

The Missouri Slope

The lower portion of the Coteau des Prairies forms two spurs; one of which turns off the rivers that flow into the Mississippi, the other those that run into the Missouri. The divisional line of these two spurs is plainly indicated by the course of the Des Moines from $43^{\circ} 30'$ of north latitude. The divide now referred to is a prominent ridge, separating the waters that empty into the Des Moines from those that flow westwardly into the Missouri. But, as it falls off in a very gradual slope when it has reached 42° of latitude, the head-waters then take first an easterly and afterwards a southeasterly direction and are divided from each other only by moderate swells or undulations of the country that cause them to ramify into a rain of streams, carrying their waters, after long ramblings, easterly to the Mississippi and southerly to the Missouri.

To the north and west of the *Nadoway*, or Snake River — meaning a particular species of snake — several important streams take their rise on that side of the Coteau des Prairies I am now consider-

[This description of some of the geographical features of the Missouri River and the western slope of Iowa is adapted for THE PALIMPSEST from J. N. Nicollet's report of his explorations of the hydrographical basin of the upper Mississippi River in 1839. The complete report, accompanied by a splendid map, may be found published as House Document, No. 52, 28th Congress, 2nd Session. — THE EDITOR]

ing, to empty themselves, of course, finally, into the Missouri. I shall now give an account of those which appear to be least generally known.

The name of the *Inyan-yanke*, or Little Sioux River, implies that there is a rock somewhere along its course. It is said to be navigable for canoes. As I saw but the two extremities of this river, and having obtained no reliable information concerning its intermediary courses, I do not insist on its accurate representation on my map. I may most probably have placed too high up one of its tributaries — the *Otcheyedan* — a name derived from a small hill, the literal meaning of which is “the spot where they cry”, alluding to the custom of the Indians to repair to elevated situations to weep over their dead relations.

The Little Sioux River has its origin from a group of lakes, the most important of which is called by the Sioux, *Mini-wakan*, or Spirit Water; hence its name of Spirit Lake. This lake has a triangular form; being about seven miles wide at its largest extremity, and seven miles in length. It is not remarkably well wooded; the smaller lakes to the north of it being better supplied in this respect.

The *Tchan-kasn-data* is the Big, or simply the Sioux River, and is one of the most importance to the country through which it flows. Its Indian name means that it is continuously lined with wood. Its sources are at the head of the Coteau des Prairies, not more than a mile from those of the St. Peter's,

and separated only by a low ridge, as Mr. Frémont and I had an opportunity to observe. Its length can not be less than 350 miles; in which distance, there are two principal bends — the more southerly and smaller being terminated by a fall, said to be the only obstacle to its entire navigation. From this circumstance, the upper part of the river bears another name: the Sioux calling it *Watpa-ipak-shan*, or Crooked River; and the French *la riviere Croche*. It flows through a beautiful and fertile country; amidst which, the Ndakotahs, inhabiting the valleys of the St. Peter's and Missouri, have always kept up summer establishments on the borders of the adjoining lakes, whilst they hunted the river banks. Buffalo herds are confidently expected to be met with here at all seasons of the year.

The fall of the Mississippi from St. Peter's, and that of the Missouri from Fort Pierre Chouteau, to the confluence of the two rivers, are in the ratio of 45 to 85; in other words, the average rapidity of the Missouri is nearly twice that of the Mississippi.

These rates are far from being the limits of navigation by ordinary power, which I believe to be laid down within a fall of two feet to the mile. This explains, in reference to the Mississippi, how it is that steamboats of great power are now able to ascend in five or six days the great distance of 1,286 miles between New Orleans and St. Louis, which formerly required more than two months to effect by human labor. The fatigue was then so great

that it is not wonderful that the rapidity of the current should have been greatly exaggerated.

As to the Missouri, there are other difficulties that present themselves to its navigation, even by steamboats, besides the rapidity of the current; and, among these, the principal and most insurmountable is the constant shifting of its sand-bars. If, in this respect, the Missouri is to be deemed unimprovable, this is not the case with the Mississippi along a very extensive portion of its course. It is evident that, in alluding to the obstacles in the navigation of these rivers, I have no reference to accidental accumulations of drift-wood, or the occurrence of snags, that are entirely within the control of man, and will completely disappear with the progress of civilization. The Mississippi is one of the easiest navigable rivers in the world, as it is one of the longest; and its course only requires to be a little more studied, to render us perfect masters of it.

The difference of level of the valleys of the two rivers under consideration may readily be determined. Thus, if I take the level of the Missouri at Council Bluffs, and that of the Mississippi at Rock Island, the localities differing but slightly in latitude, ($41^{\circ} 30'$) we obtain for respective elevation of each above the Gulf of Mexico, 1,023 feet for the former place, and 528 for the second. In the same way, if two other places in more elevated latitudes are compared — such as Fort Pierre Chouteau on the Missouri, and the lower end of Lake Pepin on

the Mississippi, both in latitude $44^{\circ} 24'$ — we obtain 1,456 feet for the elevation of the first, and 710 feet for that of the second. These numerical relations establish the fact, that the average level of the Missouri valley above the ocean is nearly twice more elevated than that of the Mississippi.

From these considerations alone, we would expect to find the comparative vegetation of the country between St. Louis and the above-mentioned limits to exhibit a change, not only on account of a change in the latitude and in the nature of the soil, but also a variety due to a difference of elevation. Accordingly, Mr. Geyer has observed that the great luxuriance of the growth in the valleys of the Missouri and Mississippi, and even the uplands, is much diminished on reaching the mouth of the Platte River on one side, and the vicinity of Rock Island on the other. Further: that, within the limits of this zone, we find gradually disappearing the most conspicuous members of the forest, as the sycamore, the pekan tree, the shell-bark hickory, pignut hickory, white walnut, pin and overcup oaks, and the honey locust, together with many smaller trees and plants, as the buckeye, persimmon, sassafras, trumpet flower, ginseng, and May apple.

From the mouth of the Platte River the forests are narrower. The principal trees are the American and red elm, the soft maple, Canadian poplar, white and red ash; the most common undergrowth, horse-briar, fox and false grapes, red root, gray

dogwood, currant, and gooseberry, with shrubs and dense rushes along the banks of the river. The same trees and shrubs grow on the numerous islands, that are generally bordered with black and long-leaved willows. In the higher situations, and at the head of creeks, we meet with the black walnut and mulberry, basswood, nettle-wood, intermingled with the common hawthorn and prickly ash. On the high grassy or rocky banks, the black and bur oaks constitute the principal growth, but occasionally intermixed with the wild cherry, red cedar, hornbean, wild roses, and sumach. The low prairies bordering the rivers have a deep, fertile soil, and abound with sedge grasses and leguminous plants. Finally, taking a pictorial view of the country, the verdure of its hills and prairies affords a pleasing contrast with the naked sand-bars in the rivers.

It may be well to state here, that all such rocky banks as the one just alluded to, noticed by Lewis and Clark, and subsequently by Major Long, are constantly wearing away; so that they offer landmarks to the traveller only for a limited period of time. But we are not to judge of their oryctognostical character from the detritus found below them; because this is composed not only of the materials derived from the bluffs, but of others carried down the Missouri during its season of high waters. Among these materials is the oft-mentioned pumice-stone, which is brought down from the upper parts of the river. I have ascertained, by a more careful

examination than had probably been given to it previously, that it is not a true pumice, but a semi-vitreous substance, produced by pseudo-volcanoes.

Above Council Bluffs the hills on either side are observed to be at a greater distance from the river, which is itself twice its preceding width. The valley is fully fifteen miles wide; and the broad prairies that carpet it exhibit the same richness of soil and luxuriance of vegetation as those I have already had occasion to describe. The bends on the river have courses of longer radii, and are more multiplied, so as greatly to increase the travelling distance between two spots. The width of the river varies from one-fifth of a mile to two miles. In its widest parts, the navigation is frequently impeded by sand-bars and drift-wood; but, where it narrows, the current flows in a straight, onward direction, between picturesque banks or passages, such as may be seen at the mouth of Little Sioux River. But in those instances, it is easy to discover that these passes are cut off through some of the bends. Thus we could not recognise many of the bends described by Lewis and Clark; and, most probably, those determined by us in 1839, and laid down upon my map, will ere long have disappeared, such is the unsettled course of the river. Already I have been informed, in fact, that the great bend opposite Council Bluffs has disappeared since our visit; and that the Missouri, which then flowed at the foot of the bluff, is now further removed by several miles to the east of

it. It is, in this respect, curious to compare our journal of travelling distances with that of Lewis and Clark. They are found always to differ, and sometimes considerably. Yet, on arriving at any prominent station, as the confluence of a large river, the amount of the partial distances computed agree as nearly as could be expected from the methods employed to estimate them.

After a navigation of two days, the hilly country, which had receded from us since our departure from Council Bluffs, came again into sight, and we stopped at the foot of the bluff on the right side of the river. This place affords a beautiful site, formerly occupied by a Mr. Wood, an Indian trader; and it still bears his name. Having reached this place by night, and as it was fixed that the steamboat was to leave the next morning before day, being very anxious to know whether the geological character of the country had changed or remained the same, so soon as we had completed our astronomical observations, Mr. Frémont and I ascended the bluff to obtain specimens of the rock in place. On examining them, I discovered that we were still in the carboniferous formation.

The next day we passed before the magnificent amphitheatre of hills, the summit of that nearest the river being surmounted by the tomb of Blackbird, a celebrated Maha chief and murderer by poison, whose history was told in Major Long's first expedition but has been since reproduced with various

versions in many public prints. Several miles higher up, we got a glimpse of the vale watered by the Maha Creek, in which is the principal village of the Maha nation. The hills on the left bank of the river, of which we had lost sight, again came into view toward the close of the afternoon, covered by a soft and grateful verdure. We stopped before night at the foot of the bluff on which is Floyd's grave; my men replaced the signal, blown down by the winds, which marks the spot and hallows the memory of the brave sergeant who died here during Lewis and Clark's expedition. Our steamboat then started under full blast to take shelter at the mouth of the *Tchan-kasn-data*, or Sioux River, against an impending storm that soon after broke over us and lasted during the whole night.

I had previously, however, landed a mile or so before reaching the mouth of the Sioux River, on the left bank of the Missouri, to examine a rocky bank, seemingly a continuation of those apparent at Wood's hill. I found it to consist of a carboniferous limestone and an argillaceous schistose limestone.

The rocks in this locality reach only to an elevation of seven or eight feet above the level of the river; and I take notice of them here because I am disposed to think that they are the last representatives of the carboniferous series in the ascent of the Missouri, and that the mouth of the Sioux River is the true limit of the old fossiliferous rocks.

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