distillery is part of a micro-distilling movement

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James Bouchard

Ocean Star offshore drilling rig.

John Reap

Schlumberger employee and tour guide Deon explains the power tongs on the Genesis test rig.

that is sweeping the nation. The company produces a variety of whiskey and vodka products but their first and favorite is bourbon. Made from 100% corn mash, the bourbon is distilled in a monstrous copper still and stored in small, first-use, white-oak barrels for several weeks to develop its unique flavor profile. More recently, Yellow Rose has expanded its product line to include flavored whiskeys—such as honey whiskey flavored with locally sourced honey—and flavored vodka. The two top picks of the tour group were the coffee-flavored vodka and the company's signature Outlaw Bourbon. A good way to round out a wonderful day exploring Houston!

Friday Tour 4: Texas Bridges & Concrete. Mark Brown [SIA], historian at Texas DOT, led this very informative and well-organized tour, with assistance from Christopher Marston [SIA]. The day began at **Flexicore of Texas**, a manufacturer of precast, structural-concrete products, among them prestressed beams, slabs, and piles used in bridge construction. Flexicore was established in 1953, so ranks among the oldest active manufacturers of prestressed-concrete structural members in the U.S. Its founders were three former employees of DuPont who identified Houston as a growing market for concrete products. They developed a hollow-core slab that was successfully marketed to Houston's building boom of the mid-1950s to 1960s.

Sales manager Don Edsall greeted us in the company offices, provided a brief introduction, and then led us on a walking tour of the outdoor casting yard and concrete-mixing plant. The yard is organized into a series of lines where workers set up and break down forms for casting slabs, voided boxes, and other structural shapes. Each line is several hundred feet long so that multiple units can be cast at once. Hydraulic jacks are anchored to the end of the lines to stress wire strands embedded in the concrete. Edsall reported that Flexicore has produced a 28-in.-deep, 102-ft.-long I-beam, but most beams and slabs are less than 12-in. deep and 50-ft. long. These are not huge beams like those seen on modern interstate highways but everyday short-span bridge and building components. This fits with Flexicore's philosophy of being "large enough to serve, yet small enough to care." They pride themselves on quality control and a close working relationship with bridge engineers at Texas DOT.

Traveling east from Houston, our next stop was the **Spindletop-Gladys City Boomtown Museum** in Beaumont. The museum commemorates the 1901 discovery of oil at the Spindletop Hill salt dome, which sparked the Texas oil boom. We took a break for lunch and were entertained by the Lucas Gusher Re-enactment. The gusher blew on January 10, 1901, and is now recreated several times a day using water. There was some time to roam through a series of 15 replica historic buildings—a saloon, a post office, livery stable, etc.—filled with objects of the period.

The ultimate goal of our nearly 90-mile eastward trek was the historic **Port Arthur-Orange Bridge**, also known as Rainbow Bridge. This is a truly impressive structure at 7,752-ft. overall and 63 spans symmetrical to the center of the Neches River. The main span is a three-span, cantilever, through truss with a 680-ft.-long center span providing a 177-ft.-vertical clearance over the Ship Channel. Approach spans are a combination of continuous, through and deck trusses, steel deck girders, and prestressed-concrete beams. The massive bridge on tall slender steel piers is quite a contrast to the nearly flat, low-lying topography of the Gulf Coast. It was designed by George Wickline of the Texas Highway Department's Bridge Division, erected by the Union Bridge & Construction Co. and the Taylor-Fichter Steel Construction Co., and opened in 1938. The local Texas DOT division engineer and environmentalist met us at the bridge to discuss the bridge's rehabilitation and measures taken to protect owls that nest within the steel superstructure.

Returning to Houston on old U.S. Route 90, we observed refineries and many abandoned concrete elevators that once stored rice grown in nearby fields. Back in the city, we toured a series of bridges crossing Buffalo Bayou, including the **Houston Belt & Terminal RR Bascule Bridge** (1912), a Strauss-patent, overhead-counterweight design; the **McKee Street Bridge** (1932), an unusual, three-span continuous, half-through, reinforced-concrete, cantilevered girder; and the **Waugh Drive Bridge** over Memorial Drive (1955), a post-tensioned, concrete, 231-ft.-long, continuous, slab bridge with an extremely slender profile, accentuated by being built on a curve.

Sunday Tour 1: Walking Tour of Allen's Landing. Dave Morris of Preservation Houston led this tour of **Allen's Landing**, the spot where the city's founders, Augustus and John Kirby Allen, set foot on land that would become Houston, and which

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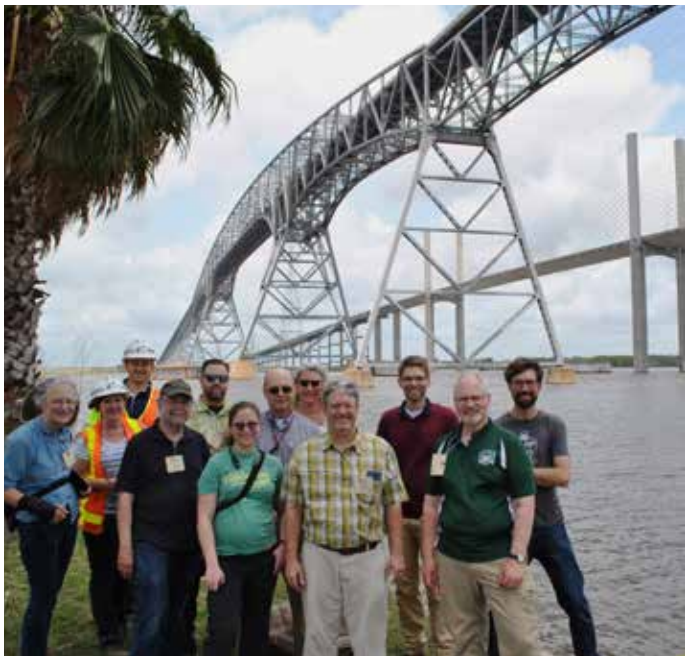


Patrick Harshbarger

SIA's Bridge Tour group at the Port Arthur-Orange Bridge.

in 1840 became the first site of the Port of Houston. Although the area fell into decline in the late 20th c., more recently the Buffalo Bayou Partnership is leading renovations and development of parks along the banks. We viewed the Sunset Coffee Building, built in 1910 as an annex to the 1880s W. D. Cleveland & Son's wholesale grocer supply building. The building is currently being restored and will house offices, bicycle and kayak rentals, and other amenities. Another stop on the tour was One Main Street, an 11-story warehouse structure in American Perpendicular style that has served a variety of functions. We viewed the building made famous as the Carrie Nation Saloon—a saloon attacked in 1905 by its hatchet-wielding namesake in a temperance-promoting frenzy. Finally we made our way, hopping from one patch of shade to the next, to the Willow Street Pump Station (described in the Friday tour 2 summary), while also viewing various warehouse buildings at water's edge along the Buffalo Bayou.

Sunday Tour 2: Walking Tour of Market Square. Sunday's **Market Square** walking tour was led by Jim Parsons of Preservation Houston. He ushered us onto the light rail and we got off at the Preston station to explore the heart of Houston's original downtown. Market Square's origins go back to 1836 when, just weeks after the Battle of San Jacinto, land speculators John Kirby Allen and Augustus Chapman Allen bought 7,000 acres to establish a capital city. The capital was moved to Austin in 1839 and the block chosen for the capital lay vacant and became an open-air market. The city built a combination market building and city hall on the site but when city hall was moved elsewhere in 1939, the site was occupied by a bus station, then a parking lot and finally a park. Our group wandered the park, taking note of fragments of the lost city hall that have been incorporated into the landscape's design. Many grocery companies, such as Henke & Pillot, grew up around the market and are still represented in the remaining 19th-c. buildings that surround the square, designated a National Register historic district in 1983. The largest industry before petroleum came to dominate the Texas economy was cotton, and the 1884 Cotton Exchange designed by Eugene Heiner just off the square embodies this in a beautiful red brick and white sandstone edifice. In adjacent blocks, Houston's role as a trade and finance hub is manifest in the many bank and railroad buildings we passed. Houston's oldest commercial structure ended the tour. The Pillot Building dates to 1857–58 and has a cast-iron storefront. It was completely reconstructed after demolition by neglect caused it to fall down in the 1980s.

Sunday Tour 3: Boat Tour of Buffalo Bayou. On a rainy Sunday, May 21 seventeen meeting registrants joined Louis Aulbach for a pontoon boat trip on Buffalo Bayou. Buffalo Bayou is a waterway with origins west of Houston that flows through the city and eventually into Galveston Bay. The waterway provided the initial water access to Houston. The downstream portion of the bayou was eventually dredged and expanded to form the Houston Ship Channel.

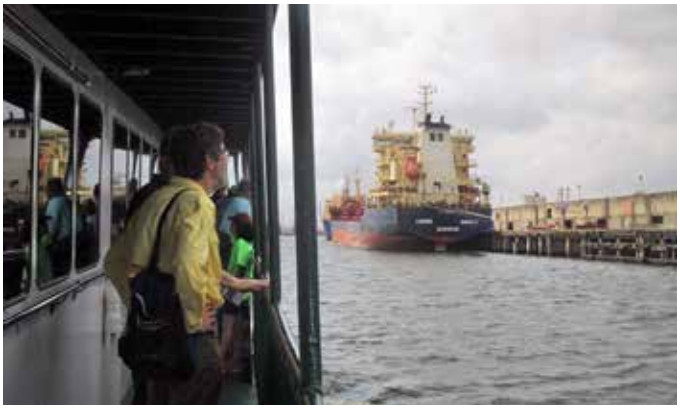
Louis Albach is a member of the Houston Archeological Society and author of *Buffalo Bayou: An Echo of Houston's Wilderness Beginnings*. As the tour traveled downstream with return, he provided a running commentary on Buffalo Bayou's history, current status, and the businesses that were and are located on the bayou's shores.

The trip traveled past the original Port of Houston located near the confluence of Buffalo Bayou and White Oak Bayou. The trip traveled under numerous bridges. Until 1914, all bridges over Buffalo Bayou were either swing or draw to allow ship access into Houston. In 1914, the commercial shipping center moved further downstream to the area of the current turning basin.

Many businesses were located along Buffalo Bayou in earlier years including brickyards, farms, iron works, railroad stations, pumping stations, incinerators, gas plants, power plants, concrete manufacturing, cotton pressing, cottonseed oil plants, brewing companies, grave vault manufacturing, and ice plants. Some remnants of these businesses are extant along Buffalo Bayou and some buildings have seen reuse.

In the past, substantial amounts of sewage drained into Buffalo Bayou. The Willow Street Pumping Station was an early civic improvement intended to pump sewage from Buffalo Bayou further downstream to a treatment area with subsequent return to the bayou. The building itself has been renovated for use by the University of Houston Downtown. There is now substantial wildlife and green space along Buffalo Bayou.

With contributions by Diana Bouchard, James Bouchard, Carrie Cecil, Bob Frame, Mary Habstritt, Patrick Harshbarger, Justin Kockritz, Bill McNiece, Steve Muller, and John Reap.



Steve Muller

SIA members cruising the Houston Ship Channel.

Patrick Harshbarger

The casting line at Flexicore of Texas.