

2019: The Year that Flooding Never Ended

Mississippi River Stayed Above Flood Stage for a Record 154 Consecutive Days at Greenville

Remarks from Jeff Grascel, Service Coordination Hydrologist, at the Lower Mississippi River Forecast Center

2019 will go down in history as the longest period of time that Greenville, Mississippi remained above flood stage for any flood of record. The foundation for high water started in the fall of 2018 when heavy rain over the Mississippi, Missouri, and Tennessee Valleys caused the lower Mississippi River to never reach low levels in October and November. Greenville remained above 30ft throughout the Fall and when the Winter rainfall started in December and January, the already high stages at

Greenville allowed the river to briefly reach the flood stage of 48 feet in mid-January. In February, ten to fifteen inches of rainfall occurred over north Mississippi extending northeast into the Tennessee Valley. The runoff produced some record flooding over the Yazoo River Basin and routed water from the Tennessee, Cumberland and Ohio Rivers caused Greenville to crest at 56.95 feet on March 12th. This crest was the 19th highest for Greenville and was also the start of a long season with stages remaining above the 48.0 feet flood stage. March through early May brought several

rain events to the Mississippi Valley and maintained high levels at Greenville. In mid-May, ten to fifteen inches of rain occurred over Oklahoma and record flooding on the Arkansas River maintained high river levels through June. Finally, in late June, heavy rain over the Arkansas and Ohio Valleys caused another rise at Greenville which would be the 4th crest above 54 feet for the 2019 flood season.

Greenville went above the 48.0 feet flood stage on February 18th and finally crested on March 12, 2019 at 57.0 feet. Greenville remained above flood stage until July 21st



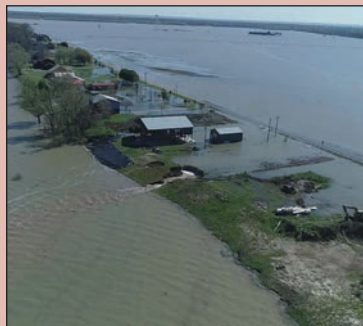
Greenville City Front

making it 154 consecutive days and breaking the 1927 record of 115 days. The river remained above normal for so long since Missouri and Mississippi reservoirs continued to release water that was stored from the record rainfall of 2019. ■

The Record 2019 Backwater Flood

Highest Crest Since Completion of the Yazoo Backwater Levee in 1978

The Backwater crested at 98.2' on May 23, 2019 breaking the record of 96.5' in 1979. The Backwater was above 87' for 219 days. The Backwater was above 90' for 196 days. From 1978-2018 the Backwater got above 95' for a total of 45 days. In 2019 the Backwater was above 95' for 144 consecutive days.



Aerial view of Eagle Lake backwater flooding. Photo taken March 21, 2019

The Backwater flooded 548,000 total acres including 231,000 acres of Crop Land. Nothing was planted in 2019. The Backwater flooded 686 homes. The Backwater overtopped Highways 465, 16 & 1. The Backwater decimated the wildlife population. On June 13, 2019 two people drowned in the Backwater trying to turn around near Holly Bluff.

The Backwater finally started significantly falling in late July 2019. With an excess of 2.5' of head passing through the Structure - the flow was 45,000 cfs (cubic feet per second) which is 20.2 mgm (million gallons per minute). At this 45,000 cfs flow:

- It would fill up an Olympic size swimming pool (660,000 gallons) in less than 2 seconds.
- It would fill up a football



field 10' deep of water in 13 seconds.

■ It would fill up the entire Superdome (155 mcf) in 57 minutes.

Had the Pumps been in place, the Backwater would have crested at 92.5' instead of 98.2' (5.7' lower crest). At 92.5' 354,000 total acres would be flooded instead of 548,000 acres (194,000 less acres flooded). At 92.5' there are 109,000 acres of Crop Land flooded (122,000 less acres of Crop Land flooded). At 92.5' no homes would have flooded and no highways would have overtopped. ■

STEELE BAYOU DRAINAGE STRUCTURE

The Steele Bayou Drainage Structure Gates were closed 3 different times in 2019:

Closed	Opened	Consecutive Days	Crest
February 15 th	April 1 st	46 days	97.2'
May 11 th	May 23 rd	13 days	98.2'
June 7 th	June 20 th	14 days	97.7'

2019 BACKWATER FLOODING



Flooded house on Highway 61



Flooded house on Highway 61



Flooded house



Flooded house on Highway 61



Sandbagged Ring Leveed House



Polypipe Ring Levee



Constructing Ring Levees at Holly Bluff



Post flood - Highway 61



Omega Road



Highway 61 at Low Water Bridge Road



Highway 465



Highway 465 closed



Holt Collier Interpretive Center



Flooded air strip



Valley Park Church



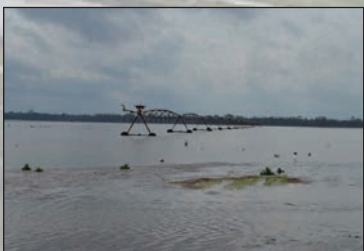
Flooded church



Gov. Phil Bryant press briefing (4-3-19)



EPA helicopter Tour - Ag land near Valley Park (3-19-19)



Backwater Flooding Eagle Lake Ag Field (3-13-19)



Dry Louisiana Ag Field ready to plant corn (3-19-19)



Background image: Valley Park Grain Elevator surrounded by flood waters.

#FINISHTHEPUMPS #FORGOTTENBACKWATERFLOOD

2019 BACKWATER FLOODING



Flooded ag field



Highway 16 west of Holly Bluff



Below Rolling Fork



Highway 61 South of Rolling Fork



Aerial view of Eagle Lake backwater flooding (3-22-19)



Aerial view of Eagle Lake backwater flooding (3-22-19)



Backwater filling up Eagle Lake (3-22-19)



Aerial view of Eagle Lake backwater flooding (3-22-19)



Eagle Lakeshore Road overtopped (5-20-19)



Eagle Lakeshore Road underwater at Eagle Lake (5-20-19)



Alligator on the levee



Rabbit on a tree stump in the backwater



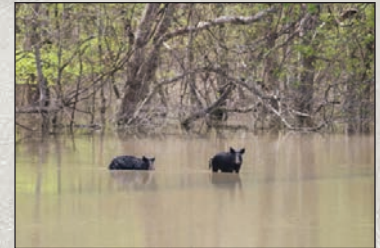
Deer on the Brunswick Extension Levee



Dead deer



Dead fawn



Hogs in the backwater



Low Water Bridge Road



Sandbags at Brunswick Circle Levee & Pennley Road



Flooding at Valley Park



Aerial view of Steele Bayou Structure



Post flood - Highway 61



Wash out on Buckhorn Road



Flooded kitchen



Finish the pumps!

Mississippi Levee Board Meeting Recaps

JANUARY 2019

The Board took the following action at the January 8, 2019 regular board meeting: accepted low quote on 2019 Pitts LB35-22DC Contender Series Detachable Neck Lowboy Trailer from LMI Tennessee, LLC; purchased a 100 h.p. T870 T4 Bobcat Compact Track Loader with forestry kit at State Contract price from Bobcat of Jackson; authorized advertisement for package insurance policy, chemicals for 2019 application and for one new ½ ton 4WD crew cab truck; concurred with issuance of Permit for Construction to: Twin County Electric Power Association to remove existing aerial electrical line and utility poles at Station 8561 and replace with a new aerial crossing that spans the levee at Station 8564+33 servicing Belle Island; and received report from the Chief Engineer on all ongoing projects in the Mississippi Levee District.

APRIL 2019

The Board took the following action at

the April 1, 2019 regular board meeting: accepted low quote on 2019 Chevrolet 1500 4WD truck from Cannon Greenwood; accepted low bid on package insurance policy from SouthGroup Insurance; accepted low bids on chemical purchases for the next 12 months; accepted high bid on surplus spray/work barge and received report from the Chief Engineer on all ongoing projects in the Mississippi Levee District.

JULY 2019

The Board took the following action at the July 8, 2019 regular board meeting: Seating of Bolivar County Commissioner Frank Brown appointed to fill seat of James House until November Special Election; set ad valorem tax rate of 2.90 mils and \$0.05/acre (no changes in tax rates since 2012); received Chief Engineer's Report for 2019 fiscal year; awarded helicopter application bid to Provine Helicopters, Greenwood, MS; agreed to the purchase of a 2019 Can-AM UTV from Greenville Motorsports and

agreed to the sale of Levee Board surplus UTV 2008 Joyner Renegade to high bidder; and received report from the Chief Engineer on all ongoing projects in the Mississippi Levee District.

OCTOBER 2019

The Board took the following action at the October 7, 2019 regular board meeting: a resolution honoring the late James W. House, Jr., Levee Board Commissioner from Bolivar County, was presented to Mrs. Anne House and her family; authority was given to advertise for worker's compensation insurance; concurred with issuance of Permit for Construction to: AT&T Southeast for installation of a buried fiber optic cable crossing Steele Bayou at Sta. 2723+58 at Grace Road; November 13, 2019 was set as the date for annual levee inspection trip; and received report from the Chief Engineer on all ongoing projects in the Mississippi Levee District. ■

Commissioner Frank Brown

Franks J. Brown, of Beulah, was appointed by the Bolivar County Board of Supervisors to fill the seat of Commissioner Jimmy House who passed away in March 2019.



Frank Brown

town of Beulah as Mayor for 8 years and our State through his 27 years of service in the Mississippi National Guard.

He has been the Pastor of New Gospel Temple Church in Beulah, MS for the past 8 years. He likes to garden, fish and hunt.

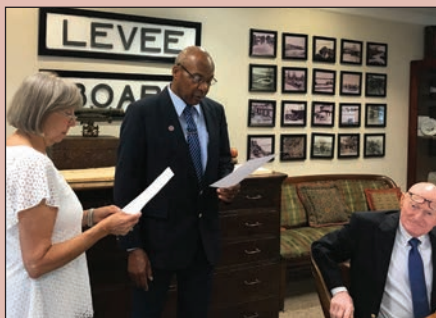
Mr. Brown was sworn in at the July 8, 2019 regularly scheduled Mississippi Levee Board Meeting.

Mr. Brown was born in Inverness, MS and moved to Beulah at the age of 3. He is a graduate of West Bolivar High School and Coahoma Junior College.

Mr. Brown's early career was in shipbuilding and construction.

His career in public service followed next in law enforcement ending as the Chief of Police in Rosedale, MS. He proudly served the

Mr. Brown and his wife, Samuel, who retired from Baxter's in Cleveland, are the parents of two sons. ■



Secretary Ginger Morlino swearing in new Commissioner Frank Brown.

2019 MISSISSIPPI LEVEE BOARD



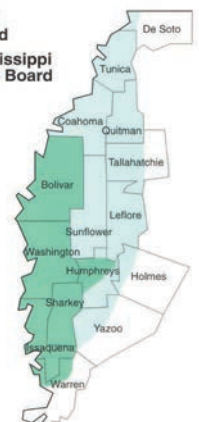
COMMISSIONERS:

- Fred A. Ballard, Jr., President**, Washington County
- Kenneth Rodgers, Vice-President**, Humphreys County
- James W. House, Jr.**, Bolivar County, (1994 – 2019)
- Frank Brown**, Bolivar County
- Nott Wheeler, Jr.**, Bolivar County
- Roy Nichols**, Issaquena County
- Hank Burdine**, Washington County
- Paul Hollis**, Sharkey County

STAFF:

- Peter Nimrod**, Chief Engineer
- Robert M. Thompson**, Assistant Engineer
- Dustin Herman**, Assistant Engineer
- Heath Douglas**, Attorney
- Rachel McIntire**, Treasurer
- Ginger Morlino**, Secretary
- Steve Poole**, Maintenance Superintendent

Mississippi Levee Board
Yazoo-Mississippi Delta Levee Board



James W. House, Jr. – In Memoriam

Bolivar County Commissioner Served 25 Years

Mississippi Levee Board Commissioner for Bolivar County, James W. House, Jr., passed away on March 19, 2019. Jimmy was born on December 23, 1942 in Memphis, TN, to James and Rebecca House. Jimmy moved to the Delta when he was 10 years old. He graduated from Rosedale High School.

After attending Mississippi State University, he proudly served his country in the Air Force for over eight years. In 1965, he married his childhood friend, Anne McCaslin, in Rosedale, MS. In May, they would

have celebrated 54 amazing years of marriage.

Jimmy was engaged in farming and he also worked for McCaslin Insurance Company, a family - owned business. He was happy to have his son Will join him in the business in the past few years.

Jimmy was a people person who loved to talk to anyone and everyone. His conversations concerning his interest in and importance of the Mississippi River led to his becoming a Commissioner of the Mississippi Levee Board. During the past 25 years in that capacity, he

was an active member both in Levee Board committee assignments and attending flood control meetings with our congressional delegation in Washington, D.C. and Mississippi Valley Flood Control Association meetings. Jimmy was on the levee almost daily.

For over 50 years, Jimmy was a member of the Merigold Hunting Club, of which he also served on the board. He and Anne even built their home at the hunting club near the Mississippi River; where they enjoyed everything about the outdoors.



Jimmy House

He especially loved turkey hunting. Jimmy spent quality time teaching his grandchildren about hunting every chance he could. He was kindhearted, quick-witted, and enjoyed nothing more than a good time. He cherished his friends and family, especially those at Merigold Huting Club.

Jimmy was a valuable officer of the Mississippi Levee Board and is missed.

He is survived by his wife, Anne McCaslin House of Beulah; son, Will House (Shea); grandchildren, Winn House, Clark House, and Shelby Collins (Peyton) all of Cleveland; great grandson, Carson Collins; and sister, Lynne House Dirga. ■

Rick Boyd Retires

Engineering Technician retires after 27 year career



Rick Boyd

2019 following 27 years of service. Hired in 1992 by former Mississippi Levee Board Chief Engineer Jim Wanamaker, Rick was tasked with surveying and

Rick Boyd, Mississippi Levee Board Engineering Technician retired from the Mississippi Levee Board on June 30,

maintaining the Board's right-of-way records.

Rick was able to bring the Levee Board's equipment and records into the modern age transitioning from surveying theodolites to GPS survey equipment and bringing our paper based right-of-way plats onto the computer screen.

In addition to surveying, Rick managed the Levee Board's herbicide application program; oversaw haul permits

for loggers and others using the levee maintenance road; and assisted with monitoring the annual helicopter interior stream spray work.

Congratulations Rick on your retirement and thank-you for your faithful service to the Mississippi Levee Board and its constituents. We wish you a long, happy and healthy retirement. ■

Steve Poole

Maintenance Superintendent

Steve Poole joined the Mississippi Levee Board family on August 1, 2018 as Maintenance Superintendent to replace the retiring Patrick Bolls. Steve brings twenty five years of heavy construction experience to the job as an estimator, equipment operator and as a project manager.

Steve is a Greenville native and a graduate of Greenville Christian School and Mississippi Delta Community College where he also served



Steve Poole

as a heavy equipment instructor for 11 years.

Steve, a life-long Delta boy, and his wife Emily, an architect from Woodville, MS, are the proud parents of 4 children. Dallas

Wade, Ruby Love, Anna Marsalis and Billie Hope are students at Washington School.

When Steve was asked what he liked to do in his spare time he responded, "I don't know yet. With 4 children I don't have any spare time."

Steve added, "I would like

to thank the Board and Chief Engineer Peter Nimrod for giving me the opportunity to work at the Levee Board. When I think about all of the projects I have been a part of in my lifetime, the Levee Board will be my greatest accomplishment. It has a wonderful history and a promising future. Without the levee there would be no reason to live in the Delta. I take great pride in our levee and am honored to be a part of history in the making." ■

Dustin Herman

Assistant Engineer takes on Engineering Technicians Duties



Dustin Herman

Dustin Herman, PE was hired in April 2019 to take on the surveying and right-of-way oversight duties of

retiring Engineering Technician Rick Boyd.

Dustin is a Mayersville native and after graduating from Sharkey-Issaquena Academy in 2003 he attended Mississippi State University. Upon receiving a civil engineering degree from MSU in 2008 Dustin went to work for W.L. Burle Engineers, a Greenville, MS based civil engineering firm.

In his spare time Dustin is building a shop and he enjoys hunting and working in his yard.

Dustin and his wife Rebekka, a speech pathologist with Western Line School District, are the proud parents of a daughter, Aubree. ■

Levee Board Attends Meetings in D.C.

Annual meeting with the Mississippi Congressional Delegation seeks appropriations for flood control projects and provides ongoing project updates

The Mississippi Levee Board traveled to Washington, D. C. and met with the Mississippi Congressional Delegation during March 4-6, 2019. This annual trip, under the auspices of the Mississippi Valley Flood Control Association (MVFCA), provides the delegation with a status update of ongoing flood control projects in the Mississippi Delta

and it is an opportunity for the Levee Board to discuss funding requirements for U. S. Army Corps of Engineers flood control projects in the Mississippi Delta as well as Federal legislation which affects Levee Board projects.

Joining the Levee Board this year were representatives from the Greenville Port. The Port

discussed the need for annual dredging money to help keep the ports operating at full capacity during the low-water season which coincides with the farm harvest season.

The MVFCA was established in 1922 and it includes members from 16 states. The Mississippi Levee Board was one of the founding members of the MVFCA and its Board President Fred Ballard sits on the Executive Committee of the Association. The MVFCA hosted a reception the evening of March 6th which gives an opportunity

to informally meet with the U.S. Army Corps of Engineers Headquarters personnel and with Congressional staff.

Mississippi Levee Board President Fred Ballard said, "Our entire Mississippi Congressional Delegation has been very helpful and supportive of our flood control projects. It is always a pleasure and honor to visit with our delegation. We appreciate their service to our Great Country, the State of Mississippi, and especially the Mississippi Delta." ■



Congressman Bennie Thompson with the Levee Boards & Ports (3-5-19)



Sen. Roger Wicker and Sen. Cindy Hyde-Smith with the Levee Boards



Levee Boards & Ports (3-5-19)

Major General R. Mark Toy

Commander, Mississippi Valley Division; President, Mississippi River Commission

Major General R. Mark Toy assumed command of the Mississippi Valley Division (MVD), U.S. Army Corps of Engineers (USACE), July 23, 2019. He also serves as

President of the Mississippi River Commission. Toy serves as the senior military officer in the division, headquartered in Vicksburg, Mississippi, responsible for water resources engineering solutions in a 370,000-square-mile area, extending from Canada to the Gulf of Mexico and encompassing portions of 12 states. The mission of the division is to serve the Mississippi Valley region by providing vital public engineering services and stewardship of water resource infrastructure, partnering in peace and war, to strengthen our nation's security, energize

6 ■ MISSISSIPPI LEVEE BOARD

the economy and reduce risks from disasters. The division's work is carried out by district offices located in St. Paul, Minnesota; Rock Island, Illinois; St. Louis, Missouri; Memphis, Tennessee; Vicksburg, Mississippi; and New Orleans, Louisiana.

Prior to coming to MVD, Toy served as commander of the Great Lakes and Ohio River Division (LRD), USACE. While assigned to LRD, Toy deployed to Kabul, Afghanistan, in support of Operation Resolute Support. He served as the director for the Enhanced Security Zone (ESZ) leading a task force composed of personnel from USACE and the Joint Improvised Explosive Device Defeat Organization (JIDO). Task Force ESZ's mission was to improve the protective posture of Kabul's "Green Zone" resulting in improved security for the international community and the Government of the Islamic Republic of Afghanistan.

Toy is from Huntington Beach, California. He graduated from the United States Military Academy at West Point in 1987 with a Bachelor of Science in operations research. He holds a Master of Business Administration from Boston University (1991), a Master of Science in environmental engineering from the University of California at Los Angeles (1996), and a Master of Science in national resource strategy from the Industrial College of the Armed Forces (2010). He is a registered professional engineer in the states of Arizona and Virginia. ■



Gen. Mark Toy, Peter Nimrod and Col. Rob Hilliard

Cattle Guard Upgrade

In 2018 the Mississippi Levee Board made the decision to replace the existing 10' x 10' cattle guards with 16' wide 10' long cattle guards with precast concrete support beams and at the same time install new pull posts at the crown of the levee for the barbed wire cross fence. This is a long term improvement project which will make the cattle guard crossings safer as well as clean up the cattle guard crossings and make them more uniform throughout the Levee District. The first replacement gaps were installed in March 2019. ■



Installing new cattle gap

Helicopter Applications

172 miles sprayed in 2019

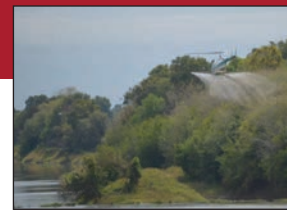
The U.S. Army Corps of Engineers began work on the Big Sunflower River & Tributaries Project in 1947. This project included channel improvements to over 700 miles of interior streams located within the Mississippi Delta. These streams provide the outlet for flood water in the Delta. In 1950, the Mississippi Legislature authorized the two (2) Mississippi Delta levee boards to participate as local sponsors of Corps of Engineers projects within the Yazoo Basin. The Mississippi

Levee Board is responsible for minor maintenance for 350 miles of interior streams within the Mississippi Levee District.

To perform this much needed maintenance, the Mississippi Levee Board contracts with a helicopter applicator to spray a portion of the interior streams each year. A mixture of aquatic herbicides is sprayed on the underbrush and privet that is encroaching into the required clear width of the channel.



Helicopter - fueling



Spraying Steele Bayou



Helicopter - flying

This required clear width must be maintained to ensure the streams have adequate flood storage and passage capacity. All our interior streams are being sprayed once every two years.

In the Fall of 2019 the Mississippi Levee Board treated 172.7 miles of its interior streams. This included 1,440 acres of interior streams located

primarily in the southern half of the Mississippi Levee District. Provine Helicopters sprayed on October 8-10 and October 12-14, 2019. Streams treated this year included the Big Sunflower River, Six-Mile Cut-Off, Dowling Bayou, Ditchlow Bayou, Twin Lakes, Little Sunflower River, Steele Bayou, Holly Bluff Cut-Off, Connecting Channel and Valewood Ditch. ■

Levee Enlargement Projects

Work is progressing on the levee enlargement and berm projects in the Mississippi Levee District. The Corps has completed 44 miles of levee and currently has another 12.1 miles under contract of the original 69 miles of deficient levee. Item 463L, a 2.7 mile levee enlargement project, is currently 98% complete. This item goes from just above

Chotard Resort to just below Laney's Camp on MS Hwy 465. Item 511L, a 3.4 mile levee enlargement project, is currently 97% complete. This item goes from Leota to Lake Jackson. Item 465L, a 2.7 mile levee enlargement and berms project, is currently 68% complete. This item ties Items 468L and 463L together between Goose Lake Road and Chotard Resort.

Item 463L Paving was awarded to Riley Bridge Co., Inc. to pave Hwy 465 within the limits of Item 463L. This paving project

built a 20 foot wide asphalt surface on top of the levee and was completed in 2019.

Item 462L, a 2.7 mile levee enlargement and berms project, was awarded to Phylway Construction, LLC on August 30, 2019 and is currently 0% complete. This item goes from Laney's Camp to Eagle Lake and is the final project including Hwy 465 on the levee.

Item 524L, a 0.6 mile levee berm project, was awarded to Circle, LLC on August 30, 2019 and is currently 0% complete. This berm project is located between Wayside and Avon, MS.

The Vicksburg District has asked for right-of-way (r.o.w.) for Items 458L (2.4 miles) and 452L (3.8 miles). These projects will be awarded in early 2020. ■



465L - Landside Seepage Berm Construction



465L - Building Landside Berm



463L - Paving Hwy 465

LEVEE ENLARGEMENT PROJECT UPDATE:

Completed Work – 44 miles

Items 468L, 474L, 477L, 488L, 496L, 502L & 509L

On-going Construction (12.1 miles):

- Item 463L – 2.7 miles – 98% Complete
- Item 511L – 3.4 miles - 97% Complete
- Item 465L – 2.7 miles - 68% Complete
- Item 462L – 2.7 miles – 0% Complete
- Item 524L – 0.6 miles – 0% Complete
- Future work remaining – 12.9 miles



2019 Annual Bus Inspection

On November 13, 2019, the Mississippi Levee Board hosted its Annual Levee Inspection. This year's trip began on the Mainline Mississippi River Levee at Fitler, Mississippi and traveled south to Hwy 61 at the Yazoo Backwater Levee.

Lunch was served at Toney's Grill in Vicksburg, Mississippi.



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BACK IN TIME:

Carbic Lamp

Lighting The Way

Before the widespread use of battery powered lights, generator powered electric light plants or the current craze for LED light bars, emergency lighting was provided during flood fights and at levee camps by carbide lights.

These lights produced a gas fuel source by the chemical reaction of water dripping from a reservoir onto calcium carbide cakes. The gas collected into a tank and was then burned for light. The gas was none other than acetylene; the same gas

used for metal cutting and gas welding. Some of you pioneer rice and catfish farmers may have used the same acetylene gas generation process to scare away birds with the first generation Reed-Joseph gas cannons.

The Mississippi Levee Board has several Carbic brand acetylene lights leftover from days gone by. ■



Carbic lamp being set up on the levee at Greenville during the 1927 Flood.

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