DAMAGES SUSTAINED BY AGRICULTURAL LANDS IN WYANDOTTE COUNTY FROM THE FLOOD OF 1903.

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Perhaps never before in the history of the famous Kaw Valley has such a disaster been sustained by the farmers in that valley as resulted from the great flood, May 28th to June 5th, 1903. The Grass-hoppers have swept over the land seeking what may, and may not be devoured; late frosts have laid low the crops, and while these wrought great ills upon the pocket-book, the land was left intact; but why should we be so astonished at this most natural happening. Way back in physical geography or structural geology we learned that every river had a flood plain, built up by deposits of its own waters. Certainly the Kaw, with its low banks, not with-standing our dis-regard for geological facts before the '03 flood, could not evade this natural law, but on the contrary, during the early formation of this noted river plain, floods were of more frequent and extensive occurance. According to Indian Tradition, three floods occured on this plain, in the nineteenth century, viz: 1811, '22 and '44, and since the '03 flood we are inclined to give full credence to these traditions. The first of these is noted on the grave stone of James Stewart, a Delaware Chief, who came to Wyandotte County in 1808, and died in 1813. The second is noted or recorded as a warning mark on the face of a stone in the bluff south-east of the Union Depot, Kansas City, Mo., and the third on another grave stone of Mud Face Grinter, another Delaware Chief, as a memorial to his friend and Chief of the Pottawatomie Tribe that was destroyed "further up stream". This flood is attested by living witness.

In referring to this flood of '44, "Granny" Grinter of Muncy who was then a girl of nineteen summers, states, that the '03 flood lacked two and one-half feet of reaching the spot, at the edge of the water, where she stood in '44. This statement coincides with one made by Polly Grant, who was then a boy of twelve, camped upon the hill, the present site of Argentine, with pack train bound for Utah; also with the statement of Mrs. Perkins the mother of our famous Dink of State Legislature.

Indian traditions teach that the now fertile Kaw Valley was once a dismal swamp, and the "big channel" flowed along the north bluff the entire length of Wyandotte County, and as the Pale Face settled the country it retreated to its present course. Even Mr. John Piper, who came to Kansas in '33, or rather what is now Kans., states " that a very deep creek flowed from Edwardsville east along the north bluff, emptying into the river at the mouth of the present Turkey Creek, 3-miles further east" Many times has the writer heard old settlers speak of the "swimming hole" and of "catching big fish" in a deep basin, about five yards west of our blacksmith shop, of which at present, only a mere trace is left.

Many incidents have occured verifying the above, and proving that our entire valley is, comparatively, of recent formation. To illustrate: while boring a well on J. G. Groves' farm in '91 a walnut log was struck at a depth of eighty-two feet, pieces which were brought to the surface in boring were, to all appearances, as sound as in the days deposited. This well is 140-feet south of the creek mentioned by Mr. Piper. Again, on the west line of Jack O'Connor's farm, near Edwardsville, about half mile north of the river, may be found a hickory stump, from about

which the soil was scooped by the '03 flood, revealing not merely a stump, as formerly supposed, but a log or trunk, measuring 12 feet from first branch root to top of surface soil before the flood of '03. At the top it measures twelve inches in diameter. This tree was cut down in '97, and the then supposed stump measured 19-3/4 inches in diameter.

Each deposit is recorded by a band the width of the deposit. Thirty-one feet east of this hickory stump, in the same gulch and in the same soil as roots of hickory, lies a sycamore log about nine feet long and 2-1/2 feet in diameter, the exposed surface being charred.

The flood of '44 left a deposit ranging from seven inches to 2-1/2 and 3-feet, which the farmers have tilled these many years and with ever increasing productiveness. From observation made along creek banks and other cuts in different parts or bottoms in our county, the average flood deposite of '44 was about twelve inches.

As to the '03 flood, by way of explanation to those who are not familiar with Wyandotte County, it should be stated that there are six distinct bottoms formed by the winding of the Kaw from one bluff to the other, they are, viz:, beginning at the west county line, Loving, Edwardsville, Morris, Muncy, Turner, Argentine, K. C. and Quindaro Valley on the Missouri River.

The deposits of '03 flood in Loving bottom were light, not more than three inches over any considerable area as a matter of fact, owing to the peculiar position of the horse shoe bend in the river, more soil was washed away that deposited, to the extent of washing great gulches, from five to thirty-five feet deep, and from a few rods to a half-mile in length. However, in the

southern part of the county, where the river bends to the north-east, there is a rich deposit of heavy black soil, almost as heavy as gumbo in places. Very little sand was deposited, and that along the river and creek bordered by heavy timber and dense under growth causing drifts. All of this bottom, except a very small per cent consisting of gulches and about a fifteen acre lake or swamp in the northwestern part, was re-planted to various crops such as corn, turnips, cabbage, watermelons, and various forage crops. Corn having the greatest acreage, made an excellent growth maturing a crop of good large ears.

The method of regaining and filling up the gulches at first seemed "like an elephant", but once begun, the work became more simple. While it is no doubt true that one or two gulches which were out below the level of river containing five to ten feet of water, will not be subjected to cultivation, many have and will be by the method used last fall, which is as follows: If gulch is circular in shape, begin at bottom using slip, or plowing around in circle, throwing dirt to center, or if oblong, plow up one side and down the other, and in either case the same was repeated this spring past, simple and rapid. When I visited the bottom in April potatoes had been planted across these gulches, which were often twenty to twenty-five feet deep. To have filled one would have cost $1000, besides loss of this year's crop. I was told by Thomas Ewing that it required nineteen days, working five teams on a gulch 200-feet in diameter and twenty-two feet deep, to put it in the present cultivatable condition.

If the work was figured at present wages, the money expended would amount to $285, but the work was done in late fall, when

men and teams would have been part of the time idle. The lake or swamp has also been drained and planted to potatoes.

A brief description of the valley under consideration, would perhaps, not be out of place. It is said to contain the largest acreage, about 4000 acres, of any bottom along the Kaw, which flows along its southern part. Before the flood 98 per cent of this area was a rich sandy loam, and no doubt the best adapted bottom for the production of potatoes, both in quantity and quality, however, any crop profitable to raise in Kansas could have been , and can be produced upon this soil.

The general slope or lay of the land is to the South and East, benches or steps have been formed by the receding of the river to its present course, extending the full length of the bottom, and yet before the flood, the difference between the height of the river bank which was thirty feet above low water mark and the foot of north bluff, two miles back, would not exceed ten feet, as was proven by the existance of an island, which will be mentioned in detail later.

In the Edwardsville bottom the aspect is not the same as in the Loving bottom. The deposits are much more complex as attested by those who have lived in the valley for years. It seems that for the most part this bottom received the cream of the whole valley above. The deposit is a rich, heavy, sandy loam and covers fully two thirds of the bottom with an average depth of five inches. These deposits were laid down in a very peculiar manner, diagonally across the bottom. During the flood, however, from a point on Bett's Creek, along which extending north and south of the Union Pacific track, there is a very low bank or gap, which the flood water rushed through with terriffic force, causing a

strong current to the east and south-east. This was strong enough to eddy or check the east-bound long enough to unload or deposit its precious cargo before reaching the Missouri line. Aside from covering up a few potatoes and a little alfalfa, this deposit has proved very beneficial to the land, increasing its fertility and in some instances, materially improving the texture of the soil.

As to the fertility of this soil, the theory promulgated by some is"that the bacteria which are extremely essential to a "fertile soil" in the new soil or deposit were few or lacking. Thus plow deep, bring up some old soil to mix with the new, distributing these micro-organism, other-wise it will require several years for the land to reach its former productiveness". However, this theory seems to hold good only in white sand deposits.

The writer conducted an experiment to prove to his father and other contentious farmers that deep plowing would not prove beneficial, except in case of sand deposits, for crop productions. The experiment on July 6th was conducted under the critical eyes of farmers who oppose"book-farming". A plot of ground was selected having an average deposit of five inches of silt, and which before the flood, was equally fertile and productive. One acre was plowed with a 16-inch X-ray plow, 8-1/2 inches deep, thus exposing three and one-half inches of old soil. Another adjoining acre was disced with a 20-inch Bradley each way, the first time 4-1/2 inches deep, no old soil being brought to surface; the second time,cross-wise, three inches deep. On each plot, after harrowing, Hungarian Millet was planted by the same man, with a Thompson's seeder, and the same amount of seed was sown. On the plowed plot the growth was slower, of yellowish color, and the soil was dryer. The average height of the millet at cutting

time was 2-3/4 feet. The yield was three tons of hay per acre. On the disced plot the growth was vigorous, the color healthy. The average height 2-3/4 feet, and the yield 3-3/4 ton per acre. A similar experiment was conducted with sorghum, with similar results. This land also produced an excellent crop of cabbage in 1903 with out plowing, the crop being fully equal to that of former years. Other farmers in various parts of the valley also raised a large cabbage crop. Cucumbers were planted, and produced pickles at a suprising rate. Corn planted July 20th to 28th made rapid growth, maturing a crop of large ears.

Only four gulches of any note occured in this bottom, two of which will be filled, and two never will be filled by man, these two occur within an eighthof a mile of each other. Before the flood, where these gulches now are, was a high bank thirty feet above low water line, covered with primitive forest, in which were large walnuts, elms,and cotton-woods. The surface was covered with a dense under-growth. About nine acres of this twenty-five acre strip now remain.

The existance of these gulches and the spread of a vast sea of white sand over the most fertile land of this bottom, as well as in Morris, Muncy, and Turner Bottoms, can be traced directly to the existance of a large cigar-shaped island, the center of which prove to be as high as the north bank, and being so thoroughly "rip-raped", it turned the current with full force against the north bank,which withered with its great trees, all like a heap of chaff before a cyclone. The result was that two great gulches, one a quarter of a mile wide at the mouth, and over three-fourths of a mile long, and washed out down to low water line. The other 300-feet wide and half a mile long. Each of these gulches are

wedge-shaped, the large end is west, tapering out to the east.

This island consisting of twenty-nine acres has caused the destruction of nearly five-hundred acres of choice land, either permanently, or for several years to come. The crop from this land,previous to the flood, any year, would have paid for the island's removal, and if something is not done before another flood occurs, it will finish its task.

Sand deposits vary from an inch or so to several feet in depth, and reclaiming the land is proving to be a hard proposition. Where deposits do not exceed twelve or fourteen inches in depth, and the fertile original soil remains below, the system of double plowing has proven sufficient to mix fertile soil and sand, but with a greater depth of sand, with our present machines it seems impossible to reclaim the land. Many methods of removing sand, on a small scale, have been instituted, all more or less successful. The method that at present seems most promising is that of Joel Kindred's which is briefly as follows: from a circular plot two-hundred and fifty feet in diameter, the sand is either banked about a circle, or piled in the center with scrapers, then the fertile soil is scooped out, and spread over areas where the sand is thinnest, piling up about plot enough to recover same after the sand has been replaced. By this method, farmers have re-gained considerable of their land at odd times. Mr. J. C. Kindred claims that where deposits are less than 3-1/2 feet deep, that with his own teams and boys the cost of regaining land will not exceed $25 per acre, which is exceedingly reasonable on his $175 land. Several acres of this regained land have been planted to potatoes this year, and owing to the favorable season, the crop made an excellent growth.

The way to reclaim this sanded area, to my mind, is by seeding with some deep rooted crop, i. e.: some grass or legume that has the power of sending its roots through sand into fertile soil in a single season. Corn last year reached four feet in height on a deposit of white sand, five feet deep, and if corn can make such a growth with its short root-system, alfalfa can do more, if sowed in early fall, or better in early spring, thus aiding Nature in her efforts to replenish the fertility of the soil, and cover the sands waste.

In this bottom of four thousand acres, five hundred acres were counted as lost immediately after the flood, but most happily two-hundred acres of this were, this year, planted to crop and about three-hundred acres abandoned, but upon which the taxes will be paid, thus not one acre has been turned over to the county.

Many times has the question been asked "How much has the land in Edwardsville Bottom depreciated in value?" I would answer that excluding the possible five hundred acres, including gulches and sand covered area, that the value has not decreased , but has apparently increased. For instance, J. G. Groves was offered by John Barger, another farmer, $200 per acre for twenty acres of his worst effected land. Joel Seagraves whose farm of ten acres was covered with deep deposits of sand, sold the same to Joel Kindred at $80 per acre, then tried to buy it back at $100, and finally killed himself because the latter could not be induced to sell. Again, Peter Sandburg, another farmer in the sanded district borrowed $3000 on his thirty-five acres.

Morris bottom is located on the south side of the river, between Edwardsville and Muncy, and this location being low and swampy was flooded even before the Loving Bottom, eight miles up

the river. Here again can be seen the results worked by two islands, covering land with worthless sand, however the main current was to the north-east, limiting the sand to what was before a swamp. The most fertile part of the bottom was protected by a heavy belt of timber, and perhaps suffered less than any, and would have escaped sand deposits, had it not been for the island.

Muncy Bottom being north of the river, north-east of Morris, is the only bottom that escaped the flood with any considerable area, due to the fact that the bank was much higher than the south compelling Morris bottom to take care of its share of flood water, but as soon as Morris bottom was filled, Muncy suffered more in proportion to its size than the others.

The deposits were mostly white sand, beginning at the west line of M. Sworden's farm to Muncy Hill two and one half miles north east, a strip varying from an eighth to one-third of a mile wide, and from a few inches to several feet, was covered with a deposit. Muncy Bottom is less than half the size of Edwardsville bottom. Very little of the Muncy flood land was replanted, being rented not owned, but this year only a small portion is not under cultivation, and not over one-hundred and fifty acres will be abandoned.

Turner-Argentine bottom is located east and south of the river, and east of Muncy, and is about two-thirds as large as Edwardsville bottom. Before the flood the prevailing soil was a rich, heavy, black loam, capable of producing one-hundred and twenty-five to one-hundred and fifty bushels of potatoes or from forty-five to sixty bushels of corn per acre.

The Turner end of the bottom was uniform and level, while the Argentine was rough, and rolling. For the most part the '03

flood left a good deposit of loamy silt over the whole bottom except in the northern part along the river, where two islands caused two gulches, one almost a new channel, also drifted sand deposits. I have been told that less than one-half of the bottom was replanted, but this year about ninety-six per cent is planted and no land has been turned over to the county for taxes.

Quindaro Valley along the Missouri River includes the bottom east and north of Kansas City, Kans., and across the river south of Parkville, Mo. Perhaps this whole valley is as large as Edwardsville and Loving bottoms combined. It is low, even so low, that before the flood in '03 water would seep through a mile from the river, preceding a rise, making crop productions almost impossible, however, in what is known as Quindaro bottom, this is not true, because several hundred acres, all of which were under cultivation before the flood were abandoned afterwards because a lake half-mile wide across the neck of a bend had not been flooded since '88. I was told by our county clerk, Mr. Burdgirs, that more farming land was swept away by the Missouri river, than covered by sand on the Kaw, excluding Edwardsville Bottom, also the oldest wagon-road in the county was completely washed out, between Pomeroy and Wolcott. The original and predominant soil is a heavy,stiff, black loam. I was told by Mr. G. U. S. Hovey of White Church, Kans. that the '03 flood left mostly a deposit of gumbo, however, owing to the low swampy nature of the larger part of this valley, it has not been developed, and has not played so important a rôle in the Agricultural world, as the famous Kaw Valley.

In conclusion, it does seem to me that after such sad experiences with the existances of river islands, that the people

along the Kaw river would rise up in protest, until the State Legislature or Congress should hear their appeals for the immediate removal of such destructive agencies. Such gross loses are not sustained by farmers only, but by the people of Kansas, yes by the Nation, for when the farmer is crippled, a blow is struck against the heart of the people. I venture here to make a statement , which will meet the approval of every thinking farmer in the Kaw Valley, viz: That ninety-four per cent of the total damages to agricultural lands is directly traceable to the existance of islands choking the channel and without which the '03 flood would have proven of less damage, and of greater value, as we now view it. Again, the farmer should be admonished to protect their fertile and most valuable soil, so that it will not require expenditure of thousands of dollars to dig it out of the river bed, for Kansans are too liberal with their fertile soil and will some day reap a harvest of sorrow, and if some preventive method is not introduced we will grow poor, while the Missouri River Valley people will laugh and grow fat on Kansas soil washed within her bounds.

It has been my sole purpose in this thesis to present the damages sustained by the flood , and the present condition of the agricultural land of Wyandotte County, as they actually exist, and to show, giving full credits to good and bad points, that the valley has suffered far less, than is generally thought, however, it will take time to regain the confidence of the people and the eminent rank once held by the river bottom farms of Wyandotte County.
