

## Werk

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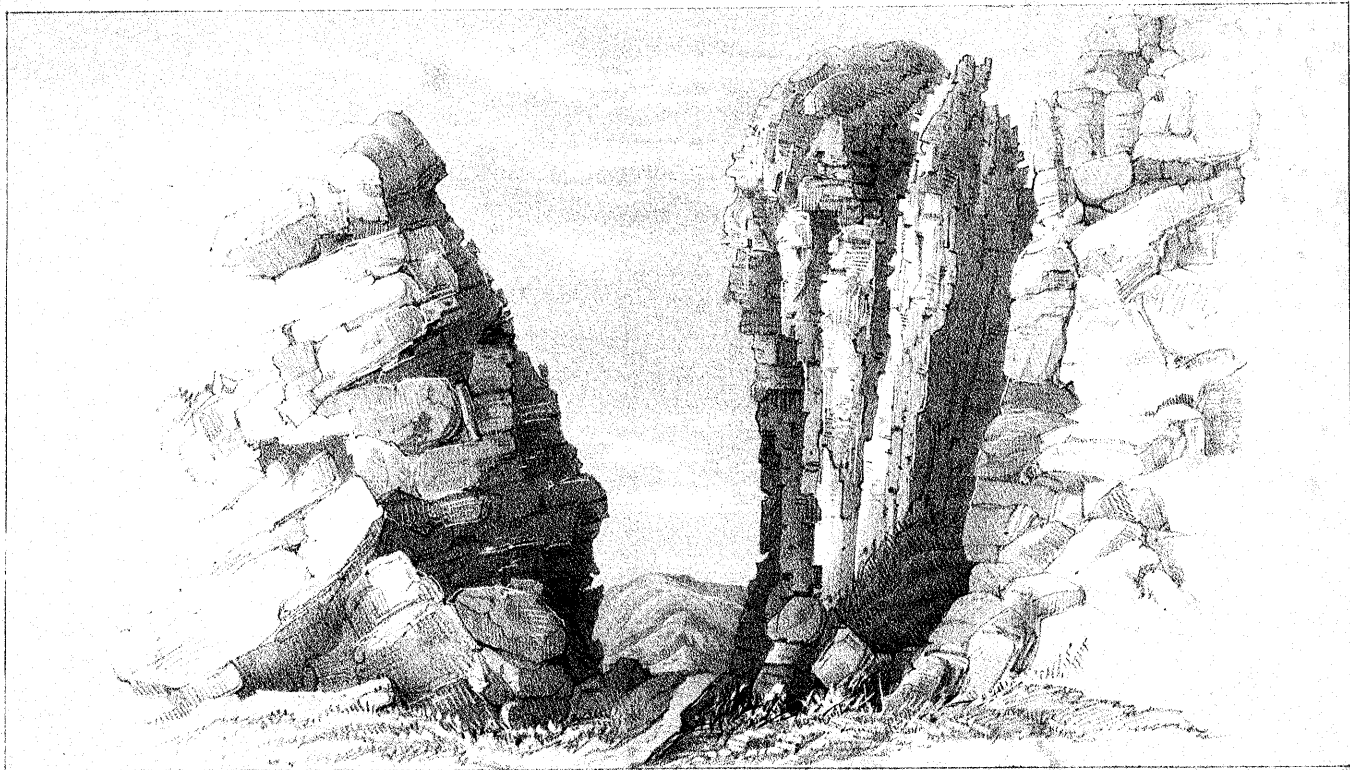
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*Dry & Haghe, with a view to the Queen.*

DEVIL'S GATE

*London: Wiley & Putnam.*



We had to-night no shelter from the rain, which commenced with squalls of wind about sunset. The country here is exceedingly picturesque. On either side of the valley, which is four or five miles broad, the mountains rise to the height of 1,200 and 1,500 or 2,000 feet. On the south side the range appears to be timbered, and to-night is luminous with fires—probably the work of the Indians, who have just passed through the valley. On the north, broken and granite masses rise abruptly from the green sward of the river, terminating in a line of broken summits. Except in the crevices of the rock, and here and there on a ledge or bench of the mountain, where a few hardy pines have clustered together, these are perfectly bare and destitute of vegetation.

Among these masses, where there are sometimes isolated hills and ridges, green valleys open in upon the river, which sweeps the base of these mountains for 36 miles. Everywhere its deep verdure and profusion of beautiful flowers is in pleasing contrast with the sterile grandeur of the rock and the barrenness of the sandy plain, which, from the right bank of the river, sweeps up to the mountain range that forms its southern boundary. The great evaporation on the sandy soil of this elevated plain, and the saline efflorescences which whiten the ground, and shine like lakes reflecting the sun, make a soil wholly unfit for cultivation.

*August 3.*—We were early on the road the next morning, travelling along the upland part of the valley, which is overgrown with *artemisia*. Scattered about on the plain are occasional small isolated hills. One of these, which I have examined, about 50 feet high, consisted of white clay and marl, in nearly horizontal strata. Several bands of buffalo made their appearance to-day, with herds of antelope; and a grizzly bear—the only one we encountered during the journey—was seen scrambling up among the rocks. As we passed over a slight rise near the river, we caught the first view of the Wind river mountains, appearing, at this distance of about 70 miles, to be a low and dark mountainous ridge. The view dissipated in a moment the pictures which had been created in our minds by many descriptions of travellers, who have compared these mountains to the Alps in Switzerland, and speak of the glittering peaks which rise in icy majesty amidst the eternal glaciers 9,000 or 10,000 feet into the region of eternal snows. The nakedness of the river was relieved by groves of willows, where we encamped at night, after a march of 26 miles; and numerous bright-coloured flowers had made the river bottom look gay as a garden. We found here a horse, which had been abandoned by the Indians, because his hoofs had been so much worn that he was unable to travel; and during the night a dog came into the camp.

*August 4.*—Our camp was at the foot of the granite mountains, which we climbed this morning to take some barometrical heights; and here among the rocks was seen the first magpie. On our

return, we saw one at the mouth of the Platte river. We left here one of our horses, which was unable to proceed farther. A few miles from the encampment we left the river, which makes a bend to the south, and traversing an undulating country, consisting of a greyish micaceous sandstone and fine-grained conglomerates, struck it again, and encamped, after a journey of 25 miles. Astronomical observations placed us in latitude  $42^{\circ} 32' 30''$ , and longitude  $108^{\circ} 32' 13''$ .

*August 5.*—The morning was dark, with a driving rain, and disagreeably cold. We continued our route as usual; but the weather became so bad that we were glad to avail ourselves of the shelter offered by a small island, about 10 miles above our last encampment, which was covered with a dense growth of willows. There was fine grass for our animals, and the timber afforded us comfortable protection and good fires. In the afternoon the sun broke through the clouds for a short time, and the barometer, at 5 P.M., was at 23.713, the thermometer  $60^{\circ}$ , with the wind strong from the north-west. We availed ourselves of the fine weather to make excursions in the neighbourhood. The river, at this place, is bordered by hills of the valley formation. They are of moderate height; one of the highest peaks on the right bank being, according to the barometer, 180 feet above the river. On the left bank they are higher. They consist of a fine white clayey sandstone, a white calcareous sandstone, and coarse sandstone or pudding-stone.

*August 6.*—It continued steadily raining all the day; but, notwithstanding, we left our encampment in the afternoon. Our animals had been much refreshed by their repose, and an abundance of rich, soft grass, which had been much improved by the rains. In about three miles we reached the entrance of a *kanyon*, where the Sweet Water issues upon the more open valley we had passed over. Immediately at the entrance, and superimposed directly upon the granite, are strata of compact calcareous sandstone and chert, alternating with fine white and reddish white, and fine grey and red sandstones. These strata dip to the eastward at an angle of about  $18^{\circ}$ , and form the western limit of the sandstone and limestone formations on the line of our route. Here we entered among the primitive rocks. The usual road passes to the right of this place, but we wound, or rather scrambled, our way up the narrow valley for several hours. Wildness and disorder were the character of this scenery. The river had been swollen by the late rains, and came rushing through with an impetuous current, three or four feet deep, and generally 20 yards broad. The valley was sometimes the breadth of the stream, and sometimes opened into little green meadows, 60 yards wide, with open groves of aspen. The stream was bordered throughout with aspen, beech, and willow, and tall pines grew on the sides and summits of the crags. On both sides the granite rocks rose precipitously to the

height of 300 and 500 feet, terminating in jagged and broken-pointed peaks; and fragments of fallen rock lay piled up at the foot of the precipices. Gneiss, mica, slate, and a white granite, were among the varieties I noticed. Here were many old traces of beaver on the stream; remnants of dams, near which were lying trees which they had cut down, one and two feet in diameter. The hills entirely shut up the river at the end of about five miles, and we turned up a ravine that led to a high prairie, which seemed to be the general level of the country. Hence, to the summit of the ridge, there is a regular and very gradual rise. Blocks of granite were piled up at the heads of the ravines, and small bare knolls of mica slate and milky quartz protruded at frequent intervals on the prairie, which was whitened in occasional spots with small salt lakes, where the water had evaporated, and left the bed covered with a shining incrustation of salt. The evening was very cold, a north-west wind driving a fine rain in our faces; and at nightfall we descended to a little stream, on which we encamped, about two miles from the Sweet Water. Here had recently been a very large camp of Snake and Crow Indians, and some large poles lying about afforded the means of pitching a tent, and making other places of shelter. Our fires to-night were made principally of the dry branches of the artemisia, which covered the slopes. It burns quickly, with a clear oily flame, and makes a hot fire. The hills here are composed of hard compact mica slate, with veins of quartz.

*August 7.*—We left our encampment with the rising sun. As we rose from the bed of the creek, the *snow* line of the mountains stretched grandly before us, the white peaks glittering in the sun. They had been hidden in the dark weather of the last few days, and it had been *snowing* on them, while it *rained* in the plains. We crossed a ridge, and again struck the Sweet Water—here a beautiful, swift stream, with a more open valley, timbered with beech and cotton-wood. It now began to lose itself in the many small forks which make its head; and we continued up the main stream until near noon, when we left it a few miles, to make our noon halt on a small creek among the hills, from which the stream issues by a small opening. Within was a beautiful grassy spot, covered with an open grove of large beech trees, among which I found several plants that I had not previously seen.

The afternoon was cloudy, with squalls of rain; but the weather became fine at sunset, when we again encamped on the Sweet Water, within a few miles of the *SOUTH PASS*. The country over which we have passed to-day consists principally of the compact mica slate, which crops out on all ridges, making the uplands very rocky and slaty. In the escarpments which border the creeks, it is seen alternating with a light-coloured granite, at an inclination of 45; the beds varying in thickness from two or three feet to six or eight hundred. At a distance, the granite has the appearance

of irregular lumps of clay, hardened by exposure. A variety of *asters* may now be numbered among the characteristic plants, and the *artemisia* continues in full glory; but *cacti* have become rare, and mosses begin to dispute the hills with them. The evening was damp and unpleasant; the thermometer, at 10 o'clock, being at  $36^{\circ}$ , and the grass wet with a heavy dew. Our astronomical observations placed this encampment in longitude  $109^{\circ} 21' 32''$ , and latitude  $42^{\circ} 27' 15''$ .

Early in the morning we resumed our journey, the weather still cloudy, with occasional rain. Our general course was west, as I had determined to cross the dividing ridge by a bridle-path among the broken country more immediately at the foot of the mountains, and return by the wagon road, two and a half miles to the south of the point where the trail crosses.

About six miles from our encampment brought us to the summit. The ascent had been so gradual, that, with all the intimate knowledge possessed by Carson, who had made this country his home for 17 years, we were obliged to watch very closely to find the place at which we had reached the culminating point. This was between two low hills, rising on either hand 50 or 60 feet. When I looked back at them, from the foot of the immediate slope on the western plain, their summits appeared to be about 120 feet above. From the impression on my mind at this time, and subsequently on our return, I should compare the elevation which we surmounted immediately at the Pass, to the ascent of the Capitol hill from the avenue at Washington. It is difficult for me to fix positively the breadth of this pass. From the broken ground where it commences, at the foot of the Wind river chain, the view to the south-east is over a champaign country, broken, at the distance of 19 miles, by the Table rock; which, with the other isolated hills in its vicinity, seems to stand on a comparative plain. This I judged to be its termination, the ridge recovering its rugged character with the Table rock. It will be seen that it in no manner resembles the places to which the term is commonly applied—nothing of the gorge-like character and winding ascents of the Alleghany passes in America; nothing of the Great St. Bernard and Simplon passes in Europe. Approaching it from the mouth of the Sweet Water, a sandy plain, 120 miles long, conducts, by a gradual and regular ascent, to the summit, about 7,000 feet above the sea; and the traveller, without being reminded of any change by toilsome ascents, suddenly finds himself on the waters which flow to the Pacific ocean. By the route we had travelled, the distance from Fort Laramie is 320 miles, or 950 from the mouth of the Kansas.

Continuing our march, we reached, in eight miles from the Pass, the Little Sandy, one of the tributaries of the Colorado, or Green river of the Gulf of California. The weather had grown fine during the morning, and we remained here the rest of the day

to dry our baggage and take some astronomical observations. The stream was about 40 feet wide, and two or three deep, with clear water and a full swift current, over a sandy bed. It was timbered with a growth of low bushy and dense willows, among which were little verdant spots, which gave our animals fine grass, and where I found a number of interesting plants. Among the neighbouring hills I noticed fragments of granite containing magnetic iron. Longitude of the camp was  $109^{\circ} 37' 59''$ , and latitude  $42^{\circ} 27' 34''$ .

*August 9.*—We made our noon halt to-day on Big Sandy, another tributary of Green river. The face of the country traversed was of a brown sand of granite materials, the *detritus* of the neighbouring mountains. Strata of the milky quartz cropped out, and blocks of granite were scattered about, containing magnetic iron. On Sandy creek the formation was of parti-coloured sand, exhibited in escarpments of 50 to 80 feet high. In the afternoon we had a severe storm of hail, and encamped at sunset on the first New Fork. Within the space of a few miles, the Wind mountains supply a number of tributaries to Green river, which are called the New Forks. Near our camp were two remarkable isolated hills, one of them sufficiently large to merit the name of mountain. They are called the Two Buttes, and will serve to identify the place of our encampment, which the observations of the evening placed in longitude  $109^{\circ} 58' 11''$ , and latitude  $42^{\circ} 42' 46''$ . On the right bank of the stream, opposite to the large hill, the strata which are displayed consist of decomposing granite, which supplies the brown sand of which the face of the country is composed to a considerable depth.

*August 10.*—The air at sunrise is clear and pure, and the morning extremely cold, but beautiful. A lofty snow peak of the mountain is glittering in the first rays of the sun, which has not yet reached us. The long mountain wall to the east, rising 2,000 feet abruptly from the plain, behind which we see the peaks, is still dark, and cuts clear against the glowing sky. A fog, just risen from the river, lies along the base of the mountain. A little before sunrise, the thermometer was at  $35^{\circ}$ , and at sunrise  $33^{\circ}$ . Water froze last night, and fires are very comfortable. The scenery becomes hourly more interesting and grand, and the view here is truly magnificent; but, indeed, it needs something to repay the long prairie journey of 1,000 miles. The sun has just shot above the wall, and makes a magical change. The whole valley is glowing and bright, all the mountain peaks are gleaming like silver. Though these snow mountains are not the Alps, they have their own character of grandeur and magnificence, and will doubtless find pens and pencils to do them justice. In the scene before us, we feel how much wood improves a view. The pines on the mountain seemed to give it much additional beauty. I was agreeably disappointed in the character of the streams on this side of the ridge. Instead of the creeks, which description had led me to



expect, I find bold, broad streams, with three or four feet water, and a rapid current. The fork on which we are encamped is upwards of 100 feet wide, timbered with groves or thickets of the low willow. We were now approaching the loftiest part of the Wind river chain; and I left the valley a few miles from our encampment, intending to penetrate the mountains as far as possible with the whole party. We were soon involved in very broken ground, among long ridges covered with fragments of granite. Winding our way up a long ravine, we came unexpectedly in view of a most beautiful lake, set like a gem in the mountains. The sheet of water lay transversely across the direction we had been pursuing; and, descending the steep, rocky ridge, where it was necessary to lead our horses, we followed its banks to the southern extremity. Here a view of the utmost magnificence and grandeur burst upon our eyes. With nothing between us and their feet to lessen the effect of the whole height, a grand bed of snow-capped mountains rose before us, pile upon pile, glowing in the bright light of an August day. Immediately below them lay the lake, between two ridges, covered with dark pines, which swept down from the main chain to the spot where we stood. Here, where the lake glittered in the open sunlight, its banks of yellow sand and the light foliage of aspen groves contrasted well with the gloomy pines. "Never before," said Mr. Preuss, "in this country or in Europe, have I seen such magnificent, grand rocks." I was so much pleased with the beauty of the place, that I determined to make the main camp here, where our animals would find good pasturage, and explore the mountains with a small party of men. Proceeding a little further, we came suddenly upon the outlet of the lake, where it found its way through a narrow passage between low hills. Dark pines, which overhung the stream, and masses of rock, where the water foamed along, gave it much romantic beauty. Where we crossed, which was immediately at the outlet, it is 250 feet wide, and so deep that with difficulty we were able to ford it. Its bed was an accumulation of rocks, boulders, and broad slabs, and large angular fragments, among which the animals fell repeatedly.

The current was very swift, and the water cold, and of a crystal purity. In crossing this stream, I met with a great misfortune in having my barometer broken. It was the only one. A great part of the interest of the journey for me was in the exploration of these mountains, of which so much had been said that was doubtful and contradictory; and now their snowy peaks rose majestically before me, and the only means of giving them authentically to science, the object of my anxious solicitude by night and day, was destroyed. We had brought this barometer in safety 1,000 miles and broke it almost among the snow of the mountains. The loss was felt by the whole camp—all had seen my anxiety, and aided me in preserving it. The height of these mountains, considered by the hunters and traders the highest in the whole range, had

been a theme of constant discussion among them; and all had looked forward with pleasure to the moment when the instrument, which they believed to be true as the sun, should stand upon the summits, and decide their disputes. Their grief was only inferior to my own.

The lake is about three miles long, and of very irregular width, and apparently great depth, and is the head water of the third New Fork, a tributary to Green river, the Colorado of the west. In the narrative, I have called it Mountain lake. I encamped on the north side, about 350 yards from the outlet. This was the most western point at which I obtained astronomical observations, by which this place, called Bernier's encampment, is made in  $110^{\circ} 08' 03''$  west longitude from Greenwich, and latitude  $43^{\circ} 49' 49''$ . The mountain peaks, as laid down, were fixed by bearings from this and other astronomical points. We had no other compass than the small ones used in sketching the country; but from an azimuth, in which one of them was used, the variation of the compass is  $18^{\circ}$  east. The correction made in our field-work by the astronomical observations, indicates that this is a very correct observation.

As soon as the camp was formed, I set about endeavouring to repair my barometer. As I have already said, this was a standard cistern barometer, of Troughton's construction. The glass cistern had been broken about midway; but as the instrument had been kept in a proper position, no air had found its way into the tube, the end of which had always remained covered. I had with me a number of vials of tolerably thick glass, some of which were of the same diameter as the cistern, and I spent the day in slowly working on these, endeavouring to cut them of the requisite length; but, as my instrument was a very rough file, I invariably broke them. A groove was cut in one of the trees, where the barometer was placed during the night, to be out of the way of any possible danger, and in the morning I commenced again. Among the powder horns in the camp, I found one which was very transparent, so that its contents could be almost as plainly seen as through glass. This I boiled and stretched on a piece of wood to the requisite diameter, and scraped it very thin, in order to increase to the utmost its transparency. I then secured it firmly in its place on the instrument, with strong glue made from a buffalo, and filled it with mercury, properly heated. A piece of skin, which had covered one of the vials, furnished a good pocket, which was well secured with strong thread and glue, and then the brass cover was screwed to its place. The instrument was left some time to dry; and when I reversed it, a few hours after, I had the satisfaction to find it in perfect order; its indications being about the same as on the other side of the lake before it had been broken. Our success in this little incident diffused pleasure throughout the camp; and we immediately set about our preparations for ascending the mountains.

As will be seen on reference to a map, on this short mountain chain are the head waters of four great rivers of the continent; namely, the Colorado, Columbia, Missouri, and Platte rivers. It had been my design, after having ascended the mountains, to continue our route on the western side of the range, and crossing through a pass at the north-western end of the chain, about 30 miles from our present camp, return along the eastern slope, across the heads of the Yellowstone river, and join on the line to our station of August 7, immediately at the foot of the ridge. In this way, I should be enabled to include the whole chain, and its numerous waters, in my survey; but various considerations induced me, very reluctantly, to abandon this plan.

I was desirous to keep strictly within the scope of my instructions; and it would have required 10 or 15 additional days for the accomplishment of this object; our animals had become very much worn out with the length of the journey; game was very scarce; and, though it does not appear in the course of the narrative (as I have avoided dwelling upon trifling incidents not connected with the objects of the expedition), the spirits of the men had been much exhausted by the hardships and privations to which they had been subjected. Our provisions had wellnigh all disappeared. Bread had been long out of the question; and of all our stock we had remaining two or three pounds of coffee, and a small quantity of macaroni, which had been husbanded with great care for the mountain expedition we were about to undertake. Our daily meal consisted of dry buffalo meat, cooked in tallow; and, as we had not dried this with Indian skill, part of it was spoiled; and what remained of good, was as hard as wood, having much the taste and appearance of so many pieces of bark. Even of this our stock was rapidly diminishing in a camp which was capable of consuming two buffaloes in every 24 hours. These animals had entirely disappeared; and it was not probable that we should fall in with them again until we returned to the Sweet Water.

Our arrangements for the ascent were rapidly completed. We were in a hostile country, which rendered the greatest vigilance and circumspection necessary. The pass at the north end of the mountain was generally infested by Blackfeet; and immediately opposite was one of their forts, on the edge of a little thicket, 200 or 300 feet from our encampment. We were posted in a grove of beech, on the margin of the lake, and a few hundred feet long, with a narrow *prairillon* on the inner side, bordered by the rocky ridge. In the upper end of this grove we cleared a circular space about 40 feet in diameter, and with the felled timber and interwoven branches, surrounded it with a breastwork five feet in height. A gap was left for a gate on the inner side, by which the animals were to be driven in and secured, while the men slept around the little work. It was half hidden by the foliage; and, garrisoned by twelve resolute men, would have set at defiance any band of

savages which might chance to discover them in the interval of our absence. Fifteen of the best mules, with fourteen men, were selected for the mountain party. Our provisions consisted of dried meat for two days, with our little stock of coffee and some macaroni. In addition to the barometer and a thermometer, I took with me a sextant and spy-glass, and we had of course our compasses. In charge of the camp I left Bernier, one of my most trustworthy men, who possessed the most determined courage.

*August 12.*—Early in the morning we left the camp, fifteen in number, well armed, of course, and mounted on our best mules. A pack animal carried our provisions, with a coffee-pot and kettle, and three or four tin cups. Every man had a blanket strapped over his saddle, to serve for his bed, and the instruments were carried by turns on their backs. We entered directly on rough and rocky ground; and, just after crossing the ridge, had the good fortune to shoot an antelope. We heard the roar, and had a glimpse of a waterfall as we rode along; and, crossing in our way two fine streams, tributary to the Colorado, in about two hours' ride we reached the top of the first row or range of the mountains. Here, again, a view of the most romantic beauty met our eyes. It seemed as if, from the vast expanse of uninteresting prairies we had passed over, Nature had collected all her beauties together in one chosen place. We were overlooking a deep valley, which was entirely occupied by three lakes, and from the brink the surrounding ridges rose precipitously 500 and 1,000 feet, covered with the dark green of the balsam pine, relieved on the border of the lake with the light foliage of the aspen. They all communicated with each other; and the green of the waters, common to mountain lakes of great depth, showed that it would be impossible to cross them. The surprise manifested by our guides when these impassable obstacles suddenly barred our progress proved that they were among the hidden treasures of the place, unknown even to the wandering trappers of the region. Descending the hill, we proceeded to make our way along the margin to the southern extremity. A narrow strip of angular fragments of rock sometimes afforded a rough pathway for our mules, but generally we rode along the shelving side, occasionally scrambling up, at a considerable risk of tumbling back into the lake.

The slope was frequently  $60^{\circ}$ ; the pines grew densely together; and the ground was covered with the branches and trunks of trees. The air was fragrant with the odour of the pines; and I realised this delightful morning the pleasure of breathing that mountain air which makes a constant theme of the hunter's praise, and which now made us feel as if we had all been drinking some exhilarating gas. The depths of this unexplored forest were a place to delight the heart of a botanist. There was a rich undergrowth of plants and numerous gay-coloured flowers in brilliant bloom. We reached the outlet at length, where some freshly barked willows that lay in

the water showed that beaver had been recently at work. There were some small brown squirrels jumping about in the pines, and a couple of large mallard ducks swimming about in the stream.

The hills on this southern end were low, and the lake looked like a mimic sea, as the waves broke on the sandy beach in the force of a strong breeze. There was a pretty open spot, with fine grass for our mules; and we made our noon halt on the beach, under the shade of some large hemlocks. We resumed our journey after a halt of about an hour, making our way up the ridge on the western side of the lake. In search of smoother ground, we rode a little inland; and, passing through groves of aspen, soon found ourselves again among the pines. Emerging from these, we struck the summit of the ridge above the upper end of the lake.

We had reached a very elevated point; and in the valley below, and among the hills, were a number of lakes at different levels; some 200 or 300 feet above others, with which they communicated by foaming torrents. Even to our great height, the roar of the cataracts came up, and we could see them leaping down in lines of snowy foam. From this scene of busy waters, we turned abruptly into the stillness of a forest, where we rode among the open bolls of the pines, over a lawn of verdant grass, having strikingly the air of cultivated grounds. This led us, after a time, among masses of rock which had no vegetable earth but in hollows and crevices, though still the pine forest continued. Towards evening, we reached a defile, or rather a hole in the mountains, entirely shut in by dark pine-covered rocks.

A small stream, with a scarcely perceptible current, flowed through a level bottom of perhaps 80 yards width, where the grass was saturated with water. Into this the mules were turned, and were neither hobbled nor picketed during the night, as the fine pasturage took away all temptation to stray; and we made our bivouac in the pines. The surrounding masses were all of granite. While supper was being prepared, I set out on an excursion in the neighbourhood, accompanied by one of my men.

We wandered about among the crags and ravines until dark, richly repaid for our walk by a fine collection of plants, many of them in full bloom. Ascending a peak to find the place of our camp, we saw that the little defile in which we lay communicated with the long green valley of some stream, which, here locked up in the mountains, far away to the south, found its way in a dense forest to the plains.

Looking along its upward course, it seemed to conduct, by a smooth gradual slope, directly toward the peak, which, from long consultation as we approached the mountain, we had decided to be the highest of the range. Pleased with the discovery of so fine a road for the next day, we hastened down to the camp, where we arrived just in time for supper. Our table service was rather scant; and we held the meat in our hands, and clean rocks made

good plates, on which we spread our macaroni. Among all the strange places on which we had occasion to encamp during our long journey, none have left so vivid an impression on my mind as the camp of this evening. The disorder of the masses which surrounded us; the little hole through which we saw the stars over head; the dark pines where we slept; and the rocks lit up with the glow of our fires, made a night-picture of very wild beauty.

August 13.—The morning was bright and pleasant, just cool enough to make exercise agreeable, and we soon entered the defile I had seen the preceding day. It was smoothly carpeted with a soft grass, and scattered over with groups of flowers, of which yellow was the predominant colour. Sometimes we were forced, by an occasional difficult pass, to pick our way on a narrow ledge along the side of the defile, and the mules were frequently on their knees; but these obstructions were rare, and we journeyed on in the sweet morning air, delighted at our good fortune in having found such a beautiful entrance to the mountains. This road continued for about three miles, when we suddenly reached its termination in one of the grand views which, at every turn, meet the traveller in this magnificent region. Here the defile up which we had travelled opened out into a small lawn, where, in a little lake, the stream had its source.

There were some fine *asters* in bloom, but all the flowering plants appeared to seek the shelter of the rocks, and to be of lower growth than below, as if they loved the warmth of the soil, and kept out of the way of the winds. Immediately at our feet a precipitous descent led to a confusion of defiles, and before us rose the mountains as we have represented them in the annexed view. It is not by the splendour of far-off views, which have lent such a glory to the Alps, that these impress the mind; but by a gigantic disorder of enormous masses, and a savage sublimity of naked rock, in wonderful contrast with innumerable green spots of a rich floral beauty, shut up in their stern recesses. Their wildness seems well suited to the character of the people who inhabit the country.

I determined to leave our animals here, and make the rest of our way on foot. The peak appeared so near, that there was no doubt of our returning before night; and a few men were left in charge of the mules, with our provisions and blankets. We took with us nothing but our arms and instruments; and, as the day had become warm, the greater part left our coats. Having made an early dinner we started again. We were soon involved in the most ragged precipices, nearing the central chain very slowly, and rising but little. The first ridge hid a succession of others; and when, with great fatigue and difficulty, we had climbed up 500 feet, it was but to make an equal descent on the other side; all these intervening places were filled with small deep lakes, which met the eye in every direction, descending from one level to an-

other, sometimes under bridges formed by huge fragments of granite, beneath which was heard the roar of the water. These constantly obstructed our path, forcing us to make long *détours*; frequently obliged to retrace our steps, and frequently falling among the rocks. Maxwell was precipitated toward the face of a precipice, and saved himself from going over by throwing himself flat on the ground. We clambered on, always expecting, with every ridge that we crossed, to reach the foot of the peaks, and always disappointed, until about four o'clock, when, pretty well worn out, we reached the shore of a little lake, in which was a rocky island. We remained here a short time to rest, and continued on around the lake, which had in some places a beach of white sand, and in others was bound with rocks, over which the way was difficult and dangerous, as the water from innumerable springs made them very slippery.

By the time we had reached the further side of the lake, we found ourselves all exceedingly fatigued, and, much to the satisfaction of the whole party, we encamped. The spot we had chosen was a broad flat rock, in some measure protected from the winds by the surrounding crags, and the trunks of fallen pines afforded us bright fires. Near by was a foaming torrent, which tumbled into the little lake about 150 feet below us, and which, by way of distinction, we have called Island lake. We had reached the upper limit of the piney region; as, above this point, no tree was to be seen, and patches of snow lay everywhere around us on the cold sides of the rocks. The flora of the region we had traversed since leaving our mules was extremely rich, and, among the characteristic plants, the scarlet flowers of the *dodecatheon dentatum* everywhere met the eye in great abundance. A small green ravine, on the edge of which we were encamped, was filled with a profusion of alpine plants in brilliant bloom. From barometrical observations, made during our three days' sojourn at this place, its elevation above the Gulf of Mexico is 10,000 feet. During the day we had seen no sign of animal life; but among the rocks here, we heard what was supposed to be the bleat of a young goat, which we searched for with hungry activity, and found to proceed from a small animal of a grey colour, with short ears and no tail—probably the Siberian squirrel. We saw a considerable number of them, and, with the exception of a small bird like a sparrow, it is the only inhabitant of this elevated part of the mountains. On our return, we saw, below this lake, large flocks of the mountain goat. We had nothing to eat to-night. Lajeunesse, with several others, took their guns and sallied out in search of a goat; but returned unsuccessful. At sunset, the barometer stood at 20.522; the attached thermometer 50°. Here we had the misfortune to break our thermometer, having now only that attached to the barometer. I was taken ill shortly after we had encamped, and continued so until late in the night, with violent headache and vomiting. This

was probably caused by the excessive fatigue I had undergone, and want of food, and perhaps, also, in some measure by the rarity of the air. The night was cold, as a violent gale from the north had sprung up at sunset, which entirely blew away the heat of the fires. The cold and our granite beds had not been favourable to sleep, and we were glad to see the face of the sun in the morning. Not being delayed by any preparation for breakfast, we set out immediately.

On every side as we advanced was heard the roar of waters and of a torrent, which we followed up a short distance, until it expanded into a lake about one mile in length. On the northern side of the lake was a bank of ice, or rather of snow covered with a crust of ice. Carson had been our guide into the mountains, and, agreeably to his advice, we left this little valley, and took to the ridges again; which we found extremely broken, and where we were again involved among precipices. Here were ice fields; among which we were all dispersed, seeking each the best path to ascend the peak. Mr. Preuss attempted to walk along the upper edge of one of these fields, which sloped away at an angle of about twenty degrees; but his feet slipped from under him, and he went plunging down the plane. A few hundred feet below, at the bottom, were some fragments of sharp rock, on which he landed; and though he turned a couple of somersets, fortunately received no injury beyond a few bruises. Two of the men, Clement Lambert and Descoteaux, had been taken ill, and lay down on the rocks a short distance below; and at this point I was attacked with headache and giddiness, accompanied by vomiting, as on the day before. Finding myself unable to proceed, I sent the barometer over to Mr. Preuss, who was in a gap 200 or 300 yards distant, desiring him to reach the peak, if possible, and take an observation there. He found himself unable to proceed further in that direction, and took an observation, where the barometer stood at 19.401; attached thermometer  $50^{\circ}$ , in the gap. Carson, who had gone over to him, succeeded in reaching one of the snowy summits of the main ridge, whence he saw the peak, towards which all our efforts had been directed, towering 800 or 1000 feet into the air above him. In the meantime, finding myself grow rather worse than better, and doubtful how far my strength would carry me, I sent Basil Lajeunesse, with four men, back to the place where the mules had been left.

We were now better acquainted with the topography of the country, and I directed him to bring back with him, if it were in any way possible, four or five mules, with provisions and blankets. With me were Maxwell and Ayer; and after we had remained nearly an hour on the rock, it became so unpleasantly cold, though the day was bright, that we set out on our return to the camp, at which we all arrived safely, straggling in one after the other. I continued ill during the afternoon, but became better towards



sundown, when my recovery was completed by the appearance of Basil and four men, all mounted. The men who had gone with him had been too much fatigued to return, and were relieved by those in charge of the horses; but in his powers of endurance Basil resembled more a mountain goat than a man. They brought blankets and provisions, and we enjoyed well our dried meat and a cup of good coffee. We rolled ourselves up in our blankets, and, with our feet turned to a blazing fire, slept soundly until morning.

*August 15.*—It had been supposed that we had finished with the mountains; and the evening before it had been arranged that Carson should set out at daylight, and return to breakfast at the Camp of the Mules, taking with him all but four or five men, who were to stay with me and bring back the mules and instruments. Accordingly, at the break of day they set out. With Mr. Preusse and myself remained Basil Lajeunesse, Clément Lambert, Janisse, and Descoteaux. When we had secured strength for the day by a hearty breakfast, we covered what remained, which was enough for one meal, with rocks, in order that it might be safe from any marauding bird; and, saddling our mules, turned our faces once more towards the peaks. This time we determined to proceed quietly and cautiously, deliberately resolved to accomplish our object if it were within the compass of human means. We were of opinion that a long defile which lay to the left of yesterday's route would lead us to the foot of the main peak. Our mules had been refreshed by the fine grass in the little ravine at the Island camp, and we intended to ride up the defile as far as possible, in order to husband our strength for the main ascent. Though this was a fine passage, still it was a defile of the most rugged mountains known, and we had many a rough and steep slippery place to cross before reaching the end. In this place the sun rarely shone; snow lay along the border of the small stream which flowed through it, and occasional icy passages made the footing of the mules very insecure, and the rocks and ground were moist with the trickling waters in this spring of mighty rivers. We soon had the satisfaction to find ourselves riding along the huge wall which forms the central summits of the chain. There at last it rose by our sides, a nearly perpendicular wall of granite, terminating 2,000 to 3,000 feet above our heads in a serrated line of broken, jagged cones. We rode on until we came almost immediately below the main peak, which I denominated the Snow Peak, as it exhibited more snow to the eye than any of the neighbouring summits. Here were three small lakes of a green colour, each of perhaps a thousand yards in diameter, and apparently very deep. These lay in a kind of chasm; and, according to the barometer, we had attained but a few hundred feet above the Island lake. The barometer here stood at 20·450, attached thermometer 70°.

We managed to get our mules up to a little bench about a

hundred feet above the lakes, where there was a patch of good grass, and turned them loose to graze. During our rough ride to this place, they had exhibited a wonderful surefootedness. Parts of the defile were filled with angular, sharp fragments of rock, three or four and eight or ten feet cube; and among these they had worked their way, leaping from one narrow point to another, rarely making a false step, and giving us no occasion to dismount. Having divested ourselves of every unnecessary encumbrance, we commenced the ascent. This time, like experienced travellers, we did not press ourselves, but climbed leisurely, sitting down so soon as we found breath beginning to fail. At intervals we reached places where a number of springs gushed from the rocks, and about 1,800 feet above the lakes came to the snow line. From this point our progress was uninterrupted climbing. Hitherto I had worn a pair of thick moccasins, with soles of *parflèche*; but here I put on a light thin pair, which I had brought for the purpose, as now the use of our toes became necessary to a further advance. I availed myself of a sort of comb of the mountain, which stood against the wall like a buttress, and which the wind and the solar radiation, joined to the steepness of the smooth rock, had kept almost entirely free from snow. Up this I made my way rapidly. Our cautious method of advancing in the outset had spared my strength; and, with the exception of a slight disposition to headache, I felt no remains of yesterday's illness. In a few minutes we reached a point where the buttress was overhanging, and there was no other way of surmounting the difficulty than by passing around one side of it, which was the face of a vertical precipice of several hundred feet.

Putting hands and feet in the crevices between the blocks, I succeeded in getting over it, and, when I reached the top, found my companions in a small valley below. Descending to them, we continued climbing, and in a short time reached the crest. I sprang upon the summit, and another step would have precipitated me into an immense snow field 500 feet below. To the edge of this field was a sheer icy precipice; and then, with a gradual fall, the field sloped off for about a mile, until it struck the foot of another lower ridge. I stood on a narrow crest, about three feet in width, with an inclination of about  $20^{\circ}$  N.  $51^{\circ}$  E. As soon as I had gratified the first feelings of curiosity, I descended, and each man ascended in his turn; for I would only allow one at a time to mount the unstable and precarious slab, which it seemed a breath would hurl into the abyss below. We mounted the barometer in the snow of the summit, and, fixing a ramrod in a crevice, unfurled the national flag to wave in the breeze where never flag waved before. During our morning's ascent, we had met no sign of animal life, except the small sparrow-like bird already mentioned. A stillness the most profound and a terrible solitude forced themselves constantly on the mind as the great

features of the place. Here, on the summit, where the stillness was absolute, unbroken by any sound, and the solitude complete, we thought ourselves beyond the region of animated life; but while we were sitting on the rock, a solitary bee (*bromus*, the *humble bee*) came winging his flight from the eastern valley, and lit on the knee of one of the men.

It was a strange place, the icy rock and the highest peak of the Rocky Mountains, for a lover of warm sunshine and flowers; and we pleased ourselves with the idea that he was the first of his species to cross the mountain barrier—a solitary pioneer to foretell the advance of civilization. I believe that a moment's thought would have made us let him continue his way unharmed; but we carried out the law of this country, where all animated nature seems at war; and, seizing him immediately, put him in at least a fit place—in the leaves of a large book, among the flowers we had collected on our way. The barometer stood at 18·293, the attached thermometer at 44°; giving for the elevation of this summit 13,570 feet above the Gulf of Mexico, which may be called the highest flight of the bee. It is certainly the highest known flight of that insect. From the description given by Mackenzie of the mountains where he crossed them, with that of a French officer still farther to the north, and Colonel Long's measurements to the south, joined to the opinion of the oldest traders of the country, it is presumed that this is the highest peak of the Rocky Mountains. The day was sunny and bright, but a slight shining mist hung over the lower plains, which interfered with our view of the surrounding country. On one side we overlooked innumerable lakes and streams, the spring of the Colorado of the Gulf of California; and on the other was the Wind river valley, where were the heads of the Yellow-stone branch of the Missouri; far to the north, we just could discover the snowy heads of the *Trois Tetons*, where were the sources of the Missouri and Columbia rivers; and at the southern extremity of the ridge, the peaks were plainly visible, among which were some of the springs of the Nebraska or Platte river. Around us, the whole scene had one main striking feature, which was that of terrible convulsion. Parallel to its length, the ridge was split into chasms and fissures; between which rose the thin lofty walls, terminated with slender minarets and columns. According to the barometer, the little crest of the wall on which we stood was 3570 feet above that place, and 2780 above the little lakes at the bottom, immediately at our feet. Our camp at the Two Hills (an astronomical station) bore south 3° east, which, with a bearing afterwards obtained from a fixed position, enabled us to locate the peak. The bearing of the *Trois Tetons* was north 50° west, and the direction of the central ridge of the Wind river mountains south 39° east. The summit rock was gneiss, succeeded by sienitic gneiss. Sienite and feldspar succeeded in our descent to the snow line, where we found a feldspathic granite. I had

remarked that the noise produced by the explosion of our pistols had the usual degree of loudness, but was not in the least prolonged, expiring almost instantaneously. Having now made what observations our means afforded, we proceeded to descend. We had accomplished an object of laudable ambition, and beyond the strict order of our instructions. We had climbed the loftiest peak of the Rocky Mountains, and looked down upon the snow a thousand feet below, and, standing where never human foot had stood before, felt the exultation of first explorers. It was about two o'clock when we left the summit; and when we reached the bottom, the sun had already sunk behind the wall, and the day was drawing to a close. It would have been pleasant to have lingered here and on the summit longer; but we hurried away as rapidly as the ground would permit, for it was an object to regain our party as soon as possible, not knowing what accident the next hour might bring forth.

We reached our deposit of provisions at nightfall. Here was not the inn which awaits the tired traveller on his return from Mont Blanc, or the orange groves of South America, with their refreshing juices and soft fragrant air; but we found our little *cache* of dried meat and coffee undisturbed. Though the moon was bright, the road was full of precipices, and the fatigue of the day had been great. We therefore abandoned the idea of rejoining our friends, and lay down on the rock, and, in spite of the cold, slept soundly.

*August 16.*—We left our encampment with the daylight. We saw on our way large flocks of the mountain goat looking down on us from the cliffs. At the crack of a rifle, they would bound off among the rocks, and in a few minutes make their appearance on some lofty peak, some hundred or a thousand feet above. It is needless to attempt any further description of the country: the portion over which we travelled this morning was rough as imagination could picture it, and to us seemed equally beautiful. A concourse of lakes and rushing waters, mountains of rocks naked and destitute of vegetable earth, dells and ravines of the most exquisite beauty, all kept green and fresh by the great moisture in the air, and sown with brilliant flowers, and everywhere thrown around all the glory of most magnificent scenes: these constitute the features of the place, and impress themselves vividly on the mind of the traveller. It was not until 11 o'clock that we reached the place where our animals had been left, when we first attempted the mountains on foot. Near one of the still burning fires we found a piece of meat, which our friends had thrown away, and which furnished us a mouthful—a very scanty breakfast. We continued directly on, and reached our camp on the mountain lake at dusk. We found all well. Nothing had occurred to interrupt the quiet since our departure, and the fine grass and good cool water had done much to re-establish our animals. All heard with

great delight the order to turn our faces homeward; and toward sundown of the 17th, we encamped again at the Two Buttes.

In the course of this afternoon's march, the barometer was broken past remedy. I regretted it, as I was desirous to compare it again with Dr. Engleman's barometers at St. Louis, to which mine were referred; but it had done its part well, and my objects were mainly fulfilled.

*August 19.*—We left our camp on Little Sandy river about 7 in the morning, and traversed the same sandy, undulating country. The air was filled with the turpentine scent of the various *artemisi-  
sias*, which are now in bloom, and, numerous as they are, give much gaiety to the landscape of the plains. At 10 o'clock, we stood exactly on the divide in the pass, where the wagon road crosses, and, descending immediately upon the Sweet Water, halted to take a meridian observation of the sun. The latitude was 42° 24' 32".

In the course of the afternoon we saw buffalo again, and at our evening halt on the Sweet Water the roasted ribs again made their appearance around the fires; and, with them, good humour, and laughter, and song, were restored to the camp. Our coffee had been expended, but we now made a kind of tea from the roots of the wild cherry-tree.

*August 23.*—Yesterday evening we reached our encampment at Rock Independence, where I took some astronomical observations. Here, not unmindful of the custom of early travellers and explorers in our country, I engraved on this rock of the Far West a symbol of the Christian faith. Among the thickly inscribed names, I made on the hard granite the impression of a large cross, which I covered with a black preparation of India-rubber, well calculated to resist the influence of wind and rain. It stands amidst the names of many who have long since found their way to the grave, and for whom the huge rock is a giant gravestone.

One George Weymouth was sent out to Maine by the Earl of Southampton, Lord Arundel, and others; and in the narrative of their discoveries, he says: "The next day, we ascended in our pinnace that part of the river which lies more to the westward, carrying with us a cross—a thing never omitted by any Christian traveller—which we erected at the ultimate end of our route." This was in the year 1605; and in 1842 I obeyed the feeling of early travellers, and left the impression of the cross deeply engraved on the vast rock one thousand miles beyond the Mississippi, to which discoverers have given the national name of *Rock Independence*.

In obedience to my instructions to survey the river Platte, if possible, I had determined to make an attempt at this place. The India-rubber boat was filled with air, placed in the water, and loaded with what was necessary for our operations; and I em-

barked with Mr. Preuss and a party of men. When we had dragged our boat for a mile or two over the sands, I abandoned the impossible undertaking, and waited for the arrival of the party, when we packed up our boat and equipage, and at 9 o'clock were again moving along on our land journey. We continued along the valley on the right bank of the Sweet Water, where the formation, as already described, consists of a greyish micaceous sandstone, and fine-grained conglomerate, and marl. We passed over a ridge which borders or constitutes the river hills of the Platte, consisting of huge blocks, 60 or 80 feet cube, of decomposing granite. The cement which united them was probably of easier decomposition, and has disappeared and left them isolate, and separated by small spaces. Numerous horns of the mountain goat were lying among the rocks; and in the ravines were cedars, whose trunks were of extraordinary size. From this ridge we descended to a small open plain at the mouth of the Sweet Water, which rushed with a rapid current into the Platte, here flowing along in a broad, and apparently deep stream, which seemed, from its turbid appearance, to be considerably swollen. I obtained here some astronomical observations, and the afternoon was spent in getting our boat ready for navigation the next day.

*August 24.*—We started before sunrise, intending to breakfast at Goat Island. I had directed the land party, in charge of Bernier, to proceed to this place, where they were to remain, should they find no note to apprise them of our having passed. In the event of receiving this information, they were to continue their route, passing by certain places which had been designated. Mr. Preuss accompanied me, and with us were five of my best men, viz., C. Lambert, Basil Lajeunesse, Honoré Ayot, Benoist, and Descoteaux. Here appeared no scarcity of water, and we took on board, with various instruments and baggage, provisions for 10 or 12 days. We paddled down the river rapidly, for our little craft was light as a duck on the water; and the sun had been some time risen, when we heard before us a hollow roar, which we supposed to be that of a fall, of which we had heard a vague rumour, but whose exact locality no one had been able to describe to us. We were approaching a ridge, through which the river passes by a place called "cañon" (pronounced *kanyon*), a Spanish word, signifying a piece of artillery, the barrel of a gun, or any kind of tube; and which, in this country, has been adopted to describe the passage of a river between perpendicular rocks of great height, which frequently approach each other so closely overhead as to form a kind of tunnel over the stream, which foams along below, half choked up by fallen fragments. Between the mouth of the Sweet Water and Goat island, there is probably a fall of 300 feet, and that was principally made in the cañons before us; as, without them, the water was comparatively smooth. As we neared the ridge, the river made a sudden turn, and swept squarely

down against one of the walls of the cañon with a great velocity, and so steep a descent, that it had, to the eye, the appearance of an inclined plane. When we launched into this, the men jumped overboard, to check the velocity of the boat, but were soon in water up to their necks, and our boat ran on; but we succeeded in bringing her to a small point of rock on the right, at the mouth of the cañon. Here was a kind of elevated sand beach, not many yards square, backed by the rocks, and around the point the river swept at a right angle. Trunks of trees deposited on jutting points 20 or 30 feet above, and other marks, showed that the water here frequently rose to a considerable height. The ridge was of the same decomposing granite already mentioned, and the water had worked the surface, in many places, into a wavy surface of ridges and holes. We ascended the rocks to reconnoitre the ground, and from the summit the passage appeared to be a continued cataract foaming over many obstructions, and broken by a number of small falls. We saw nowhere a fall answering to that which had been described to us as having 20 or 25 feet; but still concluded this to be the place in question, as, in the season of floods, the rush of the river against the wall would produce a great rise, and the waters, reflected squarely off, would descend through the passage in a sheet of foam, having every appearance of a large fall. Eighteen years previous to this time, as I have subsequently learned from himself, Mr. Fitzpatrick, somewhere above on this river, had embarked with a valuable cargo of beaver. Unacquainted with the stream, which he believed would conduct him safely to the Missouri, he came unexpectedly into this cañon, where he was wrecked, with the total loss of his furs. It would have been a work of great time and labour to pack our baggage across the ridge, and I determined to run the cañon. We all again embarked, and at first attempted to check the way of the boat; but the water swept through with so much violence that we narrowly escaped being swamped, and were obliged to let her go in the full force of the current, and trust to the skill of the boatmen. The dangerous places in this cañon were where huge rocks had fallen from above, and hemmed in the already narrow pass of the river to an open space of three or four and five feet. These obstructions raised the water considerably above, which was sometimes precipitated over in a fall; and at other places, where this dam was too high, rushed through the contracted opening with tremendous violence. Had our boat been made of wood, in passing the narrows she would have been staved; but her elasticity preserved her unhurt from every shock, and she seemed fairly to leap over the falls.

In this way we passed three cataracts in succession, where, perhaps, 100 feet of smooth water intervened; and, finally, with a shout of pleasure at our success, issued from our tunnel into the open day beyond. We were so delighted with the performance of our boat, and so confident in her powers, that we would not have

hesitated to leap a fall of ten feet with her. We put to shore for breakfast at some willows on the right bank, immediately below the mouth of the cañon; for it was now 8 o'clock, and we had been working since daylight, and were all wet, fatigued, and hungry. While the men were preparing breakfast, I went out to reconnoitre. The view was very limited. The course of the river was smooth, so far as I could see; on both sides were broken hills; and but a mile or two below was another high ridge. The rock at the mouth of the cañon was still the decomposing granite, with great quantities of mica, which made a very glittering sand.

We re-embarked at 9 o'clock, and in about twenty minutes reached the next cañon. Landing on a rocky shore at its commencement, we ascended the ridge to reconnoitre. Portage was out of the question. So far as we could see, the jagged rocks pointed out the course of the cañon, on a winding line of seven or eight miles. It was simply a narrow dark chasm in the rock; and here the perpendicular faces were much higher than in the previous pass, being at this end two to three hundred, and further down, as we afterwards ascertained, five hundred feet in vertical height. Our previous success had made us bold, and we determined again to run the cañon. Everything was secured as firmly as possible; and having divested ourselves of the greater part of our clothing, we pushed into the stream. To save our chronometer from accident, Mr. Preuss took it, and attempted to proceed along the shore on the masses of rock, which in places were piled up on either side; but, after he had walked about five minutes, everything like shore disappeared, and the vertical wall came squarely down into the water. He therefore waited until we came up. An ugly pass lay before us. We had made fast to the stern of the boat a strong rope about fifty feet long; and three of the men clambered along among the rocks, and with this rope let her down slowly through the pass. In several places high rocks lay scattered about in the channel; and in the narrows it required all our strength and skill to avoid staving the boat on the sharp points. In one of these, the boat proved a little too broad, and stuck fast for an instant, while the water flew over us; fortunately, it was but for an instant, as our united strength forced her immediately through. The water swept overboard only a sextant and a pair of saddle-bags. I caught the sextant as it passed by me, but the saddle-bags became the prey of the whirlpools. We reached the place where Mr. Preuss was standing, took him on board, and, with the aid of the boat, put the men with the rope on the succeeding pile of rocks. We found this passage much worse than the previous one, and our position was rather a bad one. To go back was impossible; before us the cataract was a sheet of foam; and shut up in the chasm by the rocks, which, in some places, seemed almost to meet overhead, the roar of the water was deafening. We pushed off again; but, after making a little dis-



tance, the force of the current became too great for the men on shore, and two of them let go the rope. Lajeunesse, the third man, hung on, and was jerked headforemost into the river from a rock about twelve feet high; and down the boat shot like an arrow, Basil following us in the rapid current, and exerting all his strength to keep in mid channel—his head only seen occasionally like a black spot in the white foam. How far we went, I do not exactly know; but we succeeded in turning the boat into an eddy below. "*Cré Dieu,*" said Basil Lajeunesse, as he arrived immediately after us, "*Je crois bien que j'ai nagé un demi mile.*" He had owed his life to his skill as a swimmer, and I determined to take him and the two others on board, and trust to skill and fortune to reach the other end in safety. We placed ourselves on our knees, with the short paddles in our hands, the most skilful boatman being at the bow; and again we commenced our rapid descent. We cleared rock after rock, and shot past fall after fall, our little boat seeming to play with the cataract. We became flushed with success, and familiar with the danger; and, yielding to the excitement of the occasion, broke forth together into a Canadian boat-song. Singing, or rather shouting, we dashed along; and were, I believe, in the midst of the chorus, when the boat struck a concealed rock immediately at the foot of a fall, which whirled her over in an instant. Three of my men could not swim, and my first feeling was to assist them, and save some of our effects; but a sharp concussion or two convinced me that I had not yet saved myself. A few strokes brought me into an eddy, and I landed on a pile of rocks on the left side. Looking around, I saw that Mr. Preuss had gained the shore on the same side, about twenty yards below; and a little climbing and swimming soon brought him to my side. On the opposite side, against the wall, lay the boat, bottom up; and Lambert was in the act of saving Descoteaux, whom he had grasped by the hair, and who could not swim: "*Lâche pas,*" said he, as I afterwards learned, "*lâche pas, cher frère.*" "*Crains pas,*" was the reply, "*Je m'en vais mourir avant que de te lâcher.*" Such was the reply of courage and generosity in this danger. For a hundred yards below the current was covered with floating books and boxes, bales of blankets, and scattered articles of clothing; and so strong and boiling was the stream, that even our heavy instruments, which were all in cases, kept on the surface, and the sextant, circle, and the long black box of the telescope, were in view at once. For a moment, I felt somewhat disheartened. All our books—almost every record of the journey—our journals and registers of astronomical and barometrical observations—had been lost in a moment. But it was no time to indulge in regrets, and I immediately set about endeavouring to save something from the wreck. Making ourselves understood as well as possible by signs (for nothing could be heard in the roar of waters), we commenced our

operations. Of everything on board, the only article that had been saved was my double-barrelled gun, which Descoteaux had caught, and clung to with drowning tenacity. The men continued down the river on the left bank. Mr. Preuss and myself descended on the side we were on; and Lajeunesse, with a paddle in his hand, jumped on the boat alone, and continued down the cañon. She was now light, and cleared every bad place with much less difficulty. In a short time he was joined by Lambert, and the search was continued for about a mile and a half, which was as far as the boat could proceed in the pass.

Here the walls were about 500 feet high, and the fragments of rocks from above had choked the river into a hollow pass, but one or two feet above the surface. Through this and the interstices of the rock the water found its way. Favoured beyond our expectations, all of our registers had been recovered, with the exception of one of my journals, which contained the notes and incidents of travel, and topographical descriptions, a number of scattered astronomical observations, principally meridian altitudes of the sun, and our barometrical register west of Laramie. Fortunately, our other journals contained duplicates of the most important barometrical observations which had been taken in the mountains. These, with a few scattered notes, were all that had been preserved of our meteorological observations. In addition to these, we saved the circle; and these, with a few blankets, constituted everything that had been rescued from the waters.

The day was running rapidly away, and it was necessary to reach Goat Island, whither the party had preceded us, before night. In this uncertain country, the traveller is so much in the power of chance, that we became somewhat uneasy in regard to them. Should anything have occurred, in the brief interval of our separation, to prevent our rejoining them, our situation would be rather a desperate one. We had not a morsel of provisions—our arms and ammunition were gone—and we were entirely at the mercy of any straggling party of savages, and not a little in danger of starvation. We therefore set out at once in two parties. Mr. Preuss and myself on the left, and the men on the opposite side of the river. Climbing out of the cañon, we found ourselves in a very broken country, where we were not yet able to recognise any locality. In the course of our descent through the cañon, the rock, which at the upper end was of the decomposing granite, changed into a varied sandstone formation. The hills and points of the ridges were covered with fragments of a yellow sandstone, of which the strata were sometimes displayed in the broken ravines which interrupted our course, and made our walk extremely fatiguing. At one point of the cañon the red argillaceous sandstone rose in a wall of 500 feet, surmounted by a stratum of white sandstone; and in an opposite ravine a column of red sandstone rose, in form like a steeple, about 150 feet high. The scenery was extremely picturesque, and notwithstanding our for-

lorn condition, we were frequently obliged to stop and admire it. Our progress was not very rapid. We had emerged from the water half naked, and, on arriving at the top of the precipice, I found myself with only one moccasin. The fragments of rock made walking painful, and I was frequently obliged to stop and pull out the thorns of the *cactus*, here the prevailing plant, and with which a few minutes' walk covered the bottom of my feet. From this ridge the river emerged into a smiling prairie, and, descending to the bank for water, we were joined by Benoist. The rest of the party were out of sight, having taken a more inland route. We crossed the river repeatedly—sometimes able to ford it, and sometimes swimming—climbed over the ridges of two more cañons, and towards evening reached the cut, which we here named the Hot Spring gate. On our previous visit in July, we had not entered this pass, reserving it for our descent in the boat; and when we entered it this evening, Mr. Preuss was a few hundred feet in advance. Heated with the long march, he came suddenly upon a fine bold spring gushing from the rock, about 10 feet above the river. Eager to enjoy the crystal water, he threw himself down for a hasty draught, and took a mouthful of water almost boiling hot. He said nothing to Benoist, who laid himself down to drink; but the steam from the water arrested his eagerness, and he escaped the hot draught. We had no thermometer to ascertain the temperature, but I could hold my hand in the water just long enough to count two seconds. There are eight or ten of these springs discharging themselves by streams large enough to be called runs. A loud hollow noise was heard from the rock, which I supposed to be produced by the fall of the water. The strata immediately where they issue is a fine white and calcareous sandstone, covered with an incrustation of common salt. Leaving this Thermopylæ of the west, in a short walk we reached the red ridge which has been described as lying just above Goat Island. Ascending this, we found some fresh tracks and a button, which showed that the other men had already arrived. A shout from the man who first reached the top of the ridge, responded to from below, informed us that our friends were all on the island; and we were soon among them. We found some pieces of buffalo standing around the fire for us, and managed to get some dry clothes among the people. A sudden storm of rain drove us into the best shelter we could find, where we slept soundly, after one of the most fatiguing days I have ever experienced.

*August 25.*—Early this morning Lajeunesse was sent to the wreck for the articles which had been saved, and about noon we left the island. The mare which we had left here in July had much improved in condition, and she served us well again for some time, but was finally abandoned at a subsequent part of the journey. At 10 in the morning of the 26th we reached Cache camp, where we found everything undisturbed. We disinterred our deposit, arranged our carts which had been left here on the

way out, and, travelling a few miles in the afternoon, encamped for the night at the ford of the Platte.

*August 27.*—At midday we halted at the place where we had taken dinner on the 27th of July. The country which, when we passed up, looked as if the hard winter frosts had passed over it, had now assumed a new face, so much of vernal freshness had been given to it by the late rains. The Platte was exceedingly low—a mere line of water among the sand-bars. We reached Laramie fort on the last day of August, after an absence of forty-two days, and had the pleasure to find our friends all well. The fortieth day had been fixed for our return; and the quick eyes of the Indians, who were on the look-out for us, discovered our flag as we wound among the hills. The fort saluted us with repeated discharges of its single piece, which we returned with scattered volleys of our small arms, and felt the joy of a home reception in getting back to this remote station, which seemed so far off as we went out.

On the morning of the 3rd of September we bade adieu to our kind friends at the fort, and continued our homeward journey down the Platte, which was glorious with the autumnal splendour of innumerable flowers in full and brilliant bloom. On the warm sands, among the *helianthi*, one of the characteristic plants, we saw great numbers of rattlesnakes, of which five or six were killed in the morning's ride. We occupied ourselves in improving our previous survey of the river; and, as the weather was fine, astronomical observations were generally made at night and at noon.

We halted for a short time on the afternoon of the 5th with a village of Sioux Indians, some of whose chiefs we had met at Laramie. The water in the Platte was extremely low; in many places, the large expanse of sands, with some occasional stunted trees on the banks, gave it the air of the sea-coast; the bed of the river being merely a succession of sand-bars, among which the channel was divided into rivulets a few inches deep. We crossed and recrossed with our carts repeatedly, and at our pleasure; and whenever an obstruction barred our way, in the shape of precipitous bluffs that came down upon the river, we turned directly into it, and made our way along the sandy bed, with no other inconvenience than the frequent quicksands, which greatly fatigued our animals. Disinterring on the way the *cache* which had been made by our party when they ascended the river, we reached without accident, on the evening of the 12th of September, our old encampment of the 2nd of July, at the junction of the forks. Our *cache* of the barrel of pork was found undisturbed, and proved a seasonable addition to our stock of provisions. At this place I had determined to make another attempt to descend the Platte by water, and accordingly spent two days in the construction of a bull boat. Men were sent out on the evening of our arrival, the necessary number of bulls killed, and their skins brought to the camp. Four of the best of them were strongly sewed together with buffalo

sinew, and stretched over a basket frame of willow. The seams were then covered with ashes and tallow, and the boat left exposed to the sun for the greater part of one day, which was sufficient to dry and contract the skin, and make the whole work solid and strong. It had a rounded bow, was eight feet long and five broad, and drew with four men about four inches water. On the morning of the 15th we embarked in our hide boat, Mr. Preuss and myself, with two men. We dragged her over the sands for three or four miles, and then left her on a bar, and abandoned entirely all further attempts to navigate this river. The names given by the Indians are always remarkably appropriate; and certainly none was ever more so than that which they have given to this stream—"the Nebraska," or Shallow river. Walking steadily the remainder of the day, a little before dark we overtook our people at their evening camp, about 21 miles below the junction. The next morning we crossed the Platte, and continued our way down the river bottom on the left bank, where we found an excellent plainly-beaten road.

On the 18th we reached Grand Island, which is 52 miles long, with an average breadth of one mile and three-quarters. It has on it some small eminences, and is sufficiently elevated to be secure from the annual floods of the river. As has been already remarked, it is well timbered, with an excellent soil, and recommends itself to notice as the best point for a military position on the Lower Platte.

On the 22nd we arrived at the village of the Grand Pawnees, on the right bank of the river, about 30 miles above the mouth of the Loup fork. They were gathering in their corn, and we obtained from them a very welcome supply of vegetables.

The morning of the 24th we reached the Loup fork of the Platte. At the place where we forded it, this stream was 430 yards broad, with a swift current of *clear* water; in this respect differing from the Platte, which has a yellow muddy colour, derived from the limestone and marl formation, of which we have previously spoken. The ford was difficult, as the water was so deep that it came into the body of the carts, and we reached the opposite bank after repeated attempts, ascending and descending the bed of the river, in order to avail ourselves of the bars. We encamped on the left bank of the fork, in the point of land at its junction with the Platte. During the two days that we remained here for astronomical observations, the bad weather permitted us to obtain but one good observation for the latitude—a meridian altitude of the sun, which gave for the latitude of the mouth of the Loup fork,  $41^{\circ} 22' 11''$ .

Five or six days previously, I had sent forward C. Lambert, with two men, to Bellevue, with directions to ask from Mr. P. Sarpy, the gentleman in charge of the American Company's establishment at that place, the aid of his carpenters in constructing a boat, in which I proposed to descend the Missouri. On the

afternoon of the 27th we met one of the men, who had been despatched by Mr. Sarpy with a welcome supply of provisions and a very kind note, which gave us the very gratifying intelligence that our boat was in rapid progress. On the evening of the 30th we encamped in an almost impenetrable undergrowth on the left bank of the Platte, in the point of land at its confluence with the Missouri—315 miles, according to our reckoning, from the junction of the forks, and 520 from Fort Laramie.

From the junction we had found the bed of the Platte occupied with numerous islands, many of them very large, and all well timbered; possessing, as well as the bottom lands of the river, a very excellent soil. With the exception of some scattered groves on the banks, the bottoms are generally without timber. A portion of these consist of low grounds, covered with a profusion of fine grasses, and are probably inundated in the spring; the remaining part is high river prairie, entirely beyond the influence of the floods. The breadth of the river is usually three-quarters of a mile, except where it is enlarged by islands. That portion of its course which is occupied by Grand Island has an average breadth, from shore to shore, of two and a half miles.

*October 1.*—I rose this morning long before daylight, and heard with a feeling of pleasure the tinkling of cow-bells at the settlements on the opposite side of the Missouri. Early in the day we reached Mr. Sarpy's residence; and, in the security and comfort of his hospitable mansion, felt the pleasure of being again within the pale of civilization. We found our boat on the stocks; a few days sufficed to complete her; and, in the afternoon of the 4th, we embarked on the Missouri. All our equipage—horses, carts, and the *matériel* of the camp—had been sold at public auction at Bellevue. The strength of my party enabled me to man the boat with 10 oars, relieved every hour, and we descended rapidly. Early on the morning of the 10th, we halted to make some astronomical observations at the mouth of the Kansas, exactly four months since we had left the trading post of Mr. Cyprian Chouteau, on the same river, 10 miles above. On our descent to this place, we had employed ourselves in surveying and sketching the Missouri, making astronomical observations regularly at night and at midday, whenever the weather permitted. These operations on the river were continued until our arrival at the city of St. Louis, Missouri, on the 17th. At St. Louis, the sale of our remaining effects was made; and, leaving that city by steam-boat on the 18th, I had the honour to report to you at the city of Washington on the 29th of October.

Very respectfully, Sir,

Your obedient Servant,

J. C. FREMONT,

*2nd Lieut. Corps of Topographical Engineers.*

## ASTRONOMICAL OBSERVATIONS.

*The longitudes given in the subjoined table are referred to the meridian of Greenwich.*

For the determination of astronomical positions, we were provided with the following instruments:—

- One telescope, magnifying power 120.
- One circle, by Gambey, Paris.
- One sextant, by Gambey, Paris.
- One sextant, by Troughton.
- One box chronometer. No. 7810, by French.
- One Brockbank, pocket chronometer.
- One small watch with a light chronometer balance, No. 4632, by Arnold and Dent.

The rate of the chronometer, 7810, is exhibited in the following statement:—

“New York, May 5, 1842.

“Chronometer No. 7810, by French, is this day at noon—

“Slow of Greenwich mean time 11' 4”

“Fast of New York mean time 4h. 45' 1”

“Losses per day . . . . . 2<sup>7</sup>/<sub>10</sub>”

“ARTHUR STEWART,

“74, Merchants' Exchange.”

An accident among some rough ground in the neighbourhood of the Kansas river strained the balance of this chronometer (No. 7810), and rendered it useless during the remainder of the campaign. From the 9th of June to the 24th of August inclusively, the longitudes depend upon the Brockbank pocket chronometer; the rate of which, on leaving St. Louis, was fourteen seconds. The rate obtained by observations at Fort Laramie, 14<sup>00</sup>/<sub>05</sub>, has been used in calculation.

From the 24th of August until the termination of the journey, No. 4632 (of which the rate was 35<sup>00</sup>/<sub>79</sub>) was used for the same purposes. The rate of this watch was irregular, and I place but little confidence in the few longitudes which depend upon it, though, so far as we have any means of judging, they appear tolerably correct.

*Table of Latitudes and Longitudes, deduced from Observations made during the journey.*

Date.	Station.	Latitude.			Longitude.		
		°	'	”	°	'	”
1842.							
May 27	St. Louis, residence of Colonel Brant. .	38	37	34			
June 8	Chouteau's lower trading post, Kansas river	39	05	57	94	25	46
16	Left bank of the Kansas river, seven miles above the ford . . . . . }	39	06	40	95	38	05
18	Vermilion creek . . . . . }	39	15	19	96	04	07
19	Cold Springs, near the road to Laramie . .	39	30	40	96	14	49
20	Big Blue river . . . . . }	39	45	08	96	32	35
25	Little Blue river . . . . . }	40	26	50	98	22	12
26	Right bank of Platte river . . . . . }	40	41	06	98	45	49
27	Right bank of Platte river . . . . . }	40	39	32	99	05	24
28	Right bank of Platte river . . . . . }	40	39	51			
30	Right bank of Platte river . . . . . }	40	39	55	100	05	47

Table of Latitudes and Longitudes—continued.

Date.	Station.	Latitude.			Longitude.		
		°	'	"	°	'	"
1842.							
July 2	Junction of north and south forks of the Nebraska or Platte river . . . . . }	41	05	05	100	49	43
4	South fork of Platte river, left bank . . . . . }						
6	South fork of Platte river, island . . . . . }	40	51	17	103	07	
7	South fork of Platte river, left bank . . . . . }	40	53	26	103	30	37
11	South fork of Platte river, St. Vrain's fort . . . . . }	40	22	35	105	12	12
12	Crow creek . . . . . }	40	41	59	104	57	49
13	On a stream, name unknown . . . . . }	41	08	30	104	39	37
14	Horse creek, Goshen's hole? . . . . . }	41	40	13	104	24	36
16	Fort Laramie, near the mouth of Laramie's fork . . . . . }	42	12	10	104	47	43
23	North fork of Platte river . . . . . }	42	39	25	104	59	59
24	North fork of Platte river . . . . . }	42	47	40			
25	North fork of Platte river, Dried Meat camp . . . . . }	42	51	35	105	50	45
26	North fork of Platte river, noon halt . . . . . }	42	50	08			
26	North fork of Platte river, mouth of Deer creek . . . . . }	42	52	24	106	08	24
28	North fork of Platte river, Cache camp . . . . . }	42	50	53	106	38	26
29	North fork of Platte river, left bank . . . . . }	42	38	01	106	54	32
30	North fork of Platte river, Goat island . . . . . }	42	33	27	107	13	29
Aug. 1	Sweet Water river, one mile below Rock Independence . . . . . }	42	29	56	107	25	23
4	Sweet Water river . . . . . }	42	32	31	108	30	13
7	Sweet Water river . . . . . }	42	27	15	109	21	32
8	Little Sandy creek, tributary to the Colo- rado of the West . . . . . }	42	27	34	109	37	59
9	New fork, tributary to the Colorado . . . . . }	42	42	46	109	58	11
10	Mountain lake . . . . . }	42	49	49	110	08	03
15	Highest peak of the Wind river mountains . . . . . }						
19	Sweet Water, noon halt . . . . . }	42	24	32			
19	Sweet Water river . . . . . }	42	22	22			
20	Sweet Water river . . . . . }	42	31	46			
22	Sweet Water river, noon halt . . . . . }	42	26	10			
22	Sweet Water river, at Rock Independence . . . . . }	42	29	36			
23	North fork of Platte river, mouth of Sweet Water . . . . . }	42	27	18			
30	Horse-shoe creek, noon halt . . . . . }	42	24	24			
Sept. 3	North fork of Platte river, right bank . . . . . }	42	01	40			
4	North fork of Platte river, near Scott's bluffs . . . . . }	41	54	38			
5	North fork of Platte river, right bank, six miles above Chimney rock . . . . . }	41	43	36			
8	North fork of Platte river, mouth of Ash creek . . . . . }	41	17	19			
9	North fork of Platte river, right bank . . . . . }	41	14	30			
10	North fork of Platte river, Cedar bluffs . . . . . }	41	10	16			
16	Platte river, noon halt . . . . . }	40	54	31			
16	Platte river, left bank . . . . . }	40	52	34			
17	Platte river, left bank . . . . . }	40	42	38			
18	Platte river, left bank . . . . . }	40	40	21			
19	Platte river, left bank . . . . . }	40	39	44			
20	Platte river, noon halt, left bank . . . . . }	40	48	19			
20	Platte river, left bank . . . . . }	40	54	02			
21	Platte river, left bank . . . . . }	41	05	37			
23	Platte river, noon halt, left bank . . . . . }	41	20	20			
23	Platte river, left bank . . . . . }	41	22	52			
25	Platte river, mouth of Loup fork . . . . . }	41	22	11			



*Table of Latitudes and Longitudes—continued.*

Date.	Sta'ion.	Latitude.			Longitude.		
		°	'	"	°	'	"
1842							
Sept. 28	Platte river, mouth of Elk Horn river. . . . .	41	09	34			
29	Platte river, left bank . . . . .	41	02	15			
Oct. 2	Bellevue, at the post of the American Fur } Company, right bank of the Missouri river }	41	08	24	95	20	
4	Left bank of the Missouri, opposite to the } right bank of the mouth of the Platte . }	41	02	11			
5	Missouri river . . . . .	40	34	08			
6	Bertholet's island, noon halt . . . . .	40	27	08			
6	Missouri river, mouth of Nishnabotona river	40	16	40			
8	Missouri river, left bank . . . . .	39	36	02			
10	Missouri river, mouth of Kansas river . .	39	06	03			