

or a spear of grass seems to grow upon them; and they look as though the rains of heaven had never gladdened their summits since the days of the flood. Away to the west the mountain slopes fell off in succeeding terraces towards the Colorado. Not a single shrub or brush is known to us. Descending from the mountain the road crosses an extensive plain with a variety of tree cactus called locally the Joshua. They attain a height sometimes of from twenty to thirty feet and a diameter of from one foot to one foot and a half. They usually have several branches, large and clumsy, that terminate with a turf of leaves about a foot and a half long, that resembles very much the leaves of the century plant only that they are not so long and large. Then there was the niggerhead or naikeg cactus so called from the fact that it resembles a keg. It is oval in form and about two and a half feet long by about one foot in diameter in the center and tapers a little towards each end. It has a wavy surface and is covered with long sharp thorns. It is said to contain water and many stories are told of lives that have been saved on the desert through its agency.

The heat here was intense. I think it no exaggeration to say that it must have ranged from 115 to 125 degrees in the shade, and it is said that it has been known to reach 135 degrees. I am ready to believe it.

After crossing the plain mentioned a distance of about twelve miles, we reached the Virgin at the mouth of the Beaver Dam creek. The Virgin at this point is quite a stream, spread out over a wide, sandy and gravelly bottom. Its waters are so pregnant with alkali that all the rocks and banks are coated with it. Yet for all this its waters are used for irrigation purposes at Beaver Dam and Bunkerville, and it is claimed that the land is no worse for its use.

We were now in Arizona. If this is a sample of what is to come, all of the stories that we have heard will be fully realized. From Beaver Dam to the ferry on the Colorado the road follows the river, running along the sandy bank or in the bed of the stream, which is filled with shifting quicksands, and is from a quarter to half a mile across. The road winds along the stream crossing and recrossing every little distance. I think we crossed the stream upwards of forty times the first day after reaching it. The wagon sinks half way to the hub in the sand; the scorching rays of a torrid sun beat down upon you. The horses tug and toil an hour after hour until completely exhausted. You grow thirsty, but the saline waters of the river afford you no relief. You must toil on for upwards of eighty miles until you have passed the Colorado and even then your condition is not improved. What we experienced must be met by all who go this way to Arizona, and from what we can learn this is not the worst road either. Notwithstanding the saline water of the Virgin, the people who live there enjoy good health generally; newcomers are some times subjected to a sort of fever before they become acclimatized, but aside from this the country is fairly healthful.

Bunkerville is in Nevada and is

quite a thriving town of about 50 families. We reached there on the evening of the third of July. On the morning of the Fourth we were roused early by the firing of guns and an anvil that had been brought from the neighboring blacksmith shop to do cannon service for the occasion. We had just crawled out of bed when a wagon loaded with men, carrying muskets, swooped down upon us. We hurriedly explained that we were innocent and that the guilty parties were somewhere else. They responded with a coarse laugh and proceeded to serenade us. The band consisted of one fife, two snare drums and one bass drum. Then they waived the flag, fired a salute, whipped up the horses, which, by the way, were decorated all over with spots of red and blue paint, and were off. Bunkerville is the hub of southeastern Nevada. People come for sixty miles or more to celebrate the Fourth. The climate is semi-tropic and almost all kinds of fruit can be grown there. We saw large orchards of almonds, figs, pomegranates, etc., and we understand they are commencing to grow oranges. Their vineyards are large and there is no reason why they could not grow grapes enough here to supply all Utah if there were some way of getting them to the market.

There is no region in the country that furnishes so rich a field for geological research as does the Virgin valley. Almost every phase of the earth's changes are to be seen here. The entire valley at one time was the bed of an immense lake that was gradually dried up by evaporation; hundreds of feet of lake deposit can be seen in different places, consisting of successive layers of gypsum, salt and silt. When the Colorado river broke through its rocky barrier it cut a channel through this lake and drained it. The washings of succeeding ages have exposed hundreds of feet of the lake deposits.

The Colorado at the mouth of the Virgin is a very large river, more than a quarter of a mile wide, and said to be fifty feet deep in midstream, with a current velocity of five or six miles an hour. This is the head of navigation, and steamboats often come up here for cargoes of hay, grain and salt. The ferry here is a fairly good one, kept by a Swiss-German named Bonnell. He has a large farm along the Virgin where he grows quantities of alfalfa hay which he sells at the adjoining mining camps for \$20 and \$25 per ton.

After crossing the Colorado there are two roads. One follows the river or several miles and then turns eastward and passes through White Hills reaching the railroad at Hackberry. The other runs across the country to the Gold Basin and then up the valley to Hackberry. The ferryman will recommend the Gold Basin road, claiming it is shorter and the distances between water are not so far. We took this route and can therefore safely recommend all future travelers to take the other.

We left the ferry at 4 p. m., taking with us a keg of water and hay enough to feed the horses during the night. The ferryman had told us that by going two miles off the road we would find water twelve miles out, and by going one mile off we would find water again

twenty miles out, also an abundance of grass for the horses. The road he said would be a little gravelly and rocky in spots for the first twenty miles but after that it would be just like a turnpike. How we found it we will have to tell you in another letter. This one is long enough already.

JOEL RICKS.

### UNDER FROWNING FORTS.

Germans are wont to speak of their country as a great Plum Pudding set on a platter among the powers of the continent to tempt their voracious appetites. Behind this figure of speech there are a few fundamental facts which all leaders and all parties accept as indisputable. Military and lay writers begin their defenses of militarism or their attack upon it with descriptions of Germany's eastern and western borders, unprotected by nature, marked not, by rivers, lakes or mountain ranges, but simply by lines of posts labeled with "German Empire" and the imperial coat of arms. All acknowledge that Germany's western neighbor is an open enemy and that the eastern neighbor is either a suspicious friend or a covert foe. The differences now dividing the parties in Germany are not due to disputes as to these facts, but as to the conclusions to be drawn from them. The indisputable features of Germany's military situation on the eastern and western frontiers are declared by the *New York Sun* to be substantially as follows:

Just back of the French frontier is the most wonderful line of fortifications ever constructed. From Belfort to Verdun stretches an almost unbroken and flawless belt of steel. The one gap in this belt, between Epinal and Toul, was left open so as to render easier the operations of a French army marching over the border to take the offensive. Verdun has eleven detached forts and a citadel. The circumference of the fortifications is twenty-three miles. Ten detached forts within a circumference of twenty-four miles surround Toul; eight detached forts within a circumference of twenty miles surround Epinal. Belfort, the key to south western Germany, has six detached forts within a circumference of twenty-one miles.

Each of these four first-class fortresses is as strong as Metz or Strasburg—the only two German fortresses to defend the left bank of the Rhine from Luxembourg to Switzerland. Verdun is notably stronger than its viz-a-viz, Metz. Between Verdun and Toul, along the Meuse, stand the independent forts of Genicourt, Troyn, St. Miel, Lionville and Gironville. The upper Meuse is defended by the forts of Pagny la Blanche, Cote and Bourlemont, Pont St. Vincent, Frouard and Monouvillers. South of Epinal lie the upper Mosel forts of Arches, Remiremont, Rupt, Chateau Lambert and Giromagny, as well as Fort Ballon de Servance, which guards the highway between Epinal and Belfort. To this list should be added the forts further north and south, which are intended to prevent the possibility of invasion through Switzerland or Belgium. The fortif