

# Drainage Matters

By R. E. Grinstead

At several different places along the Nemaha river, levels have been taken, by different persons, the gradient is not less than 10 ft per mile. On account of anticlinal or sinclinal formations in the underlying rock strata, which sometimes brings the top of same to the height of bottom of channel; then the fall is modified by this, both above and below where the same occurs; below this the fall is greater and above it is less than the average fall. This prevails for some distance each way when normal conditions again take place.

If at any place along the course of a stream the forces of nature which originally caused anticlines in the rock formation were less violent, then the perpendicular fall in the stream, if the forces were less violent, then we have rapids with the underlying rock coming up to the bottom of the channel.

The condition prevailed forty years ago, when U. S. Surveyor McMannus meandered the Nemaha river, as the same appears in the government field notes, now in the deputy county surveyor's office. At this time the native grasses covered all of the high prairies and in times of excessive floods the water went into the natural channels and waterways not laden with silt, as it does now, since the alluvial soil comes down into the Nemaha, where it encounters the brush from the woodman's axe, and other debris when gravity sends it to the bottom of the channel and thus filling it up several feet in more recent years.

To illustrate, near the center of sec. 12 at Boyd's bend for  $\frac{3}{8}$  of a mile quoting from these same government field notes, is a continuous rapid. West end of sec. 20 in Falls City twp is another rapid. In sec. 21 is a perpendicular fall of four feet, and in the next two hundred feet is a rapids making total fall of seven feet at this place. And immediately at the bend McMannus records a mill site. At the lower end of the bend is another rapid.

I make the quotations from field notes to perpetuate a truthful tradition of the condition prevailing at that time. And also for the purpose of saying that when a new channel is made and the river shortened, the increased velocity of the water will, by the process of erosion, make the channel deeper than it ever has been in recent years, and will expose not only these same rock formations as before, but others

not hitherto exposed. This will be the case no difference where the new channel may be. At the time we speak of the fords and crossing places in the river were at these rapids and were numerous. As the field notes show, Dundee's bend is about five-eighths mile around and one-sixteenth mile across, if a channel were cut across the bend. This rock exposure would be apparent all the way, also above and below, after the new channel shall have attained its growth, which will not be very long. I am not locating ditches. This will be the work of a topographical engineer, and will be located at the right place regardless of anything I might think or say.

My desire is to show that we have a practical problem before us. We have a fall much greater than any tributary of the Missouri river coming in from the east side where these same problems have been successfully solved.

Referring to Maj. Burbanks question, propounded in his very interesting letter to the Falls City papers, I beg leave to say that his proposition of a water power in conjunction with the drainage question, is in part what has induced me to discuss probable geological formations at the bed of the Nemaha channel; and, in my opinion, the possibilities along the line he has indicated, and also that of furnishing water economical and in sufficient to meet any desirable and expectant growth of Falls City are interesting problems.

At this time, however, to reclaim the overflowed lands of the county is the paramount issue with every citizen.

The mouth of the Nemaha river is three miles from the B. & M. depot at Rulo and is not less than seventy-five feet below it. The B. & M. depot at Salem is fifteen miles from Rulo. Low water mark at Salem is about fifteen feet below the depot; leaving sixty feet, which divided by fifteen miles would make four feet per mile, even if the B. & M. railroad were a perfect level.

I mention this to silence a certain individual of Falls City who has been saying, with an air of wisdom, that the Nemaha valley has a fall of only two feet per mile. Some men may give credence to this story to the disadvantage of all. I desire to say to this man: "Cease to talk about things of which you are not conversant," or we will turn a little kodak towards you, and will re-



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Yours Truly  
 R. E. Grinstead.

### An Ugly Cut.

Mrs. Dunn of Williamsville was in town Wednesday. She informs us that her son, Byron had the misfortune one day last week of severing an artery on the thumb of his right hand, from which he lost so much blood that it caused him to faint away. He is however much improved at this time and the wound will soon be healed up.

### New Barn.

J. S. Hillyard is building a large barn for Wm. Chapman at his feed yards west of the Farmers hotel. Mr. Chapman found it necessary to make this addition in order to better accommodate his large feed trade.

### Col. Weaver to Start.

Col. Weaver, the black pacing horse owned by J.M. Nausler and Spence Foster of this city, will

start in the races at Hiawatha July 4th. This horse has developed great speed this season and a bright future is in store for he and his owners.

### Geiger's Violins Best.

C. E. Davenport of Omaha has been in the city this week, overhauling some of the vault locks in the local banks. Mr. Davenport is an old violin maker and always calls on Joe Geiger when in the city. He pronounces the violins made by Joe to be among the best he ever tried. He now possesses one of them and is justly proud of his possession.

### Colts Win Again.

The Colts won another game of ball last Sunday; this time from Tecumseh, by a score of 6 to 4. Owing to the late arrival of the train, the Tecumseh boys did not arrive until five o'clock, but they were ready to go to work as soon as they arrived, and from the first it was seen they were out-classed, although they put up a stubborn fight for the supremacy. This makes ten games the Colts have played this season, winning eight of them. They will play with Atchison next Sunday and it promises to be one of the best games of the season.