

most impracticable or at any rate very dangerous. The government has made some inadequate appropriations for improving this navigation, and some of the ledge has been removed. We shall no doubt give them a loud call to make a thorough work of it, and remove so much as to make the passage over these rapids safe and commodious for all boats navigating the upper Mississippi. The wealth that goes down over them requires it. The wants of the population crowding Illinois, Iowa and Wisconsin above them on both sides will require it: and it *must* be done.

I stated the principal source of the Mississippi to be in lake Winnepeg. Some geographers give the name Winnepeg to a different body of water being a large lake into which Red river flows. From thence its course is 700 miles to the falls. For 500 miles below the falls it has banks gradually descending to the stream and a handsome landscape. Below this the border of the river is deformed by low bottoms, and broken by *slucs*, so called here, which, before I knew them, I took to be sloughs. But the word slue seems to be rather a corruption of sluice, by the same whimsical mistake which puts shay for chaise: a slue being a narrow run by which the water goes off at one side and unites again with the stream; or it may be applied to mean a turning aside, correctly perhaps, though oddly, as it is applied to a sled that slips off the track.

With the Missouri we have at present less concern: its course being nowhere within the settled parts of the territory. The time may be not far however when this will be the most important of the two streams to us. You know that it is navigable from an immense distance above its junction with the Mississippi, steam boats having gone to the Yellow Stone: and that its valley is more than double the extent of the Mississippi above their junction affording an immense region in the west, whence are yet to be drawn treasures of wealth hitherto unknown to the enterprise of the country. It washes with navigable water our whole western border; except a fraction of a degree at the north. The current of this river is rapid, being usually at its height 4 or 5 miles an hour, which makes it difficult of ascent except by means of steam.

The Des Moines is a beautiful river running on a rock bottom and nowhere overflowing its banks. It runs through the most populous part of the territory, and is navigable in two broken portions the aggregate of which exceeds one hundred miles. With some improvements that are feasible it may afford uninterrupted navigation for 150 miles or more.

The Cedar river has rapids in Linn county about 120 miles from the Mississippi, to which point it is supposed to be navigable. It is a broad stream, and a few weeks from writing this had ten feet of water in depth; but with a sandy bottom, liable to be obstructed with bars.

These two streams are the only ones in the settled part of the territory, whose course is wholly within it, that are considered navigable to any considerable extent for steam boats. Probably the large rivers in the northern and western parts however are navigable. For a description of them I refer you to the published accounts of travelers. But the territory is watered by a great many smaller streams some of which I have before named which furnish good water power for mills. The northern portion is also finely diversified with lakes which afford some of the most splendid lake scenery in the known world. They are Lake Pipin, Lac quiparle, Big stone, Elk, Buffalo, Ottertail, Itasca, Plantagenet, Cass, Leech, Winnepeg, Turtle, Red, Lake of the Woods, Pembina, Devil, and innumerable smaller lakes and ponds unnamed.

The whole extent of navigable water in this territory not including lakes will at the lowest estimate exceed twenty-five hundred miles:

Mississippi	600
Missouri (about)	1200
Des Moines	150
Iowa and Cedar	120
To which add for all others including St. Peters, Red and James,	500 at least
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	2570

Waters go out from or pass our limits that will transport us to Hudson's Bay and the gulf of Mexico, to Pennsylvania and the Rocky Mountains.

I have already mentioned the suggestion which is forced on us by the fossil remains at this place that a body of water of great depth once covered this valley.

I am of opinion that a sea once connected the waters of Hudson's Bay with the Gulf of Mexico, in the period of the second geological formation, dividing the Alleghanies from the Rocky Mountains and the western Hemisphere into two great continents or perhaps into three, separating the Andes from both.

Yours, &c.

[Written for the Patriot.]

BURLINGTON, Io. July, 1839.

MY DEAR FRIEND

It is only by reason of the rivers that water this country, the arteries by which life is maintained in it, that it can have any value, or could become the abode of the population destined to fill or that is now within it. These channels of trade and intercourse, in furnishing an easy highway for the transport of passengers and goods into a country that must otherwise be reached by long and laborious travel and could only receive supplies and send out its produce by yet more laborious and precarious means, have made it accessible and brought it by the aid of steam into contiguity with places separated from it by long centuries of miles. I must therefore not omit to mention the rivers of the territory though you have in relation to the most important of them more information than I shall communicate, and are not without some knowledge of the smaller ones.

The Mississippi has its course for 600 miles of navigable water from St. Anthony's falls to the northern bound of Missouri, a little below the Des Moines rapids, along the border of this territory. Several boats have been as high as St. Peters the present season, which point and others in that region will perhaps before long become places of general resort for summer residence or excursions by the inhabitants of the more southern latitudes contiguous to the river. The river is constantly traversed by steam boats to Galena and Dubuque about 200 miles above this, which carry passengers, emigrants and merchandize to those and intermediate places, and return with lead, the produce of the "diggings" at those points and take in occasionally our surplus grain at this place, to supply the lower country.

The navigation of this glorious river is obstructed by two sets of rapids in passing through this territory. The first however called the upper rapids terminating near Davenport about 90 miles above this is a very slight impediment if any at all. Its channel has at the lowest stages of water from eight feet to a depth not reached by a fourteen feet pole, and is generally of a sufficient breadth; though in the upper part it is rather intricate and narrow. The lower rapids, so called begin about 30 miles below this place and ten below Madison, extending about 12 miles, and at low stages of water are impassable by large boats. This set consists of four chains of ledges, called upper chain, Lammallee's, English, and Lower chain, and is of extremely difficult navigation, the channel being for the most part very shoal, intricate and narrow. The English chain has two channels. The one, near this bank, has but two and a half feet in great part at low water. The other, near the eastern bank, has generally six feet or more but is so narrow and intricate as to be al-