

The Hunter-Dunbar Expedition of 1804-1805: Jefferson's Corps of Discovery in Arkansas

Grades: 6-8 (May be modified for lower grades)

Objectives:

1. Students will be able to explain the origins of the Hunter-Dunbar Expedition and why it was so important.
2. Students will map George Hunter and William Dunbar's expedition route on the Ouachita River.
3. Students will examine edited excerpts of George Hunter's journal, a primary resource, to learn about some of their experiences on the expedition

Ark. History

Frameworks: 1.1.11, 1.1.15, 3.1.12

Length: Two class periods

Materials:

- *Map of Louisiana Purchase
- *Class set of maps showing Hunter-Dunbar Expedition Route (Figure 2.)
- *Class set of Hunter-Dunbar Expedition Timelines (Figure 3.)
- *Numbered scripts (Figure 4.) with dates from George Hunter's personal journal. (These could be copied, cut apart, glued to large index cards and laminated or future use.) Hot Springs National Park has added unedited entries for the same dates from William Dunbar's journal, if you want the students to do a comparison.
- *Journal Report Sheet (Figure 5)

Key Terms: Corps of Discovery, expedition, journal, primary resource

Key Facts: After the Louisiana Purchase in 1803, President Thomas Jefferson launched the Corps of Discovery, a series of expeditions that would explore the mysteries of the new frontier purchased from France. Although the Lewis and Clark Expedition gained the most fame, many more followed. The George Hunter-William Dunbar Expedition of 1804-1805 explored the Ouachita River in Louisiana and Arkansas as far as Hot Springs. Thomas Jefferson insisted that detailed scientific reports be submitted to the United States Government after each expedition. These reports publicized the findings about the new lands in the west to the people of the United States and the world.

Day 1

Setting the Stage for the Expedition

Set: *Show the students a map showing the Louisiana Purchase in 1803. Remind the students that under President Thomas Jefferson's instructions, the United States purchased all of French Louisiana for about 15 million dollars. We had just bought millions of acres sight unseen! Jefferson was anxious to find out what kind of land our country had purchased. Jefferson decided to send men of science to explore the lands west of the Mississippi. These men were part of a **Corps of Discovery**. George Hunter, William Dunbar, and a group of soldiers were the explorers that President Jefferson sent to explore the Ouachita River through Arkansas and Louisiana. ****Give each student a timeline (Figure 3.) and examine it.**

Brainstorming: Jefferson's Questions

Tell the students that President Jefferson gave the explorers instructions to find out as much new information as they could about the mysterious western lands our country had just purchased. **Ask the students to brainstorm questions that Jefferson *probably* wanted Hunter and Dunbar to answer as they traveled up the Ouachita River.** (These will probably include questions about wildlife, the land itself and physical features, climate, soil, vegetation, precipitation, human inhabitants, and mineral resources to mention a few.)

Examining the Hunter Journal

Activity: **Divide class into groups of three.**

*Give the students the class sets of (Figure 2. and Figure 3.) **numbered maps and timelines** showing Hunter & Dunbar's route up the Ouachita River. The map will show where the numbered journal entries occurred.

*Pass out the printed sections (Figure 4.) of George Hunter's Journal and (Figure 5.) the journal report sheets. **Divide the sections of the journal among the groups of students.** Have the students look at the map to see where Hunter & Dunbar were when their assigned entries occurred. (You might point out that the journals are primary resource documents. These are documents recorded by actual participants in an event or people who witnessed them.)

*Tell the groups to read through their sections of the journal and record any information that Hunter and Dunbar mention about the things on their journal report sheet. (wildlife, human contact, mineral resources, weather/climate, vegetation, the land or physical features, water, most interesting events.)

Closure: At the end of the first class period refer to the list of Jefferson's questions. Ask if Hunter's Journal addressed any of the questions that Jefferson wanted them to answer as they explored the Ouachita River to Hot Springs.

Day 2

Sharing the Journal

*Place a transparency of the numbered map on the overhead projector. Allow each group to tell about their part of the Hunter-Dunbar expedition. The groups should use the journal report sheet from the previous day.

Closure: Tell the students that Hunter and Dunbar both wrote journals about their expedition on the Ouachita River. These accounts were published in newspapers and magazines in the states east of the Mississippi. Ask what effect these accounts and stories had on the people who read them.

Assessment: Pretend that you are a soldier on the Hunter-Dunbar Expedition. Write a couple of journal entries from a soldier's perspective recalling an incident on the journey.

Or

Illustrate one event on the Hunter & Dunbar expedition. Put the date and a short caption with your picture.

Resources: Foti, Thomas and Gerald Hanson. *Arkansas and the Land Fayetteville*: University of Arkansas Press, 1992.
Allen, Milford. "Thomas Jefferson and the Louisiana-Arkansas Frontier." *Arkansas Historical Quarterly*, Spring 1961:39-64.
Hunter, George. Manuscript Journal of George Hunter Up the Red River and Washita Rivers with William Dunbar, 1804, by Order of the United States and Up to Hot Springs. (Transmitted by George Hunter to the Government and Found in the Office of the Adjutant and Inspector General of the Army, U.S.A.:Parker.)

#1 Oct.16, 1804

William Dunbar was still too weak in body to venture immediately on the excursion up the river Ouachita where he had planned it should be; and he had also some indispensable private business to finish before he could leave home. In the meantime the boat with the soldiers remained at St. Catherine's (Landing) where there was a large open ware house to live in, upon occasion and a small lake near at hand where they would get as many fish as they pleased.

Three of the men were attacked with the bilious intermittent fever which by proper management was got rid of before we set out, which was the 16th Oct. in the afternoon, when William Dunbar came on board and took the command. We then immediately set out down the river again, having previously taken on board such part of the Indian presents as William Dunbar thought necessary, together with the medicine chest, mathematical instruments, stores, provisions, utensils, and tools.

#2 Oct. 17, 1804

We took observations for latitude and longitude, etc. This was our constant rule during the whole excursion. About 9:00 a.m. came to Fort Adams on a high bluff commanding the passage of the river, where a Corporal's guard is now kept, waited here about an hour, set out again and arrived at the mouth of the Red River at 5 p.m.

The river is reddish and very muddy having a fine marle or clay of that colour suspended in its waters, said to give an amazing degree of fertility to the soil when deposited on it, and considerable distance up, in dry seasons, is said not to be drinkable, being so much impregnated with salt.

On leaving the Mississippi, one is struck with the change in the appearance of the country. Every vegetable assumes a fresher liveliness green. This area is barracaded or shut up by a series of high, steep, jagged. stony hills and mountains, especially toward its sources, which render it inaccessible to the Osages and other predatory Indian tribes whose feet being bare, or only covered with their moccasins find it unpleasant to walk for any length of time over sharp flints of which these mountains are composed

But as the Ouachita is not much known I shall endeavor to be particular; perhaps to the reader, tediously minute.

Encamped at 6 p.m. for the night, at a bank covered with vines; The ground composed of deep, fat, rich, reddish soil.

#3 Oct. 18/19, 1804

Got under way at 6 a.m. after a pleasant cool night, no mosquitoes and very little current. The wind favored us at first, soon died away and we took to our oars.

The timber as yet is small, and that in sight only willows and cotton woods. Banks subject to inundation. Have already seen many flocks of wild geese and Brannett, some ducks, but all very shy.

The river abounds with large alligators. The banks are strewn with shells of the mother of pearl muscle, light thin and transparent.

About 4 p.m. encamped at a pleasant place on the left bank going up, where there are plenty of Paccoon (pecan) trees. The soldiers as usual slept ashore, under their mosquito curtains whilst William Dunbar, myself and son generally lay on board the boat. Clouds prevented an observation for the latitude this day. We find by our log, that we row at the rate of about 1 1/2 miles per hour current deducted.

Oct. 19. When we stopped near noon, to take an observation and to prepare dinner, saw a man run his canoe ashore, and take to the woods, our soldiers caught him; he proved to be a stout black man, had nothing but his shirt and trousers on, called himself Harry, but gave no satisfactory account of himself; supposing him to be a runaway slave, we detained him. He appeared to be willing to go with us for he was half famished. We gave him plenty of ham and biscuits to eat which he devoured with a voracious appetite. Going about a mile and a half from this, came to the Black River 150 yards wide, and left the Red River to the left which appears to be about the same width.

The water is now clear, and when contrasted with the other appears black. Sounded and found 3 1/2 fathoms (deep), with a bottom of black sand.

It is generally called ten leagues from the mouth of the Red, to that of the Black River. By our reckoning we find it to be only 26 miles (115 perches).

The banks of the Black River are composed of a fine black garden mold, producing a great variety of forest trees and an immense herbage. Here and there patches of reeds and canes show that the banks are not so often, or so long inundated as below. The alligators do not appear so large, nor wild fowl so plenty as in the Red River.

#4 Oct. 23, 1804

We landed here at a solitary settlement at the confluence of the Catahoula and Black River, inhabited by a Cadet, who has built his house on an Indian mound. At this place is a great curiosity we stopped till evening to look at it, and to get the necessary information to enable us to pursue our route. Mr. Cadet was very civil and attentive, took the pains to go round with William Dunbar, my son and me to show us the curiosities of the place.

This has been and shortly will be a place of importance. It is a short pass from Natchez to the settlements at the rapids on the Red River and to Fort Miro on the Ouachita. Here a ferry boat is kept which even now is very lucrative.

If one may judge from the immense labor necessary to erect those Indian mounds to be seen here, this place must have once been very populous.

There is an entrenchment, or embankment running from the Catahoula to the Black River, enclosing about 200 acres of rich land, at the present about 10 feet high and 50 broad. This surrounds four large mounds of earth, at the distance of a bow shot apart from each other of which may now be about 20 feet perpendicular, 100 feet broad and 300 feet long at the top.

By our reckoning the mouth of the Ouachita is 77 1/2 miles from the Mississippi, but by general estimation 32 French leagues.

5 Nov. 6/7, 1804

In our course for the last 30 miles, there are few or no habitations, yet we frequently saw cattle ranging at liberty browsing the banks.

About 1/2 past 3 p.m. arrived at the Military Post or Garrison of Ouachita, originally called **Fort Miro**, after a Spanish Governor of that name.

The old Spanish stockade fort has been tom down, and a small new one, without cannon or port holes erected by the Americans under Lieutenant Boinar, whose conduct gives great satisfaction to the inhabitants.

This land we have hiterto passed is habitable only here and there, on the banks of the river and on the vicinity of Bayu's; the rest being generally swamp overflowed every year.

This is but an infant settlement The old settlers are chiefly Canadian French. They appear to have little ambition, few wants and as little industry. Came this day 9 miles (256 perches).

By our measurement, the distance by meanders of the rivers, from this Post to the Mississippi, at the mouth of the Red River is 196 miles and 256 perches.

On a muster day of the Militia, about 100 rifle men appeared on the ground, though they amount to about 150.

With the exception of two or three wooden houses, the people live in cabins which are so carelessly constructed as to form only a slender protection against bad weather.

But as their winters are mild, they have less occasion for tight houses than we who live farther northward A great majority of the inhabitants follow hunting for a livelihood and have and abundance of animal food during the proper season such as venison, bear, buffalo meat, wild ducks, geese, swang, turkeys, brandt etc.

#6 Nov. 15, 1804

At half past 11 a.m. passed Isle de Mallet (Island of Mallory). By an observation taken this day, it appears that the **diversion (dividing) line between the Territory of Orleans and Louisiana** as fixed by Congress, will cross this river, thirty-two and a half seconds of a degree, above the upper point of the said Island.

Made this day 16 miles, 42 perches. Killed a deer and a raccoon.

#7 Nov. 16/17/18, 1804

At half past 12 came to **Bayu de Saline** on the right of considerable extent. This afternoon the banks begin to rise by slow degrees. Passed several hunting camps, but the hunters were gone. Clouds prevented an observation.

Came 17 miles, 158 perches this day. About 4 p.m. it began to hail, and in time turned into rain, continuing with increasing violence the greatest part of the night

It is worth noting, that for this day or twos course, we have not seen any of the Spanish beard which grows on all of the trees so plentifully lower down. Our guide tells us we will see no more of it till we return. This substance, which we in Philadelphia, call Carolina Moss, appears to be restrained by nature from passing to the northward of the 33rd degree of North Latitude.

Here a few Indians now encamped, obscure the corn growing. A canoe appears with 2 French hunters with a bear they had j ust killed. They belong to a larger party, where the dogs are barking ashore.

The general strata of sand and clay the same as before described. The banks are now so elevated, as to be above all inundations, with white, or long leaved pines in abundance, oaks, hickory, persimmon, gum, dogwood, ironwood, and cypress inland. On the waters edge grow willow and chenier, this last look like privy but much bigger.

Saw the first piece of flint Made this day 18 miles 75 perches.

#8 Nov. 22, 1804

Being a considerable distance now, above all habitations, I thought it prudent to load my pistols; in doing which I was sitting on a trunk, resting the butt thereon, and whilst ramming down the ball, the motion of the boat caused the pistol to slip off the trunk and instantly discharged itself in my face. The ball, ramrod and contents went through between my right thumb and two principal fingers, which were thereby much lacerated and torn, the charge passing along by my face burnt off my eye brows and lashes, scorching the skin, went through my hat within an inch of my right temple, giving me a dreadful blow and passed through the roof of the boat The concussion burst the bottom out of the power horn and scattered to $\frac{3}{4}$ of powder on the table, without setting it on fire.

The accident deprived me of the use of my right hand for above two weeks and my eyes were so inflamed that it was as long before I could either see to write or to take an observation.

Came this day 14 miles 137 perches. Being cloudy no observation was taken.

#9 Nov. 24, 1804

About 1/4 past 1 p.m. came to the **Little Missouri**, which at its mouth is as large as the Ouachita.

#10 Nov. 29, 1804

Near this place, we found an old Hunter named Palts of German extraction, with his three sons (men grown) and an hired hand, from the Post or Fort Miro, to hunt bears with a gang of dogs. They had not been long from home and had as yet only got a few deer.

Their whole stock of provisions consisted of a few bushels of Indian corn, which as they wanted, they pounded in an hollow block of wood, with a short cut of a hickory saplin by way of a pestle, depending on what they should kill for the rest. They expected to return in about 6 months.

This old man did not speak English, but was well acquainted with this part of the country, having hunted hereabouts and on the waters of the Arkansa for upward of 30 years. He informed us that there was a party of Chickasaws, Choctaws and other neighboring Indians about 8000 in number, now on their way to the River Arkansa, to drive off those 400 warriors of the Osages who had lately come to that country whose hands were lifted against every description.

This man Palt also informed us of a Saline (spring) not far off and agreed to show it. The ground here was salt and bitter to the taste, the water oozing from a kind of puddle brackish. The men were set to dig two holes in the first. After passing through three feet of blue clay we came to quicksand from which issued salt water in abundance, tasting strong and bitter resembling the water of the ocean. The second hole required to be dug six feet to reach the quicksand and salt waters, in doing which threw up several pieces of broken pots of Indian earthen ware, which no doubt had been used in making salt.

#11 Nov. 30, 1804

Rapids, shoals and small cataracts become more frequent and increase the velocity of the river. About halfpast 10 a.m. passed the **Fourche de Cadeau (Cadaux)** on the left and a hill 300 feet high.

#12 Dec. 3, 1804

We continue to go on as yesterday, over rapids, shoals, and sometimes still water in succession. About 4 p.m. passed and high steep rugged rocky hill on the right sending out a ledge of rocks across the river in an oblique direction about S. W. and N. E. forming little cataracts or little falls; through one of the clefts where the water had formed a passage, we hauled out the boat with some difficulty, and then proceeded on again. Shortly after came to the **great falls of chutes**. This is caused by a ledge of rocks running across the river obliquely like that before mentioned, though in greater degree. Here the water falls about 4 feet in a quarter of a mile. As soon as we had with considerable exertion hauled the boat above these falls we encamped for the night.

#13 Dec. 6, 1804

Got under way as usual at day light. In one hour passed some hills to the left and tolerably good land to the right. Current strong, shoals so intricate and rocky, that we were there hours in passing a sort of cascade, when at about 1/4 past one p.m. we came to and encamped at a place called **Ellis Camp**, a few hundred yards below the **Fourche á Calfat (Caulkers Fork)**. We found it impracticable to proceed farther with our boat in the present state of the waters, having made this day but 2 miles and 32 perches.

Being now by estimation, about 9 miles distant from the hot springs by land Our hunters killed a few wild turkeys and one deer.

#14 Dec. 9/10, 1804

This day set out for the **hot springs**, accompanied by the pilot, and 8 of the soldiers, each carrying on his back, a load of the most necessary articles.

...Crossing this we altered our course more to the northward and in about 4 miles more came to the mountains which gave birth to the hot springs.

These famous hot springs, are perhaps 20 in number issuing out of the lower part of the mountain about 350 feet perpendicular. The heat is such, that a person cannot hold his hand in the water half a minute. It tastes like other good water. As soon as the medicine chest with the tests can be brought here, I shall proceed to examine it more particularly.

This day whilst waiting for our baggage, took a view of the Hot Springs. I was first struck with the appearance of the vapor condensed to a mist, over each of the apertures through which the hot water issued; showing that the region of the hot water extended about 200 yards along feet of the mountain, and upwards of one hundred feet high.

In one spring, temperature of 140 degrees were many plants of the moss kind. Our guide relates that last year he was there cured of pains and stiffness in his limbs, which had for a considerable time deprived him of the use of them. Major Ellis and Mr. King near Natchez declare they have received considerable benefit from the use of the waters. The one had lost the use of his limbs and the other had been consumptive. The question will occur to every person. How is this quantity of water heated?

Dec. 24/25, 1804

Tomorrow is Christmas. Our soldiers have requested an holiday which considering their toils and exposures, cannot well be denied them. They have already begun to celebrate Christmas Eve by social songs and glee.

25th Our soldiers having divided themselves into two parties or messes, one went to where the boat lay at Ellis Camp with the sergeant, and the other party remained at the spring with us, having made reserve on their liquor for the occasion; with which and plenty of venison they made themselves very merry; serenading us from time to time with a volley from their rifles; wishing us an happy Christmas and all the compliments of the season etc.

(The following week, the expedition made its way back down the Ouachita River.)

Journal Report Sheet

(Figure 5.)

Date of Journal Entry _____

Descriptions of land or physical features

Wildlife

Mineral Resources

Mention of Human contact

Climate/weather

Vegetation

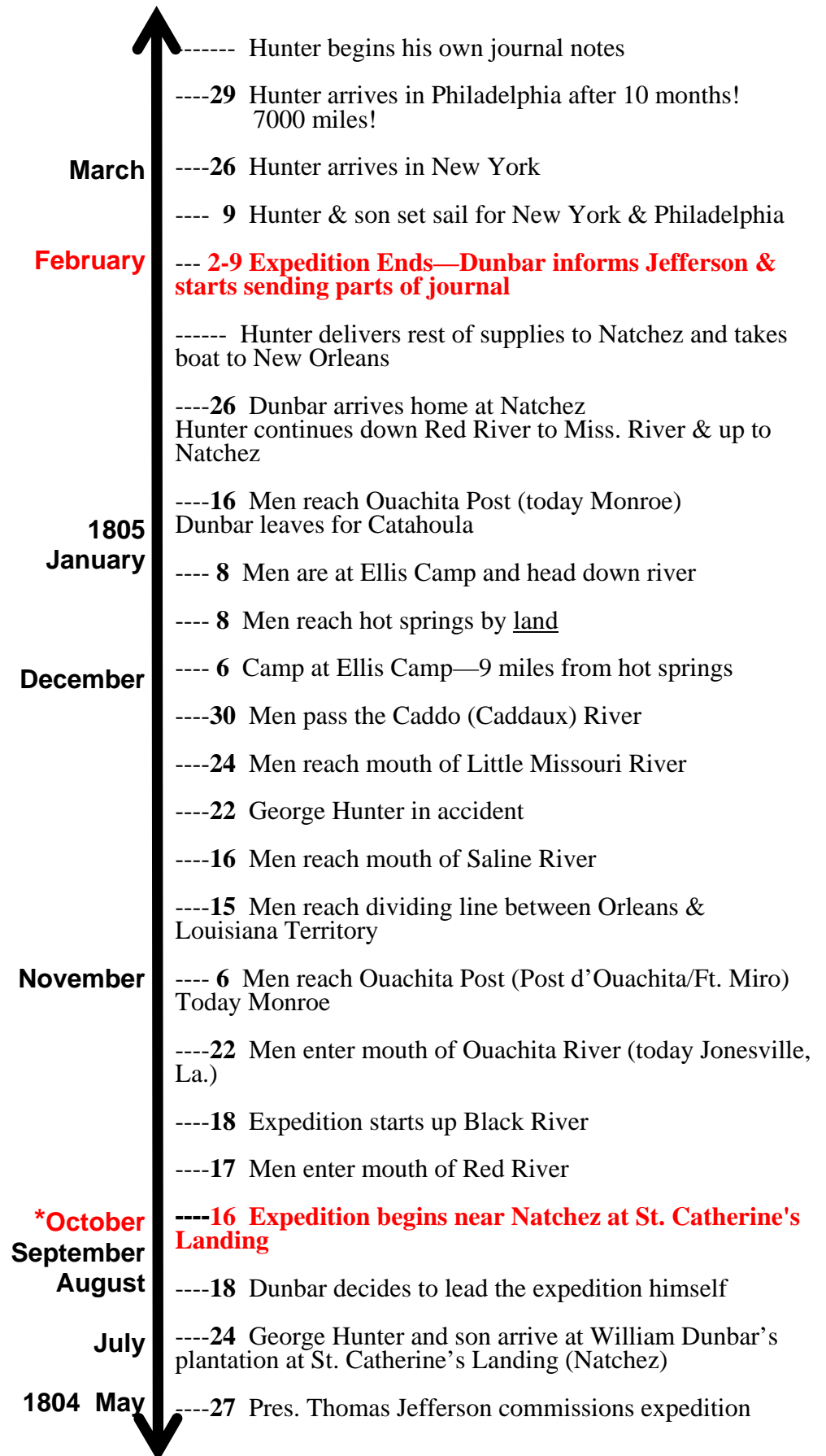
Soil

Hardships

What was most interesting about this part of the expedition?

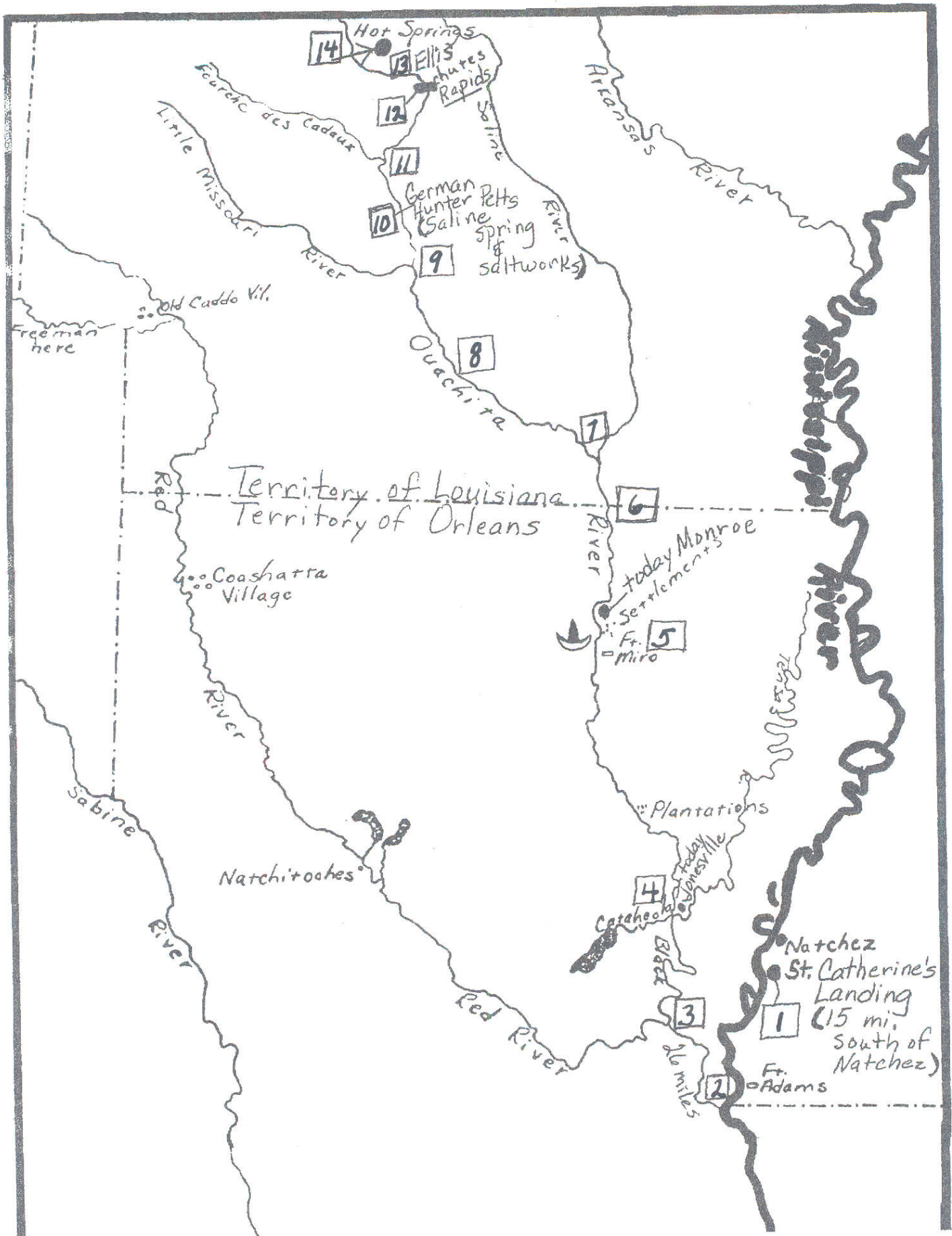
Hunter-Dunbar Expedition Timeline 1804-1805

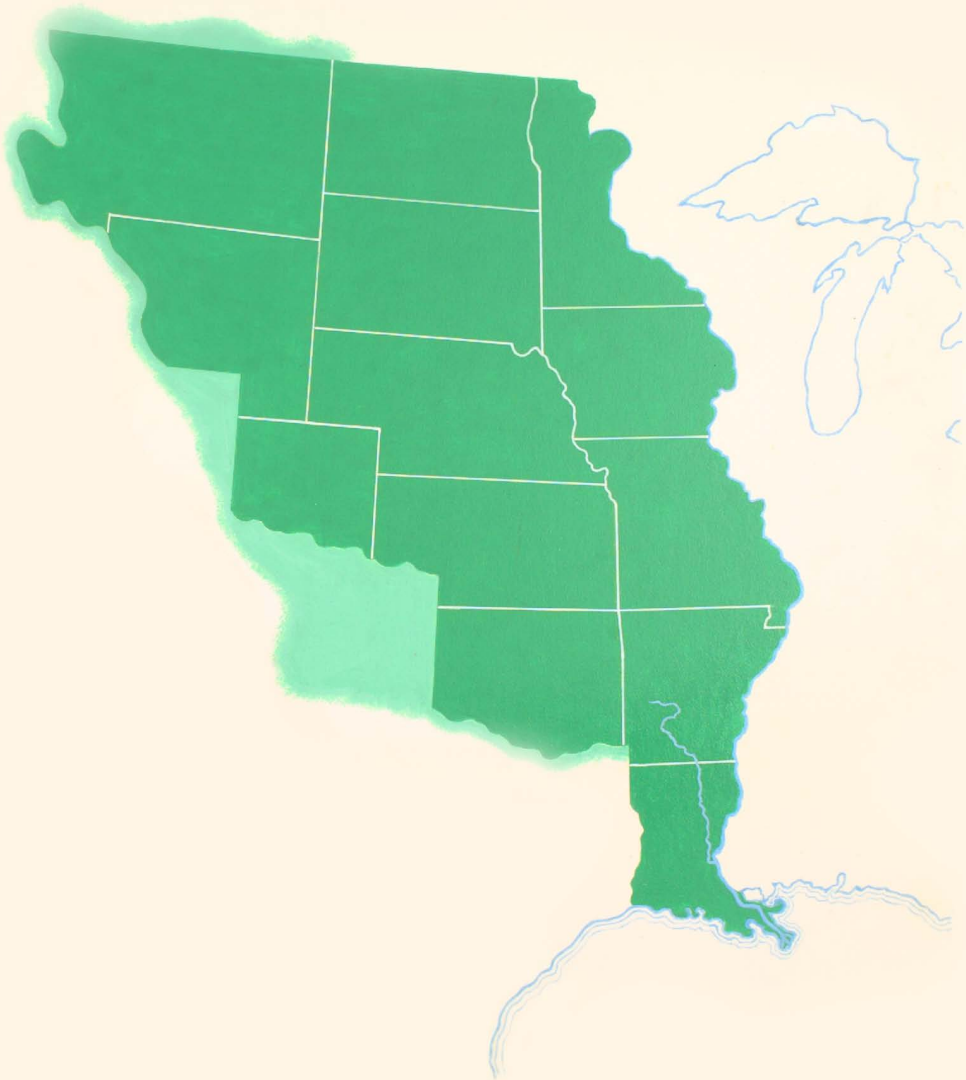
Figure 3



1804-1805
Hunter-Dunbar Expedition

Figure 2





Provisions purchased by Hunter, according to his journal

2 Bbls. Flour	
4 Barrels Biscuit	
Lbs 602 Bacon	
38 Galls. Whiskey & lbs 48 Soap	
& we have recd. a due bill in cash	
for lbs 18 Candles a [t] 0.15	\$2.70
Lbs 573 Flour not quite 3 bbls.	23 -
Lbs 313 Bacon a[t] 0.25	<u>78.25</u>
	\$103.95

Provisions for Officers

1 Bble lbs 240 Brown Sugar a[t] 11\$	26. 3	
Lbs 40 Chocolate a [t] 3 ½ bitts	17. 7	
Lbs 50 Coffee 2 ½	15.15	
Lbs 6 Hyson Tea a [t] \$2. Cannester 2.4.	14. 4	
Lbs 60 Lump Sugar a [t] 2-	15. 2	
1 BBl Rice	10--	
1 do Melasses 30 Gall a[t] 5 : [illegible]	19. 6	
17 Gall. Brandy a [t] 15. Cag 2\$	33. 7	
12 Btls Maderia Wine		9--
Lbs 1 Pepper 0.50. 12 botles Mustard	2--	
2 bottles[?] Cucumbers	1. 2	
Lbs ¼ Cloves. 0.6.4 Nutmegs 0.4	1. 2	
12 bottles Anchovies 0.5	7--	
3 boxes Smoaked Herrings	2. 2	
1 Case Gin	7--	
1 Box Split pease	3--	

		186--

Hospital Stores

Lbs 50 Rice \$4--, 10 Gall Molasses	7.4
Lbs 100 Brown Sugar	12--
Lbs 40 Coffee 28 sacs	11. 1 ½
Lbs 4 Tea a[t] \$2	8--
2 Bags & 1 Cag	<u>1.6</u>
	\$44. 31

Provisions purchased along the way, according to Hunter's journal

Sept 2nd. 1804. Ration Money

paid for 4 Gall Milk \$- .25
" for 1 doz". eggs .25
paid for milk 0.25
at night for do .25
for a Fowl .25
a Pig I.
6th for milk 0.25
7th do .25
loth paid for milk .25
& for a pair Fowls .50
12th. for a pair do .50
21st. for Milk & Indian Meal 0.37
& for lbs 64 Cheese a[t] 12} 1.621
" Jerked Beeff '.

Ration money expended from Orleans to
S^t Catherines Creek

Oct^r. 4th. St. Catherines, paid for milk 0.37}
" & for eggs 25
5th. paid for milk 19

Also paid Leuit Wilson (as he does not accompany the expedition) for his 194
Rations for three months viz

for lbs 145 $\frac{1}{2}$, Bacon a[t] 0.25 pr lb 36.37L
" 1- $\frac{1}{8}$ Bbls Flour a [t] \$8. pr bbl.9
6 " Gall Whiskey a[t] 0.70. 4.20
" for Candles .81

Oct^r. 6th. paid milk --- .25
58.45

Nov^r. 1st. Rapids of Ouachita 2nd

paid for Corn 1 basket full for fowls - .50
for 2 do Sweet Potatoes 1.50
for 11 pompions 1.—
paid for a large Canoe to enable us 6.- -
to cross barrs & shallows

Nov^r. 12. above Ouachita 3 miles

paid Mr Richards for 3 quarters Beeff, out of which 1 was issued to the men.
4.- - -

paid Mr WiOIS [Filhiol] at the post for 2
bbls potatoes. 4.- - -
\$74.45

Cr By cash recd. for Rations
Retained of Wm Dunbar Esqr

Leuit. Wilson, George Hunter & Son	
To Amount as pr Contra	74.45
To cash paid for mending rudder Iron of boat & frying pan & for 11 eggs	<u>.18</u> 76.63

left[?] to by milk &cc at St. Cath	<u>1</u> 76.63 77.63
	Balance 26.32

Equipment purchased by Hunter at Garrison

lbs 100 Nails & spikes assorted
1 small Grindstone
1 cross cut saw
3 Augurs & 3 Gouges
Claw hammers
2 Calking mallets
2 Boathook irons
1 Round Adz
1 Crow Bar
1 Iron Square
1 Jack Screw
6 felling axes
6 Spades
3 pick axes
1 Hoe
1 Trowel
Lbs 48 Rope
1 piece Canvas 44 yd
lbs 9 Twine
Lbs 50 Old Junk for Oakum
4 long chisels & wire to blow rocks
2 Brass Cocks
1 Bble Tar
1 Bble Pitch
1 fishing net small
1 Bble Salt
Lbs Cotton Match
1 Corn Mill
2 Gridirons
1 Cast iron Tea kettle
6 iron table spoons
8 pewter plates & 2 dishes
2 Tin pans
1 Box Spermaceti Candles
one tin lanthorn
2 wall tents (one of which proved to be, only the long curtain of the Genle. tent)
1 Common Tent
1 frying pan
2 dutch ovens
½ dozn. knives & Forks
½ Ream writting paper of which 1/3 is letter paper.
¼ Ream Course brown porous paper
1 Camp Kettle
1 Small Iron kettle & pot
½ dozn. tin cups
1 tin Tea pot
1 do Coffee pot
1 funnel
1 handsaw
1 Tinder Box

William Dunbar Journal of a Voyage

#1 Tuesday, Oct. 16th

Set out from St. Catherine' landing in the afternoon The Latitude of this place is $31^{\circ} 26' 30''$ North; and Longitude $6h 5' 56''$ --west of Greenwich.

A little below are the white cliffs 5 leagues below the Natchez the face of the cliffs is chiefly white sand surmounted by pine; the cliffs are from 100 to 200 feet high; when the waters are low the basis of the cliffs are uncovered consisting of clay of different colours and some beds of ochre covered here and there by a thin lamina of iron ore; small springs possessing a petrifying property flow over the clay and ochre; numberless logs and pieces of timber converted into stone are strewed about the beach. Fine pure argil of various colours chiefly white and red is found here. Encamped at night upon an Island 7 miles below the place of departure.

#2 Wednesday, Oct. 17

Set off; passed Fort Adams, and six miles farther the line of demarcation, and arrived at the mouth of red river about nine miles below the line of demarcation; encamped just within its mouth; the waters of this river have a red appearance from a rich fat earth or marl of that colour born down by the floods from which it derives its name; the mouth of the river is about five hundred and fifty yards wide: here we commenced taking the meanders of the river by course and time depending upon the log to inform us of our rate of going as well as the velocity of the Current; there is however no sensible Current at the mouth: the banks on both sides are here clothed with willows, the land is low and subject to inundation to the height of 30 or more feet above the present level of the waters, the mouth of the red river is accounted to be 75 leagues from New-orleans and 3 miles above the exit of the Chafalaya or Opelousa river which was probably the continuation of the red river, when perhaps its waters did not unite with those of the Mississippi excepting during the inundation. M. de Ferrer has settled the Latitude and Longitude of this place; the first is $31^{\circ} 1' 15''$ N. and the last at $6h 7' 11''$ west of Greenwich.

#3 Thursday, Oct. 18

Set off up the river, remarked vegetation to be surprisingly luxuriant along the banks owing no doubt to the rich red marle yearly deposited by the floods of the river -willows grow to a good size, but other forest trees are much smaller than those seen upon the banks of the Mississippi, which may be owing to the newly formed soil or its excessive richness. The river narrows gradually as we advance: at noon it was about 200 yards wide. Got out the instruments, which requiring a good deal of adjustment we were unable to make perfect observations. The Latitude $31^{\circ}.8'.54''.6$, perhaps accurate enough to correct the traverse of the river.² The banks of the river are luxuriantly clothed with pea-vine and several kinds of grasses yielding seed, of which geese and ducks are very greedy: got our log line prepared and divided into perches -hove the log and found we went at the rate of 4 perches in half a minute. i. e. $1\frac{1}{2}$ mile per hour-very slow- Soldiers do not exert themselves at the oar; came to, for the night having made nearly 13 miles-hove the lead in the middle of the river and found 11 fathoms. There are generally willows growing on one side of the river, and on the other the same small growth of forest trees continues, consisting chiefly of black oak, packawn, hickory, elm &c. The Trees are so exceedingly grand & lofty upon the banks of the Mississippi, that by comparison those bordering on this river seem dwarfish, and appear to bear a kind of proportion to the magnitude of their own river. The extremes of temperature were from 46° to 48° of Fahrenheits thermometer. Made this day $12\frac{55}{60}$ miles.

Friday, Oct. 19

Continued our rout up the river; having given the Soldiers this morning a few words of advice and encouragement, they improved considerably in activity and cheerfulness, hove the log and found we went 7 perches per half minute, the Current yet continues so moderate as to offer no impediment to our rowing along shore there- fore not worth estimating: landed before 12 to observe and for dinner. Atitude 31° 14' 50".1. After dinner caught a runaway negro; proceeded on to the confluence of red and black river in Latitude 31° 15' 48" which by our reckoning appears to be 26 1/3 miles from the Mississippi, the Contrast of the two rivers is great, the red river being charged with red marly earth and the other a clear river gives it by comparison a dark appearance, hence the name of black river-Each river is about 150 yards and when united about 200 yards wide. Sounded in the black river and found 20 feet black sand, little or no current. Took specimens of the red marl of red river bank. The water of the black river is rather clearer than that of the Ohio and of a warm temperature, probably owing to the waters which flow into it from the valley of the Mississippi particularly from the Catahoola. Made 15 miles 102 perches.

#4 Wednesday, Oct. 23

Thermometer 68°--the river for several nights past has fallen about 3 inches perpendicular each night: observed a great number of muscles and periwinkles along shore: the muscle is of the kind commonly called pearl-muscle, & by means of its long tongue makes considerable progress along the bottom & upon the beaches of the river when under water: our people had a quantity of them dressed and found them to be agreeable food: to me they were tough and unpalatable. The wind altho' a head but not strong, we got along pretty well; but towards 11h a. m. it became much stronger, and we made little way. Notwithstanding the cloudy state of the atmosphere we were fortunate in getting a good meridian observation, by which it appears we were in Lat: 30° 36' 29" nearly 3 miles higher than the town of Natchez: after dinner proceeded to the mouth of the Catahoola on the left and landed to get information from a French man settled here: he has a small settlement and keeps a ferry-boat for crossing men & horses traveling to or from Natchez and the settlements on red river and on the washita river: the Country here is all alluvial; in process of time the rivers shutting up ancient passages & elevating the banks over which their waters pass, no longer communicate with the same facility as formerly; the consequence of which naturally is that many large tracts formerly subject to annual inundation are now entirely exempt from that inconvenience: this french man is settled: his house is placed upon an Indian mount with several others in view: there is also a species of rampart surrounding this place & one very elevated mount; all of which I propose to view and describe on my return, our situation not now admitting delay: the soil here is equal to the best Mississippi bottoms; the proprietor says the high mount is not less than 80 feet perpendicular, of this we shall form some estimated at our return. We obtained from him the following list of distances from the mouth of the red river to the Post on the Washita called Fort Miro.

From the mouth of the Red river to the mouth of Black river	10 leagues
To the mouth of Catahoola, Washita & Tenza	22 leagues
To the River Ha-Ha on the right	1
To the Prairie de Villemont on the same	5
To Bayoo Louis on the same--rapids here	1
To Bayoo Boeufs on the same	4
To the Prairie Noyee (drowned Savannah)	3
To Pine point on the left	4 1/2
To the Bayoo Calumet	3 1/2

To the Coal mine on the right & Gypsum on the opposite shore	3
To the 1 st settlement	12
To Fort Miro	<u>22</u>
Leagues	91

The accounts of the low state of the river we receive here are rather discouraging, as it appears, that on the first rapids, seven leagues distant there are only 22 inches of water, and now we draw at the stern 30 inches or more.

Went on and encamped at the mouth of the river Washita. This river derives its appellation from the name of an indian tribe formerly resident on its banks, but now no more to be found; it is said that the remnant of the nation went into the great plains and westward & either compose a small tribe themselves, or are incorporated into another nation. The Junction of the Washita with the Tenza and the Catahoola a little below, all together form the black river, which last here loses its name, altho' our maps represent it as taking place of the Washita: the Tenza and Catahoola are also names of ancient tribes now extinct: the latter is now the name of a Creek or Bayoo 12 leagues long, which is the issue of a lake of the same name 8 leagues in length & 2 leagues generally in breadth, it lies west of this place & communicates with the Red river during the time of the great annual inundation; it receives at the West or N.W, angle a Creek called little river, which preserves a channel with running water at all seasons, meandering along the bed of the lake; but all other parts of its superficies during the dry season from July to november & often later, are completely drained & become clothed in the most luxuriant herbage: the bed of the Lake then becomes the residence of immense herds of Deer, of Turkeys, Geese, Ducks, Cranes &c &c feeding upon the grass and grain; the Duck species being generally found on or near the little river. The Bayoo Tenza serves only to drain off a part of the waters of the inundation from the Mississippi low lands which here communicate with the black river during the season of high waters. By reference to our Latitude at Noon we find the mouth of the Washita to be in Lat: 31° 37' 57"--Extremes of the thermometer 68°-73°. Sounded--found 6 fathoms--muddy bottom. Made this day 9 miles 77 1/2 perches.

#5 Tuesday, Nov. 6th

Thermomr. 45° in air--in river water 64°--heavy fog Wind W. Continued our voyage with better fortune; that is, we escaped any considerable obstructions from rapids and sand bars. No variety was to be seen in the appearance of the Country on either side the river. At noon got a fine observation about a league below the Post of Washita; Latitude deduced 32° 28' 58"; by the sinuosities of the river it appears we are not more than a mile to the south of it: arrived there about 3 1/2h p.m. and were very politely received by Lieut. Bowmar, who immediately offered us the hospitality of his Dwelling with all the services in his power. The Position called Fort Miro being the property of a private person, who was formerly civil commandant here, the Lieutenant has taken post about 400 yards lower and has built himself some log houses and enclosed them with a slight stockade: this young officer exclusive of the manners of a polite Gentleman, appears to possess talents; he has formed a tollerably good chart of the river from its mouth to the Post, being the result of his own labors on the way up to take possession of the Post, this he has continued upwards from the best information he has been able to obtain; the whole gives a satisfactory idea of the river & part of the Country; we have also obtained some further information from the former Commandant a french man, and other persons here, of all which we have made notes & shall avail ourselves in the prosecution of our voyage.

Thermomr. at 8h p.m. Extremes 45°-79°. Made this day 9 miles 257 perches; amounting in the whole to 196 miles 256 perches from the mouth of the red river to the Post of the Washita; and by the old computation 90 leagues.

#6 Thursday, Nov. 15

Thermometer in air 38°. in river water 54°.--Clouds --Calm. Continued our voyage thro' a Country of the same appearance as yesterday. Passed some rapids without difficulty--the banks still continue low; from ten to 15 feet above the present level of the river; the water marks on the trees from 15 to 20 feet. Landed to observe about 90 yards higher than the upper point of the Island of Mallet, judging that we were not far from Lat. 33° the division line between the territories of Orleans and Louisiana; we found the Latitude by a very good observation to be 32° 59' 27".5. The Island of Mallet is on the right of the main channel, and the place of observation being 90 yards N 45° E from the upper point of the Island. Making allowance for the breadth of the river (50 yards), Latitude 33° may be found from the above data when the Jurisdiction of the territories may require it, this Island of Mallet being very well known to the Hunters. Should time and circumstances permit on our return, a 2d meridian altitude of the Sun may be taken and a proper mark set up in Lat: 33°.--In general the bed of the river along this alluvial country is fully covered by water from bank to bank & the navigation good, but to day at 3h p.m. we passed 3 contiguous sand-bars or beaches called 'le trois battures'; & at three & a half hours p.m. the 'bayou des grand Marais' (great Marsh Creek) on the right: passed also in the evening on the same side 'la Cypriere Chattelrau': a point of high land approaches within half a mile of the river on the right. Thermomr. at 8h p.m. 50°. -Extremes 33°-60°. Made this day 16 miles 42 perches. This days voyage was shortened by an indisposition which' confined me to the tent untill the hour of breakfast.

#7 Friday, Nov. 16

Thermomr. in air 38° in river water 54°.--Cloudy--Calm. Set out at 6h 58' and continued our voyage, the wind rises northerly against us, nevertheless we make 7 1/2 perches pr. 1/2 min: whereas with our former boat we should not have exceeded 4 per: still however our improved progress is short of the velocity which a boat for our purpose ought to attain; it should not fall short of 12 per: pr. 1/2 min: which would be about 4 1/2 miles pr. hour. No observation to day the weather being cloudy, damp and disagreeable. Between 11 & 12 o'clock passed on the right the 'marais de la Saline' (Salt-lick marsh) There is here a small marshy lake, but it is not intended by its name to convey any idea of a property of brackishness in the lake or marsh, but merely that it is contiguous to some of the licks, which are sometimes termed 'Saline' & sometimes 'glaise,' being generally found in compact clay which might serve for potter's ware; the bayou de la Tulipe forms a communication between the lake and the river: there is opposite to this place a point of high land forming a promontory and advancing within , a mile of the river, to which boats resort when the low grounds are under water: a short league after, we came to the mouth of the grand bayou de la Saline (Salt-lick Creek) on the right; this is a creek of considerable length & tollerably good navigation for small boats, the Hunters ascend it to an extent of a hundred of their leagues in pursuing their game. They all agree that none of the springs which feed this Creek are salt; it has obtained its name from many buffalo salt licks which have been discovered near to the Creek. Altho' most of those licks by digging will furnish water holding in solution more or less marine salt, yet we have reason to believe that many of them would produce Nitre. We now begin to observe a stratum of a dirty white colored clay under the alluvial soil; this clay is similar to what we observed before we entered the alluvial tract; we have therefore reason to expect, that we are gradually emerging from this sunken tract & shall soon ascend into the high

land country. Made this day 17 miles, 185 perches. In the evening it began to rain. Thermomr. at 8h p.m. 42° . Extremes 38° – 51° .

Saturday, Nov. 17

Thermomr. in air 40° . in river water 54° .-fog on the river--ca 1m--river risen 2 1/2 inches during the night: Continued our voyage; the low lands are still alluvial, at least to a certain depth; an under stratum of clay appears in many places, where the banks have been undermined, & broken down: we remarked that since we entered the alluvial country about $32^{\circ} 52'$ Lat: we have seen no long moss (*Tilandsia*) altho' this low damp country seems in all respects well adapted to favor its production; upon enquiry of our pilot, he informs us, we shall see no more of it; probably its limit of vegetation northerly may be fixed by nature near to 33° Lat: Saw a great quantity of the long-leaf pine, which is frequently found in rich & even inundated lands as is the case here; the short leaf or pitch pine on the contrary is always found upon arid lands & generally in sandy & lofty situations; but our County furnishes it in a hard meagre clay. In the forenoon saw the first swan which was shot by one of our hunters; it was a solitary one whose mate had probably been killed: this is the season when the poor inhabitants of the settlement of the Washita turn out to make their annual hunt; they carry no provision with them but a little indian corn, depending on their guns and ammunition for the rest. The Deer is now fat & their skins in perfection; the Bear also is now in his prime with regard to the quality of his fur and the quantity of fat or oil which he yields, he has been feeding luxuriously for some time upon the autumnal fruits of the forest, such as pirsimmons, grapes, pawpaws, walnuts, packawns, hickory-nuts, chinquapins, beech-mast, a great variety of acorns &c &c; it is however well known (notwithstanding the fancies of some writers) that the Bear does not confine himself to vegetable food; the planters have ample experience of his carnivorous disposition. He is particularly fond of Hog's flesh, but no animal escapes him that he is able to conquer: Sheep & Calves are frequently his prey and he often destroys the fawn when he stumbles upon it; he cannot however discover it by the sense of smelling notwithstanding the excellence of his scent; Nature has protected the helpless young by denying it the property of leaving any effluvia upon its tract, which property is so powerful in the old Deer: perhaps it may not be generally known to Naturalists, that between the hoofs of Deer &c is found a sac with its mouth inclining upwards; this sac always contains more or less musk, which by escaping over the opening in proportion as it is secreted, gives to the foot the property of leaving on the ground a scent wherever it passes: during the rutting season the musk is most abundant particularly in old males, which may often be smelt at a considerable distance by the hunters.

The Bear unlike to most other beasts of prey does not kill the animal immediately he has seized upon, but regardless of its struggles, cries and lamentations, fastens upon it and (if the expression may be allowed) devours it alive: the taste of Mr. Bruce & his Abyssinians may have been formed upon this excellent model.-The hunters count much of their profits from the oil drawn from the Bear's fat, which at New-Orleans is always of ready sale, and is much esteemed for its wholesomeness in cooking, being preferred to butter or hog's lard; it is found to keep longer than any other oil of the same nature, without turning rancid: they have a method of boiling it from time to time upon sweet-bay leaves which restores it or facilitates its conservation. At noon found our Latitude to be $33^{\circ} 13' 16''$.5. In the afternoon saw a small Aligator, which we did not expect in so northern a situation; passed a few rapids & saw cane brakes on both sides, the canes of a small size, which demonstrates that the water does not surmount the bank above a few feet: the river widens & a number of sand-beaches are seen. Thermr. At 8h p.m. 44° .--Extremes 40° – 41° . Made this day 308 perches.

Sunday, Nov. 18

Thermomr. in air 32°-in river water 52°--Serene-- Calm-river seems rather on the rise. Set out at 7h 20' and continued our voyage; passed along a narrow passage this morning, about 70 feet wide; the whole of the water of the river runs thro' this passage; on the left the old channel of the usual breadth leaves an interval which becomes an Island when the water passes along the old bed of the river during freshes: Came up to a place -at the hour of breakfast where there is an appearance of some clearing called 'Cache la Tulipe' (Tulip's hiding place) this is the name of a french hunter who concealed his property in this place. It continues to be a practize of both white and red hunters, to deposit their skins &c. often suspended to poles or laid over a pole placed upon two forked posts in sight of the river, untill their return from hunting; these deposits are considered as sacred and few examples exist of their being plundered.

The banks of the river have now the appearance of the high land soil, with a stratum of 3 or 4 feet of alluvion deposited thereon by the river, this superstratum is greyish and very sandy with a small admixture of loam, which indicates the poverty of the mountains and uplands where the sources of the river take their rise. At noon we found our Latitude to be 33° 17' 13"-In the afternoon passed on the right, the entrance of a bay, which within must form a great lake during the inundation. We now see a considerable number of the long-leaf pine tree; the canes along the bank have a better appearance being much larger in size, this indicates a better or more elevated soil: Canes subject to be inundated, i. e. the land to be inundated, 3, 4 or 5 feet, are always small and tough; they grow much finer where there is little or no inundation, provided the soil be rich & loose. Passed a high hill (300 feet) on the left clothed with lofty pine trees. Thermomr. at 8h p.m. 57° cloudy weather threatens rain. Made this day 18 miles 75 perches. Having been much indisposed for some days past, the number of remarks are probably fewer than might have been made-I still remain in the same situation.

#8 Thursday, Nov. 22

Thermr in air 40°. in river water 53°-Light clouds- calm.-No change this morning in the general appearance of the country, the timber such as has been mentioned, with an increasing proportion of holly, birch, maple and beautiful pine-trees; at 10 1/2h a.m. came to the road of the Cadadoquis Indian Nation leading to the Arcansa Nation; a little beyond this is the Ecor a Fabri (Fabri's Cliffs) 80 to 100 feet high: it is reported that a line of demarkation run between the french and spanish provinces, when the former possessed Louisiana, crossed the river at this place; and it is said that Fabri a french-man & perhaps the supposed Engineer deposited lead near the cliff in the direction of the line: we could not however obtain any authenticated account of this matter, and it is not generally believed: a little farther is a smaller cliff called 'le petite cor a Fabri' (the little cliff of Fabri); those cliffs appear to be composed chiefly of ash-colored sand with a stratum of clay at the base, such as reigns all along under the bank of this river. The day being hazy and cloudy we made no observation for the Latitude at noon. In the afternoon we encountered a great many difficult rapids, the current of the river being frequently confined to a very small space, where the depth of water is but barely sufficient for the passage of the boat; the additional rapidity; of the current indicates that we are ascending into a higher country. The water of the river now become extremely clear and is equal to any in its very agreeable taste as a drinking water. The general breadth of the river to day has been about 80 yards, altho' in certain places not above one half of this quantity. We now find immense beaches of gravel and sand, or which the river passes, in the season of its floods with the rapidity of a torrent, carrying with it vast quantities of drift wood which are in many places piled up in prodigious masses, lying 20 feet above the present level of the water, and points out to us already the danger of ascending or descending this river in certain degrees of its floods: accidents nevertheless are rare with the canoes of the Country; ours is the first barge of so large a size that ever ascended this river:

passed a very intricate rapid in the evening, which we could not get up until we had carried a rope ashore. Encamped upon an elevated gravel beach: Thermr. at 8h p.m. 54°. Extremes 40°-68°. Made this day 14 miles 317 perches.

This day an unlucky accident happened, which was very nigh being extremely serious. Doctor Hunter was employed in the cabin of the boat loading one of his pistols; he held it between his legs upon a bench with his head almost over the muzzle: while in the act of ramming down the ball, the pommel split from the bench & the cock of the lock came with force against it, which giving way discharged the pistol, the rammer and ball passed thro' the fingers & thumb of the right hand & also thro' the brim of the hat within little more than an inch of the Doctor's forehead; his thumb & fingers were much torn, but no bone was broken, the concussion of the head was most severely felt: the bottom of a new powder horn (not well secured) which lay upon the table was forced outwards & the powder partly spilt upon the table, which providentially did not take fire altho' the wadding was found smoking upon the table: the circumstance of the bottom of the powder-horn being forced outwards, points out a curious effect of the elastic power of the air, viz after sustaining a considerable compression the returning vibration causes a partial rarefaction & at the same instant the common air confined within bodies involved by the sphere of rarefaction, exerting its spring to restore the equilibrium, forces outwards all obstacles not sufficiently secured to resist its action. The Doctor's wounds were, dressed; he suffered great pain and debility, but after some repose felt better in the evening.

#9 Saturday, Nov. 24

Thermr. in air 48°. in river water 54°--light clouds--calm--river at a stand. Set off & continued our voyage thro' a country in all respects similar to that thro' which we passed yesterday, excepting that our obstacles from strong rapids are considerably augmented: at a place on the left called 'Auges d'Arclon' (Arclon's troughs) we observed some laminated iron ore, and a stratum of tenacious black sand shining with minute crystals. The general breadth of the river is now 80 yards, tho' in many places greatly enlarged by Islands & shallows, and at other places contracted to 80 or 100 feet. The river is now in many places rocky of a greyish color & rather friable. Observed some willow very different from what is found below and on the banks of the Mississippi, the last is very brittle, this on the contrary is extremely pliant & resembles the osier, of which it is probably a species, I propose on our return to take some plants along with us; its foliage is now of a golden yellow & falling: we also found some of the larger- Wrotle-berry in fruit, the berry is of a Sub-acid agreeable taste, the leaves not yet fallen of a beautiful crimson.

The weather being cloudy we had no observation at noon & went on to dine at the forks of the Washita and Missouri the lesser; the latter comes in from the left hand and is a considerable branch, perhaps about 1/4 of the Washita: Hunters often ascend the little Missouri, but they are not inclined to penetrate far up, because this branch reaches near to the great plains or prairies upon the red river, which are often visited by the lesser Osage Tribe settled on the river Arcansa: These last frequently carry war into the Cadadoquis tribe who are settled on the red river about W .S. W. from this place, and indeed they are reported not to spare any nation or people. They do not come upon the head waters of the Washita, because they are surrounded by a number of mountains or steep hills rising behind each other, and so extremely difficult to travel over, that those savages perceiving no desirable object, do not attempt to penetrate to the river, & it is supposed to be unknown to the nation: The Cadadoquis (or Cadaux as the french who are fond of abbreviations generally pronounce the word) may be considered as Spanish Indians; They boast, I am told with truth, that they never have imbrued their hands in the blood of a white man: it is reported (perhaps falsely) that they are excited to enmity by the Spanish officers at Nacodoches against the Americans.

We are told there is a mine up the little Missouri, it is said that the stream runs over a bright splendid bed of mineral of a yellowish and whitish color, it is most probably martial pyrites: some 30 years ago, several of the inhabitants hunters worked upon this mine and sent a quantity of the ore to the Government at New Orleans, but they were prohibited from working any more. Thermtr. at 3h. p.m. 59°. Extremes 48°-72°. Made this day I by a very uncertain reckoning 11 miles 152 Perches.

#10 Thursday, Nov. 29

Thennr. 72°. river water 62°--Cloudy--wind South, blew strong all night--This morning Doctor Hunter went with a party and the old dutch hunter to visit the saline. which was found in the bottom of the bed of a dry gully near a Creek; after digging a few feet found the water which proved very brackish to the taste; the saline lies about 1 1/2 mile northerly from our encampment, a creek falls into the river a little above our encampment, being the same which communicates with the saline, a quantity of the water was brought into camp whose specific gravity was carefully ascertained by comparison with the river water and found to be as 1.02116+ to 1. Evaporated 10 quarts of the water which produced a saline mass weighing when dry 8 ounces. It began to rain about 9h a.m. which obliged us to remain in camp untill after dinner, when it cleared up, and we set out at 1h. 27' p.m., the water of the river has now become whitish and less transparent in consequence of the rain and appears to be rising again altho' it seemed to have stopped since last night: the water was tolerably favorable in the afternoon having met with only one rapid of difficulty and considerable length: since we have had so much difficulty to encounter from the shoals and violence of the current, the Soldiers have exerted themselves with a considerable degree of vigor and perseverance and seem desirous that we should accomplish the end of our voyage. Thermr. at 8h. p.m. 52°. Extremes 52°-76°. Made this day 8 miles 2 perches. The weather clears up and begins to grow cold, we expect a north-wester in the morning.

#11 Friday, Nov. 30

Friday 30th Thermr. in air 38°. in river water 60°--river risen 19 inches--clear calm. Set off & continued our voyage against a strong current during the greatest part of the day, altho' frequently we found favorable eddies or little or no Current where the bed of the river became enlarged, which sometimes extended to 150 and even 170 yards in breadth. Saw great flocks of Turkeys to day, two of which were killed. At 10 1/2h a.m. arrived at the large branch on the left called 'Fourche des Cadaux' (Cadadoquis fork) about 100 yards wide at its entrance into the Washita; immediately beyond which on the same side the land is considerable elevated (abt. 300 feet.) The wind from North and N.W. opposed us most of the day, so that our progress was not very rapid. At noon landed & observed the Sun's altitude in a difficult place, in some measure thro' the branches of trees, the Latitude deduced was 34° 11' 37". As we advance to the north we perceive more of the effects of winter; the trees are now nearly stripped of their foliage, which a week below seemed to be nearly entire, altho' changed in color: Being informed of a saline or salt-lick, we landed before 3h. p.m. and the Doctor with a party went to view it, thermr. at 3h. 57°. The Doctor returned in the evening with a quantity of water from the saline, which from taste appeared to be less impregnated than the former, and on trial its specific gravity was found to be when compared with the river water, which at that hand, where his wines (if good) may be immediately sold and paid for at a high price. At noon we were detained upon a very bad rapid & shoal, by which we lost the opportunity of making a meridian observation: In the evening also

we landed a little earlier than usual at the foot of a long and difficult rapid, which we did not think it prudent to encounter so late, from the danger of getting fast upon it all night: we are now encamped upon the declivity of one of those hills about 150 feet high, commanding a fine prospect both up and down the river, & will at a future day become a rich Vineyard. Thermr. at 8h. p.m. 35°. Extremes 32°-58°. Made this day 7 miles 148 perches.

#12 Monday, Dec. 3

Thermr. in air 38°-in river water 48°-clear-calm- river fallen 8 inches. Continued our voyage with favorable water until breakfast, after which we encountered a great many very bad rapids during the remainder of the day; some were so difficult, that it was impossible to ascend without sending the greatest part of our people ashore with a good rope, & sometimes they were obliged to walk in the water; the exertions of the Soldiers on some very difficult and trying occasions were equal to every thing which could be expected, and exceeded greatly my expectations: at noon we had a good observation about 4 miles below the 'Chutes' (falls) Latitude deduced 34° 21' 25".5 we were now anxious to see the famous Chutes, which it was supposed at the Post, we should never be able to pass with so large a boat. The land on either hand continues to improve in quality; there appears to be in general a superficial stratum of good earth of a dark brown color, upon which vegetation is sufficiently luxuriant; hills frequently arose out of the level country, full of rocks & stones, generally of an extremely hard flinty kind, often resembling the Turkey oil stone, of this kind was a promontory which came in from the right hand, a little before we arrived at the Chutes: this promontory presented some appearance at a distance, of the ancient ruined fortifications & Castles so frequent in Europe, the effect was greatly heightened by a flock of swans which had taken their stations under the Walls which rose out of the Water; as we approached the Birds floated about majestically upon the glassy surface, and in tremulous melancholy accents seemed to consult each other upon measures of safety, the ensemble produced a truly sublime picture: several masses of the same hard rock insulated by the river conveyed the idea of redoubts and out-works; we expect to visit this place in our descent.

A little after 4h p.m. we arrived at the Chutes.. We found these falls to be occasioned by a chain of rocks of the same hard nature with those we had just seen below, here they extended quite across the river, the water making its way over the chain thro' a number of breaches, which by the impetuosity of the torrent had been worn out of the rock: this chain seemed to proceed from a lofty rocky hill on the left side the appearance of which conveyed the idea, of its having been cut down by the abrasion of the waters to its present level: the various breaches thro' which the water poured, were so many cascades, thro' one of which it was necessary to pass; otherwise the Barge must remain below the Chutes: it was quite uncertain which of the Cataracts ought to be preferred; it was also doubtful whether our barge (9 feet wide) could find sufficient breadth & depth of water clear of pointed rocks to pass over the Chutes. We came up to the rock & stopt between two of the Cascades, & sent a couple of Men with a small Canoe, who crept along shore & got above the Falls, they made fast a rope to a tree, and letting themselves gradually down by the same rope, came on board in great safety; having now got a number of hands ready to haul in upon the rope, we employed the remainder with poles to give a proper position to the Barge & to guide her into the best passage: we accordingly entered one of the Cascades, but after many fruitless attempts we found there was a deficiency of water; with some pointed rocks which opposed our passage; we therefore dropped down a little way, and moved laterally by poling to a second Cataract much more considerable than the one we had just attempted: the rolling impetuosity of the water is not easy to describe, above and below the fall there was a rapid descent, but just at the fall there seemed to be a step of nearly one foot perpendicular; difficult & dangerous as this place appeared for a frail bark like ours, we were determined to make the attempt & we lost no time in entering the strait, in which our Barge soon stuck fast at the bows,

we then concluded it would be impossible to pass; it seemed that an inch or two were just wanting to our success; we however continued our efforts by moving from side to side by the stern, while great efforts were making upon the rope; we perceived a small advancement by every new exertion, our hopes revived, the Barge was in this manner forced half way thro' the Cascade, & now she seemed so completely wedged into the narrow passage, that every effort to stir her in any direction proved ineffectual; the water tho' extremely rapid was not deep & we got four of our boldest men into the water at her bows, as far as possible from the suction of the fall, who by feeling for rocks on which she rested, & raising her sides with all their might, enabled us to advance a step or two farther, beyond which it seemed impossible to move: it was now night, the stars were visible, the water was cold, and altho' the weather was not freezing, it was far from being mild, the thermr. being at 45°; we now repented that we had made the attempt to pass so late in the evening, & wished we had delayed until the morning; at the same time the river was falling, & it seemed not proper to defer the attempt, lest we should not get above the Chutes until another swell of the river: in this situation we determined to lighten the Barge, by sending all the men, except four, ashore to haul upon the rope, while the 4 who remained were with hand levers to endeavour to raise up & lighten the bows. of the vessel: the first man who went out discovered, that by the violence of our exertions the rope was beginning to give way & that one of the three strands of which the rope was composed, had actually parted; we were now in a perilous situation, for if the rope had separated, no force on board could have prevented our being dashed to pieces upon the rocks: we immediately ordered every man on board to his pole to support the boat; in the mean time a man was dispatched thro' the water with the end of a rope from on board, which being made fast to the same tree, we were again placed in a state of security; we now sent the other men on shore as had been intended, who gaining a firm footing and exerting themselves with great vigor soon extricated us and drew us safely ashore, greatly rejoicing to find ourselves without accident above the 'Chutes': we are encamped under the incessant roar of the cataracts, which resembles nothing so much that I have heretofore witnessed, as the horrid din of a hurricane at New Orleans in the year 1779: the course of the chain of rocks across the river is nearly S.W. and N.E.-Made this day 7 miles 218 perches-Thermr. at 8h. p.m. 44°-Extremes 38°-59°.

#13 Thursday, Dec. 6

Thermr. in air 45° in river water 48°--cloudy--light wind at S.W. river fallen 2 inches. We were encamped last night upon excellent land, tollerably level, and of a good dark brown or blackish soil at the surface, about 12 inches deep, lying upon a yellowish loam; the growth of timber is large and handsome, chiefly a forest of Oak with an admixture of ash, hickory, elm &c, a field of corn has been formerly cultivated here by one of the hunters during the summer recess from hunting. This morning the Weather being cloudy we apprehended rain, but hoped to reach the 'fourche of Calfat' (Caulker's creek) the point which is to terminate our navigation, & encamp before bad weather; we accordingly proceeded on without material interruption until the hour of breakfast, carrying with us high hills on the left and good level lands on the right, subject perhaps to be inundated: at 9h a.m. arrived at the foot of a very long precipitous rapid, it seemed to be divided into four steps, one of which was at least 15 inches perpendicular exclusive of the inclined plane above and below, the whole could not be less than 5 1/2 feet perpendicular from the beginning to the end, which was about 400 yards, altho' the swift water continued half a mile: the rope was carried along the bank as usual, and many stops were made upon the rocks before coming to the great fall; at last the barge entered between two high rocks, the men exerted themselves vigorously both on shore and aboard; the barge appeared to be ascending an inclined plane of 12 or 15 degrees; great exertions were. necessary, she however passed without touching

any other obstacle but the impetuous torrent and in a few seconds was drawn into moderate water to the infinite joy of the whole party; upon another part of the rapid higher up, we got upon a rock, which seemed to serve as a pivot, upon which the boat turned as a Center; after reiterated exertions, we could neither advance nor retreat, we therefore unloaded about one quarter of the cargo which enabled her to pass up without difficulty: we immediately re-loaded having spent three hours in getting over this rapid, and proceeded a quarter of a mile farther to Ellis' Camp a little below the 'fourche au Calfat' (Caulker's creek): Here terminates our voyage upon the river upwards, for the present.

Our pilot considers this the most convenient landing, from whence to transport by land our necessary baggage to the hot-springs, the distance being about three leagues. There is a creek about 2 leagues higher up, called 'bayou des sources chaudes' (hot-spring Creek) upon the banks of which the hot springs are situated, about 2 leagues only from its mouth, but the road is very hilly and therefore less eligible than the path from this camp or landing, which is almost a level road. Upon ascending the hill to encamp we found the land extremely level and very good, with some plants in flower & a great many evergreen vines; the forest is chiefly oak with an admixture of other timber as before mentioned: soon after we arrived it began to rain, we were however tented before it commenced. Thermr. at 8h p.m. 56°. .Extremes 54°-67°. Our short voyage this day was only 2 miles 32 perches.

#14 Sunday, Dec. 9

Thermr. in air 19°, in river water 41°. very serene-- Wind moderate at N.W. river risen 2 inches. The people returned from the springs between 9h & 10h a.m. and after some time given for repose and refreshment, the party set out again with such baggage as was immediately wanted, and Doctor Hunter and myself accompanied them; the people complained of the length of the road and weight of the loads, we therefore diminished the latter: The Sergeant and one private remained in care of the Barge and her stores. We left the river camp about noon and with many delays and hauls for resting we arrived at the hot springs at 4 1/2h p.m.-the distance is computed to be 9 miles, which we shall verify by actual measurement probably on our return: the first six miles were in a general westerly direction with many sinuosities and the last three northerly, which courses were necessary to avoid crossing some very steep hills. We found on the way three principal salt-licks & some inferior, which are all frequented by buffalo, deer &c the soil around consisted of a white tenacious clay, probably fit for Potter's ware; hence the name 'Glaise' which the french hunters have bestowed upon most of the licks which are frequented by the beasts of the forest, altho' salt is not always to be found in such places so as to merit attention: we saw on the way recent tracks of the Buffalo and several Deer skipped along before us; we did not follow the game, being desirous of arriving at our destination before evening. The people were much fatigued with this days labor, altho' the road is by no means bad or hilly, but there is no doubt that a heavy load constantly bearing a man down must be very fatiguing upon the best of roads: the time and difficulties of moving our small baggage and provisions, altho' nothing but what is essentially necessary, to so small a distance, naturally suggests the inconveniencies which must arise in transporting over unknown mountains between the sources of the red and Arcansa rivers, baggage & provisions indispensibly necessary, with tools and implements for the construction of a boat or boats to descend the 2d river. Soldiers accustomed to carry moderate loads only, would find it intollerable to transport burthens which would be thought light by a Canadian or other woodsman enured to such hardships: a little calculation will shew what ideas we ought to form upon this subject. The provisions, instruments, arms & other baggage which may be deemed indispensable for 15 persons engaged on such an expedition, i. e. what must be transported from the head of one river to the commencement of navigation on the other, are certainly not overrated at 3000 lib; of the whole party 10 carriers are the highest number we can

calculate upon, some being necessary to guard the two camps while the scientific persons unattended would explore the environs: those 10 carriers from what we have seen could not be expected to carry for a number of days successively more than 50 pounds each (several of our people were incapable of doing so much) and ten miles to go loaded & return empty day after day even on a tollerably level road, is perhaps beyond what we can flatter ourselves with accomplishing; thus it would require at least six days to transport the baggage 10 miles, and the seventh would be demanded as a day of repose: now if the heads of navigation should be only 50 miles apart, & the passage not rugged or mountainous, it would require at the least 35 days to pass along the unknown region; and if allowance be made for such difficulties as ought to be expected including bad weather, we shall perhaps still flatter ourselves, if we expect to complete this portage in 50 days: on due consideration therefore it may be more advantageous (if the expedition is to be carried on by soldiers who cannot travel without their rations, tents, baggage & above all their execrable whisky) to explore one river only at a time. When arrived at the head of Navigation which will constitute a kind of head quarters and point of departure, the scientific men with a sufficient party may make with tollerable.

Inconvenience excursions of 30, 40 or 50 miles in all directions, prolonging the time according to the fortune of procuring game, 'which will enable the party to reserve the provisions taken from Camp for their return: an advantage resulting from this plan would be the facility of transporting specimens of natural history meriting attention; it is evident that this benefit must, upon the other plan, be nearly given up excepting on the descent of the second river. I am not ignorant that the plan originally proposed may be carried into effect, but this must be done by persons chosen for the object, in order that it may be done with economy & in a reasonable time: to young men of science of robust constitutions attended by four Canadian or other woodsmen inured to fatigue and who can depend altogether on their guns for subsistence may accomplish this object; they will be able to transport at once, their blankets, their arms and amunition, a little parched meal, very light instruments, such as a 3 inch sextant which may be graduated to 20" of a degree, a pocket case with a few re-agents for mineralogical assays, and 3 or 4 days provisions in case of disappointment in finding game; (spirituous liquors must be out of the question:) Such a party, each carrying a light ax for the purpose of building Canoes &c may accomplish the object proposed, upon supposition that no hostility is to be apprehended from the natives.

From the river camp for about two miles, the lands are level and of second rate quality, the timber chiefly oak intermixed with others common to the climate and a few scattering pine-trees; further on, the lands on either hand arose into gently swelling hills, clothed chiefly with handsome pine-woods: the road passed along a valley frequently wet, by numerous rills and springs of excellent water which broke from the foot of the hills: as we approached the hot-springs the hills became more elevated and of steep ascent & generally rocky; those hills are here dignified by the name of mountains, altho' none of those yet in view exceed 4 or 500 feet; it is said that mountains of more than five times the elevation of these hills are to be seen in the North-west towards the sources of the Washita river; one of those has been called the glass, Chrystal or Shining mountain, on its surface is to be found vast numbers of large hexagonal prisms of very transparent colorless chrystal, generally surmounted by pyramids at one end, rarely at both; they do not produce a double refraction: many searches have been made over those mountains for the precious mettals, but hitherto without success, so far as I can learn.

We found at the Hot-springs an Open Log-Cabin and a few huts of split boards, all calculated for summer encampment, & which have been erected by persons resorting to the Springs for the recovery of their health; we shall endeavour to render our temporary lodging comfortable for the people and ourselves during the short time we expect to stay here: we are a little discouraged by the dilatory ways of the Soldiers; it is evident that to promote the advancement of an object similar to ours, they ought to be commanded by a commissioned

officer, whose manners and disposition would render him an agreeable companion to his fellow laborers: it cannot be said that the Soldiers are disobedient, on the contrary they are to me uniformly respectful, but it sometimes appears that a spur is wanting, & there is no person here who treats them otherwise than with civility; there is also some appearance of design to prolong their return to new-orleans, the present service being much more agreeable to them than the duty of a garrison under the eye of their officer.

On our arrival we immediately tasted of the hot-spring water, that is, after a few minutes cooling, for it was impossible to approach it with the lips when first taken up, without scalding: having arrived here without prejudice for or against the springs I did not discover any other taste except that of very good water rendered hot by culinary fire; some of our people pretended to have discovered cathartic properties, which must be feeble, as I have been unable to detect the existence of such a quality in the waters. Thermr. at 8h p.m. 28°. Extremes 19°-42°.

Monday, Dec. 10

Thermlr. 26°very serene. Wind moderate at N.W.-We spent a cold night in our new lodgings, not being able to keep up a large fire in the Cabin, which is only 12 feet square without a chimney. From the complaints of great fatigue by the people, we found it necessary to allow some repose, and ordered the people to go into the river camp, there to remain during the night and return the day following with more of our baggage, directing the loads to be made still lighter: the day proved serene and fine, but as we had been obliged to leave our instrumens yesterday at the river-camp, no astronomical observations could be made this day. We visited all the hot springs; they issue from the sides and foot of a hill placed on the east side of the narrow valley where we are hutted, one small spring only rises out of the face of the west bank of the creek; from the quantity of calcareous matter deposited by it it does not appear to be of long standing; a natural conduit probably passes under the bed of the creek to supply it. There are four principal springs arising immediately on the east bank of the Creek, one of which may rather be said to spring out of the gravel bed of run; a fifth smaller one is that just mentioned rising on the west side of the creek; a sixth of the same magnitude is the highest or most northerly one rising near the bank of the Creek; those are all the sources which merit the name of springs near to our huts; but there is a considerable one some distance below, & all along the creek at intervals the water oozes out or drips from under the bank into the creek, which during the present cool season is very evident from the condensed vapor which floats along the margin of the Creek, where those drippings are visible & even where none is to be seen; a statement will hereafter be given of the temperatures of the respective springs with the quantity of water delivered and references to their respective positions; from some slight trials, it appears that the highest temperature is about 148° to 150°. In the afternoon we ascended the hill which furnished the hot springs, it is of a Conical form terminating at top with a few loose fragments of rocks covering a flat space of about 25 feet diameter. The rock which delivers the hot water is composed chiefly of hard siliceous stones penetrated and cemented together by lime, which it appears very evident has been conveyed there by the water of the springs, encrustations of iron ore were also found which were also probably deposited by the same water: under the hottest water we observed a lively green appearance which at first induced us to suppose that Copper might be present, but on nearer inspection we found it to be only a superficial covering of feculum deposited by the water, which resembles the green matter deposited by other pure or fresh waters at common temperature, along conduits and in well buckets, respecting which a dispute has arisen between Dr. Priestly and others, whether this green matter is a perfect vegetable or only a feculum; the question is probably now decided, for if we are permitted to reason from analogy, no vegetable is hitherto known to exist in the temperature of 150°. We shall however examine this subject farther, we shall only now

observe, that this feculum of moderate thickness seems to have been deposited by successive thin laminae.

As we advanced up the side of the hill we found several patches of rich black earth, which Dor. Hunter says is such as is formed by the decomposition of limestone-in other situations appeared an incrustation of limestone, i. e. the superficial earth was penetrated, indurated and encrusted by lime with detached laminae or fragments of iron ore; we had no doubt that the water of the hot springs had here formerly issued from the hill & run over the surface causing the depositions just mentioned, about 200 feet perpr. up the hill we found a hot spring whose temperature is 140°-The timber here is not large consisting of oak, pine, Cedar, Holly Hawthorn, with many other common to this climate, with a great variety of vines, of which some producing the black and the yellow grapes, the soil extremely rocky with good soil interspersed with stones, gravel, sand &c. When we had advanced about 250 feet perpr. up the hill we found some change in the soil; it was equally stoney or rocky with some black superficial earth immediately under which was found a basis of tenacious fat, soapy reddish clay, inclining to the colour of high colored Spanish snuff; it appeared by taking a bit into the mouth, to be very homogeneous, without sand, & no saline taste, but rather soft & agreeable, this soil with the same growth of timber, but diminishing in size, rocks increasing, continued to the top of the hill, which for the present we estimate at 300 feet per-pro above the valley where we are huttet. Thermr. at 8h. p.m. 28°. Extremes 26°-50°.

Monday, Dec. 24

Thermr. before sunrise 320 Wind moderate fm. N. W. Some prospect this morning of a favorable change, the moon is visible and the sun yet behind the hill, announces his approach with a bright blaze: prepare for observation -took the Sun's triple contact, hoping to obtain correspondent observations in the afternoon to regulate the watch, the moon was already eclipsed by the pine tree tops on the western hill before the sun was risen high enough in the East to enable us to take their distance, we were therefore obliged to wait with patience and ordered all the intervening trees to be cut down to facilitate future observation; at noon obtained a good "altitude of the Sun, but soon afterwards it became cloudy, so that we got no corresponding altitudes for the regulation of the watch.

The Doctor found himself a little better; we agreed to walk up the hot spring hill to make new observations on this natural Curiosity: we now found it easy to trace out the separation between the primitive hill and that which has been accumulated upon its west side by precipitation from the waters of the hot springs; this last is entirely confined to the west side of the hill washed at its base by the waters of the Creek, no hot spring being visible in any other part of its circumference; by actual measurement along the base of the hill, the influence of the springs is found to extend 70 perches in a direction a little to the eastward of North; along the whole of this space the springs have deposited stoney matter, which is probably principally calcareous, but there is also evidence of silex and iron; All the springs deposit red calx of iron in their passage to the creek; I am not for my own part so certain of the silex; there is to be sure sparkling chrystals mingled with the lime in a state of decomposition, but having observed by the aid of the microscope that the whole of the calcareous rock exhibits nothing but a mass of congregated sparry matter, it therefore does not appear to me decided whether the sparkling particles are really silicious chrystals or only calcareous spar; the Doctor is now employed upon analysis which will probably decide the point; from the specimens I shall carry home with me I shall hope to investigate the matter at leisure. The accumulation of Calcareous matter is much more considerable at the north end of the hill than towards the South, the first may be above one hundred feet perpendicular, but sloping much more gradually than the primitive hill untill it

approaches the Creek where it frequently terminates in a precipice of from 6 to 20 feet perpendicular: the difference between the appearance of the primitive & secondary hill is so striking that the most superficial observer cannot avoid taking notice of it; the first immediately above the spring is very steep, studded with rock & stone of the hardest flint & other silicious compounds, some good soil is interspersed supported by a basis of red clay: below on the secondary hill, no silicious or flinty stone is to be seen, except what is enveloped by calcareous matter, the last is often covered by much good black earth in situations where the waters have long ceased to exert their creative powers: the cedar, the Myrtle wax and the Cassina Yassou seem to attach themselves particularly to the secondary hill & even grow & thrive in the clefts of rock apparently solid; at small intervals along the line of separation between the primitive & secondary hill we discover sources of hot water; some flowing with some degree of freedom, & others in a manner shut up by the accumulations which they themselves have brought forth from the bowels of the hill: Each spring enjoying a freedom of situation proceeds with great regularity in depositing its solid contents, the borders or rim of its cup form an elevated ridge, from whence proceeds a glacia all around; when the waters have flowed for some time on one side, the stoney concretion becomes more elevated at that part, the water is therefore stopped on that side because it finds a lower passage over another part of the margin of its little crater & thus it proceeds all around with great regularity, resembling the conical form of a volcano in miniature, its crater being always filled with] water; the hill being generally steep above, the progress of petrification is at length stopped on that side, & the waters issuing with more velocity downwards spread abroad & encrust the whole hill below, I am persuaded that the slope of the secondary hill would have been greatly more extended if the continual running of the creek waters had not put a stop to its progress on that side, nay I have no doubt but the whole valley might in time have been filled up to a level nearly with the upper springs, had not this opposing cause intervened; the last formed calcareous border of the Cup or Crater/which is generally covered by the green feculum already spoken off is soft & easily divided, a little under it is more solid, and at the depth of about 4, 5 or 6 inches, it is generally hard white stone: it is surprising to see plants, shrubs & trees with their roots almost in the hot water; this circumstance being observed by some of the visitants of the hot springs, has induced some of them to try experiments by breaking of branches of trees & sticking them into the run of hot water; we actually found some branches of the wax myrtle thrust into a run of hot water of temperature 130°, where the foliage of the branch was not only of a good healthy colour, but at the very surface some fresh roots were sprouting from the branch upon examination the wood was found decayed where it entered the mud at a greater depth; this has the appearance of being so strange & singular that few persons will be willing to believe it, judging no doubt that some deception or want of accuracy has led us into error; it is however in the power of every one to try the experiment with some trouble by artificial means. Large portions of the Calcareous surface has been decomposed & now forms a rich black mold of moderate depth in some situations & very shallow in others, the bare rock frequently exposed to view; a luxuriant vegetation covers this region, the primitive part of the hill being in this respect much inferior in point of fertility, altho' very far from being sterile; grape vine abound in both particularly in the calcareous soil.

Were we to pause a moment here and enquire into the Cause of the perpetual fire which keeps up without change the high temperature of so many springs continually flowing; upon looking around us, nothing appeared externally but an immense bed of blue or blackish schistus; the bottom or bed of the Creek is composed of nothing else; I have frequently taken up pieces of this stone, which had become soft by decomposition, possessing a very strong aluminous taste, it seemed to require nothing but lixiviation and chrysalisation; this same schistus is discovered in all situations near the same level & it most probably pervades a great tract of Country & forms the basis of many of the adjoining hills; it is known to chemists that aluminous schistus being

moistened in due degree by water, generates in the progress of decomposition a very great degree of heat; I leave it to Scientific men to decide whether this Cause may be sufficient to account for the heat which keeps up the temperature of the water; it is in vain to search for any other external mark which might lead to the solution of this problem; no volcanic appearance is to be found in any part of the hills or mountains of the Washita; it has already been observed that they are insulated & form no connection with the grand chain of mountains to the westward, being enclosed on that quarter by the lofty plains or prairies which unite the western parts of the red river to those of the arcansa, which are much frequented by the Osages; the difficult approach of the Washita waters being supposed the cause which protects this place from their unfriendly visits.

Thermr. at 3h. p.m. 45°-at 8h. Mo.-Having thrust a stick down into one of the hot springs up the hill, several drops of petroleum or naphtha rose 'spread upon the surface, the quantity was small, upon repeating the experiment, it ceased to rise after 3 or 4 attempts.

Tuesday, Dec. 25

Thermr. 34°--Wind N. N. Cloudy--The state of the heavens did not admit of any astronomical observations in the morning: it cleared up before noon so that we had a good mer: alt: of the sun, which was scarcely over, when the clouds overspread the heavens & it rained a part of the afternoon; this being Xmass we were obliged to indulge the men with a holy day for which purpose they had hoarded up their ration whiskey, to be expended on this day; a great deal of frolick was the consequence; but perfectly innocent: we amused ourselves with some farther experimental enquiries into the qualities of the hot waters, the conduct of which being left to Doctor Hunter as a professed chemist, I shall give the results when completed. Thermr. 51° at 3h. p.m. and at 8h. 44°.

William Dunbar: Scotland's Loss, America's Gain

In the early 1800s, as citizens of the new United States began to move westward, land across the Mississippi lay like the unreachable treat on a high shelf, just out of reach. One resident of this territory stands out like a gold nugget in a pan of pay dirt—William Dunbar. He was considered to be the leading surveyor, naturalist, astronomer, mathematician, educator, planter, businessman, inventor, and explorer in the Old Southwest. With such accolades, it is apparent why President Thomas Jefferson chose him to lead the first commissioned expedition into the southern Louisiana territory.

A mutual friend, Andrew Ellicott, introduced Jefferson and Dunbar through correspondence in 1803. Never meeting face to face, Jefferson and Dunbar subsequently wrote frequently until Dunbar's death. These letters reveal the brilliance of each as they presented new theories and debated the ideas presented. Who was William Dunbar and how was his intellect shaped?

William Dunbar was the product of Scottish landed gentry. His family connections to lands in northern Scotland precede the fifteenth century. His father, Archibald Dunbar, first married his cousin Helen Dunbar, producing three sons—Archibald, Robert, and Alexander—and at least one daughter. Archibald was a “man's man,” enjoying hunting, hawking, and dog breeding. Archibald and Helen lived in two households among the estates they owned.

Helen Dunbar died after thirteen years of marriage. Archibald married Ann Bayne within two years, after she was hired to tutor his children. Their union produced William, Peggy, and Thomas. (Thomas died in His Majesty's service and saw duty in the American colonies. Peggy died in a shipwreck while traveling to America to live with William.)

William's birth date is unknown as the parish's birth certificates are incomplete and his birth date is not mentioned in any remaining legal documents. Some contend an 1849 birth date because his tombstone in Natchez says he was 62 years old at death. It is known that he entered King's College in Aberdeen in 1763 and the normal entry age was 12-13. This leads at least one author to believe he was born in late 1750 or early 1751. With this birth date, his age at emigration to America in 1771 would have been 21, the age he was no longer bound to his family.

William was born in a country home, Duffus House, six miles northwest of Elgin. Thunderton House, a lavish house on the main street of Elgin, the county seat of Morayshire, was their other home. When William was growing up, his room in Duffus House overlooked the park-like yard laid out with flower gardens and the adjoining orchard. Dunbar's own home in Natchez (The Forest) is said to reflect his boyhood home.

His mother's correspondence shows William was quiet, serious-minded, and inquisitive about the natural world, while his brothers enjoyed the pastimes of their father. His father thought him a sissy and worried about his health. William was close to his mother and she protected him from the bullying of his half-brothers.

William grew up during the period of Scottish renaissance. Scotland produced many intellectuals who excelled in their fields during this time period. Elgin had two primary schools. The type of education there rose and fell with the tide of religious opinion. (Alexander Graham Bell taught at Elgin Academy in the 1800s.) While Archibald Dunbar was not a scholar, he did see that his children were educated. They were tutored at home which secured a better education than the grammar school offered at that time. One early tutor taught the boys fluent French.

In the fall of 1763, William began his studies at King's College in Aberdeen. Archibald was advised that the brilliant boy would be better educated at St. Andrew's University, but the Dunbars traditionally used King's College. It had a small and highly selected number of students; there were 24 graduating in William's 1767 class. The students lived on campus highly disciplined regimen. They attended public prayers ten times a day and were required to be in their rooms by nine p.m. The rooms were meagerly furnished and students were required to provide their own fires and candles and had to do their own washing. In class, students sat according to their proficiency and there was fierce competition for the front row seats. [Oh, for 13 year olds that eager today!] Students had to be proficient in Greek before entering. William's rank at graduation is unknown but letters from his teachers speak of his excelling, especially in mathematics, or philosophy as it was commonly called then.

After graduating, William spent time with his mother, brother Thomas and sister Peggy. He corresponded with some of the leading British scientists of the day as he pursued field studies, especially of minerals. He collected profusely, supplying many specimens for the Museum of Natural History in Aberdeen.

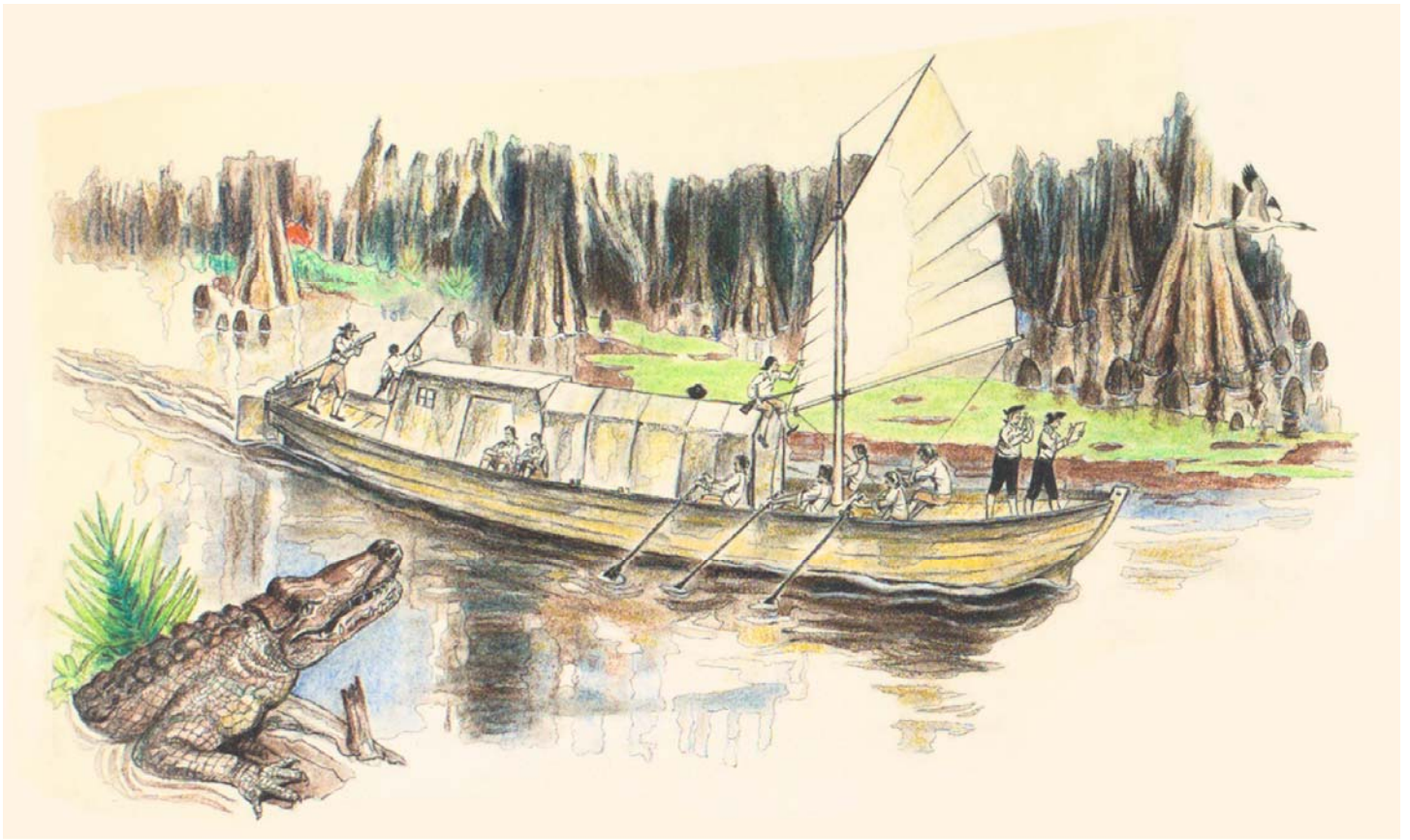
As the fourth son, William had no chance of inheriting any family land in Scotland. At 21 he would have to make his own living. With his father's death in 1769, he was left with only about 500 pounds and an older half-brother who never cared for him. His best option was to seek his fortune in America. He decided to emigrate early in 1771 and spent his inheritance on equipment, trade goods, and passage to Philadelphia. His scientific mind was a considerable asset to North America. Dunbar died on October 16, 1810, just five years after his foray up the Washita River.

Sources

William Dunbar: A Product of the Eighteenth Century Scottish Renaissance by Arthur H. DeRosier, Jr., Mississippi Historical Society, 1965

William Dunbar, Explorer by Arthur H. DeRosier, Jr., Mississippi Historical Society, 1963

By Gail Sears, Hot Springs National Park

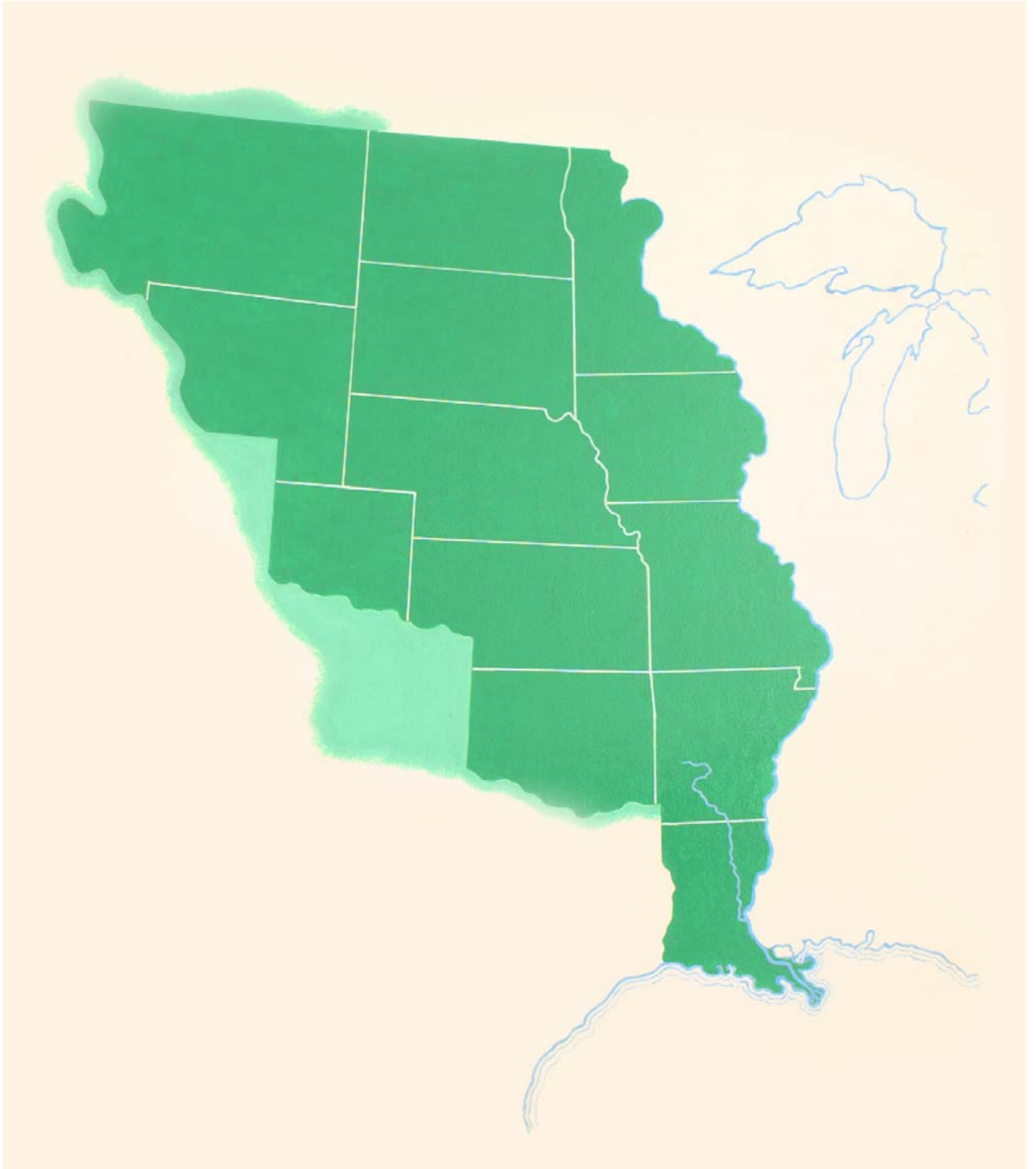


The "Chinese- style boat" used by Dunbar and Hunter for first part of journey, from Natchez MS to Ft. Miro (Monroe) LA



French Fur Trapper

Figure 1



Louisiana Purchase



The cataracts on the Ouachita River, near present- day Rockport.



The Forest- - William Dunbar's home near Natchez MS around 1800