

higher at El Paso, as also at Salt Lake City, than at New York.

This phenomenon is explained by the fact that evaporation from the surface of the body is so much greater in the dry atmosphere of the inter-mountain region than in the humid regions of the East that the actual temperature felt on the surface of the body is very much less, because evaporation is a cooling process. So that the actual sensation of heat experienced by the body is the temperature of evaporation, and this temperature is obtained by using a wet bulb thermometer. Several charts are used to illustrate the facts discussed.

The rainfall in the arid states is discussed on pages 51 to 58. The average rainfall in the months of May, June, July and August is given for the states of Arizona, Colorado, Idaho, Montana, Nevada, Utah and Wyoming. The facts are illustrated by diagrams, and they show a surprising difference in the amount of moisture precipitation in the several states. Colorado is shown to have a larger rainfall than either of the other states; Montana has the next largest; while Nevada and Utah have the smallest. The figures are as follows for the four months: Arizona, 4.12 inches; Colorado, 8.14; Idaho, 3.8; Montana, 6.76; Nevada, 2.4; Utah, 2.86; Wyoming, 5.98. It is a matter of importance, however, in which of the four months the principal part of the moisture falls. A rainfall in May or June is worth more than one in August. A chart is added to show this fact. From it it is seen that Colorado receives most of its rain in May and July, Arizona in July and August, Montana in June. Utah receives more in May than in either of the other months.

The question, Is the rainfall increasing? is answered in the negative. Records are given for twenty and twenty-five years, and they reveal no ground for the belief that the rainfall is increasing in this State.

The bulletin will be sent free on application to Luther Foster, director experiment station, Logan, Utah.

### PIONEER REMINISCENCES.

PARKER, Idaho, March 30, 1897.

Reading in a recent issue of your valuable paper a letter written by my dear father (the late Thomas Bullock) many years ago, I thought I would write a few of my recollections of things seen and heard by me in the early days of the Church, if you deem my letter worthy of space in your paper.

I remember my father taking my mother, my brothers and myself up into the tower of our beautiful Temple in Nauvoo, and I also recall the grand scenes presented to our view in all directions from the Temple. I have a vivid recollection of leaving our comfortable homes, crossing the Mississippi river in the winter of 1846-7, and the miraculous power of the Lord in behalf of His people, in sending the quails in such numbers to us in our starving condition, whereby we were fed in the wilderness of Iowa, as Israel of old. Although I was only between 4 and 5 years of age then, the sad and sorrowing scenes I beheld in those days, long since gone

are as clear in my mind as if the events had transpired but yesterday.

Three dearly beloved members of our family viz: my mother's father, Richard Rushton, who, when in England, owned a large silk factory; my baby brother, Willard Richards, and my mother's mother, died through the sufferings of those times.

The morning that the quails came, my father asked one of the largest boys left in camp with us (that was after the drafting of the Mormon Battalion) to take his gun and try and kill some quail for us. He had hardly got out of sight when the quails came to the camp where the Saints were located, and one of the birds lighted on a tea tray by my father's side. My brother caught it, and as many more as we needed. The birds were so tame that they ran into and under the wagons and around our feet until all the people caught as many as they could keep, when the quails arose in a body and flew in the direction we had to travel, and were seen ahead of the train for three days. The boy who went to shoot some returned without seeing any. I do not know his name, but he may be still living.

In starting out on the long journey across the Plains and on the way to these valleys of the mountains, a happier people were never found than that noble band of heroes, the Pioneers. My father was one of the Pioneers and came back for his family the next year.

One evening when we were camped and had just turned all the animals loose, we heard a terrific noise, when one of the brethren cried out, "God help us! there is a stampede of buffalo coming straight toward us!" Instantly the men got their guns and facing the maddened herd one of the brethren shouted "Fire!" all shooting at once. Some of the leaders of the herd were killed, and the wild beasts divided in two and passed us in their maddened race, without doing any of us injury. The ground was literally plowed up by the hoofs of that herd. Quicker than I write this, the feeling of terror struck a good many in the camp in a way that cannot be described. Our animals stampeded with the herd but were all found again next morning, four or five miles from camp. The people all joined in praising the Lord for His protecting care over us.

On reaching the Old Fort in Salt Lake City the feeling of joy was such that only true Latter-day Saints can know.

My father was with our beloved leaders in the Church when they planted the Stars and Stripes, the honored flag of our country, on Ensign Peak. He was also with them when they laid the corner stones of the Salt Lake Temple. I stood by his side when he was giving his design for the Pioneer banner to the painter (I don't know the painter's name), with a request to paint a likeness of the Prophet Joseph and the Angel who carries the scroll. On the scroll then made the names of all the Pioneers are said to be written.

My father was the first banker in Utah. He helped Brother John Ray to coin the gold. The bank safe was a small square iron box, which any strong man could have run away with, but there were no fears of that in those

days, as there were no burglars. Father had the full confidence of our beloved leader, President Brigham Young.

After being a banker, father worked for the DESERET NEWS. I helped him there. He would say sometimes: "My girl, now the devil's coming," (meaning the errand boy) who would usually have a roll of proof sheets with him. I would have to read for one or two hours, "following copy," while father corrected and prepared the proofs, to get the type correct for printing. I often went errands to and from the old Council House, Bishop Edward Hunter's office, and the Historian's office, and was proud to help father all I could.

My mother is still living and in her 82nd year, but is very feeble. My Pioneer brothers, Thomas H. Bullock and Charles R. Bullock, are near enough to Salt Lake City to be at the coming Jubilee.

The surviving members of the Mormon Battalion, should, I think, have equal honors with the Pioneers, as they would have come in with Pioneers if it had not been for the call of our country on them to take up arms in defense of our country; and they crossed the Rocky Mountains that year anyway.

PAMELA BULLOCK MASON.

### THE HOOSIER STATE.

RUSHVILLE, Ind., March 21, 1897.

In looking through the reports from the various missionary fields, we see but little from the Hoosier state, so we think a few lines might be of interest to the readers of your valuable paper, which to us Elders is an ever welcome visitor.

The opening of spring seems to be about to dawn upon us in all its splendor, and after so long a delay is doubly welcome. For some time past we have had almost one continuous rainfall, and as a consequence the rivers and creeks have done a vast amount of damage to this country, as much of it has been under water and much injury has been caused to property and live stock. Railroads were also badly damaged. But it looks at the present as if spring were here to stay.

What is reported as being in excellent condition, but the acreage is light as compared with other seasons.

As to our labors in a spiritual way as missionaries, there have not been as fruitful as we could have wished them to have been. This is a new field, as were the first Elders to have the privilege of opening up the way for the spread of the Gospel in this country. We arrived here on the 5th day of November last. To travel without purse or scrip as per instructions given us at our conference by our president, Elder Samuel G. Spencer.

The first thing we did on our arrival was to hunt up a place to store away our big grips, which we found very easily. We then filled our hand grips with tracts and started. We learned that the court house was torn down and a new one was in course of erection. Every available place was taken up by the county and city officials. So we started delivering tracts and talking to the people whenever an opportunity was afforded us. On our request to hold meetings we were