THE

ALPINE JOURNAL.

AUGUST 1889.

(No. 105.)

An Expedition to Mount St. Elias, Alaska.

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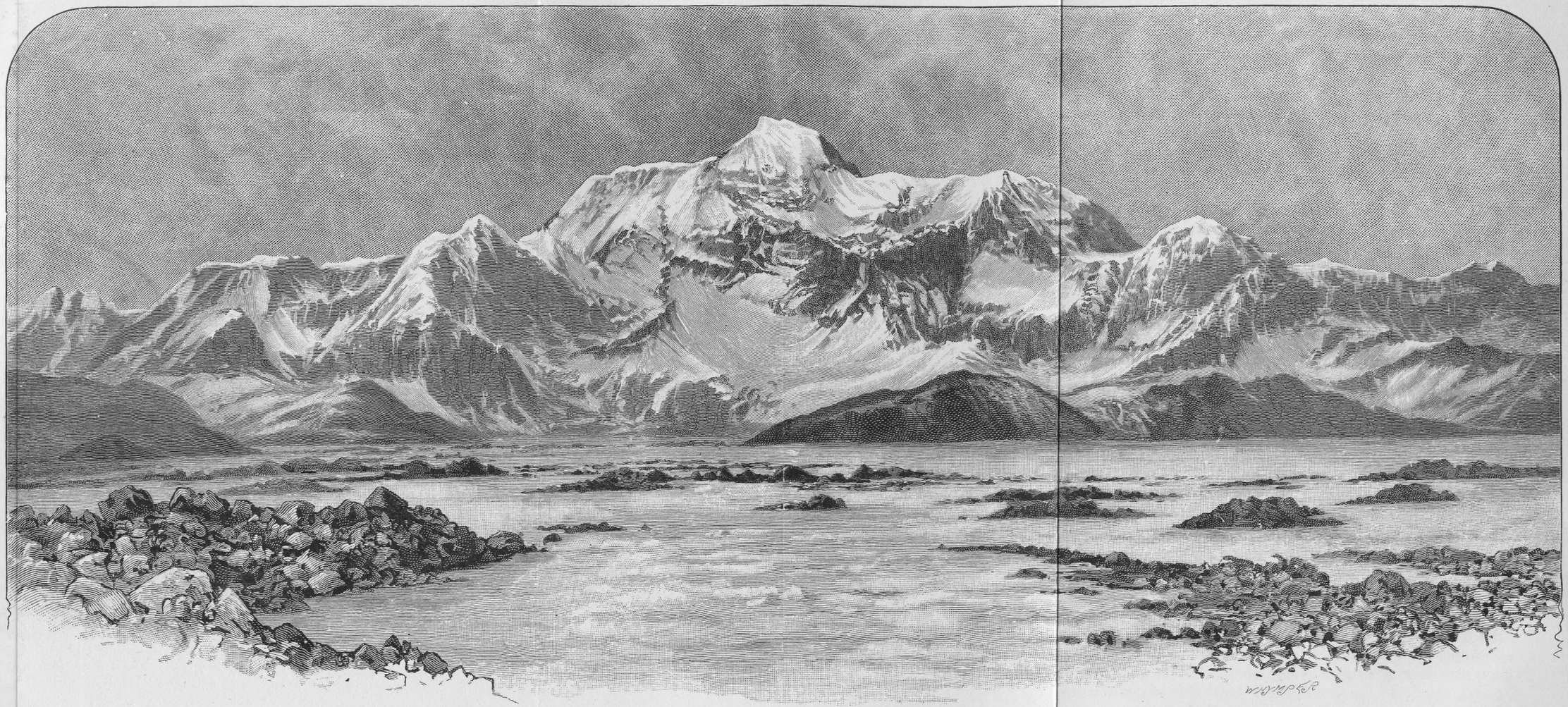
THE country to which I wish to carry my readers lies at the far north-west corner of North America. Alaska is separated from Asia by Behring Straits, and from its sister states and territories by a portion of British Columbia. To reach Alaska you must cross the great American continent to the Pacific Ocean, and ascend the coast for one thousand miles. You will then be at Sitka, the capital of Alaska. But you must come further still. You must continue up the coast for another 250 miles to Yakatat, and then you will find the horizon to the north and east blocked from view by some of the most beautiful and inviting-looking mountains imaginable. From Cross Sound, north of Sitka, the St. Elias Alps run north-west along the coast. They rise out of the very waters of the sea, and tower above you to a height of 16,000 feet as you sail below. As they approach Yakatat Bay they take a grand curve inland back from the shore, and peak after peak, unknown and unnamed, attracts your attention, and your eye wanders on from one to another till it rests on the final and most beautiful of all —Mount St. Elias. This mountain, seen from Yakatat, is very sharp and steep, and although it is distant fully eighty miles, its proportions are yet so vast that you can well believe that it is nearly 20,000 feet high. To attempt the ascent of this mountain was the object for which I and three others started on an expedition during the summer of 1888. Mr. George Broke came out from Brussels, Mr. William Williams from Massachusetts, U.S.A., my brother from Florida, U.S.A., and I myself from England. Our food supplies and general outfit were collected from many places—from England, from New York, from Montreal, from Victoria, B.C., and from



MOUNT ST ELIAS, ALASKA

Sitka. At Victoria some little interest was taken in our expedition, but the local press was rather doubtful as to its object, as the following paragraph will show:—'The Messrs. Topham leave on the "Ancon" to hunt grizzly bear, and to explore far-off fields in Alaska. They take with them a full outfit of snowshoes and a variety of tools to aid them in ascending mountains.'

We were detained at Sitka for some time awaiting the return of a small fishing schooner which we had hired to take us up the coast. When at last she arrived, she had to be beached for repairs and to be freed from some of that offensive smell of seal oil with which she was impregnated. In the meanwhile we had bought stores of flour and bacon, enough for sixty days, and had hired six men to accompany us as porters, four of whom were Indians and two white men—'Shorty' and Harry Lyons.

'Shorty's' real name was MacConahy, but, as he was six feet two in height, he had naturally received the nickname 'Shorty.' His pal 'Harry' was reported to be the strongest man in Sitka. Both were thoroughly good fellows, and were of immense service to us in every way. Some two dozen friends assembled upon the wharf to bid us God speed, and they cheered us lustily as we sailed away, and sent after us an American flag to place at our masthead. We carried with us, too, a small silk flag, on which was embroidered our names and that of the lady who had worked it, Mrs. Hadon, the wife of the deputy-governor. This flag was to be left at the highest point reached upon the mountain.

The 'Alpha' was a centreboard schooner of twenty-five tons, with four feet draught. Her cabin contained eight bunks, two of which were used as pantry and larder. There was a cooking-stove below, and no ventilation whatever. The chimney always smoked, the ship was leaky, the captain knew nothing of navigation. The pump was in bad repair, and the canvas was rotten. The heat below was so intense that we had to be always upon deck, and there we lay like logs wrapped in our blankets. The worst point, though, about the schooner was that she drifted to leeward almost as much as she made on her course. This was particularly dangerous with a lee shore such as we were sailing along—a rocky shore with no harbours, with glaciers descending into the sea, and a surf tumbling for ever upon the beach. The distance from Sitka to Yakatat is about 250 miles, and we took seven days to do it, with a head wind for most of the time.

Yakatat is an Indian village consisting of five houses, which afford shelter to 250 natives. That the place is extremely offensive to a white man's nose need not be stated. Provided that a government gunboat has been along the coast shortly before your visit the people will be friendly; if it has not, you had better keep away.

Our entrance into Yakatat was not propitious. The chief had raised his flag, and all the inhabitants were congregated around the village—to see what? To see our skipper run his ship on to a reef of rocks not three hundred yards from the anchorage; and there we had to stay all night, listing more and more over on to one side as the tide went out. Next morning we beached our vessel for repairs. At Yakatat we found a Mr. de Groff, who was trading with the inhabitants, and acted as interpreter for us in our negotiations with them. Our arrival had been looked forward to by them with great expectations of the golden harvest which would follow. An Indian whom we had dismissed at Sitka had sent up word that some very wealthy 'King George men' (*i.e.* Englishmen) were coming, and that Yakatat might look forward to having a good time generally. Partially on our account the Yakatats had delayed starting upon their annual sea-otter fishing, and we soon found that we had done wisely in bringing with us men from Sitka, in order to be, in a measure, independent of the natives. However, we required more men, and so we paid a state visit to the chief, who had donned his best clothes for the occasion. He had on an evening dress waistcoat and trousers, and a naval cap; and he stood, surrounded by his dirty family, at the foot of some feather mattresses, on which he requested us to be seated. He was much more interested in our clothes than in answering our questions about canoes and men; but he made great promises of assistance, more, in fact, than he had the power to keep, and he made us promise, on our part, to give him, upon our return, so many of our clothes that we should have been reduced to a state of nature if we had afterwards adhered to our word. Many of the natives came in and out of the house to stare at us, and amongst the number was a big Indian with a face which appeared to be always upon the broad grin. It was as though the whole of his lips had been turned inside out, exposing the gums to view, and this was his nickname—'Gums'—a name given him by Schwatka, who had hired him as a porter two years previously. We hired 'Gums' at once, but no more business was done. An Indian will not be hurried. For two days

there were frequent 'pow-wows' amongst them, and de Groff was for ever upon the move, acting as emissary between them and us. Irritated at the delay, we hired two miners who happened to be in the neighbourhood, and we then threatened that unless men and canoes were supplied at once, and upon our own terms, we would sail away in the 'Alpha.' This had its effect, and ultimately we hired two large Haidah canoes, and purchased one smaller canoe of the Yakatat pattern. We hired ten Indians, of whom eight were to return to Yakatat in one of the large canoes after landing us upon the beach, and two were to stay at the base camp upon the shore to take care of the other canoes and such stores as we might leave behind.

We were all anxiety to get away, but the Indians declared that the weather was unfavourable, and here I may say that the weather always is bad if the Indians wish it to be so. On the other hand, they know when the weather is really threatening; the white man, therefore, is helpless in their hands. He knows not whether they are lying or not when they state that they dare not start upon a journey. In the present case we felt sure that they were lying, so we ordered that all should be ready for a start at 3 P.M. And when the time arrives we have got all our stuff (some two tons' weight) into the canoes, the village has turned out *en masse* to see us depart, and the chief, in his robes of state and with his infant son in his arms, is standing at the edge of the water, so that he may be included in the photograph which de Groff is to take.

Two pictures are taken and we push off. Oars and paddles splash into the water, the Indians scream aloud and shout, and a great race ensues for the nearest headland. Once round this our men sober down to their work and row steadily out to sea for an hour. And then they declare that a storm is approaching and persuade us to return, which we do, with our tails between our legs. No storm comes, and we feel that we have been fooled, and that our Indians wish to be present at a feast that is to be held this night in the village. So we spent another horrible night upon shore, surrounded by dirt and dogs. These dogs are everywhere; they are innumerable. They steal everything they can get at and are very clever in their methods of searching after food. When they are unable to pull down the barriers you have erected at the door of your tent, they do as the Romans of old, they undermine the walls, and you are awakened in the middle of the night by feeling a scraping beneath the

small of your back. It is only a Siwash dog investigating for food! At 11 A.M. the next day we are again under weigh. This time there is no admiring crowd, no camera, no chief, no racing! We just leave—that is all! On the other hand everything goes well. We get all the wind we require and arrive at Icy Bay at 8.45 P.M., having made the distance, fifty-seven miles, in 9¾ hours. Very frequently it is impossible to effect a landing, so great is the surf, but to-day the sea is moderately quiet, and we land without much difficulty. The small canoe lands first. It is easier to handle, and its crew will be of service to help those who follow. My canoe comes next. We daintily approach the shore and bide our chance of getting a large wave to carry us well up on to the beach. The men on shore are watching for the same thing, and all at once they shout and scream to us to come. We feel ourselves lifted on the top of a big wave, and we use our oars and paddles with frantic energy. We come in upon the wave, the men on shore rush into the sea and seize the bows. We jump into the water up to our waists and we haul at the canoe to get her beyond the reach of the next breaker.

The canoe is too heavy and must be lightened. We seize upon anything that comes to hand and run with it up the steep shore to throw it down beyond reach of the waves. The canoe thus lightened is run up high and dry, and we now prepare ourselves to help the third canoe, which comes in, is seized upon, lightened in the same way, and finally hauled up. None of the stores have got wet, but what a state of confusion upon the shore! Here are more than 1,600 lbs. of goods. Fruits and tea, flour and kerosene, a camera and ice-axes, a stove and blankets, pilot-bread and bacon, dried salmon and corn meal, snow-shoes, flour and frying-pans, things of all descriptions lying as they were thrown, scattered anywhere and everywhere along the beach. We collect the things together and pitch our tents. We are quite a crowd, twenty-four of us in all. Our four selves, our four white men, the four Sitkans and four Yakatats are to go up to the mountain, two Yakatats are to stay upon the beach, and the rest are to return to the village.

A few words about the coast. The small headland called Point Manby, is the point for which the Indians steer when crossing Yakatat Bay. It is nothing else than part of the huge terminal moraine of the Malaspina Glacier, which bounds the coast for more than sixty miles and stretches back as many miles to St. Elias himself. The moraine is

several miles broad and is covered thickly with brush and larches. In places along the shore the ice protrudes from beneath its covering of stones and trees, and discovers the nature of the high banks along which we pass. Fifteen miles west of Point Manby the ice asserts itself. There are no more trees for the next ten miles and no landing of any kind, but after these ten miles the glacier gives way and admits quite a large tract of flat, swampy land between it and the sea. This land has been in part washed up by the sea and in part deposited by the numerous glacial streams which run through it. It is covered with trees and thick underbrush. Of the glacial streams the chief is the Yahtsétăh-hein or 'Muddy Harbour River.' The Indian name for Mount St. Elias is Yahtsétăh-shah, and there is a tradition amongst them that the sea once washed the very foot of the mountain, that there was an Indian village there at the foot, and that all around that village there were mud flats. So they called the mountain 'Muddy Harbour Peak.' But Schwatka, who was the first white man to visit the neighbourhood, re-christened the river, and gave it the euphonious title of 'Jones River'! There is a tale told of the proceedings of a nigger club in Tennessee. The committee on astronomy presented their report. They had discovered several planets—Venus, which they called Sarah Jane; Jupiter, renamed Charles Henry; Mars, Andrew Jackson; and Saturn, Sam Johnson; and they desired all other societies to take notice of the fact.

The Indian tradition states further that the ice subsequently descended and covered up the harbour, but the river which flows beneath that ice and descends into the sea close to where we were encamped, is still called the Yahtsétăh-hein. This river issues out of the ice some ten miles back from the shore, and immediately becomes divided up into innumerable small streams, which divide and subdivide the broad mud flats which lie between the glacier and the sea. The water is whitish grey, being saturated with glacial mud and sand. There are bad quicksands all along the streams, and these make wading very difficult, if not dangerous. Not only is the water icy cold, and in places swift, but there is no sure footing to be obtained. The banks quiver and shake like jelly fish as you tread upon them.

Bordering the tract of land lying between glacier and sea, and at the edge of the glacier itself, you will notice some hills 500 feet high, and covered with trees. They are not hills at all. There is nothing there but ice

covered with moraine, upon which a dense vegetation is growing.

On the side of the river opposite to that along which lies our route, there is nothing but a wall of clean ice. The glacier there descends into the sea, into which large blocks of ice are continually falling.

But let us return to the shore, where we have left our party encamped. The morning after landing we had some difficulty with the Indians who were to return. They wished to stay where they were and fish. On the other hand, I had promised to pay them so much per day until they returned to Yakatat, and I intended to ship them off as speedily as possible, because the longer they remained with us the faster would our supplies diminish. Eventually we compromised. I was to pay them three days' wages, and they could leave when they pleased; but they were not to sponge on us for food. They might eat seal blubber, or any other nastiness they chose, and we gave them some flour to help it down. The morning of this day was spent in reconnoitring for a route to the glacier. In the afternoon a storm of wind and rain commenced, which lasted without intermission all through that night, and late into the following day. With the exception of the rain, which fell two days later, the weather was perfect the whole time that we were in the neighbourhood of Mount St. Elias. On the day following Williams and I prospected up the river near which we were encamped. We got into the brush too far, and after wading for hours over swampy ground examining the banks of the river we concluded that we ought not to try 'packing' (*i.e.* carrying goods) by that route. The next morning (July 16) we got away, after endless bother dividing up packs, deciding what to take, and what to leave behind. We expected to have to walk over ice for at least thirty miles, and our plan was that at every ten miles or so a 'cache' should be made, and that whilst we ourselves pushed through to the mountain with two Indians to help 'pack,' the rest of the men should be occupied in bringing up stores from the shore camp, making several journeys from mountain to sea for that purpose. In this way at one time we had a supply of food at six different places.

'Gums,' who had been part of the way on a previous occasion, and who, therefore, considered the country as his own private property, was ordered to lead off along the shore to the Yahtsétäh river. At first the Indians laid down their packs at every few hundred yards, but as this would never do

I ordered them not to stop till I did. This worked well for a few miles, until we came upon a most remarkable patch of wild strawberries. They grew upon the sand in acres, and were so large and numerous that they gave a pink tinge to the shore. They were too much for the Indians; off went their packs, and down went every man upon his belly, and gorged steadily for twenty minutes. Our packs being once more resumed, we descended into a branch of the main river, and waded across. This was our first experience of what was to follow. From now until we got up on to the glacier we did little else but wade and walk over soft mud and sand flats, sometimes up to our knees, and sometimes up to our hips in the icy cold water. Some of the party, notably Lyons and 'Shorty,' chose to wade without boots and socks, in order to keep them dry for the night, and they were in consequence nearly paralysed with the cold. 'Gums' was in his element. He thoroughly enjoyed the water, and sometimes he would stand half-way across a stream with the water up to his chest, with his arms folded, and with a grin of delight upon his huge gums, waiting calmly whilst the rest of us shivered across. Occasionally we thought that he was purposely leading us through more water than needful, especially on one occasion when he told 'Shorty' that we had passed through the last water, and then, when 'Shorty' had put on his boots, led off at once through three streams of water; and I think that he was nearer getting shot on that occasion than he had any idea of.

It rained at intervals very heavily, and we were not sorry to reach a damp wood surrounded by water, in which we were able to camp. Although there was nothing but wet moss and decayed vegetable matter, even this was preferable to the river flats. On the morrow we continued up the river for two hours, and then two of us forced our way up the side of the glacier to our right, to see whether we could find a more preferable route. But the undergrowth was too thick, and after ascending five hundred feet we gave it up. We returned to the river, and continued up the banks with the water to the left and the glacier to the right, to a place which 'Gums' said was good, and whether that place was better than the other I don't know, but all agreed that it was as bad as they needed. We were about an hour and a quarter forcing our way through the bush, and had often to take our packs from off our backs to get them through the branches. The most awkward article of all was the small kerosene stove which one of us carried on the top of his

pack. It could not be strapped on like the other packs, for the pressure of the cords would have injured it. It had, therefore, to be balanced on the top of the pack, and kept in position by a stick held across one shoulder, much in the same way as a tramp carries his bundle. That stove was for ever tumbling about; branches caught it, any sudden jerk would throw it off its balance, and it was a curse to its bearer from first to last. Crevasses had to be jumped, tumbles were inevitable, and yet that stove had to be taken along, for we were under the impression that vegetation would cease as we ascended inland, and that we should have to rely upon the stove for warmth and cooking. On the other side of this bush which fringes the glacier, we came out upon billows of ice covered with stones. All ups and downs. Up one hundred feet, then down one hundred feet. This is the nature of the moraine, which is perhaps four miles wide, exclusive of that part which is covered with brush. In one of the hollows we pitched camp—everyone for himself, raking away the larger stones to get at the gravel below, or cutting alder branches to lay over the rough ground, all intent upon making as good sleeping places as the place could afford. At the bottom of the hollow we found a stream of water running over the ice, and this was the first drinkable water we had found since leaving Yakatat. All the other was saturated with sediment and of the colour of milk.

An early start was made next morning, our intention being to get off the glacier on to some hills which lay between us and St. Elias. Our route was due north at first, and then N.N.W. to the depression which runs from the above-mentioned Chaix hills to the mouth of the Yahtsétăh. This depression in the ice is the boundary line between the Malaspina Glacier on the east and the Guyot Glacier on the west. It lies immediately over the river itself, which is far, far below. I think that on occasions a great stream of water must flow down this depression, as it resembles a watercourse very closely, and has many thick beds of mud and sand. After two hours up this depression, we turned N.E. to get well on to the Malaspina Glacier, and steered for the N.N.E. end of the Chaix hills. 'Gums' was now deposed from his office of guide. He had not proved a success, and was always trying to show off before the other Indians. At one place we had found it necessary to caution the men how to go. A slight descent had to be made down an ice slope on which was a quantity of wet mud and stones. None of our men, with the exception of 'Gums,' had been upon ice in

YAHTSE-TAH-SHAH OR MT. ST. ELIAS.

Surveyed by Harold W. Topham.

Heights in Feet. ---------- *Author's Route.*

W. & A.K. Johnston Edinburgh & London

SCALE OF STATUTE MILES

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their lives, but they all descended in safety. Not so 'Gums.' He had been standing aside with a scornful look upon his lips. He needed no advice. He could walk down with ease. And he came down a dreadful bump upon the ice, laden as he was with some 70 lbs. upon his back. He limped and made much of his hurt, but getting no sympathy the limp disappeared, and though he was undoubtedly hurt, 'Gums' never said another word about it.

The Chaix hills are almost entirely surrounded by ice. On the north-west is the Tyndall Glacier, which flows into the Guyot Glacier. This last runs along the south side of the hills. On the east is the Malaspina Glacier and on the north-east the Libbey, a tributary of the Malaspina. Some low hills connect the north end of the Chaix hills with Mount St. Elias. You can thus approach St. Elias either to the west or east of the Chaix hills. Our plan was to attack it on the east from the Malaspina Glacier. After walking for three hours we resolved to get off the ice on to the hills rather than pass another night upon the glacier. So we turned westward, and after some very tiring plodding between and over the mounds of *débris* which form the western moraine of the glacier, we arrived at its edge, which, to the surprise of some of the party, proved to be a cliff of ice from two to three hundred feet high, with a swift stream running at its foot and separating the glacier from the hills. We had to continue up the glacier for more than a mile before the slope of the ice would permit us to descend into the stream. This we waded just as night was setting in, and very glad we were to get into camp. We had been 'packing' for more than twelve hours over a very tiring glacier. Our boots were already showing signs of the hard work, and the Indians were complaining of sore feet.

The next morning we selected two of the Sitkan Indians, Billy and Jimmy, to stay with us, and sent the rest of the party back to the shore to bring up more food. We who remained behind followed up the course of the stream. The shores of the stream were preferable to the stone-covered glacier, but we were obliged to wade across and across as we advanced. The stream was not wider than sixty feet, and not deeper than three, but this is quite sufficient to chill any ardour when the water is swift and at a temperature of 32°. Banks of dirty ice two hundred feet high bound the stream on the east, and upon the west are the Chaix hills all covered with bright vegetation, flowers, and grass and trees. This is characteristic of the country:

wherever there is vegetation, it descends to the very edge of the ice. Three miles up the stream from where we first touched it there is a charming lake, and here, on July 20, we pitched our tents. Our course beyond this camp was always up the stream; sometimes on one side and sometimes on the other. We skirted the lake along a very narrow fringe of stones which had fallen from the glacier above. Three miles above this lake there is a cañon formed on one side by the glacier, and on the other by a steep bluff, which is in reality an old moraine; the stream runs between. Here there were countless mosquitoes and stinging flies. About half a mile above this cañon the stream issues from below the ice. A little further on the glacier infringes upon the hillside, and we were obliged to get upon the ice. There is another lake above, the waters of which are dammed up by the glacier. At the place where glacier and hills meet, the lay of the latter is north and south, and the glacier strikes the hills' side nearly at right angles. At this point it is evidently advancing fast, for it is piling up stones against the hill very rapidly. The hill is steep, and is covered with trees and a thick growth of high grass, ferns, and flowers. From the river bed below to the lake above, a distance of a quarter of a mile, there is a rise of some 250 feet, and as we walked we could step with one foot upon the glacier and the other upon a luxuriant growth of vegetation. So fast is the ice pushing on and swelling its stones up against the hill, that quantities of the smaller trees, alders and the like, are bent down and half covered with stones, but none the less alive, and doing their best to see the light of day before being entirely crushed out of sight by the ice. Above the lake last mentioned the stream continues for about four miles to the north-east extremity of the Chaix hills. Here it has its rise from out of the glacier (the Libbey) which descends from the foot of St. Elias itself, and unites at this point with the Malaspina. We found no way round the edge of the lake. The glacier descends abruptly into the water, and is very much crevassed above, so we were obliged to make a circuit, starting from a point just above the cañon below, and traversing the worst bit of up and down, boot-cutting, foot-bruising, patience-destroying, and oath-inspiring five miles that I have ever experienced. Arrived at the corner of the hills which had been our goal for so many days, we ascended the icefall of the Libbey Glacier and found ourselves upon a level plateau of ice stretching back for six to ten miles to the mountain itself. The aneroid gave 1,625 feet,

of which about 1,000 feet was the height we had ascended up the icefall. The plateau before us was evidently covered with *débris*, which appeared every here and there from beneath their covering of snow. The mounds of stones which troubled us so much below were absent up here. All between us and our peak was quite level. The Chaix hills on our left were beautiful slopes of the greenest grass, and we could see upon the foot hills away to our right that there was vegetation also there to a height of certainly 500 feet above the glacier.

From where we were we made a very careful study of our mountain. I had brought up a large telescope for the purpose. We reluctantly came to the conclusion that the peak was practically unclimbable from this side, and that we should have to make a circuit of the Chaix hills and try the south-west face, which descends on to the Tyndall Glacier.

Speaking generally, the whole of the south-east face of St. Elias is a mass of overhanging glaciers, and the steepest of snow and ice. The eastern arête is extremely steep and very long; to get on to it would take a day in itself. We could see part of the south-west face of the mountain. There is a curious depression upon it which very much resembles a crater, and the rocks of this crater appeared as steep as the side of the Lyskamm which descends to the Gorner Glacier; but it was up these very rocks that we climbed subsequently, and we found them very much easier than we had expected.

Turning our backs to the mountain, our eyes wandered over the vast sea of ice stretching away for sixty miles to the waters of Yakatat Bay. On the north of this sea are innumerable peaks, only two of which have received a name—Mounts Cook and Vancouver. Far away to the south-east, 150 miles distant, the summits of Mounts Fairweather and Crillon stood out from above the clouds. We had passed by the foot of these peaks on our way up to Yakatat.

After taking several sketches and photographs we returned to camp by a slightly different route. We kept down the stream with the glacier on our left hand, and an old moraine on our right, and when we arrived at the first lake we took to the ice, and once more stumbled along it, descended to the stream below the lake, and so home to camp. On the following day we 'packed' down to our old camp, the Indians having to make several trips to bring down all the stuff.

On July 23 we 'packed' down the stream to Lake Castani, pitched camp, and sent the Indians up stream to bring down the goods. We ourselves started out to find a route up the

Guyot Glacier. It was here, at Lake Castani, that we intended to stay until rejoined by the men who had descended to the shore.

Lake Castani lies at the southern extremity of the Chaix hills. On the side next the hills are thick woods. Everywhere else there is ice, and in the lake itself there were many icebergs, which had broken away from the glacier. The stream that we had ascended to the east of the hills runs into the lake at one end, and a much larger and very rapid torrent runs in at the other end from beneath the Guyot Glacier. The lake, therefore, is at the confluence of the two streams, and receives water from both sides of the Chaix hills. As there are several small lakes along the stream to the east, so there are lakes also up the stream to the west. The Guyot Glacier descends in an icefall near the western end of the lake and thrusts itself against the hill-side, thus covering the stream. Once above the icefall you see no more of the stream. It is beneath you, under the ice. The lakes on the western stream are constantly filling up and emptying according as the outlets from them become choked or not with floating ice. When the outlets become choked, the water in the lakes rises to a great height, bursts the barriers, and hurls itself down the stream into Castani. This lake then rises some 150 feet, and bursts its own barriers. Now Castani is the chief feeder of the Yahtsétäh river. This river therefore rises and falls conversely with Castani. Along the north shore of the lake the high-water mark is very distinct, and the ground is strewn in places with icebergs weighing hundreds of tons. When our men left us for the shore camp they found the lake dry and crossed its bed, and so saved themselves a long *détour*; but on their return the lake was half full, just as we ourselves had found it. Before this digression I left our party on the point of starting from Castani to the westward. We forced a way through very thick brush up the hill-side above the stream, and when we had got above the icefall we crossed over on to white ice and continued up the glacier, just skirting the moraine and passing between several smaller icefalls until we arrived close to the western extremity of the Chaix hills, on to which we then crossed. The glacier here is about 1,000 feet above Castani. This end of the Chaix hills is covered with grass, and has much alder upon it, and a few trees. There is a long lake to the west and north, somewhat similar to Castani, and there is also a beautiful little lake three hundred feet up above the glacier.

It was by this lake that we subsequently camped for several nights. We saw here a quantity of ptarmigan, but our guns had been left behind on the beach.

We returned to Castani, and next day my brother and Williams cut a trail through the thick bush mentioned above to enable the packers to pass through. Broke and I stayed in camp during the morning mending boots, and afterwards conducted the Indians through the trail to an old water-course, where we made a *cache*. During my absence the men from the shore camp arrived at the east end of Castani. They had intended (as they had been directed) to walk to our first camp up the stream, but seeing the fire which we had lighted to attract their attention, they came within shouting distance, and there ensued between them and my brother a screaming conversation the merits of which I have never been able to appreciate. The effect was this, that Broke came after me to suggest that I should get on to the glacier and go round Castani to meet them, and this I did. I got up to my knees in glacier mud, tired myself out with yelling and my eyes with sweeping the glacier with a telescope to find the men, and when at last I returned to camp I found the whole party just finishing a very hearty supper. They had continued up to our last camp, and had then descended the stream.

Next morning we all ascended to the west end of the hills, and encamped on the edge of the small lake. The views from around this camp are magnificent.

There is one in particular, of St. Elias, which combines beauty with grandeur. You come suddenly upon it as you emerge from between two small hillocks covered with flowers and scrub. You find yourself standing in long grass and flowers. The glacier is 300 feet below. Between it and you is the long lake curling around the small points of land which slope down from the Chaix hills. All to the left of the lake is ice; all to the right is green; the lake itself is beautifully blue, and studded with icebergs. Away beyond stretches the Tyndall Glacier, with a glimpse of its big ice-fall in the far distance. The Chaix hills confine it on the right, and another range is on the left. Above all, at the head of the glacier, towers St. Elias himself, stretching one huge arm to the east and the other to the west. There is a delicate colouring of blue over everything—glacier, hill, and mountain.

This end of the Chaix hills was the scene of a very curious performance on the part of my brother and some

of the others. As they were leaving the moraine for the hillside they noticed a little lake with a number of half-fledged geese upon it. Pistols, stones, ice-axes, and sticks were hastily prepared for action, the packs were thrown aside, and all rushed to the lake. The geese took refuge in a small cave beneath the glacier, but their pursuers were after them, and passing under an ice-arch which looked rather shaky, they found themselves in a cave about 20 feet long by 10 broad. Hunks of ice were floating about in the water, and on these the pursuers walked. The geese had gone to the furthest extremity of the cave, and were shut in. My brother called out to prevent shots being fired, fearing that the ice-arch might tumble and bury everyone. But it was of no use. There were the geese, and here were a lot of hungry men anxious to get fresh meat for supper. So everyone blazed away at his own sweet will, and it was a wonder that no one was shot. The birds nearly succeeded in getting away, and would have done so had not my brother stepped hastily on to a bit of floating ice at the opening to the cave. The ice gave way, and he was in the icy water swimming. But his mind was on his supper. He grabbed at one bird and then at another, and caught several by this means. There were in all eleven birds, and of these ten found their way into the stewpot that night. The place became associated in our minds with the great goose hunt, and we knew it afterwards as 'Goose Point.' Upon another occasion, and on the other side of the Tyndall Glacier, other geese were killed by Billy and Jimmy. Ice-axes were the weapons used.

Next morning we crossed the Tyndall Glacier, and ascended it as far as the N.E. point of the hills upon the opposite side. Seen from Goose Point this place appeared to be conveniently situated for a base camp near the foot of our peak. In reality, as we found afterwards, the mountain was far distant. We now selected Billy and Jimmy to stay with us, and sent the other men, with the exception of Lyons and 'Shorty,' who were to return and stay at Goose Camp, back to the shore for more food. Williams and I prospected up the glacier, and found it very much crevassed. We selected a place for a further camp, and moved up there on the following day. Some discontent had been shown by the two Indians at having to stay behind with us whilst the others returned to the shore. They had hoped that they too would go down and have a good time on the sands, eating seal-meat and strawberries, and sleeping away the day. They

said that they were afraid to go further up the glacier with us, so we thought it advisable to send back for Lyons and 'Shorty.' Our Indians were also afraid of being left alone in camp whilst we were absent. They were afraid of bears, of the existence of which there were plenty of evidences. Indeed, we had pitched our tents within three feet of a regular bear 'lay.' The grass had been all trampled down and crushed where the beasts had recently been lying. On one occasion we startled a very big bear, which made off at a great pace across the glacier towards St. Elias, jumping the crevasses in grand style. A day or two afterwards a St. Elias grizzly bear and a black bear visited the camp at night, and two or three bears were seen by 'Shorty' upon one of the lateral moraines of the Tyndall Glacier. Luckily for us, as we had dropped our rifles *en route*, we were never attacked. From our camp near the point to our new camp the route lay first over grass (½ hour), and then on ice and moraine (2 hours). Two glaciers descending from the hills on the west were crossed at their point of junction with the Tyndall. The first of these we named the 'Daisy Glacier.' It is beautifully level and white, and is quite a refreshing contrast to the glaciers over which we had previously been travelling. At the junction it is considerably below the Tyndall Glacier, so that the latter actually drains on to it. The Tyndall Glacier itself at its juncture with the Guyot is from 50 to 100 feet below the latter, except on the edge close to Goose Point. At the corner of the hills at the other side the Guyot is several hundred feet above the Tyndall, but there is an icefall there. As seen from Goose Point the line of junction between the two glaciers is so marked that there appears to be a high bank of ice and *débris* right across from point to point.

The second glacier which we crossed we named the 'Coal Glacier.' It is nearly covered with *débris*, amongst which is quite a quantity of coal. Seams of coal are visible on the hills around this glacier, and we even burned some of the mineral upon our camp fire.

This glacier is also lower than the Tyndall at their juncture. The *débris* upon this glacier consist mostly of a kind of slate in which are many fossils.

There is one curious characteristic of the Tyndall and Agassiz Glaciers. As you travel over them, and when you are upon white ice (*i.e.* uncovered with *débris*) and see white ice for perhaps miles around, you are suddenly confronted with an island of *débris*, apparently disconnected from any

regular moraine. It springs from nowhere, is quite isolated, and appears to have no reason for being there. Upon the Agassiz there are several of these islands, which must be 100 feet high, and form quite noticeable landmarks upon the otherwise flat ice. We conjectured that perhaps at one period of the glacier's existence these islands formed part of a continuous moraine, that subsequently the glacier grew bigger, owing to heavier snow-falls, and swallowed its moraine, and that now parts of this old moraine are once again showing up, now that the snow-fall has again decreased. A peculiarity of the Guyot Glacier is the quantity of glacier mud which collects in hollows and terraces upon the ice near lake Castani. The whole glacier drops considerably along its line of junction with the Agassiz, but the drop is greatest near Castani, and there it is that the mud collects. To descend to the lake is quite a task. Hollow after hollow is full of the mud, which is ever kept wet by the rivulets of water which descend to the lake. The mud is often covered with small stones, which cause you to think that the surface is hard, but when you tread upon it you sink to your knees, and have some difficulty in getting free. The moraines upon these glaciers are different from those in Switzerland. Here they are several miles broad and resemble a choppy sea which has been rained upon by stones.

To return to our new camp at Coal Glacier. On July 28 my brother, Broke, and I started up the Tyndall Glacier to find a way round a far point of land, and ascertain whether we could get up to the very head of the glacier. Broke, whilst jumping a crevasse, let fall his only pair of snow glasses, and returned to camp, afraid of injuring his eyesight. This mishap was most unfortunate. The glasses were of a peculiar pattern and could not be replaced. Their loss compelled him to give up the attempt to climb the mountain, and he stayed behind at Coal Glacier Camp when the other three pushed on. My brother and I went some way up the glacier after Broke had left us, but we got badly mixed up in terribly broken ice. The crevasses were partially covered with snow of the most rotten description, and after we had had several narrow escapes we determined that we were acting like fools and returned to camp, where we found Williams, who had brought up 'Shorty' and Lyons with him from Goose Camp.

Next day the three of us 'packed' across the Tyndall Glacier with 'Shorty' and Lyons, taking with us food for five days, and one of our tents. We took with us also a tin of

kerosene and the stove. We had brought this stove along with us, but had not as yet had occasion to use it. Still, it might yet be needed. Billy and Jimmy were left behind us. They were discontented, and, as we heard afterwards from Broke, spent most of the time whilst we were absent in chanting mournfully. When asked the reason why they chanted they said that 'Indians had sick tumtum and want to go home.' Starting from camp we crossed almost over to the other side of the glacier before turning north. This was to avoid the broken ice of the day before. We had given up our intention of ascending to the head of the glacier, and were now seeking a way to the nearest rocks which descend from the mountain itself. In this we were successful after several attempts, and this night we camped at the foot of our mountain. The so-called crater was above us, and descending from this crater are several steep arêtes. Our camp was upon a small hill at the foot of one of these arêtes, and the hill so much resembled in shape the hoof of a horse that we called the camp 'Hoof Camp.' On the same day that we reached this hill the three of us, Williams, my brother, and I, started out to investigate the north of the hill. Our course was first over snowfields to the west, and then up a small glacier to the foot of a steep snow col which connected our hill with one of the arêtes. We had to cross several schrunds, and we then cut our way up the col. From the top of the col we struck up the arête, which consisted of very rotten rocks and loose stuff of shale and slate, which crumbled away at the touch. We made very slow progress and eventually turned back, convinced that a successful attempt on the mountain could not be made with such an arête to begin with. But we had made one great mistake. We had deserted the edge of the arête and had tried to get up its face. Had we kept to the former the climbing would have been much easier, as was proved subsequently on August 2. The aneroid gave 3,000 feet for Hoof Camp, 4,550 for the top of the col, and 5,725 for the highest point reached. We returned to camp round the east side of Hoof hill, and from this side we noticed that the arête above where we had been appeared to be less steep, and we therefore determined to give it another trial on the morrow. We found some small brushwood (cotton-wood) on the hill, not much, but sufficient to light a small fire, so the kerosene lamp was not yet called into requisition.

Early next morning we started again to have another try at the arête, but after we had gone half an hour we changed

our plans, and crossed over to the next arête to the west. We found it very bad indeed; the first two hours were up loose shale dust, which had to be passed before we could get on to the edge of the arête. We kept along the edge the whole way up, first over sharp fibres of slate resembling slate pencils, and then over steeper rocks of shale and some snow, till we came to a gendarme, which was easily turned. Next came much steeper rocks of shale, and these gave place to ice. This ice was the top edge of two snow-slopes, which descended on either side of the arête. The ice was covered with two inches of rotten snow. We cut about 150 steps up it. Regular graves they were; but we had to descend the same way, and a slip would have been fatal. We were an hour upon this ice. Above it were more rocks, all very rotten, but we scrambled up them somehow, and reached the edge of the crater at 4.40 P.M. Aneroid 7,650 feet. We had been eight hours upon the arête. Although on the edge of the crater, we could see nothing. It was full of clouds, and clouds were rapidly forming about our arête, so we made haste to descend, and reached camp at 10 P.M., where we found 'Shorty' and Lyons on the point of starting out to see what had become of us.

Two things had been gained by ascending this arête.

1. We were agreed that it was not the correct route.

2. We had seen from high up on it that the arête of the day before was not so steep near the crater as it was further down.

During our absence to-day Lyons had had a successful chase after some ptarmigan with sticks and stones. He cut one head clean off with a beautiful shot with a stone, and he procured in all the hen-bird and seven of her young. Bears had visited the camp whilst the men were sleeping, but no harm had been done.

Notwithstanding our birds, we found that our supply of food required replenishing, our appetites were so large. We therefore crossed over the next day to Coal Glacier Camp and got more stores. Broke was absent, and I remember that we found a lovely pudding of rice and raisins which he had laid aside for supper. This we took with us, and thought kindly of him when we ate it on the other side. On the afternoon of this day we made our preparations for a final attack on the mountain. We scarcely expected to succeed in getting to the top, for we had now become convinced that 'Shorty' and Lyons were not capable of climbing the arête, and without their help we could not carry up tent, food, and

blankets sufficient for a night or two above the crater. We determined to get as high as we could. We found some marmots amongst the rocks, and these we killed with our ice-axes, and afterwards stewed. A curious spectacle we presented as we made our way up the steep snow-slopes towards the col. We all carried our usual packs upon our backs, but besides these, Lyons bore in one hand a kettle containing the stewed marmots, and I carried a coffee-pot full of stewed California figs. The juice from these figs leaked from out of the coffee-pot and dyed the snow along our route. Our *bête noire*—the kerosene stove—was still with us, and was borne to its last resting-place. Our other bugbear—the camera—which had always to be carried by hand, we left at Hoof Camp. We ascended to within a few hundred feet of the top of the col, and camped upon a small patch of stones. We lit our stove, and found that it refused to boil soup under half an hour, although we supplemented the fire with wood split from off a box. Harry and 'Shorty' expressed a wish to return to the lower camp rather than remain up in the cold with us, so we let them go. 'Shorty' had a grand fall at the steepest place, where the snow ceases and gives place to stones. He threw away everything he was carrying, and then fell down the slope himself. 'Shorty's' account was: 'I seed I must fall anyways, and if I didn't fall right there, I must fall into the mōre-rain in front, so I dropped my axe, and then dropped myself.'

We had brought up a large tent, and we used it as a counterpane—that is to say, we lay upon the ground, and covered ourselves over with the tent. This is by far the warmest method of sleeping.

Next morning, August 2, we had a final swear at the kerosene humbug, and left our sleeping-place at 4.40. We kept going until we arrived at the lip of the crater. No difficulty—simply grind, grind, grind, over rocks of loose shale and slate. We kept along the edge of the arête the whole way. Near the top we found a few stray boulders of conglomerate, and a little higher up some rocks of sandstone, to climb which we deviated from our straight course. We could not neglect one of the few bits of real climbing which we were likely to get. At 7.10 we gained the edge of the crater by means of a short 'chimney.' Here we halted ten minutes to sketch, and then continued along the brink to the summit of the arête which we had ascended on July 30. On the side of the crater upon which we were, snow-fields descend into the crater itself, at the bottom of which is

nothing but snow and ice. The opposite side consists of steep rocks from 2,000 to 3,000 feet high.

Every here and there upon these rocks are small glaciers, splashed, as it were, upon them, and apparently fed from nowhere. They look ready to tumble at any moment into the crater. These overhanging glaciers are characteristic of the neighbourhood. There they are—right on the rocks with yawning crevasses perhaps upon them, or broken up, and ready to topple over upon you—but why they should be there, or what they are doing, is a mystery. They hang quite unconnected with any snow fields above. Perhaps in another few years they may have melted entirely away. The summit of St. Elias seen from where we were appeared quite close—just over the upper lip of the crater. This upper lip, which is to the north, is 2,000 feet higher than the southern and lower lip on which we were. To get on to the upper lip we bore across snow fields and up to some schrunds, which threw us somewhat out of our track. Then, when the snow above the highest of these schrunds became sufficiently steep to necessitate step-cutting, we left it for the shale to our right. This shale was very steep, and slipped downwards at every step. It continued up for over a thousand feet. To the right of it was some steep snow leading up to the top of the crater's lip, but it was in too dangerous a condition for climbing. Above the shale are some fine rocks of grey sandstone. These afforded us the second and last bit of rock climbing which we obtained upon St. Elias. Having surmounted these we found all above them steep snow connecting with the couloir to our right. Ten minutes we thought would suffice to get up it, and then we should be upon the upper lip; so we rested awhile for luncheon, and for the purpose of ascertaining the height, which we found by boiling-point thermometer to be 9,990 feet.

After lunch we got on to the snow, and found to our disgust that we should have to cut steps the whole way up, and to traverse the top of the couloir. That on which we were could hardly be called snow. It consisted of grains as large as small peas, quite unhomogeneous, and frozen. Ice was within an inch of the surface, and all was commencing to melt under the heat of the sun. Small slides of snow were continually on the move around us. Near the top the slope was very steep, and there were three small ledges within the last thirty feet. Up here the granular snow was nearly a foot deep, and we had to cut through it to get at the ice beneath. The steps were cut so far apart that we had to kneel in them

first in order to raise ourselves into them. Just at the top we had to take the greatest care, for here there was no ice into which to cut. My brother was in a state of rebellion at the distance he had to stretch from step to step. 'His legs were 'made on a different model from mine,' he said. 'He did 'not possess the reach of long compasses.' However, we got up safely, having taken an hour to do the 175 feet.

On the top we found snow fields stretching around the brim of the crater, with a gradual rise all the time, but with many depressions. These depressions, with their accompanying elevations, were most trying. The snow was very soft, sometimes above our knees; but whenever the grade became at all steep there we found ice close to the surface. Several large crevasses separated some of the elevations from the snow below, and these we had to turn. During one of these turns down over the lip of the crater we passed by a curious cone of rock, in shape like a sugar loaf, and composed of bits of rock, small and of various shapes, but all fitting into each other like mosaic work or a patchwork quilt, and all with flat even surfaces. The cone was about eighty feet high, and forty wide at the base. Williams said that it resembled the volcanic cones of lava which he had seen at Kilauea, in the island of Hawaii. We continued round the brink until we were about due north of the crater—that is to say, we had come more than half way round it. Here we halted to discuss what had better be done. The conviction had been gaining on us as we neared the final peak that we were not destined to reach the summit.

The position of the place where we were was this. To the north was the final peak, with its great western shoulder, to which is connected a magnificent wall of rock rising some 6,000 feet above the Tyndall Glacier. From this wall we were separated by one of the feeders of the Tyndall Glacier. South of us was the crater, and east of us was that part of the upper lip of the crater which rises far higher than any other part. Seen from some places this high upper lip appears as a peak in itself, separated from the final peak of St. Elias by a gap. We were above this gap, but could not see into it. We studied the final peak of Elias closely, considering whether we could sleep out where we were, and continue the ascent on the morrow. But we gave up the idea. We had no blankets, the snow was in bad condition, and a wind was rising.

We estimated the summit to be 6,000 feet above us, but I think now that we were 2,000 feet under the mark. Our

present height was 11,461 feet. We could see that some parts of the ascent would be easy, but that others would be extremely difficult—at least to our party. On the further side of the gap the climber would have first to travel eastwards to avoid an overhanging glacier. He would then climb over rocks and snow to some green ice. At about 1,200 feet above the gap he would come to some comparatively level snow slopes. The route would then be up steep snow and rocks to the edge of what may be called the southern arête of the mountain. This arête runs down from the summit for about 4,000 feet, and there stops. It is not steep, and no difficulty need be apprehended either upon it or upon the east face of the summit itself, unless, indeed, and this is not at all improbable, most of what appears to be snow is in reality ice. Lower down we distinctly saw ice, and it was this which chiefly deterred us from venturing further.

The face of the mountain to the left of the arête, or in other words, the south-west face, is utterly unclimbable. The snow upon which we were travelling is seen from below as a snow-wall fringing the brink of the crater. To the north this snow falls away rapidly to a glacier which runs west and connects with the Tyndall Glacier above its big ice-fall.

From what we could judge during our three weeks' examination of the mountain, we are inclined to think that the next attempt should be made from the north. The mountains all around seem to have on their northern sides more or less gentle snow slopes, whilst the southern sides are of steep rock and glacier. After our return to Yakatat, we were told by George, the second chief, that he and others had seen the northern side of St. Elias, and that it was covered with snow, and was very much less steep than the southern sides. From down upon the Guyot and Tyndall Glaciers the huge wall of rock to the west of St. Elias appears to block all approach to the north of the peak ; but from where we were to-day, and from the top of the arête of July 30, we could see very distinctly that there exists a low pass from the head of the Tyndall Glacier to a glacier on the other side of the wall. This glacier we believe to be part of the Guyot. The pass I speak of lies at the end of the wall of rock, and separates it from a range of hills lying between the Guyot and Tyndall Glaciers. The glacier on the further sides flows around from the north of the big wall.

The panorama we obtained was very wonderful. The distances were immense. Everything was ice or rock. Wherever mountains were absent, flat glaciers were present, stretching far, far away to the horizon, except at one place only, at the mouth of the Yahtsétăh river, and there the sea was substituted for ice. There were many ranges of mountains away to the west, but they were mostly low (6,000–7,000 feet). The Malaspina plateau (*i.e.* the Agassiz Glacier) appeared with its moraines like a huge race course, and the streaks of *débris* at the west end of the course had fashioned themselves into Saturn's rings. The greater portion of this glacier, and certainly nine-tenths of the white ice, comes from between St. Elias and Cook. From the south of St. Elias there comes nothing but ice covered with *débris*. The Tyndall Glacier, again, forms a very small part of the Guyot, but most of the moraine upon the latter descends from the southern slopes of St. Elias by means of the former. The Guyot stretches away out of sight west of the Yahtsétăh river, its central moraine coiling along like a huge snake.

The chief feature, however, in the landscape was undoubtedly the huge rock wall to the north-west. Nothing can be finer than this. It must extend for several miles, while, springing from glaciers, it towers up perpendicularly to a height of 10,000–11,000 feet, of which perhaps 6,000 is above the ice. The summit is broken by several fine peaks, one of which is certainly the most beautiful peak of the district. It is formed, as is also the wall from which it springs, of precipitous rock, very dark, and has just a fringe of snow along the top edge.

The Chaix hills are in the shape of a broad  and are quite apart from St. Elias. At the angle of the there are snow-fields connecting with a short range of hills of reddish sandstone. They run N.N.W., and form a ridge between St. Elias and the Chaix hills. The latter are of grey sandstone; so we have first grey sandstone, then the reddish sandstone, and then St. Elias with its filthy shale and slate. This shale and loose slate spoilt most of the charm of our climb. During our descent to camp along the arête we dislodged so much of the stuff and sent it tumbling away in such clouds of dust that the last man at times could hardly see to walk.

Just at the left of that arête there is a gully from which a cloud of dust is always rising, due to falling stones. When we first came within sight of this phenomenon we were of

opinion that we had found hot springs. We examined the gully carefully through a telescope, and remained of the same opinion, nor did we alter it until we had arrived close to the gully itself. The column of dust is always present —it never ceases. The wind plays upon it as it rises, just as the wind plays upon the Staubbach and other waterfalls, wafting the spray to and fro. The dust rises to a height of more than 2,000 feet, and from a distance causes the gully to appear grey against its darker surroundings.

There is nothing much to say of the descent. The place which we had found worst upon the ascent proved considerably worse to descend. The steps which we had made were partially melted away and had to be re-cut. The flag which had been given us at Sitka we had carried with us as high as we had gone, but as we had found no suitable place in which to place it, we had brought it down again, and we now left it upon the sandstone rocks just below the edge of the crater. It reposes in a vaseline jar inside a meat can beneath a small pile of stones. At 9 P.M. we were back at our sleeping place, and early next morning descended to Hoof Camp, and then to the camp at Coal Glacier. Our food supply was nearly exhausted, so we packed down next day to Goose Camp, where we were met by the men from the beach, who brought with them an ample supply. 'Shorty,' who had been suffering for some days from sore feet and a sprained ankle, almost gave out whilst descending the Tyndall Glacier, so we gave him a day's rest before starting for the shore. Our men had found a better route down to the river, all on the Guyot Glacier, and this we followed. As we passed a lake above Castani, which had been full when we had ascended, we noticed that it was empty, and our men told us that they had found the waters of the Yahtsétăh much deeper on their journey up, and that lake Castani was quite dry. The night before last we, at Goose Point, had heard a rushing sound as of wind through rocks. This, then, was the cause. The lake had burst its bonds, had swamped Castani, which in turn had broken loose, and the water had rushed down to the river and had caused that to rise.

At the place where the river issues from beneath the ice I stayed behind to get a photograph. The others went on along the new route which took them down by the river. Ignorant of this I lost considerable time in trying to find them upon the glacier above, and eventually had to force a way through the thick bush down towards the river, near which I found 'Shorty,' who had been unable to keep up with

the others. A little unwell to-day, and wearied with my hot and trying *détour*, I cursed the last mile or two of that march. I seemed to stumble over every stone and to trip over every bush. My camera always got upon the opposite side of the tree which I was trying to pass. I walked right into a big hornets' nest, and was stung upon the hand and forehead, the pain being so great that I flung down camera, ice-axe, and pack, and fled with a horrible yell from the spot. Then, when I had recovered myself, I had to recover my possessions, which had fallen upon the hornets' nest, and I had to crawl up gingerly to the spot and take them surreptitiously, without disturbance to the insects. 'Shorty' then advised wading the river — he said it was preferable to hornets — so we descended, and were for the next half hour alternately wading up to the hips and crossing mud flats. Even when we had got to camp there was no peace, for the mosquitoes and flies prevented us from sleeping.

Next day we descended to the shore by a slightly different route. It was shorter, but entailed wading up to our chests at one place. It was near here that the men requested me to photograph the party in the water. I found some difficulty in arranging the camera, the legs of which kept sinking deeper and deeper into the quicksands. After exposing one or two plates, I tried to shift my position, but I could not move; my own legs had also sunk, and the broad welts of my boots prevented me from freeing myself. I had to call for assistance, and was dug out.

When we got to the strawberry patch the same scene took place as upon the previous occasion.

Then came the weary walk along the beach to our first camp. The sea was smooth, and we resolved not to trust the weather too far, but to get away whilst we could, so we collected our goods, ran the canoes down the beach, and got out to sea through the surf without shipping any water. By alternate rowing and sailing all night we reached Yakatat the following morning. The men were tired out. The last thirty hours had been very trying. We paddled across to the mainland and pitched camp, intending to remain there awaiting the arrival of the 'Alpha' in preference to staying at Yakatat, where we should be exposed to continual visits from filthy children and dogs. A small cutter was on the point of sailing south with a few miners on board. Williams managed to get away upon it, and very lucky he was, as we others had to stay where we were, waiting and waiting for the 'Alpha,' which never came. We had but very little left

of our provisions, and for five weeks we were mainly dependent for sustenance upon bad fish and clams. At the end of two weeks Broke, 'Shorty,' and Lyons went down to Sitka with some Indians in a canoe, and had rather a rough experience. They heard at Sitka that the 'Alpha' had sailed from that port some weeks previously. The conclusion, therefore, was that she had gone to the bottom. Broke therefore chartered a schooner of 140 tons, which happened most fortunately to be at Sitka, and sent her up to fetch us. There was great joy when we saw her arrive at Yakatat, but our troubles were not yet over. The weather, which up to now had been perfect, changed, and easterly gales set in. Nevertheless, we started out to sea, but, after battling against wind and waves for five days, we sprung a bad leak, which could not be stopped, and were obliged to hurry back to Yakatat, the pumps going all the time, and several feet of water in the hold. The vessel was beached and repaired, and at the end of ten days we again set sail. This time we were in luck, for we just managed to arrive at Sitka before another easterly gale arose. At Sitka we had been given up as lost, and we were therefore warmly welcomed back.

And so ended our expedition. We had not succeeded in gaining our summit, but we had had plenty of adventure in a small way, and had met with no mishaps.

One last word. The next expedition from Sitka ought to be independent of canoes, and of the miserable and unsafe vessels which are the only craft available in Alaska. It ought to go up coast in a seaworthy and reliable ship, and not to run the risk of shipwreck or of having to winter at Yakatat. It may be that canoes are best for landing through the surf, but these can be taken up for the purpose.

Perhaps a few words should be added about the desirability of taking Swiss guides. The summer of 1888 was most exceptionally hot in Alaska. Where we found ice there would probably be snow another year. The condition of the mountain, as we found it, was such that I do not believe it could have been ascended, even with guides. I believe that step-cutting would have been necessary for several thousand feet above the point we reached. As regards porters, the Indians will carry 70 or 80 lbs. a day over rough ground, but they cannot climb.