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LAKE McDONALD AND VICINITY

BY JOHN M. HOLZINGER, STATE NORMAL SCHOOL, WINONA, MINN.

In July, 1898, the writer, accompanied by Mr. James Blake, spent a part of his summer vacation in northwestern Montana, in the vicinity of Lake McDonald. Primarily on bryological pleasure bent, we also found so much that is of physiographic interest that I have ventured to offer the following reminiscences to the readers of the Bulletin.



LAKE McDONALD

The region visited is in the very "Heart of the Rockies," along the line of the Great Northern Railway. Indeed, until this railway pierced the backbone of our continent, not much over a decade ago, it was not possible, in a short vacation trip, to reach these isolated, rock-

hemmed mountain basins. It is even now a task requiring physical endurance, and some courage, to follow the guide—in our case a hunter of the mountain goat, bear, and mountain lion—up and down the precipitous, untrodden mountain sides, over baby moraines, and even over the small glaciers, evidently remnants of once mighty ice streams. And the writer confesses that, but for the rich moss flora which presented itself everywhere along the route of our several excursions, naturally riveting the eye to the wall along which we would cautiously creep, and diverting the attention from the precipitous and occasionally almost abyssal declivities immediately beneath us, he would not care to again go over the ground.

The station at which we were advised to leave the railroad is Belton, some thirty miles east of Kalispell. This we found to consist of a number of cottages and a board building, which, for three months or so in the summer, during the tourist's season, serves as a depot, express and telegraph office. The distance to the foot of Lake McDonald is about three miles. This lake stretches some twenty miles northward, and has an average width of less than five miles. A small steamer, the F. I. Whitney, takes the tourist and his camp outfit to the north end, where is Hotel Glacier, and farther on the winter cabins of Comeau and of John Geduhn. Both these lone mountain dwellers, as well as Charles Howes, who with his wife spends his winters in his cabin at the south end of the lake, act as guides to the tourists in the summer season. We pitched our first camp within sight of Hotel Glacier. It proved to be our permanent camp, from which we made our several trips.

According to the railroad surveys, Lake McDonald is about 3,500 feet above sea level. Around its south end, and on both sides, it is bordered by low, gently sloping moraine hills which, some miles back, reach a height of 600-800 feet above the lake level. Around the north end stand a group of stately, partly isolated mountains which rise from 4,000 to 6,000 feet above their immediate surroundings. Charles Howes, whom we afterwards engaged as our guide, named them for us. In the order from left to right, facing north, they are: Mt. Lottie Stanton, almost hiding Mt. Trilby; Goat Mountain in the central back ground; to its left, glimpses of the Garden-wall; to its right, Mt. Brown; farther to the right, back from the lake a number of miles, the Little Matterhorn; to the east of that, Mt. Edwards.



UPPER END OF LAKE McDONALD.

The Avalanche trail leads between Goat Mountain and Mt. Brown. Avalanche Lake, at the upper end of this trail, some twelve

miles above Hotel Glacier, is a narrow sheet of water one to two miles long, on both sides of which are found places suitable for camping. One of these, the one first reached on arriving in the Basin, is known as the Lower Camp. Another is reached by crossing at the lower end of the lake on the great raft of dead timber, which makes a natural bridge to the north side, and there passing to the upper end of the lake. This is called the Upper Camp. Here we are within a half mile of the base of Avalanche Wall, over 2,000 feet high and almost perpendicular. Down the face of this Wall fall five small streams of glacier water. But the glacier is not visible from this direction. We had been told that the top of the Wall can be reached by a natural trail on the left. But our time did not permit an attempt at finding this. And moreover our guide, Joe Rogers from Kalispell, was not familiar with this ascent.

Charles Howes, the guide who accompanied us on the other trips, insisted that an ascent to Sperry Glacier by way of Avalanche Basin is not only impracticable, but impossible. I have since learned that it has been repeatedly accomplished, and that apparently with less risk than is the climb up to the upper end of the Glacier by way of the *Rim*. At any rate he insisted on taking us to the Glacier by the way he knew, which is quite natural. In accordance with his plan we started out July 16, leaving Hotel Glacier in the forenoon. The trail leads thru deep timber around the right of Mt. Brown, across many rivulets and larger streams of clear ice water, and for several miles is not very steep. Gradually we reached a narrowing valley, and the timber receded as we passed along the steep sides of outrunners of Mt. Brown and Mt. Edwards. Behind and beneath us spread out an unbroken stretch of evergreen forest. Eight miles above Lake McDonald, at an estimated elevation above sea level of 6,500 to 7,000 feet, we pitched camp, a brush shelter against a large boulder. Two young men from Kalispell accompanied us, Mr. J. R. White, a photographer, and Mr. C. J. Holmes, a railroad man. Hardly had we finished our preparations, late in the afternoon, when it began to rain. Our provisions, bedding, collecting outfit and camera, we had "packed" on our shoulders. Of course, the shelter tent we left on the shore of Lake McDonald, confident that fair weather would be ours. Despite our implicit faith it rained steadily all next night, and all of July 17, and July 18. From a meteorological standpoint this rain was very interesting, since it was evidently melted snow,

melting as it reached our lower level. This precipitation, which lasted for three days, was evidently produced by the warm, moisture-laden west winds, passing over the Coast Range from the broad Pacific and rolling within our sight up these narrow gorges. Chilled by the ice and snow in their higher levels, the vapor, at first invisible, was turned into towering cloud masses, and finally came down upon and around us as rain, slush and snow. Far above us, on the steep mountain sides, snow fell on trees, shrubs and rocks, shading into rain as it descended. Sheltering ourselves as best we could against the incessant fall of rain and slush, we kept up our courage and a good fire. Yet, in spite of all our efforts, we gradually got all wet thru. And so on the morning of July 19, when it still rained, and the wind was still from the west, we "cached" the remnant of our scant provisions—some bacon, prunes and a can of condensed milk—packed our drenched bedding, and a parcel of mosses collected during some lucid intervals on previous days, and



AVALANCHE WALL.
From Photograph by Mr. James Blake.

retraced our steps along the trail to Hotel Glacier, where we arrived at noon, a sorry looking and much bedraggled trio. Our two Kalispell friends had returned the day before. This trip is memorable also for the fresh bear-wallow, and the goat bed which we found along our trail.

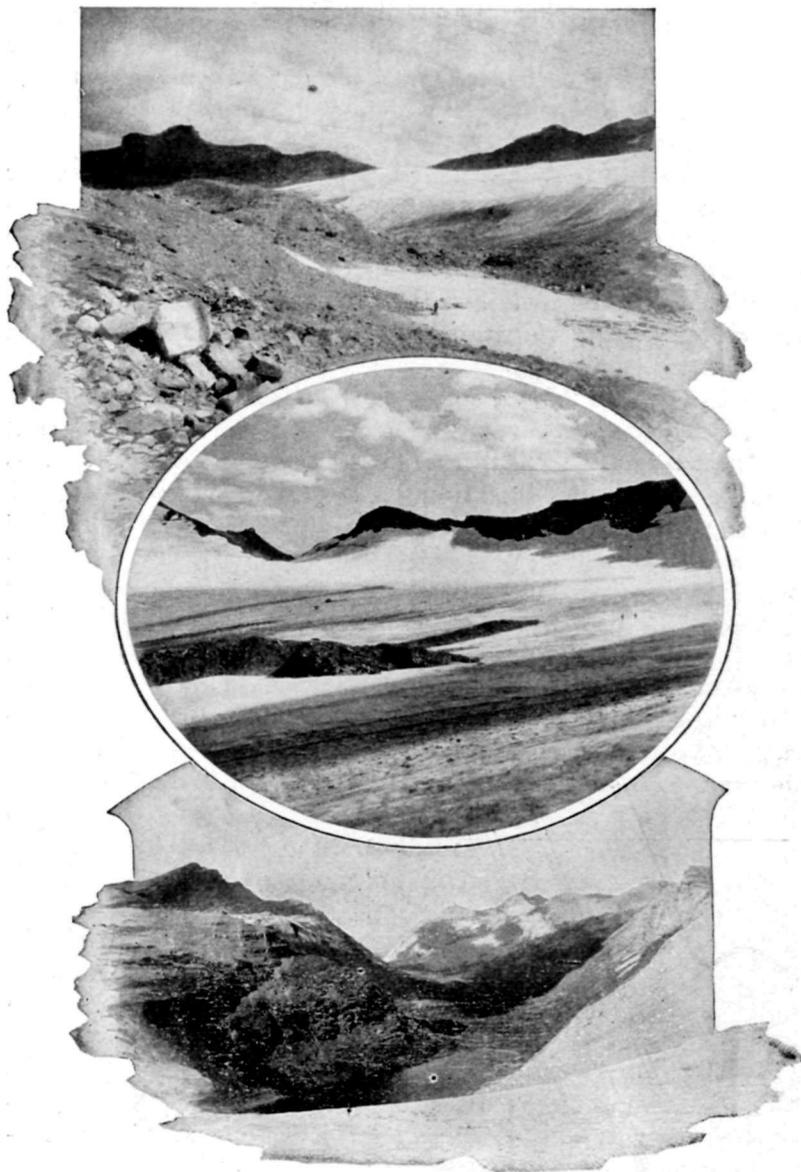
The trail and basin that we had passed thru on this trip, our guide declared, had never been named. And he insisted on applying the name Holzinger's Trail, and Holzinger's Basin. Some days later, after he had had an interview with Mr. Geduhn, he stated that it suited Geduhn also, and that they would see that trail and valley were known hereafter by this name. I had no choice in the matter. And the mosses of that trip are accompanied by labels designating this valley by the above name.

After drying ourselves, resting, and taking care of the material collected, we started with Howes as guide early on July 21, across the lake to ascend Mount Trilby. I have since learned from Prof. Goode, who has also visited that region, that his guide at the time insisted on calling that peak Mt. Goode. Which leads me to suspect that some of those geographical features may have as many names as a handsome maid has lovers. And the question in either case is, which one will stick? We took along only one meal, expecting to return to our Lake camp that night. Our ascent was along the slope of Lottie Stanton facing Trilby, till we reached the gap between which the snow fields to the west were visible. Then we crossed the small stream that flows between the two peaks,

stepping from boulder to boulder, and following a deer trail, made for the base of the perpendicular wall that constitutes the top of Mount Trilby. This is as far as we went up. Then we made toward the right, toward the front that faces the deep valley of Avalanche creek and Lake McDonald. On our precipitous way we crossed several "rock avalanches;" the steep mountain side is strewn in



AVALANCHE BASIN, MONT.

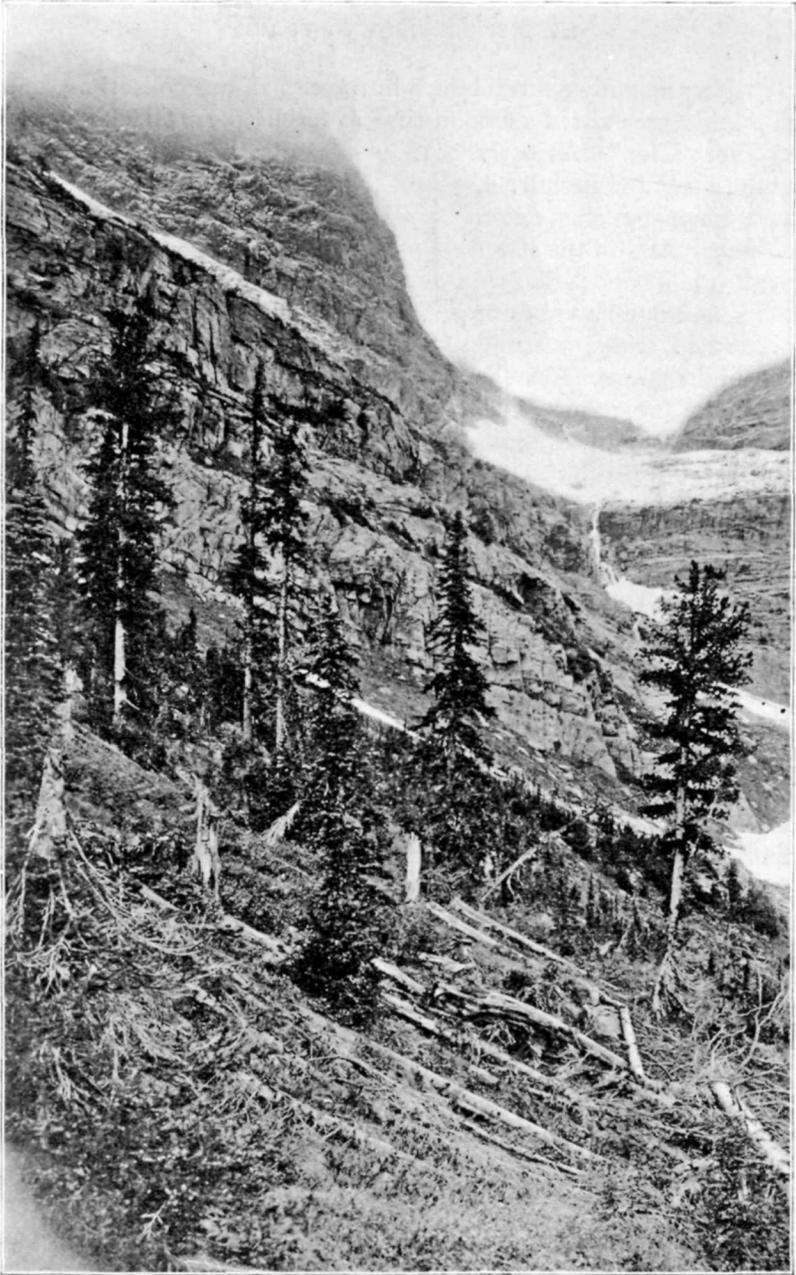


VIEWS OF SPERRY GLACIER.

perpendicular streaks with jagged fragments of rock from above. When we reached the front, we realized that we stood at a giddy eminence. Far below us lay the lake, dwindled to a narrow pond. The forests of stately trees that stretched over the undulating moraines on each side of it south of the mountains, now looked like carpets of green meadows. Some twenty or more miles to the south-east the Hungry Horse Glacier glistened in the afternoon sun. Opposite us, across the gap 3,000 or more feet deep, stood Mt. Brown, behind it the Little Matterhorn, and Mt. Edwards; to the left of them, the Garden Wall, Goat Mountain and the Shepard Peaks. Between the latter and the Little Matterhorn lay stretched out Sperry Glacier, rising from the Avalanche Wall eastward, away from us, its head apparently miles beyond the peaks that rise above its surface at the eastern limit of our vision. While each step up to this point, had been rich in bryological treasures—the guide had also brought down a blue grouse for us just before we stepped out upon this thrilling panorama—here we had spread out before us geological features unsurpassed in interest. At our very feet, tho over 3,000 feet above lake level, were unmistakable traces of glaciation—rocks smoothed by the flow of an ice river; roches moutonnees, as it were, tottering at the falling-off place of this mountain side. Afterward, when we passed along Avalanche trail, I noted with great interest glaciated surfaces several thousand feet almost perpendicularly above us. But the sun was westering. And we *must* descend promptly, for we were some five miles from camp, and our trail was only such as bear and deer had prepared for us. The first 500 feet of descent was over bare rocks. The great mountain folds seem to have an almost perpendicular “dip” along our path; and the cleavage lines permitted narrow horizontal “benches” to be formed by weathering, with a very steep talus from bench to bench. This leaping down from ledge to ledge the guide designated as “dropping,” a very appropriate term. I stood in constant fear that we might thus “drop” down to an impassable precipice, unable to climb up again. In fact, at one point we did have to climb up again some fifty feet to escape just this contingency; and a horrid climb it was! When at last we reached the timber, where the slope was more gentle, and where we could hang on to shrubs and trees in passing down a steep place, I breathed more easily. We reached camp after an arduous day’s travel, happy, tired, and rich in finds.



LOOKING TOWARD THE RIM FROM HOLZINGER'S BASIN, UPPER CAMP.
From Photograph taken by Mr. J. R. White.



LOOKING TOWARD THE RIM, UP THE GORGE FROM HOLZINGER'S BASIN,
LOWER CAMP.

From Photograph taken by Mr. J. R. White.

NOTE.—The effect of an avalanche on timber is seen in the foreground.

After spending several days in the care of our collections, and in resting, we started a second time to reach Sperry Glacier by way of the "Rim." As early as the heavy dew permitted, we were on our way, again on foot. And in the afternoon of June 24th, we reinstated ourselves in our brush tent, there to spend the night previous to the final climb over the "Rim." This time we had good weather. And by nine o'clock next morning we were well on our way. Over boulders, along ledges, across small steep snow fields the guide led us, up thru the broad gorge, which



MORAINES AND FRONT OF SPERRY
GLACIER.

he called Holzinger's Gorge. (The brush camp was in Holzinger's Basin.) My companion Mr. Blake, here had a little adventure which might have proved serious. His heavy climbing boots chafed him. So at the guide's advice he exchanged them for some large rubbers. But this made it impossible for him to get a good foothold on the firmly packed granular snowfield. One of the first fields we had to cross was very steep. We were nearly across, when to our dismay we saw Mr. Blake sliding at considerable speed down the mountain side. The guide yelled advice to him: to plant his heels, and fists, and rifle, if possible. By vigorous kicking and stamping he finally checked his involuntary descent; and with the guide's help, who hastened down to him, he soon retraced the two hundred or so feet of lost ground.

No other accident befell us, on this climb, which at several points led us along very precipitous ledges. In that steep broad gorge from Holzinger's Basin to the Rim we counted four successive terraces some four hundred feet apart; on each of these there was a small lake, and the upper two of these lakes were at this time, the last week in July, still frozen over. Some time in the past, when the glacial ice mass was from three thousand to five thousand feet thicker than it now is, this gorge must at periods of rapid

recession have been filled with immense volumes of rushing waters forming a close succession of five or six gigantic cataracts, and the lakes seem to be purely the work of the waters upon the primeval rocks, carved out by the plunging stream.

At last we reached the "Rim." As we stood upon a narrow uncomfortably sloping ledge, which we had reached by climbing on all fours for some little distance, it seemed impossible to go a foot higher. For before us was a perpendicular wall about ten feet high. Beneath us, a precipice of some thirty feet followed by steep rip-rap and a snowfield. On the ledge, there was just room for us three. The guide's request that we unload was carried out with difficulty because we were so cramped for moving space. But finally by cautious shifting we got rid of our several parcels—the guide, of knapsack with blankets and lunch; Blake, of rifle and camera; I, of collecting outfit. Then the guide began a remarkable ascent up the wall above us: hands and feet to our surprise found support in the small clefts and jagged projections. When he had reached the top, he lay on his stomach and reached down for our several parcels. When these were safely deposited on top, he had a harder task in getting us up; each hand and each foot had to come *just so*, or else we had to begin over again. Finally we stood, all three, on the "Rim," the steep wide gorge behind us, Mt. Edwards to our left, at its base a small shallow body of glacial water; to our right an unnamed peak; before us Sperry

Glacier, some two miles above its base, the center of a grand panorama. We were facing north as nearly as I could make out. Obliquely to our left, northwest, stood the Shepard peaks; in the north and northeast, other unnamed peaks rose above the general mass of ice, rugged islands on a frozen sea.

The small exposed area at the Rim is well watered by numerous little glacial rivulets. By the side of one of these we sat down and ate our



CREVASSE IN SPERRY GLACIER.

lunch, before setting foot on the glacier. At last our journey down to the base of the ice stream began. I had read the stories of alpine climbers disappearing in the abyssal crevasses of glaciers, sometimes hidden by freshly fallen snow. We were traversing a field of evidently newly fallen snow, covering the deep ice sheet beneath to the depth of nearly a foot. This must have fallen during the storm that thwarted our first attempt a week before. This circumstance added not a little to my own feeling that our journey down this glacier really bordered on the foolhardy. We were not equipped with ropes; and the guide's confidence, and his assurances that he had repeatedly crossed these icy wastes when hunting the mountain goat, and that he *knew* there was no danger, availed little toward reassuring me. Yet, I kept all my fears to myself, acting upon them only to the extent of persistently following behind the guide by a rod or two—ready to check my footsteps the moment he would disappear in a hidden crevasse. Mr. Blake was innocent of all danger, and thought me needlessly timid. His sense of security gave him doubtless a much larger measure of enjoyment in these our exceptional experiences than I, was able to enjoy just then.

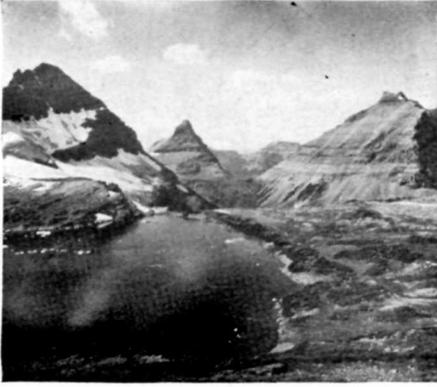
After about an hour's journey down over the ice we reached the "front wall" of Sperry Glacier, showing at the time a perpendicular thickness of something less than two-hundred feet. This front stood over half a mile back from the brink of Avalanche Wall. And this space some three miles wide, and gently sloping to the brink, is covered with small moraines interspersed with snowfields, and cut up by numerous interlacing streams of glacial water, some of them of considerable size, too deep and too rushing to be safely crossed except over the natural bridges of snow beneath which frequently lay their course. Over this distance we had little difficulty in threading our way to the brink. At last we stood at the falling-off place, at the giddy height of 2,500 feet, nearly perpendicularly above Avalanche Lake, which from this distance looked the size of a small mill-pond. To our immediate left, rising from our level now, stood the Little Matterhorn; toward our left front, Mt. Brown, in the central back ground, west of us, Mt. Trilby; to its right, Goat mountain, most bleak and precipitous of all; hiding from this point the Garden Wall; on our right, with the slopes of Mt. Brown hemming in and forming Avalanche Basin, the Shepard Peaks. We stood near the south end of the

brink; near its north end, and on a level with us, lies a small body of water, Mary Baker Lake.

But the westering sun reminded us that we must hasten to retrace our steps to the brush camp, if we did not wish to camp for the night on these chilly crags. With difficulty did I call the guide, who had discovered fresh tracks of a large mountain goat, and was following it persistently along the precipitous slope from the Little Matterhorn to Mt. Brown. Almost beyond the reach of my voice, he heeded my gesticulations only reluctantly. After I had him back, I observed with some vexation that Blake had strayed far away in the opposite direction, toward Mary Baker Lake, and was quite out of reach of my voice. He had easily crossed several of the larger streams over the snow bridges, near the base of this narrow plateau; had on the other side ascended toward the base of the glacier; and, attempting to come back, was finding some real difficulties in crossing these same streams which he had found both wide, and deep, and rapid. After some yelling and waiting he came out from behind a moraine, glad to join us for the return. This glacial plateau had proved an exceptionally interesting collecting ground, yielding the larger part of the rare and new things brought back from that trip. And while my two companions pursued their several lines of pleasure—goats and adventures—I was busy garnering my harvest.

As soon as Mr. Blake had joined us, we started back, first up the glacier to the Rim, a rather slippery way, more so apparently than had been the descent; then from there by rapid drops to the brush camp where we arrived before night fall. On this descent the guide shot for me a Rocky Mountain marmot, a large rodent, like a woodchuck but much larger, the tanned skin of which now adorns my work-room, a reminder of that hazardous visit to Sperry Glacier.

Next forenoon we arrived safely in our permanent camp on the shore of Lake McDonald. After spending two days caring for my recent collection around the glacier, we decided upon a short trip to Avalanche Basin. To this end we engaged Joe Rogers, of Kalispell, with pack horses. Several considerations urged us to make this our last trip, not the least among which was a jumping toothache. The distance of the Basin is about twelve miles. The trail, tho pronounced "good" by the guides of the region leads over very rugged stretches of moraine and ice-worn rocks.



SUMMIT LAKE AND PYRAMID VALLEY

And we were indeed glad to make at least one of our excursions astride a Rocky Mountain "burro." How slowly, and how safely these small, hardy horses carried us over this trail! Around obstructing boulders and windfalls, under and over prostrate forest trees; down and up precipitous places, fording several small but rapid streams, we reached the lower end of Avalanche lake in time to

eat our dinner. This over, we made ready to reach the Upper Camp, at the upper end of the lake. To this end we had to cross over to its north shore. Making doubly sure that blankets, provisions and other trappings were securely fastened to the backs of the horses, the guide drove them to the other side of the lake outlet thru the rapids just below the great natural raft, over which one of us first crossed to head them off. From there we required more than an hour longer to reach the Upper Camp at the head of the lake. The precipitous base of the Shepard Peaks here crowds the trail so much that we repeatedly hang almost perpendicularly above the light-green water of the lake. At times it leads to the lake level across a small arm of its shallow water.

When at last the camp ground was reached Mr. Blake made a picture of our outfit before unpacking the horses. Then Joe the guide took charge of preparing the camp for the night, while Blake and I made our principal collecting trip. We ascended a dry creek bed, the rest of the mountain side, the connecting spur between Mt. Brown and the Little Matterhorn, being covered with an impenetrable growth of willows and other underbrush. Toward night-fall we returned to camp for supper. Then soon we sought the spruce bow couches, in the preparation of which Joe took especial pride; and, covering ourselves with blankets and tarpaulin, we went to sleep amid the perfume of the stately pines around us, with the canopy heaven for our only roof. Before I was fairly asleep I was aroused by a soft warm nose snuffing in my face, and a grunt

