

Rollin' on a River: Using the Mississippi River to Study Memphis Geography

Name: Jayson Evaniuck

School Address: Raleigh-Egypt High School, 3970 Voltaire Memphis, TN 38128

Email Address: jevaniuck@bellsouth.net

Note: The attached unit plan was completed as part of a graduate education program. The papers at the end can be disregarded. Each lesson can stand alone; however, it is best looked at as a whole.

The unit plan is available in its entirety at:

<http://geography.uoregon.edu/edge/projects/index.html>

Rollin' on a River: Man and The Mighty Mississippi: A Unit Plan Using the Mississippi River to Study Memphis' Regional Geography

By: Jayson Evaniuck
Raleigh-Egypt H.S.
Memphis, TN

Table of Contents

Background and Introduction.....	3
Unit Plan.....	4
Lesson Plans	
Day 1-2 - Introduction to the Mississippi River Drainage Basin/Natural Environments/Flooding.....	5
Computer Animation Activities.....	6-7
Maps.....	8
Animation Activity Guide.....	9
Day 3 – Mississippi River Literature Activity.....	10
Passages from Mark Twain’s <i>Life on the Mississippi</i>	11-14
Question Answer Relationship.....	15-16
Sample QAR from <i>Life on the Mississippi</i>	17
Day 4 – US Army Corps of Engineers Historical Photographs/Music of the Lower Mississippi River Valley Show.....	18-19
Sample Photographs.....	20-25
Day 5 – Spatial Perspectives of Natural and Human Changes to the Lower Mississippi River Using Google Earth.....	26
Google Earth Activity.....	27-30
Mississippi River at Flood Stage (Memphis) Map.....	31
Mississippi River Elevation Profile Map (Memphis).....	32
Day 6 – Field Trip – Shelby Forest.....	33
Chucalissa Museum.....	34
Mud island River Museum.....	35
Day 7 – What Should Be Done With The Mississippi River Today?.....	36
Memphis Riverfront Development Corporation.....	37
Friends For Our Riverfront.....	38-39
Ducks Unlimited.....	40
U.S. Army Corps of Engineers.....	41-42
Advocate for the Mississippi River Corridor.....	43-44
Concerned Citizen.....	45-46
Appendix:	
Paper – Memphis Town Founding: A Historical Geography Study of Memphis, Tennessee From Pre-Colonial Contact to 2000.....	47-63
Paper – An Overview of Natural and Human Induced Geomorphic Changes in the Lower Mississippi River Valley.....	64-69

Background: I currently teach 9th grade World geography at Raleigh-Egypt H.S. The school is located in Memphis, Tennessee in what used to be Raleigh Springs before incorporation into Memphis. The school is an urban school of approximately 1350 students. The student population is 97.6% African-American, 1.8% Hispanic, .6% White and other. The school currently qualifies for Federal Title 1 funds based on the percentage of free or reduced lunches.

Introduction: I have now lived and taught in the Memphis community for seven full years. In my seven years I have come to see the Mississippi River as vital to the development of the city economically and culturally from the native cultures of pre-settlement time periods to today. As I have enjoyed the river as a sportsman, I have also gained an enormous appreciation for the natural river system and its amazing diversity. The power of the river and its changing nature is mysterious. While human alterations have benefited the local economy they have had negative environmental consequences. Consequently this leaves the river with many stakeholders, all with ideas and views of what should be done with the river.

Before there was Memphis, there was the river. Because of the river, Memphis exists. Yet who among Memphians really knows the Mississippi? We look down on the waters as we drive bank-to-bank to Arkansas. We tell our dogs and children not to go near the water. Should we get the wild urge to dip a toe in the current, well, the levees and the vines conspire to keep us away. Most of us would have to admit that we live next to the Mystery Mississippi: The River You Don't Know.

Yet the current of the Mississippi defines this part of the world. What would Greater Memphis be without the music of the Mississippi, the commerce of the Mississippi, the myths of the Mississippi? Our lore, our story, our tiny speck in history all flow on the river...

If you live around Memphis, you need to know about the river. Having a sense of place helps us understand who we are, where we come from and why life here unfolds as it does.

Commercial Appeal, The (Memphis, TN)-December 24, 2006
Author: Chris Peck

Unfortunately I find that my student's experience with the river is far different than my own as well as the writer above. Year after year I find that the majority of my students have not had any meaningful experience with the river. But rather view the river as a big muddy thing that you cross when you go to Arkansas or see when you go downtown. Furthermore, my students are usually oblivious to the aforementioned importance of the river.

Educators have a responsibility to teach about their local river systems. In Memphis, the Mississippi river is entrenched in our sense of place and historical heritage. It should be an intrinsic part of what constitutes identity for any "Memphian". It is for this reason that the following unit plan has been developed. Though this is a World Geography class, it is the belief of this educator that starting locally opens the door to learning about the world on a global level. It should be noted that this is a site-specific unit; however, the ideas of using local geography to learn about a place apply to all places on earth.

Unit Title: Rollin' on a River

Purpose: Man and The Mighty Mississippi: Using the Mississippi River to Study Regional Geography

Grade: 6-12

Time: 6-7 days (90 minute block)

Goals:

- For students to gain an appreciation for their local river and its impact on regional culture from indigenous groups through today
- For students to understand the natural environment of the river and Lower Mississippi River Valley
- For students to understand how humans have changed the river over time and the consequence of that change

Objectives:

- TLW examine the Mississippi river from a hierarchical approach: Drainage Basin, River, Lower Mississippi River Valley
- TLW understand the natural processes of the Lower Mississippi River Valley and the importance of wetlands ecosystems
- TLW analyze floods, flood control and natural geomorphic changes in the Lower Mississippi Valley
- TLW examine the human use of the river from indigenous culture to today
- TLW analyze art forms such as music and literature to create a sense of place and understanding of the natural and human landscape
- TLW evaluate how the river is used today from various stakeholders' points of view

National Geography Standards:

Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information.

Standard 5: That people create regions to interpret Earth's complexity.

Standard 6: How culture and experience influence people's perception of places and regions.

Standard 7: The physical processes that shape the patterns of Earth's surface.

Standard 8: The characteristics and spatial distribution of ecosystems on Earth's surface.

Standard 12: The process, patterns, and functions of human settlement.

Standard 14: How human actions modify the physical environment.

Standard 15: How physical systems affect human systems.

Standard 18: To apply geography to interpret the present and plan for the future.

River/Historical Vocabulary:

Drainage Basin	Headwaters	Tributary	Wetland	Alluvial Soil
Channel	Meander	Oxbow Lake	Cutoff	Sand Bar
Loess Bluff	Levee	Dike	Revetment	Barge
Dredge	Steamship	Segregation	Sharecropping	New Deal

Day 1 - Introduction to the Mississippi River/Natural Environment

Day 2 - Mississippi River Drainage Basin/Flooding

Day 3 - Mississippi River Literature Activity

Day 4 - US Army Corps of Engineer Historical Photographs/Music of the Lower Mississippi

Day 5 - Spatial Perspective of Natural Geomorphic River Changes, Human Changes, and Human use

Day 6 - Field Trip - Shelby Forest State Park, Chucalissa Museum, Mud Island River Museum

Day 7 - What should be done with the Mississippi River today?

Day 1-2 - Introduction to the Mississippi River/Natural Environment/Drainage Basin/Flooding

Time: 1-1.5 days (Could be done as two days on a regular schedule)

Objectives:

- TLW understand the natural processes of the Lower Mississippi River Valley and the importance of wetlands ecosystems
- TLW examine the Mississippi river from a hierarchical approach: Drainage Basin, River, Lower Mississippi River Valley
- TLW analyze floods, flood control and natural geomorphic changes in the Lower Mississippi Valley

National Geography Standards:

Standard 5: That people create regions to interpret Earth's complexity.

Standard 8: The characteristics and spatial distribution of ecosystems on Earth's surface.

Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information.

Standard 14: How human actions modify the physical environment.

Activities:

1. Start out by having students share their own perceptions and thoughts about The Mississippi River to launch students into thinking about the river as well as to gauge what students know and don't know.
2. Share interesting facts about the river to stimulate interest. Some can be found at the following site: <http://www.nps.gov/miss/riverfacts.htm>
3. Introduce vocabulary. Students should work on learning vocabulary out of class; however all words will be introduced in the context of the particular lessons.
4. Define Lower Mississippi River Valley as a region. Use the maps included to demonstrate the Drainage Basin, Mississippi River, and Lower Mississippi River Valley region. Discuss what a region is and demonstrate the Lower Mississippi River Valley region with a map as well as highlighting the natural environment of the region. Launch into a brief Power-point presentation of natural environment/wetlands ecology. Emphasis placed on the importance of regional bottomland hardwood forests to the environment
5. In the computer lab have the students go through the drainage basin animation <http://www.riverwebmuseums.org/activities/animation/> and the flooding animation <http://www.uky.edu/AS/Geology/howell/goodies/elearning/module12swf.swf>. Students should work with partners and fill out the computer guide as they watch the animations and interactive web sites

Assessment:

1. Completed computer activity guide
2. Discuss the advantages/disadvantages of flooding as well as human flood control efforts

Mississippi River Animations <http://www.riverwebmuseums.org/activities/animation/>

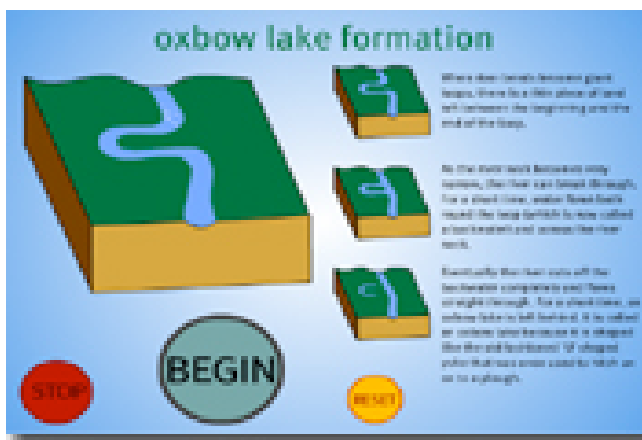
Learn about the Mississippi River Basin



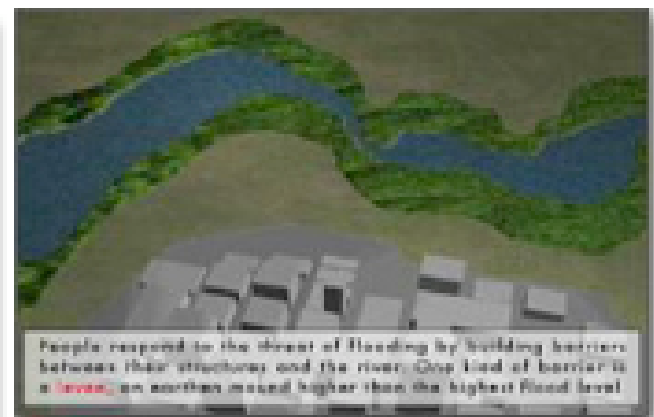
Mississippi River Flow at Different Locations



How Oxbow Lakes are Formed



How a Levee Works



Where is the Mississippi River Located?



How Deep is the Mississippi?



Home


Overview

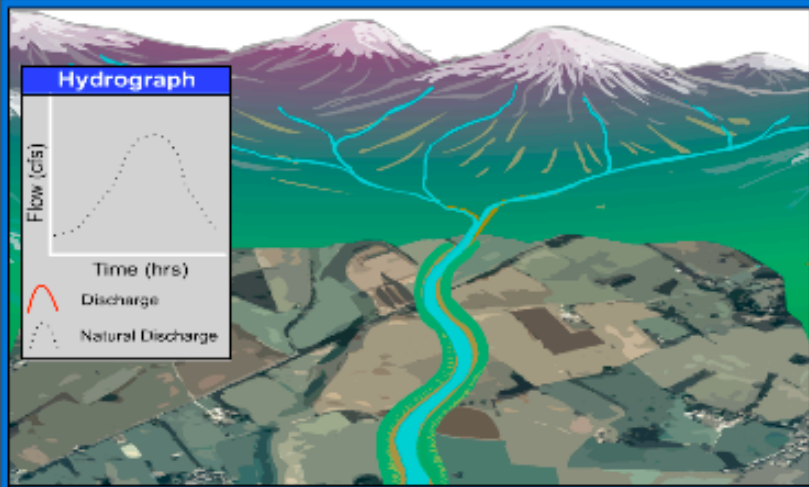
Model

Floods

Flood Model

Hydrograph





Flood Control

Land Use

Forest

Agriculture

Urban

None

Dam

Levees

Floodways

Flood

Flood Model

This model allows you to "play" sociopolitically with a drainage basin and see how your changes affect the flooding of the area. You can choose the types of development that take place as well as a style of flood control management to apply. You can then cause a flood, reviewing both the extent of damage and how the resulting flood hydrograph compares to a hydrograph from a predevelopment state. Try various combinations of factors to see how the hydrograph changes.

Click "More" to read about

Mississippi River Drainage Basin



Mississippi River



Lower Mississippi River Valley



Computer Animation Guide

Use the web site <http://www.riverwebmuseums.org/activities/animation/> to answer the following questions.

1. How deep is most of the Mississippi River? _____ The deepest part? _____
2. How large of an area is the Mississippi River drainage basin? _____
3. Name 6 major rivers that are part of the Mississippi River drainage basin. _____
4. What is the flow per second at Grafton, IL? _____ St. Louis, MO? _____
5. What explains the big difference between these two locations even though they are only 30 miles away? _____
6. What is the flow rate at Bemiji, MN? _____ Mississippi Delta? _____
7. Why is the river gaining flow rate as it heads South? _____
8. Sketch an oxbow lake that had been cut off from the river

9. Why is this feature called an oxbow lake? _____
10. What is a Levee? _____
11. Identify 1 advantage and one disadvantage of levees. _____

Use the web site <http://www.uky.edu/AS/Geology/howell/goodies/elearning/module12swf.swf> to answer the following questions.

12. What type of land use seems to flood the worst? _____
13. Why do you think this is? _____
14. Which type of flood control seems to have the least impact on the natural river system? _____
15. Which type of flood control limits flooding in the inhabited area the most? _____
16. Which flood control method represents *NIMBY* (not in my back yard)? _____
17. Which flood control method represents the *catch and hold* method? _____
18. Which flood control method represents the *run away* method? _____

Day 3 – Mississippi River Literature Activity

Time: 1-2 days (depending on students familiarity with QAR)

Objectives:

- TLW analyze art forms such as literature can create a sense of place and understanding of the natural landscape
- TLW analyze natural geomorphic changes in the Lower Mississippi Valley through literature

National Geography Standards:

Standard 7: The physical processes that shape the patterns of Earth's surface.

Standard 15: How physical systems affect human systems.

Activities:

QAR/Foldable™ activity using Mark Twain's *Life on the Mississippi* (a definitive first hand account of the natural river and its power before human changes to the river)

*This activity involves using the literacy strategy QAR (Raphael, 1982; 1986) to analyze portions of the Mark Twain's, *Life on the Mississippi*. QAR is a technique that teaches students to look for question answer relationships within a text. Often students only stay at the first level and look for questions that are blatant or "right there" while passing over information that involves inferred meaning from the text. QAR also helps students to categorize and organize information. It is useful for readers at all levels. A few good sources are:

<http://www.greece.k12.ny.us/instruction/ela/6-12/Reading/Reading%20strategies/QAR.htm> or <http://forpd.ucf.edu/strategies/stratqar.html> also see attached resources on QAR

1. Introduce QAR and the four types of questions to the class.
2. In groups of 3-4, have students practice QAR by taking a list of questions that the teacher has already come up with from the text and identifying which of the four question categories each question fits into. (A list is included for the text, only give some of the questions out, so there will still be plenty left over for them to come up with on their own on the next step.)
3. Once students understand how to categorize the types of questions they should use chapter 1 specifically pp.13-15 as well as selected passage from other parts of the book (passages that emphasis the standards and objectives are included) to come up with their own questions. Students should be able to come up with numerous questions for each category. Make sure students know that "The Author and You" category is most difficult and will not have as many as "Right There". They should be expected to find 5-10 "Right There", 3-5 "Think and Search", 2-3 "Author and You", and 3-5 "On My Own" questions. Adjust accordingly.
4. As a way to encourage interest and multiple learning styles, an activity such Foldables™ (Zike) is encouraged (<http://www.dinah.com/> or <http://foldables.wikispaces.com/>). Foldables™ is an excellent way for students to organize and categorize information hands-on/interactively.

Assessment:

1. Completed Foldables™ with each type of question represented from the text.
2. Share and discuss questions from each category as a class.

Mark Twain passages highlighting the wild, natural, changing river from *Life on the Mississippi*.

Mark Twain's account of the Mississippi River came from his first hand experience as a steamship pilot in the mid 1800s. Consequently, this literary work is one of the best historical sources available for understanding what the geography of the Mississippi River was like before extensive levees, dams, revetments, dikes and dredging were used to better control the river.

Chapter 1

"The Mississippi is well worth reading about. It is not a commonplace river, but on the contrary is in all ways remarkable. Considering the Missouri its main branch, it is the longest river in the world – four thousand three hundred miles. It seems safe to say that it is also the crookedest river in the world, since in one part of the journey it uses up one thousand three hundred miles to cover the same ground the crow would fly over in six hundred and seventy-five. It discharges three times as much water as the St. Lawrence, twenty-five times as much as the Rhine, and three hundred and thirty-eight times as much as the Thames. No other river has so vast a drainage basin: it draws its water supply from twenty-eight States and Territories; from Delaware on the Atlantic seaboard, and from all the country between that and Idaho on the Pacific slope – a spread of forty-five degrees of longitude. The Mississippi receives and carries to the Gulf water from fifty-four subordinate rivers that are navigable by steamboats, and from some hundreds that are navigable by flats and keels. The area of its drainage basin is as great as the combined areas of England, Wales, Scotland, Ireland, France, Spain, Portugal, Germany, Austria, Italy, and Turkey; and almost all this wide region is fertile; the Mississippi valley, proper, is exceptionally so." (13)

"The Mississippi is remarkable in still another way-- its disposition to make prodigious jumps by cutting through narrow necks of land, and thus straightening and shortening itself. More than once it has shortened itself thirty miles at a single jump! These cut-offs have had curious effects: they have thrown several river towns out into the rural districts, and built up sand bars and forests in front of them. The town of Delta used to be three miles below Vicksburg: a recent cutoff has radically changed the position, and Delta is now *two miles above* Vicksburg.

Both of these river towns have been retired to the country by that cut-off. A cut-off plays havoc with boundary lines and jurisdictions: for instance, a man is living in the State of Mississippi to-day, a cut-off occurs to-night, and to-morrow the man finds himself and his land over on the other side of the river, within the boundaries and subject to the laws of the State of Louisiana!

Such a thing, happening in the upper river in the old times, could have transferred a slave from Missouri to Illinois and made a free man of him.

The Mississippi does not alter its locality by cut-offs alone: it is always changing its habitat BODILY--is always moving bodily *sidewise*. At Hard Times, La., the river is two miles west of the region it used to occupy. As a result, the original *site* of that settlement is not now in Louisiana at all, but on the other side of the river, in the State of Mississippi. *Nearly the whole of that one thousand three hundred miles of old Mississippi River which LaSalle floated down in*

his canoes, two hundred years ago, is good solid dry ground now. The river lies to the right of it, in places, and to the left of it in other places.

Although the Mississippi's mud builds land but slowly, down at the mouth, where the Gulfs billows interfere with its work, it builds fast enough in better protected regions higher up: for instance, Prophet's Island contained one thousand five hundred acres of land thirty years ago; since then the river has added seven hundred acres to it." (14,15)

Chapter 2

"A big cat-fish collided with Marquette's canoe, and startled him; and reasonably enough, for he had been warned by the Indians that he was on a foolhardy journey, and even a fatal one, for the river contained a demon 'whose roar could be heard at a great distance, and who would engulf them in the abyss where he dwelt.' I have seen a Mississippi cat-fish that was more than six feet long, and weighed two hundred and fifty pounds; and if Marquette's fish was the fellow to that one, he had a fair right to think the river's roaring demon was come." (19)

Chapter 10

"but piloting becomes another matter when you apply it to vast streams like the Mississippi and the Missouri, whose alluvial banks cave and change constantly, whose snags are always hunting up new quarters, whose sand-bars are never at rest, whose channels are for ever dodging and shirking, and whose obstructions must be confronted in all nights and all weathers..." (68)

Chapter 11

"Some of these chutes were utter solitudes. The dense, untouched forest overhung both banks of the crooked little crack, and one could believe that human creatures had never intruded there before. The swinging grape-vines, the grassy nooks and vistas glimpsed as we swept by, the flowering creepers waving their red blossoms from the tops of dead trunks, and all the spendthrift richness of the forest foliage, were wasted and thrown away there. " (75)

"Behind other islands we found wretched little farms, and wretcheder little log-cabins; there were crazy rail fences sticking a foot or two above the water, with one or two jeans-clad, chills-racked, yellow-faced male miseries roosting on the top-rail, elbows on knees, jaws in hands, grinding tobacco and discharging the result at floating chips through crevices left by lost teeth; while the rest of the family and the few farm-animals were huddled together in an empty wood-flat riding at her moorings close at hand. In this flat-boat the family would have to cook and eat and sleep for a lesser or greater number of days (or possibly weeks), until the river should fall two or three feet and let them get back to their log-cabin..." (76)

Chapter 17 (Cutoffs)

"These dry details are of importance in one particular. They give me an opportunity of introducing one of the Mississippi's oddest peculiarities,--that of shortening its length from time to time... that is, the nine or ten hundred miles stretching from Cairo, Illinois, southward to New Orleans, the same being wonderfully crooked, with a brief straight bit here and there at wide intervals..."

The water cuts the alluvial banks of the 'lower' river into deep horseshoe curves; so deep, indeed, that in some places if you were to get ashore at one extremity of the horseshoe and walk across the neck, half or three quarters of a mile, you could sit down and rest a couple of hours while your steamer was coming around the long elbow, at a speed of ten miles an hour, to take you aboard again...

...Once there was a neck opposite Port Hudson, Louisiana, which was only half a mile across, in its narrowest place. You could walk across there in fifteen minutes; but if you made the journey around the cape on a raft, you traveled thirty-five miles...At some forgotten time in the past, cut-offs were made above Vidalia, Louisiana; at island 92; at island 84; and at Hale's Point. These shortened the river, in the aggregate, seventy-seven miles.

Since my own day on the Mississippi, cut-offs have been made at Hurricane Island; at island 100; at Napoleon, Arkansas; at Walnut Bend; and at Council Bend. These shortened the river, in the aggregate, sixty-seven miles. In my own time a cut-off was made at American Bend, which shortened the river ten miles or more.

Therefore, the Mississippi between Cairo and New Orleans was twelve hundred and fifteen miles long one hundred and seventy-six years ago. It was eleven hundred and eighty after the cut-off of 1722. It was one thousand and forty after the American Bend cut-off. It has lost sixty-seven miles since. Consequently its length is only nine hundred and seventy-three miles at present.

Now, if I wanted to be one of those ponderous scientific people, and 'let on' to prove what had occurred in the remote past by what had occurred in a given time in the recent past, or what will occur in the far future by what has occurred in late years, what an opportunity is here! Geology never had such a chance, nor such exact data to argue from! Nor 'development of species,' either! Glacial epochs are great things, but they are vague--vague. Please observe:--

In the space of one hundred and seventy-six years the Lower Mississippi has shortened itself two hundred and forty-two miles. That is an average of a trifle over one mile and a third per year. Therefore, any calm person, who is not blind or idiotic, can see that in the Old Oolitic Silurian Period, just a million years ago next November, the Lower Mississippi River was upwards of one million three hundred thousand miles long, and stuck out over the Gulf of Mexico like a fishing-rod. And by the same token any person can see that seven hundred and forty-two years from now the Lower Mississippi will be only a mile and three-quarters long, and Cairo and New Orleans will have joined their streets together, and be plodding comfortably along under a single mayor and a mutual board of aldermen. There is something fascinating about science. One gets such wholesale returns of conjecture out of such a trifling investment of fact."(118,119,120)

Chapter 29 (Memphis)

"The boat was to tarry at Memphis till ten the next morning. It is a beautiful city, nobly situated on a commanding bluff overlooking the river. The streets are straight and spacious, though not paved in a way to incite distempered admiration. No, the admiration must be reserved for the town's sewerage system, which is called perfect; a recent reform, however, for it was just the other way, up to a few years ago--a reform resulting from the lesson taught by a desolating visitation of the yellow-fever. In those awful days the people were swept off by hundreds, by thousands; and so great was the reduction caused by flight and by death together, that the population was diminished three-fourths, and so remained for a time. Business stood

nearly still, and the streets bore an empty Sunday aspect.

Here is a picture of Memphis, at that disastrous time, drawn by a German tourist who seems to have been an eye-witness of the scenes which he describes. It is from Chapter VII, of his book, just published, in Leipzig, 'Mississippi-Fahrten, von Ernst von Hesse-Wartegg.'--

'In August the yellow-fever had reached its extremest height. Daily, hundreds fell a sacrifice to the terrible epidemic. The city was become a mighty graveyard, two-thirds of the population had deserted the place, and only the poor, the aged and the sick, remained behind, a sure prey for the insidious enemy. The houses were closed: little lamps burned in front of many-- a sign that here death had entered. Often, several lay dead in a single house; from the windows hung black crape. The stores were shut up, for their owners were gone away or dead.

'Fearful evil! In the briefest space it struck down and swept away even the most vigorous victim. A slight indisposition, then an hour of fever, then the hideous delirium, then-- the Yellow Death! On the street corners, and in the squares, lay sick men, suddenly overtaken by the disease; and even corpses, distorted and rigid. Food failed. Meat spoiled in a few hours in the fetid and pestiferous air, and turned black.

'Fearful clamors issue from many houses; then after a season they cease, and all is still: noble, self-sacrificing men come with the coffin, nail it up, and carry it away, to the graveyard. In the night stillness reigns. Only the physicians and the hearses hurry through the streets; and out of the distance, at intervals, comes the muffled thunder of the railway train, which with the speed of the wind, and as if hunted by furies, flies by the pest-ridden city without halting.'

But there is life enough there now. The population exceeds forty thousand and is augmenting, and trade is in a flourishing condition. We drove about the city; visited the park and the sociable horde of squirrels there; saw the fine residences, rose-clad and in other ways enticing to the eye; and got a good breakfast at the hotel.

A thriving place is the Good Samaritan City of the Mississippi: has a great wholesale jobbing trade; foundries, machine shops; and manufactories of wagons, carriages, and cotton-seed oil; and is shortly to have cotton mills and elevators." (183,184)

Chapter 30

"It was a big river, below Memphis; banks brimming full, everywhere, and very frequently more than full, the waters pouring out over the land, flooding the woods and fields for miles into the interior; and in places, to a depth of fifteen feet;..."(185,186)

"Right There"

"Right There" questions require you to go back to the passage and find the correct information to answer the question. These are sometimes called literal questions because the correct answer can be found somewhere in the passage. "Right There" questions sometimes include the words "According to the passage..." "How many..." "Who is..." "Where is..." "What is..."



"Think and Search"

"Think and Search" questions usually require you to think about how ideas or information in the passage relate to each other. You will need to look back at the passage, find the information that the question refers to, and then think about how the information or ideas fit together. "Think and Search" questions sometimes include the words "The main idea of the passage..." "What caused..." "Compare/contrast..."



Question-Answer Relationships



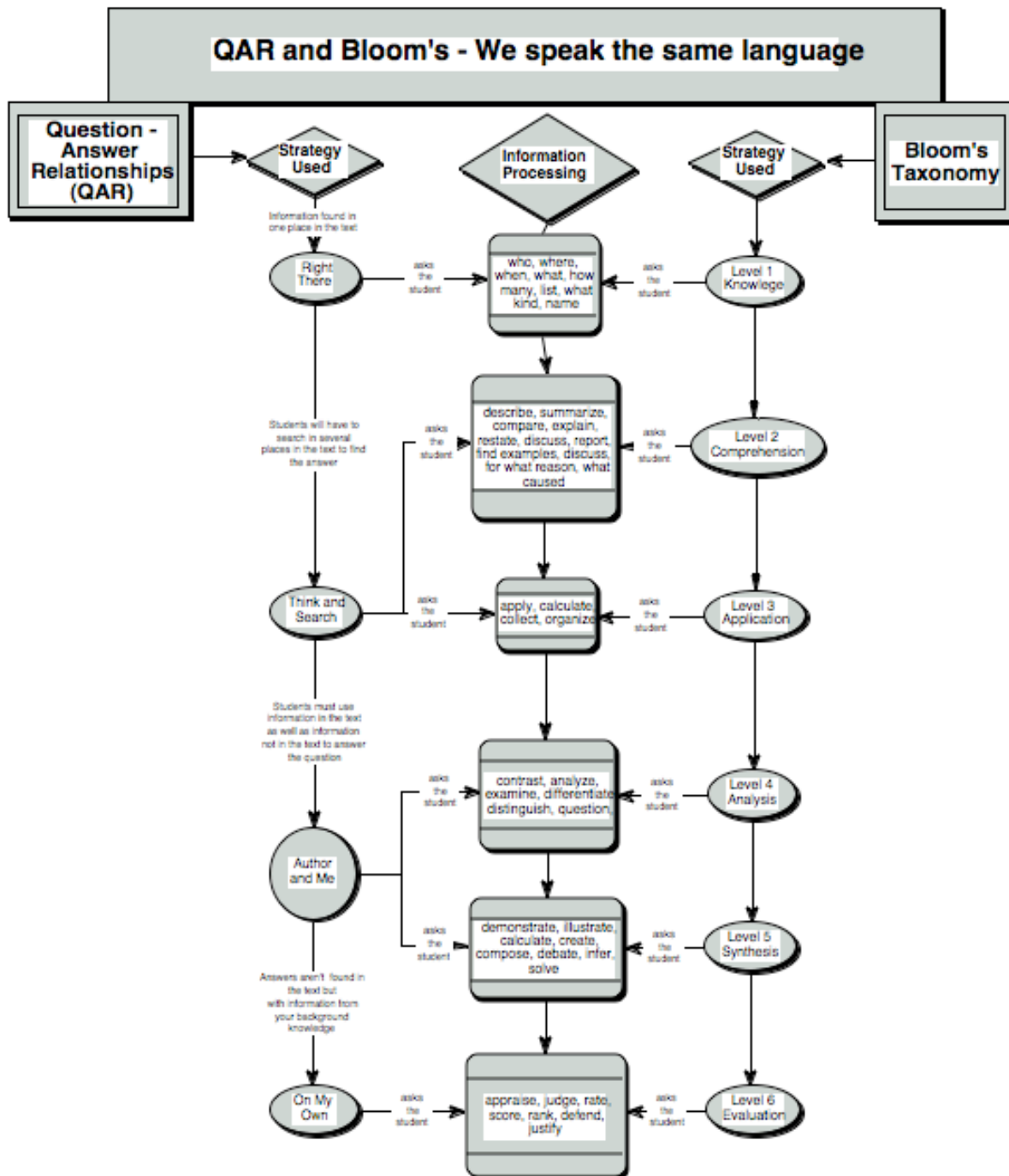
"On My Own"

"On My Own" questions can be answered using your background knowledge on a topic. This type of question does not usually appear on tests of reading comprehension because it does not require you to refer to the passage. "On My Own" questions sometimes include the words "In your opinion..." "Based on your experience..." "Think about someone/something you know..."



"Author and You"

"Author and You" questions require you to use ideas and information that is not stated directly in the passage to answer the question. These questions require you to think about what you have read and formulate your own ideas or opinions. "Author and You" questions sometimes include the words "The author implies..." "The passage suggests..." "The speaker's attitude..."



M.Kenney '01

Sample Questions from chapter 1 of *Life on the Mississippi*. Here are a few examples of questions and answers that can be used as examples to demonstrate how QAR works.

Right There

1. According to the text, how long is the Mississippi River? *4,300 miles*
2. Why was the Mississippi River called “the great sewer”? *It empties 460,000,000 tons of mud into the Gulf of Mexico annually*
3. What is an example of a cutoff in the text? *The town of Delta*
4. How many states does the Mississippi River’s water come from? *28*
5. Where is the original mouth of the Mississippi river believed to be? *Baton Rouge, LA*
6. What inhibits the river from building land at the mouth of the Mississippi River? *The waves of the ocean*
7. How many rivers does the author indicate flow into the Mississippi River? *More than 154*

Think and Search

1. In what ways does the author suggest the Mississippi river is remarkable? *Longest and crookedest river in the world, instead of widening at the mouth, it is narrower, vast differences between the rise and fall of the lower portion of the river, many other possible answers*
2. What causes towns to be separated from their original states? *Cutoffs*
3. What are two ways that the river changes its location? *Cutoffs and moving sideways*
4. Calculate how many total acres have been added to Prophets Island? *1570*

Author and You

1. Why do you think the author has a wide range of knowledge of the Mississippi River? *Mark Twain (Samuel Clemens) spent the first part of his life on Mississippi river steamships including numerous years as a pilot.*
2. What are some examples of landforms and features that are seen on the river today that have been created by the Mississippi river? *Lakes, islands, sandbars, natural levees*
3. Why is the region surrounding the Lower Mississippi River such fertile land? *Annual flooding deposits new fertile soil*
4. What examples of cities do you know of that have been established on land that was built by the Mississippi River? *Many answers, New Orleans, Baton Rouge, Vicksburg, West Memphis, Cairo*
5. How do you suppose the changing of the Mississippi River’s location through erosion affects the political boundaries of the surrounding land? *By the river changing its course, the political boundaries also change in their proximity to the river*

On My Own – (Answers will vary)

1. Tell about an experience you have had that involves a river.
2. Why do you think the author was compelled to write this book?
3. What is remarkable to you about the Mississippi River?
4. Why do you think the author began the book with so many facts about the Mississippi River?
5. How can geographic and historical facts about a river be useful to you

Day 4 – US Army Corps of Engineer Historical Photographs/Music of the Lower Mississippi

Time: 1 Day

Objectives:

- TLW analyze floods, flood control and human induced geomorphic changes in the Lower Mississippi Valley
- TLW analyze art forms such as music can create a sense of place and understanding of the natural and human landscape

National Geography Standards:

Standard 6: How culture and experience influence people's perception of places and regions.

Standard 14: How human actions modify the physical environment.

Standard 15: How physical systems affect human systems.

Historical Photos Vocabulary

Levee	Dike	Revetment	Barge	Dredge
Loess Bluff	Steamship	Segregation	Sharecropping	New Deal

Activities:

1. This day's activity will begin with a review of some of the basic vocabulary that the students should have learned. In particular: levee, dike, loess bluff, revetment, and dredge.

2. Students will view a 10-minute slide show that includes historic photographs from the US Army Corps of Engineers that highlights the floods of the early twentieth century in the Lower Mississippi River Valley as well as the earthen flood changes to the river system that the corps did. This slide show is available in it entirety at

<http://geography.uoregon.edu/edge/resources/index.html>

***The music is a must have for the slide show because it puts the students into the poverty, hard times, and flooding the region experienced. It enables the students to make a greater emotional connection with the people and the effects of the land. Some recommendations for regional music and regional songs are as follows:

<i>Memphis</i>	Chuck Berry, or Johnny Rivers
<i>Five Feet High and Rising</i>	Johnny Cash
<i>When the Levee Breaks</i>	Kansas Joe McCoy & Memphis Minnie
<i>Mississippi Heavy Water Blues</i>	Barbecue Bob
<i>Broken Levee Blues</i>	Lonnie Johnson
<i>Ol' Man River</i>	Paul Robeson
<i>Miss the Mississippi and You</i>	Jimmie Rodgers, Arlo Guthrie
<i>Mississippi River Blues</i>	Del Ray
<i>High Water Everywhere</i>	Charlie Patton

3. After the 10-minute presentation, there are selected slides that will be highlighted to show the following themes: Memphis Bluff topography and resistance to floods, levee construction, revetment laying, dredging, and various riverboats.

4. The class will then discuss and list advantages and disadvantages of river changes done by the US Army Corps in the first part of the twentieth century.

5. The last part of the class the song *Ol' Man River* by Paul Robeson will be analyzed. Students will analyze this song as an African-American protest song and the light this song sheds on life for African-Americans in the rural South during the time period. After students have listened to the song with lyrics, some points of emphasis during this discussion will be:

- How the African-American sense of place in the Lower Mississippi River Valley differs from the majority White America.
- Why does the river represent hardship?
- How do the fertile river valley soils represent progress, prosperity and poverty?

Assessment:

1. Class Discussion on the lyrics and implications of *Ol' Man River*.
2. In the last 5-10 minutes of class, students will write a reflection and will respond in an open-ended way to the historic photos as well as the music and discussion.

Memphis - The Great River City

- ✓ Situated 60 feet above the river on loess bluffs (Chickasaw Bluff #4)
- ✓ Memphis' bluff location has made it a suitable city for trade and distribution
 - ✓ Bluff location has protected the city from floods
- ✓ Location for Choctaw, Chickasaw, and other American Indian settlement





Flooding in the Lower Mississippi River Valley

- ✓The region is subject to periodic floods
- ✓Fertile soil was the result of centuries of floods
- ✓After Disastrous Floods in 1927 the Federal Government made flood control in the region a priority
- ✓The regions economy has benefited from flood control efforts





The Army Corps Respond with Levees and Levee Improvements

- ✓Levees allow farmers to farm fertile floodplain land
- ✓Levees encourage flooding during extreme high water times
- ✓Levees limit flooding during seasonal high water times
- ✓Levees cause sediment buildup in the main river channel



Cutoff Dredging

- ✓Dredging removes sediment from the bottom of the river
 - ✓Deepens the channel for transport
 - ✓Keep the river from rising within the levees
- ✓Is necessary because levees have interrupted natural soil deposition
 - ✓Cutoff Dredging shortens the rivers meanders
 - ✓Limits the natural bank eroding of the river
 - ✓Speeds up a natural process
- ✓Is useful for maintaining deep navigable channels



Matting and Revetments

- ✓ Limits bank erosion and sediment buildup in the river
- ✓ Helps maintain deep channels
- ✓ Discourages meandering and helps better control the river
- ✓ Concrete mattresses work better than logs, wood, wire, and rock



Day 5 – Spatial Perspective of Natural and Human Changes to the Lower Mississippi River Using Google Earth

Objectives:

- TLW analyze floods, flood control and natural geomorphic changes in the Lower Mississippi Valley from a spatial perspective
- TLW demonstrate proficiency using basic GIS spatial technology – Google Earth

National Geography Standards:

Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information.

Standard 14: How human actions modify the physical environment.

Materials:

- Computers with Google Earth installed
- Lab Activity (included)
- Maps of Memphis (included)

Activities:

*This day will be a lab day for everything that has been covered about the river up until this point. Students will work independently in the computer lab or with partners if there are not enough computers. All computers will need Google Earth downloaded on them beforehand.

1. Lab - Google Earth – Students will first go through a basic Google Earth tutorial, then they will follow the lab instructions to analyze everything from barges on the river and what they are carrying to using elevation and zoom to locate levees, islands, cutoffs, and oxbow lakes. Overall the straightening of the river for navigation, the meandering changing river as well as Memphis' flood immunity will be demonstrated.

Assessment:

1. Completed lab activity

Google Earth Tutorial

Layers

Layers are data points of geographic interest that can be mapped onto your viewing space. For example they can be simple things such as roads, cities, and boundaries. More layers of the map can be created to show things such as shopping locations, weather forecasts in specific locations, as well as multimedia informational videos from various locations of the world.

1. On the left side of the screen is the layer panel, which is titled “layers”. Click the box titled “Primary Database”. You have now turned off all of the layers. Later we will add numerous layers.

Zoom

Using Google earth there are several ways to zoom in to get a closer look at a place. Try practicing the zoom function each the various ways.

1. Pick a spot on earth and double click. The globe will continue zooming in until you single click to stop it.
2. Find the zoom bar in the upper right hand corner. Touch the + sign or drag the bar towards + to zoom in. Touch the – sign or drag the bar towards – to zoom out.
*If you have a hard time using the mouse, use + for zoom in and – for zoom out on the keyboard.
3. In the box titled “Fly to” type in your home street address including the city and state and click the magnifying glass. You can use the zoom bar to zoom in or out to see your neighborhood closer or farther away.
4. At the bottom right hand corner of the screen is “Eye alt” meaning eye altitude. This number tells how many kilometers or meters above the earth the screen view is. Zoom in at around 400 meters and keep your zoom here for the next step.

Compass

Google earth has a compass that allows you to move your view any direction you wish. Try both ways of moving around.

1. Click on the compass and move the wheel in the middle around. You can move it around wherever you want to go.
2. Left click and hold the mouse on a spot on the screen. Now drag the screen whatever direction you wish to go.
3. You may also use the arrows on the keyboard if you have a hard time with the mouse
4. Start from your home or apartment and travel the same road that you used to get to school. Stop and zoom in on Raleigh-Egypt High School.

Let's Explore the Mississippi River!

Using what we have learned about Google earth technology, lets use it to explore the Mississippi River.

Settings:

1. Type in Memphis, TN in the "Fly to" box and push return.
2. Under "Layers" click the box for "Borders and Labels" this will show you state boundaries and city and town names. Also click the box "Terrain" this will allow us to see altitude

Now we are ready to explore Memphis!

1. Zoom in to Memphis, TN with your "Eye alt" to around 1.0 km.
2. Find the Fed Ex Forum.

What does it say on the roof of the building? (You may need to zoom)

What is the Latitude and Longitude coordinates of the building? _____

What is the elevation of the building? _____

3. Set your "Eye alt" to around 2.0 km and move your view of Memphis to the west until you see the Mississippi River with land on both sides. (This can be done 3 ways: 1. With your keyboard arrows or 2. Using your compass to move your view west or 3. Right click and drag your view west)
4. Under "Layers" click the box titled "Roads".
5. Place your curser without clicking on the East bank of the Mississippi River near downtown Memphis. What is the elevation of the land next to the river?

6. What is the elevation of Riverside Drive? _____

7. What is the elevation of the first set of downtown buildings East of Riverside Drive?

8. If there are approximately 3 feet in a meter, how many feet higher in elevation is downtown Memphis than the river? _____

9. What you have just explored is a river bluff. This river bluff is the primary reason why Memphis is located where it is today.

10. Now place your cursor over the West bank of the Mississippi River.

11. What is the elevation of the bank of the river on the Arkansas side? _____

12. What is the elevation of the land as you move West of the river? _____

13. How is the land use different between the East and West sides of the river? _____

14. Why would the West side of the river have been a poor location for Memphis?

The Changing and Unpredictable River

The Lower Mississippi river valley is a constantly changing river. Despite revetments, levees, dikes and dredging, the river still changes its course over time by eroding its banks. This can be observed.

15. Under “Layers” click on the box “Places of Interest”, now scroll down and click the box “Geographic Features”. When you do this, the geographic features will appear in blue.

16. Set the Eye alt to around 7.5 km.

17. From Memphis move North along the Mississippi River until you see Island 40 chute on the West side of the river. Island 40 used to be part of the river but as the river changed course, it was no longer a part of the main river, except during flood times.

18. When Island 40 chute was removed from the river, which island was created?

19. Sometimes the river winds so much that it cuts itself off and shortens its path. Move North up the river until you get to Centennial Cutoff. On March 7, 1876 the river cut itself off leaving a portion of Tennessee’s land on the West side of the river. You can still see where the old river channel was before it cut its path short. West of Centennial cutoff you will see Brandywine Point, Centennial Bend, Centennial Island, and Pumpkin Lake. All of these areas were part of the main river channel before 1876. If you back the “Eye alt” to 15 km this becomes even clearer.

20. Set the Eye alt back to 7.5 km.

21. What other geographic features such as islands and lakes were created by the cutoff of 3/7/1876?

Man’s Attempt to Control the River

To encourage trade and travel along the Mighty Mississippi the US Army Corps of Engineers has had a long history of building levees and dikes to control the river. Levees have been useful for keeping the river from spreading too far into its floodplain. As a result they have made more farmland available and controlled some of the rivers meandering. River dikes have been useful at keeping the main channel deep and navigable. Lets look at some levees and dikes.

22. From Centennial Cutoff head south down the river until you reach Island 40 Chute again. If you see Memphis you are too far south. Just East of where the River meets Island 40 chute you will see the label for Saint Francis Levee.

23. Set the Eye alt to 500 m and zoom in on the word Saint Francis Levee. The Levee is marked by the dirt road that is found on it. You can also see the Levee by examining nearby elevations

24. Move your cursor back and forth over the Levee and see if you can watch the elevation change. You may even move the cursor northeast or Southwest along the Levee to get an idea of how long the Levee is.

25. What is the highest elevation that you have found on the Levee?

26. Approximately what is the elevation on both sides of the Levee when it flattens out?

27. Approximately how high is the Levee? _____

28. What is the Land like on the East side or river side of the Levee?

29. What is the Land use like on the opposite side of the Levee?

30. Now set the Eye alt to around 1.5

31. North of Memphis on the East side of the river are Loosahatchie Bar Dikes. They are located at 35 degrees 10' 41"N and 90 degrees 4' W

32. These Dikes were built by the US Army Corps of Engineers. Their purpose is to keep the fast moving water away from the shore. This keeps the river from eroding the banks and insures that the main channel will be deep and clear of sediment.

33. How many Dikes make up Loosahatchie Bar Dikes? _____

River Traffic

River barges are flats that carry heavy cargo materials; they are pushed by a boat almost always in groups in order to carry more goods. Often times the most common goods carried by barges in the Mississippi River are heavy items such as coal, grains, gravel, petroleum products and sand.

You should be proficient at zooming and moving around. Stay along the river and find some freight barges that are moving up or down the river.

34. Find a boat pushing or pulling barges on the river and tell the latitude and longitude coordinates _____

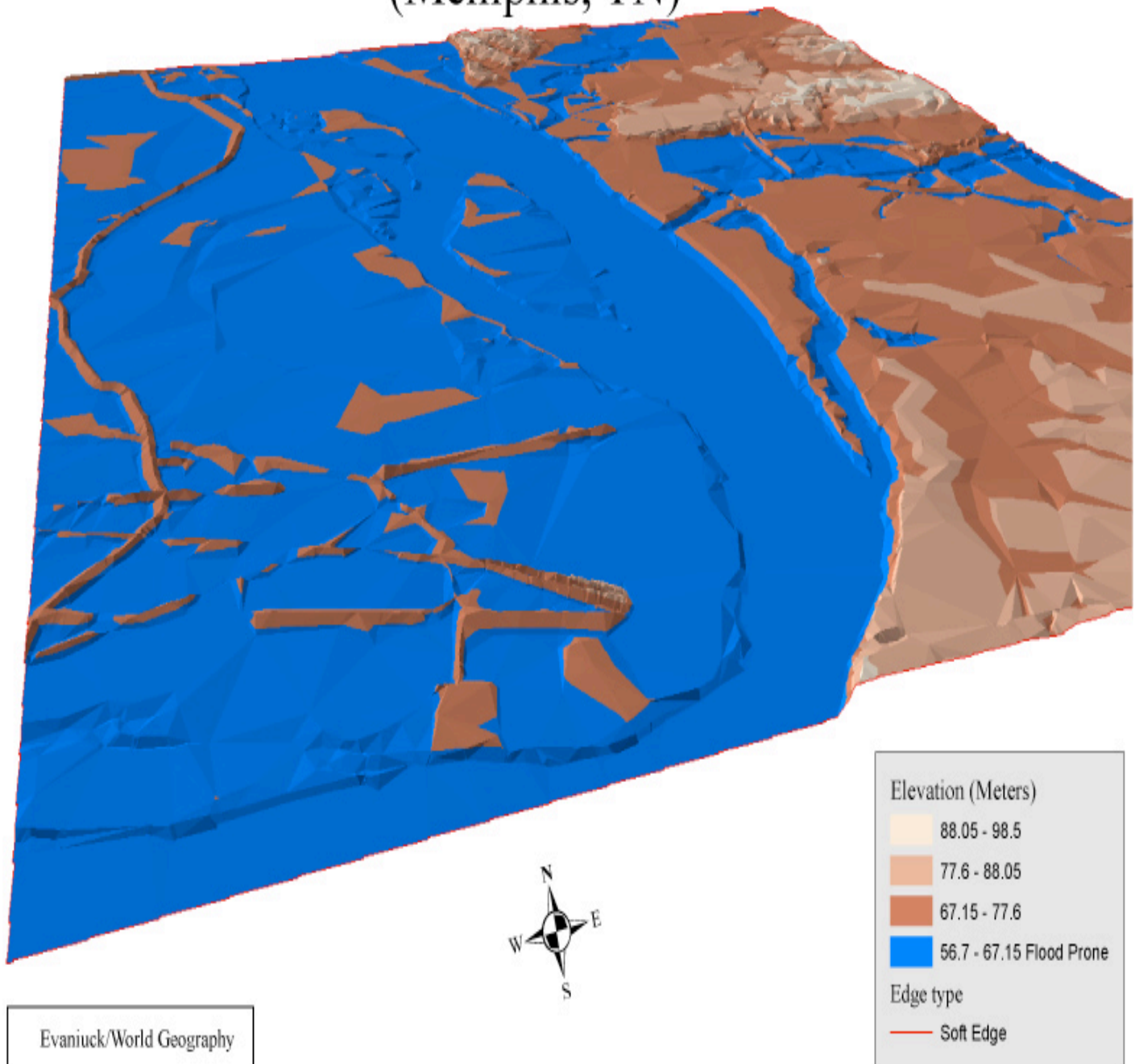
35. How many barges being moved? _____

36. What type of cargo do you think is being transported? _____

37. How does the river help the economy of

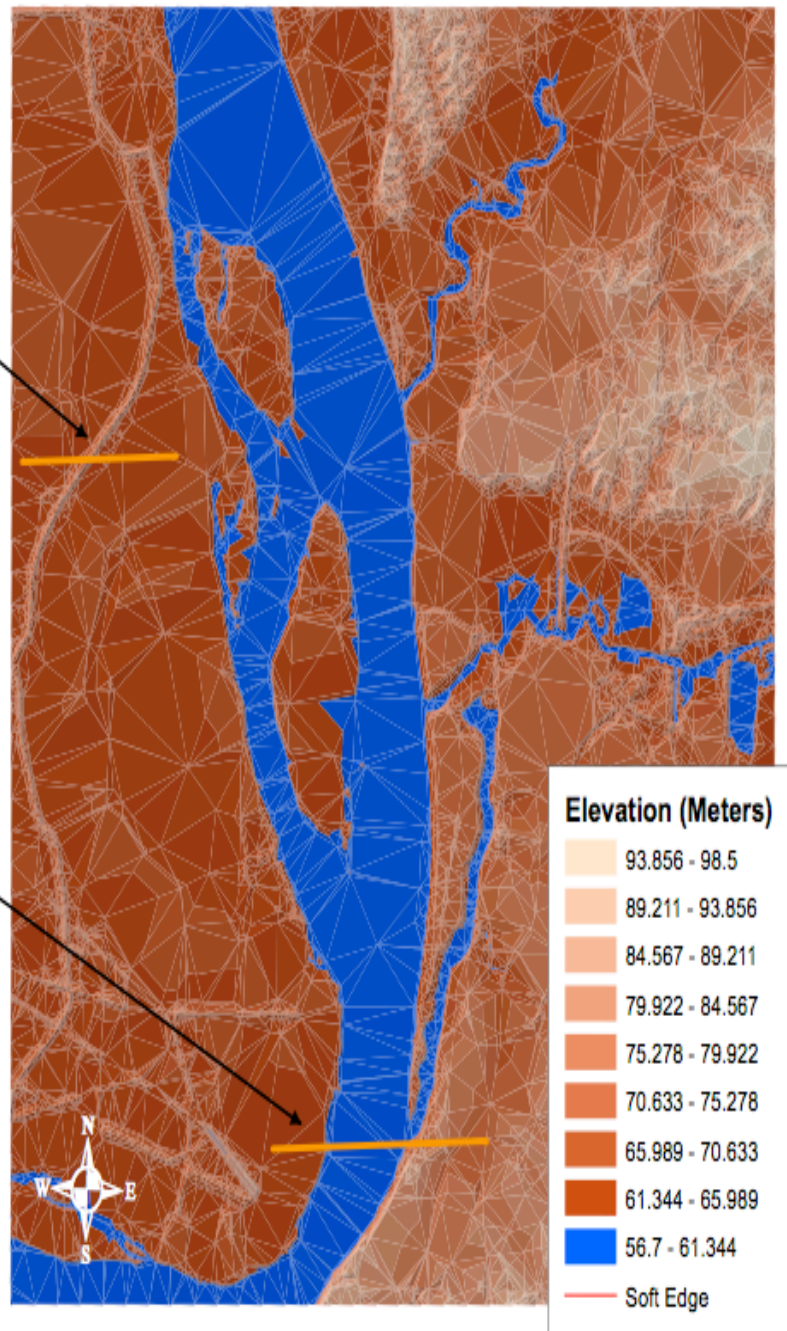
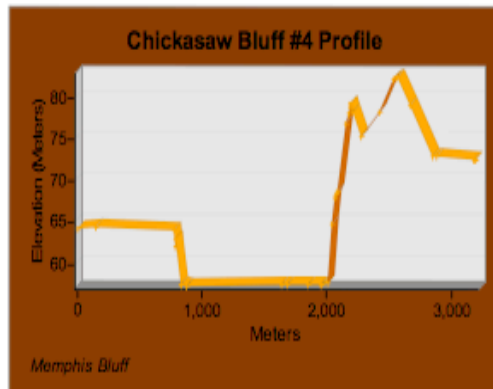
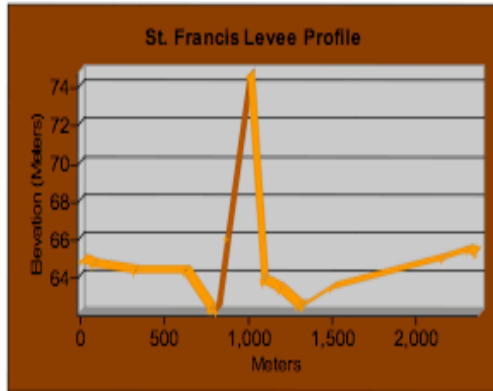
Memphis? _____

Mississippi River at Flood Stage (Memphis, TN)



Vertical Exaggeration = 3.5

Elevation of the Mississippi River Valley at Memphis



Evaniuck/World Geography

Day 6 - Field Trip

Objectives:

- TLW understand the natural processes of the Lower Mississippi River Valley and the importance of bottomland hardwood forests
- TLW examine the human use of the river from indigenous culture to today
- TLW analyze the overall impact of the Mississippi River on Memphis

National Geography Standards:

Standard 7: The physical processes that shape the patterns of Earth's surface.

Standard 12: The process, patterns, and functions of human settlement.

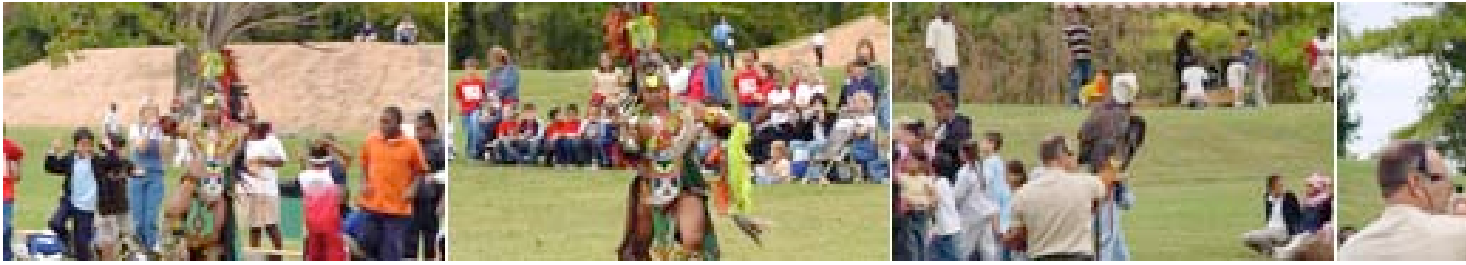
Activities:

1. **Shelby Forest State Park**– A tour from Tennessee State Park naturalist Samantha Fox of a natural bottomland flooded forest and its importance to the environment. Free!



<http://www.tennessee.gov/environment/parks/MeemanShelby/>

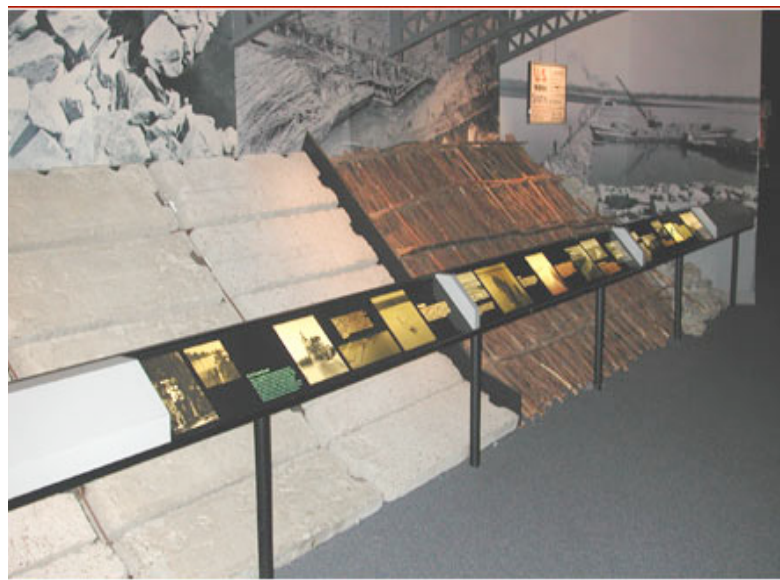
2. **Chucalissa Museum** – A tour by Choctaw Indian guide Cubert Bell Sr. that highlights the Native American settlement in the region and the importance of the river. \$3.00 per student.



<http://cas.memphis.edu/chucalissa/about.htm>



3. **Mud Island River Museum** – Highlights the history and cultural development along the river from Native to settlement through the Civil War to today. Students will investigate the relationship between people of the region and the river throughout history. Includes a model of the lower Mississippi river from Headwaters to the Gulf. \$9.50 per student. Includes lunch.



<http://www.mudisland.com/museum.asp>

Assessment:

1. Students will have take home guided response questions to answer regarding their thoughts on each site. The purpose is for students to reflect after they have seen everything rather than try to copy their friend's papers while at the site. Students should therefore be encouraged to take notes to help with their guided response questions

Day 7 - What should be done with the Mississippi River today?

Time: 1-1.5 days

Objective:

- TLW evaluate how the river is used today from various stakeholders' points of view

National Geography Standards:

Standard 18: To apply geography to interpret the present and plan for the future.

Activities:

This final assessment will encourage students to develop their own thoughts on the river's future.

1. Students will be divided up into 6 different teams. Each team will represent one of the many stakeholders affecting the Mississippi River in the Memphis community.
 1. Memphis Riverfront Development Corporations . <http://www.memphisriverfront.com>
 2. Friends For Our Riverfront. <http://www.friendsforourriverfront.org>
 3. Ducks Unlimited <http://www.ducks.org/conservation/initiative21.aspx>
 4. Colonel of the US Army Corps of Engineer
<http://www.mvm.usace.army.mil/regulatory/memphis.htm>
 5. Advocate for a Mississippi River Corridor <http://www.msrivertn.org/>
 6. Local Citizen about Sewage in the water and future enjoyment

In their assigned group students will study the viewpoint of their assigned stakeholder. Each team will prepare a brief presentation of what they want to see happen with the river in the future.

2. Group presentations – each group will represent different stakeholders' perspectives.
3. After each group has given a brief presentation, students will have a round table discussion/debate on what should be done with the river. Each group will have to support the side they are representing. Students will be graded on participation as well as their group's ability to represent their viewpoint beyond the basic information they previously presented.
4. After the student led debate/discussion is completed students will engage in a class discussion of the question, what should be done with the river/Memphis riverfront? At this time students will be encouraged to formulate and share their own opinions.

Assessment:

1. Individual participation in the group process.
2. Groups Discussion

Riverfront Development Corporation

<http://www.memphisriverfront.com/about>

Vision

A world-class waterfront destination rooted in the unique history and character of Memphis that showcases the Mississippi River's power and majesty and binds us together as a community.

Mission

To create and implement a Master Plan for the development of the Memphis Riverfront which includes green space, public amenities, private development and economic opportunities developed jointly with citizens and funded through a public/private partnership.

Purpose

To plan, promote and coordinate the development and operation of amenities that will enhance the attractiveness, accessibility and economic value of the Memphis waterfront. Its purposes also include the development of public/private partnerships designed to implement the goals set forth in a Master Plan.

Under contract with the City of Memphis, the Corporation will be responsible for planning, operating, and enhancing the riverfront parks, Mud Island River Park and the Promenade.

Goals and Objectives

Create a world-class destination along with the five-mile downtown riverfront for Memphians and visitors.

- * Involve the public in all stages of planning and implementation.
- * Create family oriented destinations and activities.
- * Create a flavor and texture unique to Memphis, rooted in its cultural and historical characteristics.
- * Include public art that is enlightening, historical, playful and accessible.
- * Maintain and enhance usable green spaces along riverfront.
- * Create a pedestrian-friendly urban character linking downtown and the waterfront with broad public access.
- * Encourage sustainable economic development on the Riverfront to the benefit of both Memphis and the entire region.

Strategy

The Memphis Riverfront Master Plan is complete, and was formally endorsed by the Memphis City Council on May 21, 2002. Riverfront Development Corporation is now creating an implementation strategy. Continue to visit website for upcoming improvements to your waterfront.

Friends For Our Riverfront

<http://www.friendsforourriverfront.org>

A better way

Cities around the country are rejuvenating their waterfronts to jumpstart downtown redevelopment. Where it's been most successful, the plan has focused on the city's uniqueness and the goal has been to make the city the most attractive, pleasant place to live. According to Mayor Richard Daley whose city Chicago has witnessed a spectacular renaissance, business will follow.

Memphis has a head start. We sit on a dramatic Bluff overlooking the most important river in North America.

Mark Twain recognized its beauty in 1883 when he wrote in *Life on the Mississippi*, "It is a beautiful city, nobly situated on a commanding bluff overlooking the river."

According to Venturi, Rauch and Scott Brown, designers of the 1987 Center City Development Plan, "it is the vastness and almost overwhelming grandness and beauty of the river and the Arkansas flood plains coupled with the city's spectacular sitting on the bluffs, that most strongly distinguishes downtown Memphis."

It is the riverfront that shapes our identity as a City and gives us a pride of place. The public riverfront and harbor are irreplaceable.

Rejuvenating them should be our goal, and it doesn't have to cost hundreds of millions of dollars. In fact, if you've ever watched a sunset from the Bluff or big barges make the turn into our harbor, you'll have trouble believing anyone would even suggest making Memphis a bluff less city on Wolf Lake, much less spend tax dollars to do it.

There's a better way.

Let's start now, and let's do it right.

Any plan for the Memphis riverfront should

- * build on our strengths and those things that make us unique,
- * improve the quality of life for the people of Memphis,
- * respect our history,
- * foster downtown's renaissance,
- * and stimulate use of our harbor and public spaces.

Any plan for the Public Promenade should honor the use for which the land was dedicated and give us what we've said we want – a great urban park on our riverfront.

Where cities are successfully rejuvenating their riverfronts, parks are helping bring them back to life. Parks bring space, air, and beauty into a city and provide social, environmental, economic and health benefits. They often become a city's signature and prime marketing tool. Federal funds, foundation grants, and individual gifts are being used to support and create park projects.

And the parks are having a major impact, not just on the quality of life, but also on the economic vitality of their cities.

Check out the successes in other cities, and remember -- It can happen in Memphis.

We have one of the few slack water harbors in the country; it can be full of boats. The Public Promenade is ours to use as a great urban park; it can be part of a greenbelt that connects the river to our historic downtown and provides us with the framework for what we've said we want on our riverfront:

- * flexible open spaces;
- * beautiful gardens;
- * places to play, walk, hear music, eat a sandwich, get a cup of coffee;
- * a place to gather, picnic, and watch the sunset...

Ducks Unlimited

Mississippi Alluvial Valley (MAV)

<http://www.ducks.org/conservation/initiative21.aspx>

The Mississippi Alluvial Valley (MAV) represents the historic floodplain and valley of the lower Mississippi River. It is easily the most significant winter habitat area for mallards in North America. The MAV was once a 24.7 million acre complex of forested wetlands interspersed with swamps, cypress-tupelo brakes, scrub-shrub wetlands and emergent wetlands. This vast complex of wetlands, through which nearly 40 percent of North America drains, provided wetland functions and wildlife values of incalculable worth. However, the landscape in the MAV has changed dramatically during the last 200 years, with the most rapid change occurring within the last 75 years. Today, only about 20 percent of the original forest remains in the MAV. The rest has been converted to agricultural production.

Importance to Waterfowl

- * The MAV is the continent's most important wintering habitat for mallards and wood ducks, but other species, such as gadwall and green-winged teal also are common.

- * Following widespread land conversion, the region has become more significant to northern pintails, green-winged teal and northern shovelers, as well as snow and white-fronted geese.

- * Catahoula Lake and the lower Mississippi River delta together winter approximately 10-25 percent of the continental population of canvasbacks.

Habitat Issues

- * Approximately 80 percent of the forested lands in the MAV have been cleared.

- * Natural flooding in the MAV has been reduced by 50-90 percent.

- * The availability of feeding habitat or forested habitats that provide pair isolation and thermal refuge during cold snaps has been significantly reduced.

- * Mechanized cultivation has contributed to the excessive growth of lesser snow goose populations in the region.

DU's Conservation Focus

- * Protect private lands by expanding the existing conservation easement program.

- * Assist landowners to restore or enhance private land through partners' programs and to encourage management of habitat on private lands.

- * Restore or enhance public land in cooperation with state and federal agencies.

Special Commentary on The River 1: Corps, river share long history -- Flood threat poses a constant challenge

Commercial Appeal, The (Memphis, TN)-December 31, 2006

Author: Col. Charles Smithers Special to The Commercial Appeal

For more than 175 years, the U.S. Army Corps of Engineers' hopes and fears for the Mississippi River have reflected the hopes and fears of the citizens who both rely on, and prosper from, the river's incredible resources. As a result, the corps has enjoyed a long and fascinating relationship with the Mississippi River. In fact, our nation's geographic expansion and economic growth directed the corps' efforts to harness the river and capture its immense potential.

Our nation's founding fathers envisioned a network of interconnected waterways, not only for national defense, but also for economic development. The corps has worked in the Lower Mississippi Valley since 1824 to achieve that vision. During the infancy of our republic, the Mississippi was a snag-infested, unruly river that featured braided, split channels and frequent floods. Navigation interests demanded a safer, more reliable river, without the impediments that grounded and sank hundreds of vessels carrying valuable commodities.

In response, the corps removed logjams with snag boats and, over the past century, we've used steam- and diesel-powered dredges to maintain a reliable navigation channel. Since 1937, river commerce on America's first "superhighway" has been shut down just once by low water. The primary dream realized by the corps' navigation success story is that our region's farmers and manufacturers stay competitive in the world marketplace with the incredible cost savings derived from water-borne transportation.

Posing an even greater challenge to human life and property is the river's history of deadly and destructive floods. From the time of the first permanent settlements along the banks of the river, the most fearsome word was "flood." Founded in 1718, the city of New Orleans was badly inundated many times during its early years. The city recorded nine great floods between 1782 and 1850, and in 1882, one of the most disastrous floods recorded to that point devastated the entire Delta area of 35,000 square miles. In his book, "Life on the Mississippi," Mark Twain labeled the 1882 flood, "The Chocolate Tide."

Then, in 1927, the nation experienced the greatest flood in the history of the United States, when the Lower Mississippi River ripped through earthen levees to reclaim its entire floodplain. On April 19, 1927, a levee near New Madrid, Mo., burst open, flooding more than 1 million acres. Water covered portions of seven states - Missouri, Illinois, Kentucky, Tennessee, Arkansas, Mississippi and Louisiana. Grouped together, the

flooded lands equaled the area within the state of Indiana. At its worst point, the flood put water over the tops of houses 75 miles away from the river's banks, and the river stretched like a 100 mile-wide lake along vast stretches of the delta.

In response to the devastating flood of 1927, and over the last 79 years, the corps' Mississippi River and Tributaries Project (MR&T) has provided more than \$260 billion in flood damage reductions in return for a nearly \$12 billion investment. By any economic and engineering standard, the MR&T's flood damage reduction work is a tremendous success. Clearly, engineering has been at the heart of regional development for decades. It has played a critical role in flood protection, river navigation, recreation and a host of other benefits to improve our society.

Today, our hope for the future development of the river and its abundant resources depends upon a new kind of engineering - relationship engineering. A recent example of relationship engineering occurred when the corps began a vigorous quality inspection of all Mississippi River and Tributaries flood protection works to ensure the entire system is strong enough to withstand another massive flood similar to the Great Flood of 1927. After all, levees are the backbone of the vast flood protection system that extends from Cape Girardeau, Mo., nearly to the Gulf of Mexico.

By continuing to build trust through open communications, mutual respect and careful coordination, we will all continue to enjoy this vast and powerful resource that we find right outside our front door - the great Mississippi River.

=====

Special Commentary on The River 5

Corridor connects past, future

Commercial Appeal, The (Memphis, TN)-December 31, 2006

Author: Diana Threadgill Special to The Commercial Appeal

A corridor of extraordinary natural, cultural and economic bounty exists in our very own front yard in Tennessee, and a significant group of citizens in six western counties has organized to embrace and promote the unique resources that flow from our legendary Mississippi River.

The idea of a river corridor is not a new concept. An initial plan for its development dates back to the 1930s, but largely due to economic conditions, the project was never realized. In 2001, while developing a regional plan spearheaded by several agencies and the governors alliance, our awesome river was brought back to the forefront as an untapped treasure.

This contemporary initiative, The Mississippi River Natural and Recreational Corridor, is committed and strong. Its mission is to identify, conserve, and interpret the region's natural, cultural and scenic resources to improve the quality of life and prosperity in West Tennessee.

Chairman John Sheahan, a longtime conservation and outdoor advocate, guides the 26-member steering committee that directs the activities of the project. Currently hosted by the Tennessee Parks and Greenways Foundation, the corridor has dedicated partnerships with the Tennessee Wildlife Resources Agency, the Tennessee Civil War National Heritage Area, the Community Foundation of Greater Memphis and the Memphis Regional Chamber. It also has the support of dozens of other nonprofit, private and government organizations and six county task force committees working in or near the Mississippi River.

The conceptual master plan for the project addresses all of the attributes and amenities that are in the corridor, and positions them within seven umbrellas:

- Conservation for scenic landscapes and natural wildlife and fish habitats.
- Transportation for access throughout the corridor including roads, bike routes and walking paths.
- Recreation for existing and future activities like hiking, camping, fishing, boating, hunting, picnicking, birding, canoeing and kayaking.
- Historical and Cultural Amenities that range from the prehistoric ice age to modern times.
- Health and Wellness promotions throughout all of the activities.

- Education and research about the River, nature, ecology, conservation, culture and history.
- Economic Development for the region.

We envision the corridor to be an interconnected "tapestry" of special places. This project not only puts West Tennessee in the forefront, it will mean thousands of jobs for our citizens.

Our plans are to showcase the Mississippi River corridor as a national model that is environmentally and economically sustainable. By conserving the natural, scenic resources and historical assets inherent to our unique landscape, we will create a legacy with outstanding "human habitat" for generations to come.

For more information or to learn more about the Corridor project, please go to: www.msrivertn.org or call (901) 278-8459.

=====

Special Commentary on The River 2

A treasure to respect -- Raising our standards for the river would also raise our city's self-esteem

=====

Commercial Appeal, The (Memphis, TN)-December 31, 2006

Author: Joe Royer Special to The Commercial Appeal

The Mississippi River is one of the world's most impressive and powerful natural resources. And, this largest river in North America flows through Memphis - right at our own front door! My vision for the Mississippi River is connected to my vision for a progressive, exciting Memphis that is an attractive city for making a living, raising a family and enjoying a wide variety of recreational amenities. Specifically, it is my dream that our city will embrace the recreational opportunities of this river and especially care for its beauty and water quality.

When it comes to recreation on the Mississippi, I have been kayaking on the river for over 30 years. The 26-year-old Outdoors, Inc. Canoe and Kayak Race was begun 10 years before Harbortown began development to highlight the river and demonstrate that recreation could take place on our own Memphis riverfront. I often hear people say that the Mississippi River is too dangerous for recreation, but I sometimes liken our river to San Francisco Bay. My first business trip after graduating from The Herff College of Engineering at the University of Memphis in 1971 was to San Francisco. Sixty-five years ago, the cold, shark-infested waters, strong rip tide currents and gale-force winds were reason enough to build a maximum-security prison called Alcatraz. Now, of course, Alcatraz is a national park and tourist attraction. Our Hernando DeSoto bridge is a city-defining landmark just as the Golden Gate bridge defines San Francisco. In fact, my past 30 years of attending outdoor industry conferences on skiing, kayaking, cycling and hiking confirm that the more extreme the natural resource, the greater its recreational value. Think of the steep slopes and 400 inches of snow on Aspen Mountain. Or, closer to home, Tennessee's own whitewater Ocoee River. TVA thought that the Ocoee was useful only for its electricity generation - until water releases proved valuable for river recreation, bringing a whole new tourist industry and even the 1996 Olympics to the Chattanooga area.

And, speaking of Chattanooga, before any new museums or aquariums were built, city leaders and the private sector embraced higher than required standards for water quality. Chattanooga's recreation on their improved riverfront is now growing exponentially.

To attract more recreational use on the Memphis riverfront and harbor, our water-quality standard must be competitive, exceeding the basic, required standards rather than just getting by. We live in a competitive world; magazines rank cities. Like it or not, we must raise our standards or Memphis will continue to be at the bottom of the lists - whether it's obesity, health quality or education. Private business leaders and public officials that fast track their success go beyond what's expected, far exceeding their measurement goals.

It's time to do a much better job in treating the wastewater that enters the river north of Greenbelt Park on Mud Island. This polluted foam discharge frequently drifts all the way to the Hernando DeSoto Bridge. Thirty-year-old wastewater treatment technology can easily address this problem.

And, there is a great need to clean the Wolf River Harbor now that the land bridge has been wisely eliminated from the Riverfront Development Corp. plan by the City Council. Runoff from city storm drains is not filtered, bringing floating debris. This frequently impairs the quality of the water and the esthetics of the harbor.

Even with this floating trash, recreation in the harbor and river is growing. In fact, the number of kayaks, rowing shells, yachts and fishing boats has been expanding at the Memphis and Harbor town marinas. If the litter problems were solved and the harbor's banks were landscaped and maintained, can you imagine how many additional boats would be drawn to our waterfront?

With more residential space being added overlooking the harbor, the demand for a more beautiful, well-maintained harbor is increasing. Clean water is good for the business climate, development, and essential to our city's self-esteem. Money spent on this effort is a wise investment, not just a line item expense.

The good news is that we have a magnificent natural resource like the Mississippi River that has inspired great literature, photography and music. Despite our faults in caring for the river, it'll never leave us for another city, and if we respect it, the river and harbor will add great value to the Memphis urban area.

=====

Memphis Town Founding: A Historical Geography Study of Memphis, TN From Pre-Colonial Contact to 2000

As of 2000, Memphis, Tennessee had 650,100 people living in Memphis city limits. The metropolitan area had a population of 1,135,614 (U.S. Census Bureau 2000). Geography has played a vital role in Memphis' history, determining everything from the original town establishment, to growth and development as a city. The history of the founding and development of Memphis, Tennessee cannot be understood without a geographical perspective. In this paper the historical geography of Memphis will be traced with a special emphasis placed on the founding through the years of greatest development.

The Physical Landscape of Memphis

Memphis is located on the banks of the Mississippi River in the Mississippi River Valley, which is located between Cairo, Illinois and New Orleans, Louisiana. (See Figure 1) The river has eroded the valley gradually over the years; consequently it is virtually flat with some gentle rolling hills (Johnson, 1928). Centuries of loessial deposits and alluvial deposits have made the soil of the valley extremely fertile. The alluvial deposits have been created through centuries of slow meandering and spring rains that an enormous flood plain has developed. This flood plain is between 30 and 100 miles in width from Cairo to the Gulf of Mexico (Hawkins 1982, 19). The flood plain is the widest in the area between Memphis and Vicksburg, Mississippi. It is commonly referred to as "the Delta region," or the upper Mississippi River Delta. (See Map)

On the eastern shore of the valley are a series of four bluffs that rise above the river. The region does not have any exposed rock areas. Underlying rock layers have elevated to create a sedimentary rock plateau that touches the river in four places, the fourth one referred to as Chickasaw Bluff Number 4 is the current location of Memphis, Tennessee (Hawkins 1982, 19). A series of freshwater aquifers lay in the Mississippi Embayment below the region. The Memphis aquifer is part of this large embayment and is an excellent water source (Groundwater Institute).

Memphis is located in a humid subtropical climate region. The average temperature of the warmest month varies from 80-86 degrees F., and the coldest month is 39-42 degrees F. Annual precipitation is around 55 inches with 6 inches being in the form of snow. Relative humidity in
Jayson Evaniuck 8/31/08

Memphis averages 72% annually. These combined elements give Memphis and surrounding areas a growing season of 228 days (Johnson 1928). All of these factors contribute to the regions two main natural resources of cotton and timber.

Early inhabitants, passerby's, and settlers

Native Americans first inhabited Memphis. For thousands of years these Woodland Indians made their home in West Tennessee. Local Indian history says that the Choctaw and Chickasaw tribes were one tribe west of the Mississippi River, and at some point crossed the river and became two separate tribes (Roper 1970, 14-15). These tribes lived in strings of culturally developed towns along the Mississippi River that included politicians and Priests. In what is modern day Memphis, Indians built towns on the fourth bluff including Chucalissa Indian Mound. The Indians left Chucalissa sometime between De Soto's stop in 1541 and Jesuit Father Marquette's brief stop in 1673 (Roper 11, 15-16). It is completely unknown why the Indians at Chucalissa left.

Explorers passed through Memphis by way of the Mississippi River. The first one was DeSoto, who stopped somewhere near present day Memphis. Local legend is quick to glory in De Soto's famous stop in what is now Memphis. Conflicting and vague Spanish accounts confirm that he either stopped on the bluff in modern day Memphis or several miles south. De Soto did not stay very long; in fact, there is not any known impact left on the landscape. De Soto stayed long enough to be attacked by Chickasaws and to contribute history's only written account of the Chucalissa Indian Mound prior to desertion (Roper 14-15).

The eighteenth century was a time of great change in ownership of the land of modern day Memphis. Before the 1700s the land was not owned, but shared by various Native-American groups, especially the Chickasaw. By the early 1700s France had claimed all areas along the Mississippi River as French Territory (Conzen 1994, 73-74). After the seven-year war in 1763 the land became British territory. An American trade presence developed in the area with Chickasaws and Creeks, so much so that it led to competition between the Indian groups (Roper 1970, 20).

By this time, Spain had a growing concern over American presence in the area, in particular the fourth bluff. It was for this reason that Gayoso established Fort San Fernando De Las Barrancas on bluff number four in 1795. The fort's main purpose was to secure a Spanish position in the land grab of the time. The Spanish purposely burned the fort to the ground in 1797 in the heart of Memphis' original town plat in 1818 (Roper 1970, 21-22). The fort was significant in that it represented the Spanish ultimate military advance in North America; yet the evacuation of the fort helped to strip the Spanish of their New World Empire. For Memphis history this represented the start of non-Indian habitation of bluff number four (Hawkins 1982, 22).

In 1790, modern day Tennessee was North Carolina territory and development of the West was highly encouraged by state governments; Knoxville and Nashville were founded shortly thereafter. Many leaders including General Wilkinson were encouraging people to buy land holdings on bluff number four. Prices were \$100 to \$300 an acre with assurance that Indians were hundreds of miles away (Roper 1970, 20). These hopes and aspirations for the fourth bluff would begin to be realized in 1818.

A Town is Born

Though the Memphis area was American territory in newly founded Tennessee, the area still belonged to the Chickasaw Indians. In 1818 General Andrew Jackson and Isaac Shelby met with a Chickasaw Indian council in Tuscumbia, Alabama. Using tactics of threat and intimidation, the commissioners were able to get the Indians to agree to the Chickasaw Cession. The Chickasaw Cession, also known as the Western Purchase or the Jackson Purchase ceded 6,848,000 acres of Northern Mississippi and Tennessee for the price of \$300,000. Necessary groundwork for the development of modern day Memphis was now in place (Harkins 1982, 30).

On May 22, 1819 John Overton, James Winchester and Andrew Jackson founded the city of Memphis and established Shelby County. James Winchester named it Memphis based on classical

Memphis in ancient Egypt (Harkins 1982, 18). On an interesting note both Egypt's Nile River and the Mississippi River have fertile alluvial soils that have been crucial in the development of urban areas.

Memphis' original town plat had been completed in 1819. The proprietors and founders agreed in 1819 that for ten years all lots would be held in common and sales divided proportionately. In 1820 the census revealed that Shelby County had 364 people, (Roper 1970, 88, 83). Around 50 of those lived in the newly formed Memphis (Harkins 1982, 34).

The importance of location in the initial development of Memphis cannot be emphasized enough. Memphis was located directly on the banks of the Mississippi river on bluff number four. Chickasaw Bluff Four is a perfect natural barrier from the rivers consistent annual flooding; one of only four spots on the East banks of the river in the "Delta region" that is conducive for settlement. The Wolf River makes up the northwestern boundary of the original town plat and was also vital in the early development of Memphis. All of these geographic factors have been favorable for Memphis' development.

Memphis: The Early Years

Memphis began its start slowly with very humble beginnings. The town was considered a "western town" with many of the rough elements of drinking, fighting, and gambling. On December 19, 1826, Memphis was incorporated as a town. Yet shortly thereafter, in 1827 Memphis lost the Shelby county seat to nearby Raleigh. The county seat would remain in Raleigh until after the Civil War in 1867 when Memphis regained the county seat (Memphis Public Library). Slow population growth would best characterize the first thirty years of Memphis. (See Figure 2)

To add to Memphis' early woes was competition from nearby towns, most notably the river town of Randolph. Forty-two miles up the Mississippi river at Chickasaw Bluff Number Two was another bluff location that favored the growth of a city in Randolph (Johnson, 1928). Both towns had excellent river locations with inland waterways to bring goods into the interior areas. Memphis had the Wolf River, navigable ten miles inland to Raleigh; the Hatchie River in Randolph was navigable 70 miles

inland to Bolivar. It appeared that Randolph would become the major town for the region, especially since Memphis had suffered from cholera, “break bone fever,” smallpox, and yellow fever between 1826 and 1832.

In the 1830s, it seemed almost certain that Randolph would ascend while Memphis seemed doomed for failure. In 1836, both towns population was around 1500, yet Randolph had greater steamboat traffic and more shipments of cotton. Randolph also had plans to channelize the Hatchie River to allow larger boats to navigate the river (Harkins 1982, 37). In 1837, financial panic swept through Randolph in the form of a bank failure. Randolph was never able to overcome this setback and Memphis regained prominence in the region (Johnson, 1928). Both towns had exceptional geographical locations; it was human error that made the difference. Though it is speculation, Memphis could have very easily been wiped off of the map like Randolph was.

The United States Government involvement in Memphis was very limited until 1845. In 1845, the Federal Government opened up the northern periphery of Memphis by building a navy yard. Iron and steam ships were built including the “Alleghany” several miles North of Memphis. In 1853, the navy yard was neglected due to rising tensions between the Federal Government and the Southern states. In 1853, congress voted to donate it to Memphis (Young 1912, 82-83). Memphis’ favorable Mississippi River location was later thought to be an excellent location for a navy base in nearby Millington.

Transportation, The Civil War, and Yellow Fever

During the 1850s, the population of Memphis was growing and seemed to be destined for more growth. The first Memphis annex in 1850 of South Memphis added many to the population. Meanwhile, the U.S. was entering a new phase of transportation with the railroad. Memphis got its first connection to the Atlantic Ocean in 1857 when the Memphis & Charleston line was completed (Memphis Public Library). This greatly increased water transportation on the Mississippi river through Memphis, making Memphis a hub to the East. Railroads continued to encourage the growth of Memphis. Commercial and industrial growth of Memphis was enhanced greatly by access to the river

Jayson Evaniuck 8/31/08 Page 52

and a network of railroads throughout the central Mississippi River Valley that converged in Memphis. These factors have led to the growth and history of Memphis as a distribution center (Johnson, 1928).

The Civil War affected Memphis in various ways. Originally Shelby County along with the rest of Tennessee held out on secession from the Union. After the retaliatory attack at Fort Sumter by the Union, Tennessee immediately voted to secede from the Union. In 1862, the Union fleet defeated Confederate naval forces in the Battle of Memphis (Memphis Public Library). During these turbulent years the recent increases of cotton handled in Memphis decreased substantially. In 1860 360,653 bales were handled in Memphis, whereas in 1865 only 112,000 bales were handled in Memphis (Commercial Appeal [Memphis], 10 July 1938). (See Figure 3) Though the cotton production faltered greatly during this time the population of Memphis still maintained limited population and city growth.

Reconstruction and post civil war expenses were very difficult for the Memphis economy. Race relations also became a serious issue in a city that had such a high African-American population. Memphis was a destination spot for freed slaves from Mississippi and Western Tennessee. In 1866, a riot occurred in which 44 blacks were killed and their schools and churches burned. As the economy plummeted poor African-American citizens lived in camps around the city (Plunkett 1976, 27). This pattern of residential instability continued to persist for blacks in Memphis well into the twentieth century.

By 1870, the economy was beginning to grow, as there were three suburbs, and the cotton industry was at an all time high; (Figure 3) this would change. Yellow fever struck Memphis three times in the 1870s climaxing in 1878 and 1879. Over ten thousand people were killed, 5,200 people were killed in 1878 alone (Plunkett 27). Wolf river drinking water and mosquito infestations from the river bottomland geography caused the sickness to diffuse rapidly. Doves of people migrated out of the city to get away; in 1870 the population of Memphis was 40,226, by 1880 the population was 33,592 (Harkins, 1982). As a result of the Yellow Fever epidemic, the city of Memphis declared bankruptcy

and the city lost its charter as a municipality in 1879. The river system that Memphis had become dependent on had delivered a difficult blow.

Cotton is King in Memphis

After economic failures of the 1870s Memphis' economy saw rapid growth based on the cotton industry. The population and economic growth of Memphis has always hinged on the cotton industry. In 1850, Memphis became the largest inland cotton market in the world (Commercial Appeal [Memphis] 1 January 1941). Even to this day Memphis physically handles more cotton than any spot market in the world. Comparing cotton production and the cities population gives an indicator of how interrelated population and the industry have been. (See Figure 2 and 3)

Memphis has tried to maximize its geographic capabilities through the cotton industry; in fact, it is very clear that local geography has been determinant in the cotton industry's success in Memphis. The primary economic activity for the Mississippi Delta region has historically been cotton farming. Cotton brought to Memphis by way of river or train was warehoused and eventually moved North by way of train or river. After 1880 train became a more effective shipment method for cotton; however, the river has always been important (Sigafos 1979, 66). Excellent rail transportation, river access, and proximity to intensive cotton agriculture quickly made Memphis the nations major cotton hub.

The cotton industry has developed a lasting imprint on the landscape of downtown Memphis. As a response to cottons early river roots in Memphis, Front Street developed in downtown Memphis as "cotton row". On "cotton row" the leading cotton factor and commission houses were agglomerated near the river to run the cotton market (Sigafos, 69). The cobblestone loading docks form a steep embankment along the Mississippi river for the purpose of loading and unloading bales of cotton. Today it is used as a parking lot for the riverboat industry. Some buildings have maintained the original cotton business logos regardless of the decentralization of the cotton industry on the cotton front. Though the cotton industry in Memphis is no longer centralized in the cotton row, a distinct cotton landscape still exists.

Memphis: A Southern City To Be Reckoned With

Due to the cotton explosion between 1880 and 1890 (see Figure 3) Memphis quickly rebounded from the woes of the 1870s. City leaders made it a goal to make Memphis a city that could be thought of as a major Southern functional area. Memphis purposely annexed several outlying areas in 1899 to boost 1900 census numbers to increase the population. The population boosting campaign was successful as the Commercial Appeal printed the famous headline, “Third Among South’s Cities” on Sept. 28, 1900. In just ten years Memphis had gone from fifth to third among southern cities in population. Consequentially, Memphis slipped back to fifth by 1920 (Sigafoos, 98-99). Interestingly, Memphis has a long history of obsession with national perception of the city led by ambitious efforts for recognition.

By 1890, Memphis’ strong transportation connections had one major weakness, a railroad connection to the west across the Mississippi River. In 1892, the first bridge in Memphis was completed linking Memphis and Arkansas; but more importantly a western link. The bridge was a cantilever bridge of wood and steel. At nearly 3 miles long and 75 feet above the high water mark, the bridge was quite a spectacle. Rail traffic as well as wagon traffic, soon to be cars, could be accommodated (Young 1912, 225-226). This was the first of what would eventually be four railroad lines to cross the river into Memphis.

As a result of population and economic growth encouraged by the cotton industry, Memphis began to develop amenities important to city life. The early twentieth century was a time when arts were beginning to thrive as well as an interest in park space in the city. Higher education was also becoming more prevalent in a city that had typically lacked a strong higher education system. Infrastructure improvements continued as well as upgrades in the sewage systems and road improvements. Clean aquifer water wells replaced the Wolf River as a water source in the late 1880s (Ground Water Institute). These developments were foundational in the future growth and success of the city.

Public transportation was growing as well; Memphis had electric streetcars running to outlying areas and within the city. Memphis even built a subway system under downtown; however, this was too ambitious of an effort as the system was never brought to fruition and is still unused today (Young 1912, 281). Overall the annexation of outlying areas combined with public transportation changed Memphis from a compact southern city to a more spread out city that physically looked like a typical American city (Sigafos 1979, 100).

Neighborhoods And Ethnicity

Though Memphis did not see the same influx of immigrants as larger cities such as New York and Chicago, it was still a destination for many immigrants and 1st generation ethnic groups. In 1860 Memphis had a population of approximately 18,000, and 7,000 of those residents were foreign born. This foreign born population included 4,100 Irish and 1,500 Germans (Magness 1994, 230). Well into the twentieth century the foreign born population had a noticeable impact on Memphis life.

Unlike larger cities with multiple homogeneous neighborhoods, Memphis had one main ethnic neighborhood with pockets of different ethnic groups. The Pinch district located just several blocks North of downtown near the river was a melting pot for over one hundred years. The early groups in the neighborhood were Irish and German; however during the early twentieth century, pockets of East European Jews, Italians, Russians, and African-Americans were densely clustered throughout the neighborhood (Magness 230-232). Though very little of this ethnic landscape exists today, the Pinch District was a vital link between old world culture and new American life in Memphis.

Memphis has always been a city with a sizable African-American population, yet their impact on the early landscape of Memphis has been limited due to racial discrimination. During the turbulent times of post slavery, property ownership was not an option for many blacks in Memphis. One exception was the community of Orange Mound. Orange Mound was the first planned residential area for blacks in the south after the Civil War (The Orange Mound Connection 4 (4)). The community began in the early 1890's on land purchased by one man for the purpose of creating a subdivision for

Jayson Evaniuck 8/31/08

blacks. Orange Mound quickly developed into a haven for blacks that wanted to own their own home, as it was the only place where blacks could own a house. At its peak during the turn of the century, Orange Mound was the second largest concentration of blacks in the United States outside of Harlem (Magness 1994, 243-244). Today Orange Mound is still a black community in Memphis with deep roots of community pride.

One major impact on the landscape that has been contributed by African-Americans in Memphis is the shotgun style house. This style of house promotes air circulation through the house with a narrow rectangular shape; they are prevalent in humid climates with large African-American populations. This house type is still a major house style in black neighborhoods throughout Memphis today.

Other Developments

Though cotton has been the lifeblood of Memphis' growth and success, several other ventures have and will continue to provide for the city. Naval Support Activity of the Mid-South has consistently been one of the states largest employers since its beginnings during World War II. The base has downsized considerably, however it is still a major hub for naval support for the nation (Naval Support Activity Mid-South).

Music has attracted people to Memphis since the early twentieth century; currently the music industry is a major source of revenue for the city. The success of Memphis music is rooted in the historical geography of the area. Fertile alluvial soils provided good soil for crops as well as the development of an African-American music form. Blues music developed in the cotton fields South of Memphis through black sharecroppers, and discontented workers around the turn of the century. Memphis quickly became the one of first hubs for the marketing and spread of the Blues. Regional roots in gospel, blues, and country music led to the development of some of the earliest rock 'n' roll music styles in Memphis during the early 1950s. Soul music also traces some of its early beginnings to Memphis in the 1950s combining the blues and gospel styles of the region. Since the 1980s Memphis

music history has been marketed at an international level, attracting tourists throughout the world every year.

Along with Memphis' rich music history is a noticeable music landscape in the city and region. Famous recording studios and music museums are a major part of the cities music economy that dots the landscape. Historic Beale Street has a long history of being an African-American commerce and music district is now restored to attract tourists. The street has been overlaid with brick, and buildings have been left with their original facades to commemorate the original. Blues nightclubs with neon lights attempt to recreate a rich music history onto the landscape.

One Memphis international company Federal Express has made an already good distribution city one of the nations foremost. Since 1972 Federal Express has developed into the cities largest business. The business was located in Memphis due to the excellent access to large markets and climate; the airport rarely has weather related closings (Federal Express). Federal Express has capitalized on the geography of the area to insure a successful economic future in Memphis and for Memphis.

Conclusions

In understanding the founding and development of Memphis it is vital to analyze the history from a geographic framework. In Memphis' One hundred ninety year history there have been great economic successes and failures due to the city's Mississippi Delta location. Reliance on the cotton crop has led to periods of boom and doom; however the outcome of cotton has been a consistent source of revenue since the 1830s. The Mississippi river has fostered growth through trade, yet the river has also seen decline with the railroads in the nineteenth century and airplane distribution since the 1970s. Racial problems rooted in the regional practice of slavery have been a constant scar on the city since its beginnings; however, the cities musical history is also rooted in the struggles and collaboration between the races. Future racial collaboration and reconciliation is a process and will continue to be one of Memphis' greatest needs for the future. The region has a rich Indian history, yet that history has been virtually removed from the landscape with an exception for Chucalissa Indian Mound. Bluff number Jayson Evaniuck 8/31/08

four has allowed for the development and growth of Memphis by allowing the city to enjoy the benefits of a port city, yet being protected from the rivers natural flood patterns. It seems then that “the bluff city” which is so influenced by all of these geographic and historical factors owes its existence to location on Chickasaw Bluff Number Four.



Figure 1

<http://www.epa.gov/gmpo/presentations/lmrsbc-intro/lmr-intro-1.gif>

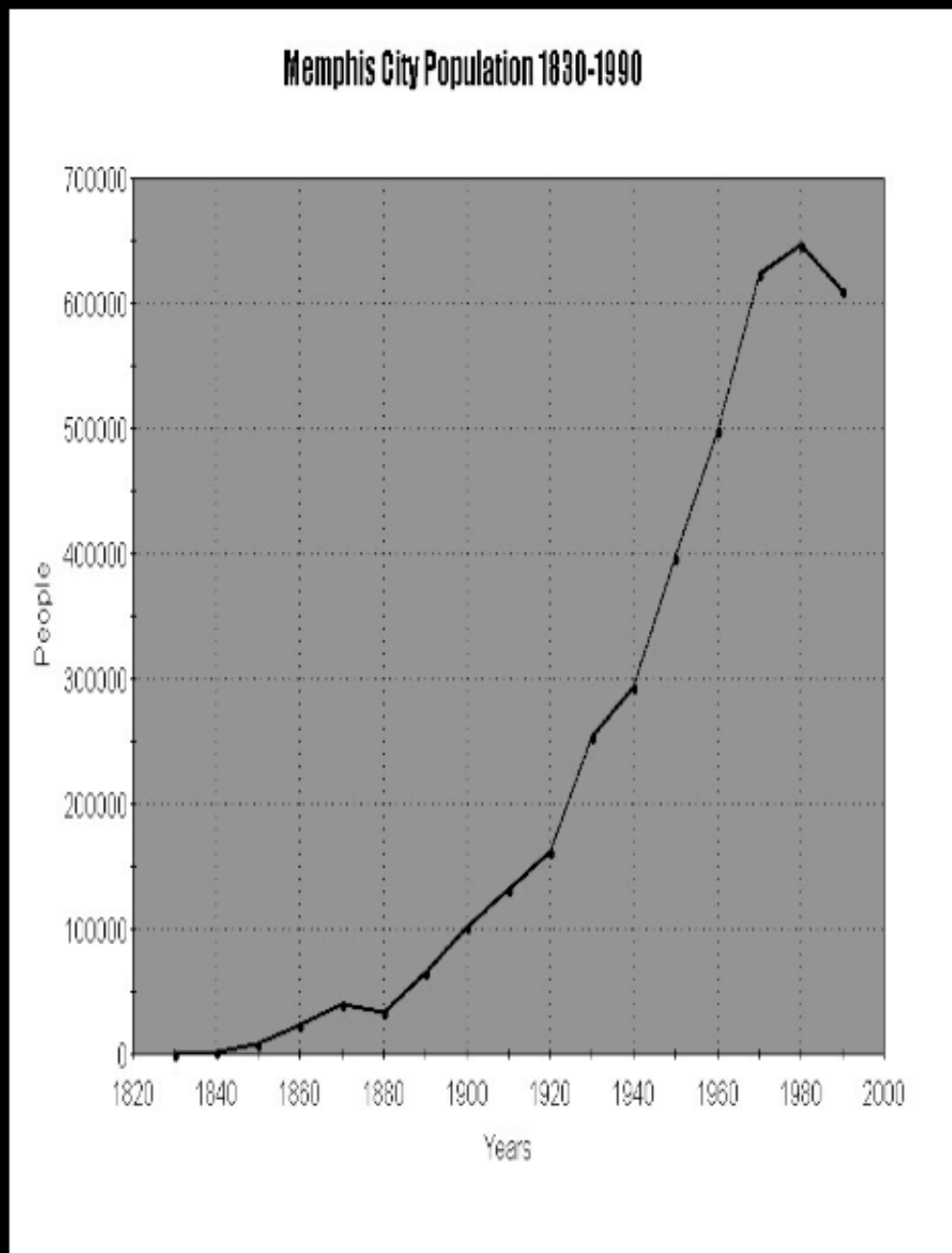


Figure 2

Source: *The Metropolis of the American Nile*. John E. Hawkins. 1982

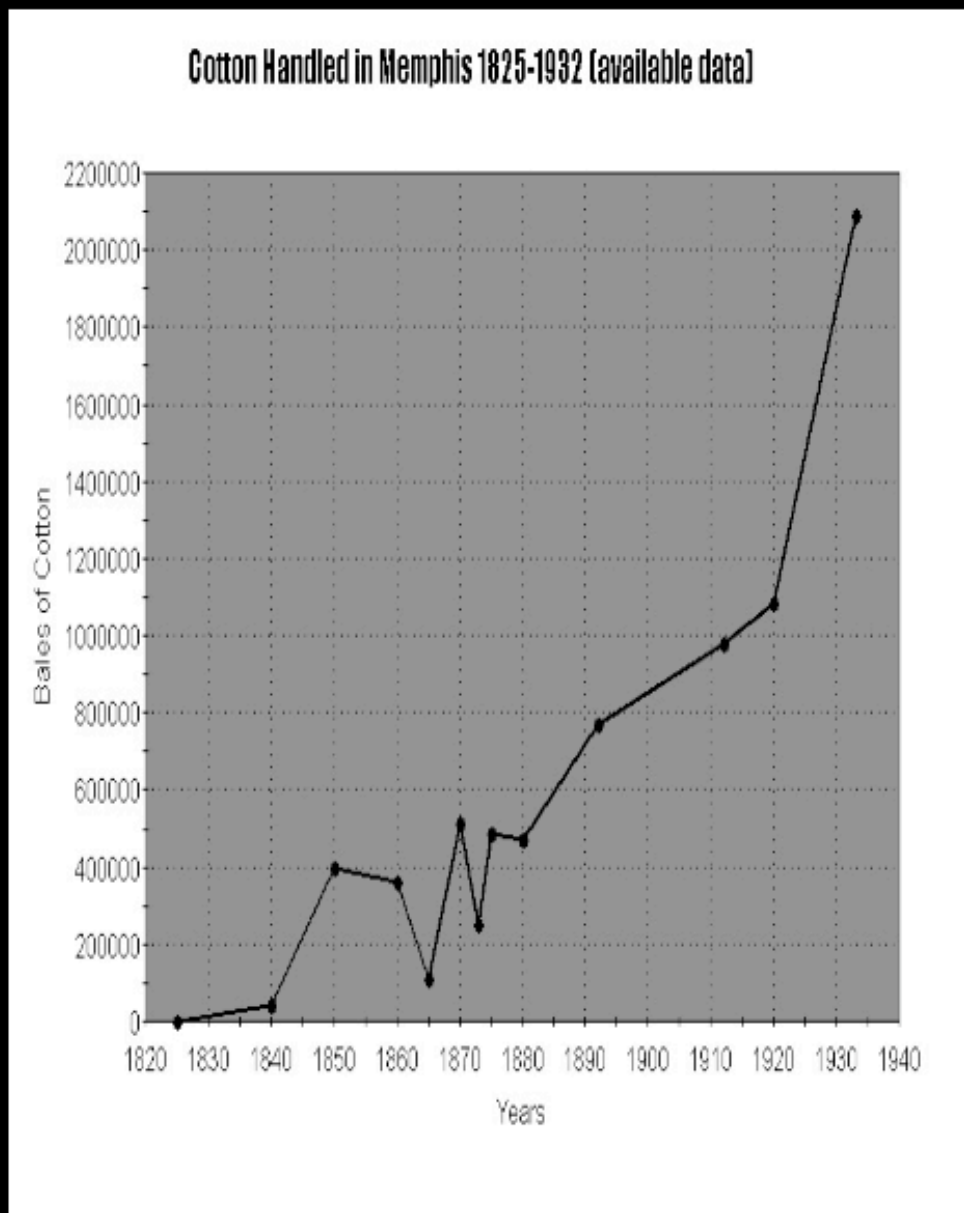


Figure 3

Sources: Commercial Appeal 10 July 1938, 1 January 1941, 1 January 1942, 31 July 1942, 1 August 1950, 4 January 1959. Memphis Cotton Exchange Annual Cotton Statement. 1911-1912, 1920-1922, 1933. *Metropolis of the American Nile*, 41. *Standard History of Memphis*.

Bibliography

Notes

1. United States Census Bureau (www.census.gov)
 2. Memphis Public Library history page (<http://www.memphislibrary.org/history/memphis2.htm>)
 3. Mid-South Naval Support Center (<https://www.cnic.navy.mil/midsouth/index.htm>)
 4. Groundwater Institute (<http://gwi.memphis.edu/>)
 5. Federal Express Corporation History (<http://www.memphislibrary.org/history/memphis2.htm>)
-

References

- Conzen, Michael P. 1994. *The Making of an American Landscape*. New York: Routledge
- Harkins, John E. 1982. *Metropolis of the American Nile: An Illustrated History of Memphis and Shelby County*. Woodland Hills, CA: Windsor Publications.
- Johnson, R.W. 1928. Geographic Influences in the Location and Growth of the City of Memphis. *Journal of Geography* 27 (3): 85-97.
- Magness, Perre. 1994. *Past Times: Stories of Early Memphis*. Memphis: Parkway Press LLC.
- Plunkett, Kitty. 1976. *Memphis: A Pictorial History*. Norfolk, VA: Donning.
- Roper, James. 1970. *The Founding of Memphis, 1818-1820*. Memphis: Memphis Sesquicentennial.
- Sigafoos, Robert Alan. 1979. *Cotton Row to Beale Street: A Business History of Memphis*. Memphis: Memphis State University Press.
- Young, John Preston. 1912. *Standard History of Memphis, Tennessee, From a Study of the original Sources*. Knoxville, TN: H. W. Crew.

An Overview of Natural and Human Induced Geomorphic Changes in the Lower Mississippi River Valley

The following paper attempts to examine the Lower Mississippi River Valley and the human effects on the physical environment of the region. In doing so the natural environment will be highlighted as well as the geomorphic changes to the Mississippi River caused by natural and human factors. The paper will also attempt to examine the impact the Mississippi River has had on human history and development in the region.

The Mississippi River is the largest riparian system in the United States. The river has the world's third largest drainage basin in the world, draining 41% of the conterminous forty-eight United States. The 1,250,000 square mile drainage basin drains most of the Central U.S. (USGS, PSR 97-02). The area of study is the lower Mississippi River (Figure 1).



Figure 1 Source: <http://www.mvn.usace.army.mil/pao/bro/misstrib.htm>
Purple = Lower Mississippi River

Physiographic Regions, Geology, and Vegetation

According to Fenneman's three-tiered classification of the United States, the Lower Mississippi River is in the Coastal Plain physiographic region three. Memphis, Tennessee in the southwest corner of

Tennessee is in the Mississippi Alluvial Plain 3e classification of the coastal plain region (Fenneman, 1946). The elevation of this region is generally between 100-300 feet with flat land and gentle slopes. The soil is alluvial and loessial in nature from a time period when the region was inundated by water as well as depositions from the Mississippi River over time.

In the state of Tennessee on the eastern banks of the river are a series of four loess bluffs. These loess bluffs are derived from ancient wind carried glacial deposits. Historically, these bluffs have been strategic settlement locations by offering access as well as protection from the river. The city of Memphis has benefited from this bluff location since its beginnings in 1819 (Godspeed, 1897). The combination of alluvial and loess soil as well as the topography of the region contribute to highly fertile land that has been used for crops such as cotton and soy beans. Bottomland hardwood forests and wetland forests have been cleared to allow agricultural use.

History

The Mississippi river has been an important cultural and settlement location for American Indians and later European and African American settlement. The river was a passageway for Spanish and French explorers and French trappers and traders during the sixteenth through eighteenth centuries. The city of Memphis has been a permanent settlement since 1819.

The lower Mississippi River Valley suffered from disastrous floods in the 1800s and early 1900s. These floods caused widespread damage throughout the entire region. Deforestation and farming in the rivers floodplain perpetuated the destructiveness of the rivers annual flooding. Consequently, in 1879 Congress established the Mississippi River Commission with the stated purpose to

“permanently locate, and deepen the channel and protect the banks of the Mississippi River, improve and give safety and ease to navigation thereof, prevent destructive floods, promote and facilitate commerce, trade, and the postal service.”

(US Army Corps of Engineers, 2004)

This far-reaching goal was not fully realized until after the Flood Control Act of 1928. This was quickly initiated after the most disastrous Mississippi River flood in recorded history occurred in 1927 (2004).

Geomorphic Changes

Numerous geomorphic changes have been instituted in the Lower Mississippi River for aforementioned purposes. Ninety three percent of the Lower Mississippi River's water has been confined to a narrowed channel within levees to protect the river valley from flooding (USGS, PSR 97-02). As a result the river's meandering has been altered and annual valley soil deposition is also confined within the levees. Revetments and dikes have also been used in various locations to control the river's meandering and the direction of the flow. Dredging has allowed for control of the river's channel depth (US Army Corps of Engineers, 2004). In the Memphis area three still water ports have been created through revetments and dikes to facilitate trade.

Economic Impacts of River Changes

Due to Memphis' river location, shipping has dominated the economy for decades. The aforementioned channel improvements make Memphis the second largest inland port in the United States and the fourth largest port in the United States (citydata.com, 2005). Consequently, due to close proximity to major cotton production and navigational accessibility, Memphis has emerged as the nations largest spot exporter of cotton. The port of Memphis combined with ideal rail and truck accessibility has made Memphis one of the United States most important distribution centers.

Control of the river through levees has led to increased forestry and farming opportunities. Eighty percent of the Lower Mississippi River bottomland hardwoods have been cleared for farming (USGS PSR 97-02). This supported the prominence of the logging industry in the region while clearing land for agricultural use. Intensive cotton and soybean farming has flourished in the entire Lower Mississippi River Valley on alluvial valley floors due to the protection that levees offer.

Impacts of Changes on Riparian Ecosystems

Despite the positive economic benefits of the US Army Corps of Engineer projects the negative effects to the ecosystem have been large. Do to the aforementioned farming and forestry; the bottomland wetlands are limited in water storage capacities and toxin filtration abilities (EPA, 2006). The Lower River Valley hosts hundreds of species of fish, amphibians, and reptiles. It is also part of the great Mississippi River migratory flyway that hosts 40% of waterfowl species and 60% of all U.S. bird species. In addition to habitat destruction, the intensive farming in the Lower Mississippi Valley has led to inordinate amounts of fertilizer and pesticides transported to the river through tributaries. All of these combined factors negatively impact the biodiversity and overall productivity of the lower Mississippi River system (USGS 97-02).

Conclusion

Human induced geomorphic changes in the lower Mississippi River valley must be analyzed from a multi-scale systems approach. Combining this with a hierarchical approach is necessary because cultural, geologic, topographic, and biotic processes affect the Mississippi River system at different levels. As a result, no element can be analyzed independently, but within a holistic lens that this approach demands. Within those stated parameters, it is clear that the biota and geomorphology of Memphis and the lower Mississippi River has been drastically impacted by human changes.

Works Cited

- Citydata.com. 2005 <http://www.city-data.com/us-cities/The-South/Memphis-Economy.html>
- Delaney, Robert L. and Craig, Mary R. *Longitudinal Changes in Mississippi River Floodplain Structure*. USGS Project Status Report. 1997.
http://www.umesc.usgs.gov/reports_publications/psrs/psr_1997_02.html
- Environmental Protection Agency. *Wetland Types*. 2006 <http://www.epa.gov/owow/wetlands/types/>
- Environmental Protection Agency. 2006 http://www.epa.gov/wed/pages/ecoregions/level_iii.htm
- Fenneman, Nevin. *Physiographic Regions of the United States*. USGS. ATapestry of Time and Terrain: The Union of Two Maps-Geology and Topography <http://tapestry.usgs.gov/physiogr/physio.html>
- Godspeed History of Tennessee*. 1887. Godspeed Publishing
<http://www.wdbj.net/shelby/godspeed/index.html>

US Army Corps of Engineers. *The Mississippi River and Tributaries Project*. 2004
<http://www.mvn.usace.army.mil/pao/bro/misstrib.htm>