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### Exploration of the Olympic Mountains, Washington

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IN THE SENATE OF THE UNITED STATES.

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JANUARY 8, 1896.—Referred to the Select Committee on Forest Reservations and the Protection of Game and ordered to be printed.

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Mr. SQUIRE presented the following

LETTER FROM THE ASSISTANT ADJUTANT-GENERAL, TRANSMITTING COPY OF THE REPORT OF LIEUT. JOSEPH O'NEIL, FOURTEENTH INFANTRY, OF HIS EXPLORATION OF THE OLYMPIC MOUNTAINS, WASHINGTON, FROM JUNE TO OCTOBER, 1890.

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WAR DEPARTMENT,  
ADJUTANT-GENERAL'S OFFICE,  
*Washington, January 7, 1896.*

SIR: In compliance with the request of Prof. Mark W. Harrington, president of the University of Washington, Seattle, Wash., of November 14, 1895, returned to you with letter from this office of December 3, 1895, I have the honor to transmit herewith a copy of the report of Lieut. Joseph P. O'Neil, Fourteenth Infantry, of his exploration of the Olympic Mountains, Washington, from June to October, 1890.

The photographs, map, and reports of members of the Alpine Club, referred to therein, were not received here with this document from the headquarters Department of the Columbia, and the department commander says the report of Lieutenant O'Neil on this subject, of 1885, is not on file at his headquarters.

Very respectfully,

J. C. GILMORE,  
*Assistant Adjutant-General.*

Hon. WATSON C. SQUIRE,  
*United States Senate.*

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VANCOUVER BARRACKS, WASH., *November 16, 1890.*

The ASSISTANT ADJUTANT-GENERAL,  
DEPARTMENT OF THE COLUMBIA,  
*Vancouver Barracks, Wash.*

SIR: I have the honor to submit herewith my report of the exploration of the Olympic Mountains, Washington.

On the 9th of June, 1890, under direction of the department commander, I left this post to visit the Sound, in order that I might make such preparations for the trip as were possible. At Port Townsend I engaged the steamer *Enterprise* to tow a covered scow down Hoods Canal to Union City. I had procured a scow large enough to carry the entire party and outfit. This service was not rendered. An accident

happened which left her in an unfit condition to perform the service, and I was, on my return, forced to hire another vessel. I made diligent inquiries to gain all information possible; but little had been done toward the exploring of these mountains since my trip of 1885. The Seattle Press, however, had sent out an expedition in December, 1889. I anxiously awaited this report, which was promised me. Their full account was published in the issue of July 16, 1890.

It was a mistake to send out such an expedition at such a season of the year in such a country. This party spent six months or about that time in traveling up the Elwka and down the north fork of the Quinaiult to the lake. An idea can be had of the progress they made by a comparison with our trip up the Quinaiult. They were seventeen days in passing over ground which we passed over in not quite three days. Their work, though performed under the most difficult circumstances, is very nearly correct, as long as they confined themselves to recording notes of the country actually passed over by them; but their mistakes of some landmarks render the general map of the country which they publish not entirely correct. As I had been over the northeastern section of this peninsula before, under direction of General Miles, my desire was now to penetrate from Hoods Canal to the Pacific.

The plan I submitted to the department commander after my return from the Sound, June 16, was to go up the Skokomish River to its head, to try to find the terminus of my trail of 1885, then to proceed westward, coming out at the Quiets River, Grays Harbor, or whatever point I could make. The intention was to make one main trail—detached parties sent in various directions were to discover as much as possible of the surrounding country. This plan was approved by the commanding general and followed. There is a trail over which mules carried from 100 to 200 pounds each, from Hoods Canal to Grays Harbor via Lakes Cushman and Quinaiult. This trail is about 93 miles in length, and was in itself an herculean undertaking. No one not conversant with the nature of this country—the windfall, the tangled undergrowth, its steep, almost precipitous character—can appreciate the immense amount of patience and labor spent on this comparatively small portion of the work of the expedition.

In this regard I can not mention too highly my appreciation of the energy, push, and interest of the Board of Trade of Hoquiam, on Grays Harbor. At a very large outlay of capital they hired a gang of men to cut a trail from their city to connect with and meet my trail in the mountains, and of this 93 miles of trail fully 30 was cut by them. Too much credit can not be given to the men who accompanied the expedition. These men I had spent much time in selecting, and in every way came up to my expectation. Of Sergeant Marsh, Company G; Sergeant Yates, Company B; and Private Fisher, Company G, I feel called upon to make special mention. Any direction I gave them I felt sure would be executed, and that promptly. Private Fisher I made an acting corporal, and he was placed in charge of detached parties, and after the departure of Prof. L. Henderson, the botanist, was acting in his place. The party consisted of Sergeants Marsh, Yates, and Haffner; Privates Barnes, Kranichfeld, Danton, Hughes, Higgins, Fisher, and Krause. Private Krause had a severe attack of rheumatism, brought on by the continuous exposure and rain, and was incapacitated for service and sent back. He was relieved from duty on the 8th of July, but was unable to leave until about the 20th.

At Port Townsend the representatives of the Oregon Alpine Club reported to me. I showed the letter of instructions sent to me, and all

agreed to its provisions and promised compliance. The representatives were B. J. Brotherton, naturalist; L. Henderson, botanist, and N. Lindsay, mineralogist. After the departure of Private Krause Mr. Church, a settler, asked to join, and as his services were voluntary I allowed him to accompany us, and he more than made up for the man I had relieved. J. Church, M. D., was added to the strength of the party on the 25th of July. M. Price, an employee of the quartermaster's department, accompanied the expedition in the capacity of chief packer. At various times, actuated by the absolute necessity of the case, I employed men as packers. These were professional carriers of Indian extraction, and were engaged when we were forced to have more supplies than we could carry on our backs at a certain place by a certain time. A matter of great importance was the foraging of the animals—these had very severe labor when employed—and as grazing was not to be had in the Skokomish Valley they were kept back at Lake Cushman, or at Hoodspout, as much as possible.

Mr. Price, the chief packer, deserves great commendation for his watchfulness and care of the pack train, and it is due to him that in crossing one ford of the Skokomish River that we did not lose four of our best mules. The current carried them under a drift of logs, he plunged into the river, cut the ropes and freed the mules, and got them once more in quiet water. Three mules were the only casualties of the trip, and it was simply providential that to so large a party crossing so rugged a country no injury other than a broken finger was received. There was one mule branded, "B. C.," which we thought recorded his date of birth, on account of cold and exposure gave out; a good camp was selected and he was abandoned. Another mule, Sorais, fell from the trail and rolled into the gorge of the Quinaiult River; she had no bones broken, and we endeavored to save her, but all efforts were fruitless. The third, called "Weakback" maddened by yellow-jackets' stings broke from the trail, and before she could be stopped plunged over the precipice in the wildest part of the canyon of the Quinaiult.

Following the custom of explorers, I gave names to such places as I thought proper. I took the liberty of calling the main range of mountains the Gibbon Range, in honor of the commanding general. The northeast district, which is separate and includes the Jupiter Hills, the Miles Range, in honor of Maj. Gen. N. A. Miles, United States Army; the third range, the Hoquiam Range, after the enterprising city of Hoquiam, Wash. Mount Anderson, the most important mountain next to Olympus, after Col. T. M. Anderson, Fourteenth Infantry. Two lakes at the head of the Ducquebusch received the names of Francis and John. A few mountains were christened. All names are carried on the map.

In the following I have arranged: First, the report of the principal incidents of the trip; second, my remarks and conclusions after careful examination; third, photographs. I also submit translations of the names of some rivers and places. The meaning of the names of the others I could not get. All rivers were named by the Indians who inhabited the country at their mouths. Also a few legends relating to this country, which show why this country was not well known to the Indians. The reports of the members of the Alpine Club are hereto appended.

Very respectfully, your obedient servant,

JOS. P. O'NEIL,  
*Second Lieutenant Fourteenth Infantry,  
 Commanding Expedition Olympic Mountains.*

## REPORT OF THE EXPLORATION OF THE OLYMPIC MOUNTAINS.

On the 24th of June a pack train under charge of Sergeant Marsh, Company G, Fourteenth Infantry, accompanied by Packer Price and Private Barnes, left this post en route for Fort Townsend. The next day, the 25th, the remainder of the party, consisting of Lieutenant O'Neil; Sergeant Yates, of Company B; Sergeant Haffner, Company D; Privates Dauton, Company K; Fisher, Company G; Higgins, Company F; Hughes, Company E; Krinichfeldt, Company B, and Krause, Company E, all of the Fourteenth Infantry, took their departure, and on the 27th arrived at Fort Townsend, without anything of importance occurring. As before mentioned the steamer *Enterprise* had been engaged to convey the party to Union City, at the southern extremity of Hoods Canal. The day before our arrival an accident occurred by which her boilers were rendered unfit for use. A delay occurred in trying to get another steamer. We finally succeeded in chartering the steamer *Louise*, of Port Hadlock Mills.

On the 1st of July we steamed out of the Port Townsend Harbor, and after an allnight run landed at the mouth of the Lilliwaup Creek, about 6 miles from Union City. There being no dock, and the steamer unable to land, we were forced to transfer our supplies to the shore with small boats, and to jump the mules from the deck and swim them to the shore. This was accomplished without loss. The provisions were secured in a dry place under the bank until the pack train could move with the first load. As we were able to carry only about a quarter of our supplies a trip, we shipped the remainder up the creek to Mr. Taylor's ranch, to be stored until we could remove them.

The pack train in the meantime had been sent forward, lightly loaded, over the trail to Lake Cushman. The trail was represented as being good, and the lake only 6 miles distant. Thinking that the trip could be easily made in a few hours, nearly all the men had been sent ahead to clear what obstructions there might be, while three packers followed with the train.

The trail had been entirely misrepresented and was very difficult to travel; the almost perpendicular hills, heavy windfalls, miry swales, and to add to this the freshness of the mules, newness of the ropes and aparejos causing the packs to constantly slip, rendered this day's march about the most difficult of the entire trip. The party ahead had been almost worn out in trying to clear the way. To add to the disagreeable features of the day, heavy rain began in the morning and conscientiously followed us the entire day. About 9 o'clock that night camp was pitched in a swamp, as it was too dark to proceed any farther. Owing to the constant slipping of the packs, the falling of the mules, and heaviness of the trail, we had made about 2½ miles this afternoon.

Early the next morning, July 3, the march was resumed, and Lake Cushman reached about noon. This lake is a beautiful sheet of water, nestling under the rugged peaks of the first range of mountains from the canal. It is about 1½ miles in length by 1,000 yards in width and about 200 feet deep. It abounds in fish, the principal variety of which are the brook, lake, and bull trout.

Some five or six years ago a man named Rose squatted on a quarter section on the edge of the lake, and made for himself a beautiful home. Others have followed, and there is now no section of land not taken up or squatted on within 3 miles of the lake, or between the lake and Hoods Canal.

Rose had built for himself a raft on which he ferried his animals across the lake, and we were forced to hire this old and water-soaked collection of logs to cross or spend two weeks in cutting a trail around it. All our provisions, men, and animals were thus ferried across, and camp was pitched on the west side of the lake in Mr. Windoffer's field.

The pack train was sent back to the Lilliwaup for another load, and were thus kept busy until the 9th in moving up the stores. The trail cutters were set to work on the trail, which was cleared for a distance of about  $2\frac{1}{2}$  miles from the lake.

The Fourth of July was observed, the usual order "all duty other than the usual guard and fatigue will be dispensed with," the result of which was a great increase to our larder, and among the others, Professor Henderson especially distinguished himself by a catch of a hundred trout, fine, large, beauties, in a few hours.

On the 5th, three mules were taken from the pack train to move the necessary bedding and provisions for the trail workers. Scouts were sent out to prospect for a trail up the Skokomish River, while I went back to find out the condition of the trail to Hoodspout, with a view of changing the route by which supplies would be brought in. This trail was found to be a good one, and was used by us from this time forward. The scouts sent out to prospect for the trail met with no very encouraging success, and the necessity of forcing our way through the dense forest and over precipitous bluffs dawned on us and placed us all in no very sanguine mood; and to add to the discouragement, an incessant downpour of rain had followed us from the time we left the Lilliwaup.

On the 6th, Mr. Church, a young man who had come out from the East, and had some time before taken up a squatter's claim, wishing for experience, asked to join us. And I, anxious for the assistance of good woodmen, readily granted it. He continued with us throughout the trip.

July 7, a trail had been cut a distance of about  $4\frac{1}{2}$  miles, and Camp No. 2 there established. This camp is about 500 yards from a camp occupied by a set of miners. These men are now developing a copper mine. Some years before prospectors found hematite at this place and took up claims, expecting to develop an iron mine. In their work they came across small pockets of copper, and they are now developing, expecting to find a paying copper mine. The formation there is sandstone and slate, with veins of porphyry. The copper is found in these veins of porphyry.

At Camp No. 2 a bluff jutting into the river stopped further progress, and after vainly endeavoring to get around it we were forced to bridge the face of it. This was done by felling trees from the top in such a manner that they would lay so that when covered with dirt and boughs they formed a ledge of sufficient width to allow a mule to pass. The entire strength of the party was occupied for four days and a half in building this bridge, but it was done in so-substantial a manner that this piece of road, which some miners were afraid to cross, did not even delay the pack train. By the 10th all supplies were brought up, and were cached at Camp No. 1.

By the 11th of July a trail had been cut to Camp No. 3, a distance of about 7 miles from Lake Cushman. By this time we had passed several rough fords in the stream, and the water being quieter and more shoal, we undertook to travel up the bed of the stream in preference to cutting through the fallen timber. Our first trip over this new kind of a trail nearly drowned for us two of our best pack mules, and cost the loss of the supplies they were packing. We were forced to leave the river and continue to hew our way through the woods.

At Camp 3 I began the practice of sending out exploring parties, while the eight trail workers continued on the trail. Thus the party, while continuing to progress toward the center of the mountains, were enabled to discover the country on either side of the trail, and to locate prominent points called observation peaks. The first of these parties was formed by Professor Henderson and Private Fisher, the botanists. They ascended a peak on the left-hand side of the Skokomish Valley, about 10 miles from Lake Cushman. From this point they could locate Union City and Hoods Canal on the south and east, and the head of the North Fork and the Skokomish River to the north and west.

On the 14th Camp No. 4 was established in a little basin about a mile below the falls of the river, at the east extremity of what is called the Canyon. Here another cache camp was made, and while the packers were bringing up supplies, the remainder of the party, trail makers and all, went out to look for a way over or through this canyon to make the divide.

The most dangerous part of the trip was experienced in scouting for trail and securing observation points, and this was no exception. Two civilians, out for a few days' hunting, had joined us and went with the party prospecting the North Fork. They were hardy men and good hunters, but they made no more requests to accompany any of our scouting expeditions.

The party of the North Fork, after very severe labor, succeeded in reaching a point we called Bruins Peak, and from here we gained first sight of what we then believed to be, and afterwards discovered was, the East or Main Fork of the Quinault River. This part of the country is very peculiar and deceptive. The main direction of the Skokomish River from its head to the lake is almost east—to be more accurate, 12° south of east. About 11 miles from the lake, a branch called Jumbos Leap, comes in from the south, while a mile above this junction a branch comes in from the north. This last is the largest of the streams and a true main branch of the river. The North, Middle, and South forks are fed by numerous small streams and rills, each of which is separated from the other by steep, precipitous hills. This renders the country not only difficult, but dangerous for travel. After four or five days a route was blazed across the South Branch of Jumbos Leap, past the falls, to another supply camp called No. 6. This was about a mile above the junction of the North and Middle forks.

The making of this trail was one of the most difficult and hazardous pieces of work of the entire trip. After cutting a zigzag trail up the steep side of the canyon and cutting through the woods about a mile and a half, we were confronted by the torrent of Jumbos Leap. This turbulent little stream rushed through a canyon not more than 80 feet in width and 80 feet in depth, and whose sides were perpendicular rock. Our scouts had crossed this by swinging to a tree which grew about 2 feet from the side, and, sliding down that, crossed the stream on a tree which we felled, and climbed the other perpendicular side with the assistance of trees and overhanging vines.

It was a difficult problem to cross our pack train, and we spent nearly a week in trying to bridge this, as there was no means by which to get around it.

The workers' camp had been moved from the supply Camp No. 4, to this point, which we called Camp 5. In bringing the supplies to this camp we had the first serious accident. Many mules had fallen and rolled down the steep hillsides, but none had heretofore been injured. On this move one of the best mules of the train, on the second pitch



of the canyon hill, lost its footing and rolled to the bottom. When we got to her to relieve her of her load, we found her hind quarters so severely injured as to render her unfit for service for some time.

While at this Camp 5, a party consisting of Judge Wichersham and several members of his family came through with the intention of penetrating the mountains and coming out on the other side at Port Angeles. The Judge had been up the summer before, and had mistaken the North Fork for a pass, and thought it led direct to Port Angeles. His party, however, did descend the Dosewallips and, after almost incredible hardships, reached Hoods Canal and civilization. They were in the mountains about twenty days.

From this camp Mr. Church and Mr. Brotherton were sent to explore the main South Branch of the Skokomish River from its head to where it empties into the main river, a few miles from the Skokomish Indian Reservation. We had been misinformed as to the size and length of this stream, and acting on the information received they had carried with them only three days' provisions. It took them, however, fifteen days to make the trip and they suffered somewhat from the scantiness of their larder.

The South Branch of the Skokomish is similar to the North, except that its valley is wider and contains very few narrow gorges. Its tributaries are very small until near its mouth, where it receives a very good-sized stream.

Meanwhile the trail workers had been kept steadily at the bridge, and after many failures succeeded in building a substantial crossing. The pack train was enabled to move the working camp to Camp No. 6. Here the same difficulty presented itself as faced us at Camp No. 4. We first made the attempt to work the trail up a ridge which lay on the divide of the Quinault River; and having cut over a mile trail up the steep hillside, the scouts returned with the information that it was impracticable to proceed farther with animals. All men were then taken from the trail and exploring parties sent out in every direction. After an absence of nine days a party composed of Sergeants Marsh, Yates, and Fisher returned with the information that a route had been found to the head of the North Branch of the Skokomish. Here it was possible to gain the divide and descend to some valley on the other side. They were unable to tell whether this valley was of the Quinault, Elwha, or Duckbush. Up to this time we had no fresh meat, except a deer or a bear, which had been killed by former scouting parties. This party, however, ran across a band of elk, and killed several. Leaving Fisher to dry the meat, the two sergeants hastened back to report their success and show their spoils. All hands were immediately placed on the new trail. At Camp 6, we regretted the loss of Professor Henderson, who was called home on urgent private business.

During the next twelve days no incident of importance occurred. All hands were busy on the trail, except Packer Price and his two assistants, who were engaged in bringing up the supplies.

During this time we had several times sent back for supplies, our bacon having run short on account of the scarcity of game, and much wastage and loss was occasioned by the numerous falls of the mules while fording the streams, or losing their footing on the sidehills.

The clothing of the men and their foot wear had also to be replaced.

On the 16th of August we arrived at Camp 9. Here we prepared to split up the main party, send off smaller expeditions, while sufficient numbers were left to carry the pack trains to the center of the mountains, where the smaller parties returning would report.



The Skokomish River, from the head of the North Fork to the lake, is a turbulent stream—a torrent at times, full of falls and rapids, until within a few miles of the lake. It is about 25 miles from its head to the lake. The Middle and South Forks are short streams, and their only interest is their turbulence. The Skokomish River, from the lake to its mouth, is a very fair-sized stream, averaging in depth from 4 to 5 feet. Its great drawback is a gorge filled with rocks and bowlders, through which it rushes. It is joined a few miles above the Skokomish Agency by the South Fork.

The formation of the upper river is massive slate, coarse sandstone, and a sprinkling of barren quartz and porphyry, carrying no mineral, with the exception of a small quantity of iron and the copper before referred to. The timber growth consists of fir, red cedar, Alaska cedar, hemlock, mountain hemlock, white pine, alder, and vine maple. The principal berry shrubs are of the heath, rosaceæ, and gaulthéria families. There was only one food plant found in the valley, which was a *pucadenum*, of the umbellifera family.

There was great difficulty in procuring forage for the animals. It was necessary to keep them back at the lake as much as possible, where they could get grass. The charges here were so exorbitant that I kept them at Hoods Canal as much as possible. We found no grazing until near the head of the North Branch, and even here it was dangerous to allow them to graze, as our botanist had found poisonous stager weed (*Acconite montanus*).

Having come within a day's march of the divide, and feeling now that there was no doubt of the possibility of crossing it with a pack train, directions were given for the various parties to start on their respective trips. Mr. Church, with one assistant, was directed to proceed to the head of the South Branch of the Skokomish, from thence to the head waters of the Satsop, to cross thence back westward, until he reached the Winooche, to go down that stream to its mouth, then to go up the Whiskan to its head. Mr. Brotherton, with Sergeant Yates, was sent down the stream first seen by the party of sergeants, while prospecting for a trail, and which I afterwards discovered to be the Duckabush, and to also find the head waters of the Dosewallips.

Taking Privates Fisher and Danton, I started out to find the head of the east or main branch of the Quinault, to follow that stream to the lake. From the lake we were to cross over to the head of the Hump-tolips River. The thorough exploration of this stream was not at first considered necessary, but the conflicting reports as to the source of the stream, the mineral wealth, the timber and agricultural lands, the general characteristics of the country, together with the communication from the assistant adjutant-general directing that if possible a thorough examination of the Hump-tolips and Whiskan be made, decided me to make as accurate a map and gain as good a knowledge of the country as possible.

Mr. Church had very rough experience, his assistant, Dr. Church, who had recently come from Washington, D. C., had volunteered his services and was sent on this trip. Mr. Church once, while trying to scale a bluff overhanging the west fork of the Satsop River, lost his footing and fell several feet, and though his injuries were not severe, he lost much of his provisions, ruined his compass, and was left in an almost destitute condition. For five days they were forced to exist on berries or whatever other food they could find. The doctor had his first taste of shoe leather as a food. After many severe trials the mouth of the Wonoyche was reached. The doctor, who had been crippled, was

left at a farmhouse, while Church proceeded as best he could up the Whiskan. He was assisted much by the kindness of the settlers, who have taken up all surveyed land in that district.

This party reported their trip as having been very severe; that the country around the head of the south branch of the Skokomish is very rugged and of no use except for timber. The Satsop River is formed by the junction of five small streams, these formed from numerous creeks and rills. The Wynooche rises back in the mountains, and is formed from many small streams. The Whiskan does not extend as far back as the mountains, and has been surveyed almost to its head by or under the direction of the Government, and all sections laid off taken up either under the timber law act, or homesteaded, or pre-empted.

The incidents of the trip undertaken by me and our two men were as varied and dangerous as those of the other parties, and a few words will suffice to illustrate the character of the country. Camp No. 9 in the Skokomish Valley, was the cache from which all parties started. This was situated about 5 miles from the headwaters of the Forth Fork in the creek bottom. About 2 miles away was the summit of the ridge—the divide of the Skokomish and Quinaiult rivers. The top of the divide was 3,500 feet above our camp.

At 5.30 a. m. we started, loaded with 50 pounds a man. The hillside was so precipitous that were it not for the huckleberry bushes, which grew in great profusion, we would not have been able to have made the ascent. At 11 a. m. we had accomplished 2,000 feet. We had come to a perpendicular cliff of slate; our only hope was to find some place to scale it. There was no possibility of gaining the height at any other place; careful inspection showed a ledge, some places nearly a foot in width, others hardly 6 inches. This we essayed, and after hanging to this frail support for nearly an hour and a half, we finished this first part of the climb by 1.30 p. m., having gained nearly 2,500 feet. By the side of a small lake we took a rest and lunch, then again the perilous work. At 5 p. m. we first sighted the Gibbon Range, with its snow-crowned peaks, from the summit of the long-wished-for Quinaiult Divide.

Descending into the valley of the Quinaiult we caught an elk trail. Following this some distance, passing a huge sugar-loaf mountain standing alone, we came to where a mountain, almost denuded of timber, seemed to be the home of bear and elk. One of the strangest freaks I have ever seen forced its unwelcomed strangeness on us. An elk trail as broad as a wagon road, as well beaten as a towpath, stopped abruptly at the edge of a precipice. How many elk had been fooled as we were? This nearly cost the life of some of our party. We attempted to climb down the promontory-like cliff, but after a short distance were forced to seek the bed of a dry creek; this, after we had followed it for some time, ended in a fall of some 50 feet. Toiling back, clinging to every bush, we finally reached a place where a smaller stream joined. From this we made our way to the bed of the main stream. Selecting as level a place as we could find we camped, as it was now dark. Early next morning, again trying to reach the river bed, Private Danton nearly lost his life. He was swinging to a ledge on a cliff when his feet caught, and but for prompt assistance would have been thrown below.

A little before noon we reached the bank of the Quinaiult River. This river heads at the base of Mount Anderson. On Mount Anderson are three glaciers; from these, streams are formed which form the main stream.

Mount Anderson, if not the highest, is as important as any mountain in this district. It is the most prominent peak—much more so than Mount Constance—in the southeast part, and at its base four of the most important rivers rise, viz, Quinaiult, Duckabush, Dosewallips, and a branch of the Elwka. It stands the second peak in Gibbon Range and bearings can be taken on it from any point in the mountains.

After a very heavy tramp of five days we reached Lake Quinaiult. This is a sheet of water about 5 miles in length, by 3 in width, and is very deep, many places 300 feet or more. It abounds in fish, and the Quinaiult salmon—found only in this lake and river—is said to surpass the famous chinook of the Columbia. Trout of all kind abound.

The country of the Quinaiult is very different from that of the Skokomish, the bottoms are much wider, the stream is not as turbulent, nor canyons as numerous. After the junction of the North and East Forks, about 10 miles from the lake, the river becomes a large-sized stream, in spring very rapid. It was just below the junction that the party sent by the Seattle Press met with an accident, by the capsizing of their raft, which nearly ended in disaster. The North Fork is a stream nearly as large as the East Fork, rising just south of Mount Olympus. It has very little bottom land and is very boisterous. The valley from the junction is well adapted for agriculture. It is fertile bottom land, about 3 miles in width.

After spending a few hours as guests of a Mr. McCalla, which time was used in inspecting the lake and trying to get a photograph of it and the peak which stands like a sentinel over it, we started for the Humptolips River. After a three-day jaunt we reached Humptolips City. This city has two houses and a name. Here I sent Fisher and Danton up the East Fork while I with an old trapper explored the North Fork. We spent altogether twelve days in this section, and then crossed over to the Hoquiam River.

My completing the Humptolips and the Hoquiam, finished the rivers on the southern slope of the mountains. A few words may give an idea of its resources, the resources of the country south of the main mountains. This extends from the Pacific Ocean to Hoods Canal, a distance of 65 miles. On the south it extends to the Chehalis River, a distance of about 25 miles. The soil, except in the southeast corner, is adapted for cultivation wherever cleared. The southeast, however, is very rocky. Timber is to be the great production for many years, and the supply does seem inexhaustible. The principal trees are fir, pine, red cedar, larch, alder, water maple. The red cedar and fir, however, are the most numerous. The soil where it has been cleared produces the first season, and requires but little cultivation.

There are some small patches of ground bare of trees, called prairies; these have all been taken; in fact, all surveyed land has been settled on and many squatters located on unsurveyed sections. But there is a great evil, one that will injure the development of the country; that is, large tracts of land controlled by one person or corporation. A large amount of this land is so controlled; three townships on the Humptolips has thus been kept from settlement. Besides this many other tracts are held from settlement unless settlers pay about three times the amount, or more, than that charged by the Government. This entire strip of country, about 60 miles in length by 25 in width, is what might be termed a rolling country, heavily timbered, but when cleared, very good agricultural land.

When we arrived at the Hoquiam River, we found it so affected by the tides that at high water steamers could navigate it for about 12

miles. At what is called the Hoquiam Landing, we found a small steamer and a party of engineers of the Northern Pacific Railroad under charge of Mr. Davis. They had been prospecting a route for a road from Grays Harbor to Crescent City or some point on the Straits. A point at or near Crescent City was thought by them to be the best point for a terminus. The road was found to be practicable. We traveled together on the steamer until Hoquiam was reached, where we separated, their party going to Aberdeen while we remained in Hoquiam to pass Sunday, as no means of transportation could be had.

The people of Hoquiam were very civil and hospitable, and made our stay very enjoyable. The day was spent in looking over the harbor and country around.

The resources of Grays Harbor are very great. Not only the country before spoken of, but the entire west coast north of it must here seek an outlet. The harbor is a good one. It has had very little assistance or work, yet vessels drawing 16 feet have sailed in.

It was now the 31st of August, and an immense amount of work remained, and I feared that I would be forced to abandon and send back the pack train for the sake of putting all men to work exploring, but the Board of Trade of Hoquiam offered to finish a trail into their town if I would use it. I accepted their offer, provided it was finished by September 25. I then started for Union City by steamer and rail. It would have taken me two weeks to have retraced my steps, whereas I could reach my mountain camp over my trail in a three days' march.

Mr. Brotherton and Sergeant Yates had a rough trip. They had followed the Duckabush divide, discovered the head of the Dosewallips, and traced the course of both streams to Hoods Canal. Judge Wickersham's party had gone down before them, and had come out at the mouth of the Dosewallips some few days before. This latter party had suffered considerably from lack of food; one of the party had been poisoned, and was swollen almost beyond recognition.

There are only a few miles on the east side of the mountains—perhaps will average 5—fit for cultivation, the remainder steep hills or deep canyons. A large quantity of good timber is found, all of which is proved up on and sold to mills, but from the entrance of the canal little else of value is discovered. At the head of the canal the Skokomish Indian Reserve is laid out and inhabited by about fifty Indians. This is excellent land, and raises fine crops of hay, besides many cereals. These Indians are civilized, live in houses, own and cultivate farms, and are seemingly very prosperous; but their morals are the Indian morals—they are suffering from the effect of their animal life. In a few years they will be extinct.

The streams on the east side of any importance are the Skokomish, Duckabush, Dosewallips, and Quilicene; the minor streams are the Lilliwaup, Eagle Creek, Humma-Humma, and Fulton Creek; these last rise in the foothills and do not penetrate into the center of the mountains. Of all these the Skokomish is the largest and most important.

The mountains are more precipitous on this side; within 5 miles of the canal they are nearly as high as they are in the heart of the mountains. This stretch of country, rough, precipitous, cut by deep canyons and gorges, extends for about 35 miles; this country is absolutely unfit for any use except, perhaps, a national park, where elk and deer could be saved. The scenery is well suited for such purpose, and I believe that many views there are unequaled in the world.

By the 7th of September all parties had arrived in camp. While we had been scouring the country Mr. Lindsay and Sergeant Marsh had

been left with eight others to complete the trail to the foot of Mount Anderson and get up all supplies. This had been finished by September 6, so that we now had an abundance of supplies in the heart of the mountains.

From Mount Anderson we were able to locate Mount Clay Wood, which I had located and named in 1885, while exploring in the northeast section of this district. Mount Constance, or the Three Brothers, can not be distinguished from the interior of this country. It is here where the party sent by the Seattle Press last winter made a mistake by attempting to locate points from these two mountains. They mistook Mount Anderson for the Brothers and probably Mount Clay Wood for Constance, and this miscalculation threw them probably twenty miles out of their course.

From our camp (14) at the foot of Mount Anderson, we could gain a fair idea of the general direction of the various directions of the different mountain ridges. There are three principal directions in which the mountains run, and form that number of distinct divisions.

These ranges were called the Gibbon Range, the Miles Range, and the Hoquiam Range.

The Gibbon Range starts at the southeast corner at Lake Cushman and extends in a northwest direction to near the Quillayute River, where it sinks into low foothills. The principal peaks are Mounts Eleanor, The Brothers, Anderson, McMillan, Olympus, and Lee. The rivers are the Skokomish, Quinaiult, Duckabush, Dosewallips, Quiets, Raft, Ho, all the branches of the Quillayute, and the Elwha. The lakes are Crescent, Quinaiult, and Cushman.

The Miles Range occupies the northeast corner of the district. The Jupiter Hills form the east part of this range. The principal rivers are the Quilicene and Dungenness; there are many small streams and creeks flowing into the Sound and Straits. Its principal peaks are Mounts Constance, Clay Wood, and Sherman; this last peak is now called Mount Angeles by the people at Port Angeles.

Only a portion of the Gibbon Range is visible from the Sound, while nearly the entire extent of this range can be seen any bright day from the steamers. The Gibbon Range shows well from the ocean.

The third—the Hoquiam Range—extends from Mount Anderson southward, then west until it loses itself in rolling foothills near the Pacific. Its northern slope is drained by the creeks flowing into the East Quinaiult, while the Satsop, Wynooche, Humptolips, and also the South Skokomish, drain its southern slope. The Whiskan and Copalis do not take their rise in this range proper, but in the foothills.

On our arrival at Camp 14, on September 6, we were all much worried at the report that it was impossible to proceed with the mules; they would have to be returned. Mr. Lindsay reported that he had used every endeavor to find a way out. In fact things did look gloomy, and it seemed as if nothing without wings could pass from that divide. Old tactics were resumed—every available man was sent out to prospect for a trail. My intention was to get into the valley of the Quinaiult. This meant getting down 3,000 feet from the divide—a feat that nearly cost the life of a man when we essayed it nearly a month ago. That time we had no pack mules to get down. After a search of thirteen days a place was found where, with some work, a trail could be made passable. All hands were set to work. The river was 3,000 feet below us and the descent almost perpendicular, but by zigzagging—making nearly five miles to gain three-quarters—we finally reached the bottom. Camp 15 was made on the Quinaiult side of the divide. From this camp all

extra baggage was ordered back. Each man was allowed one blanket and one piece of shelter tent; an extra pair of socks and one of underclothes was to be packed in each knapsack. One month's provisions was reserved. Sergeant Marsh was ordered to take one man and the packers, bring the stores to Hoodsport, and be back at Camp 15 by the 22d.

We had been much troubled by yellow jackets stinging the mules. The north slope of the Skokomish-Duckabush Divide, over which the trail ran, was so invested with these insects as to render it almost impassable. Numerous small fires were started to burn out their nests. These fires spread and when the train attempted to pass to Hoodsport the trail was almost obliterated. Two of the mules lost their footing and rolled over 100 feet, landing in the creek bottom. When they were again gotten on the trail they were found to be so badly injured that the packs were thrown aside and the mules abandoned. They followed the train as far as camp 6. The orders I had given to the chief packer were, should any mule in falling break its leg to kill it, but if injured and there was any hope of its recovery to try and leave it at any of our abandoned camps, so that if it recovered it could be reclaimed. When we had all gotten out of the mountains I sent Sergeant Marsh back to try and recover the mules and their packs. One mule marked B. C. had gotten as far as Lake Cushman and had died the day before the Sergeant arrived. The other he succeeded in bringing to Hoodsport. It died the day after its arrival.

The pack train on its return made two endeavors to pass this burning hill and failed. The men, discouraged, wished to abandon the attempt, and had a less determined man been in charge we would have been deprived of our pack train. Sergeant Marsh overcame all the difficulties, and returned at 5 o'clock of the day he was ordered to report.

On the 16th of September directions were given for parties to prepare for the final trip through the mountains. Two parties were formed. Mr. Lindsay, the mineralogist, a man who had spent many years in prospecting mountains, was given charge of the party going north. He was to find the source of the Elwha; to place the copper box of the Oregon Alpine Club on the summit of Mount Olympus, if possible; then send parties down the Ho and the three branches of the Quillayute. The party was to assemble some place on the Solduck and make for Port Townsend and await my arrival. This was one of the most important expeditions of the entire trip, and I thought I had selected a competent leader. Mr. Lindsay was given Sergeant Yates, Privates Fisher, Danton, Kranichfeld, Hughes, and Mr. Brotherton, the naturalist. They carried twenty-five days' provisions with them.

I took the other party. Its purpose was to get the pack train to Tade Creek, a tributary of the Quinaiult, where the Hoquiam people were to meet us, then up the North Fork of the Quinaiult, over some of the country explored by the Seattle Press party, to find the head of the Quiets and Raft rivers and follow them to the ocean. The pack train, after we left it, was to follow the trail which had been cut by the Hoquiam people to Hoquiam, and there take steamer for Portland. Coming down the divide was a dangerous piece of trail for the mules. Looking at them from below they seemed like flies coming down a wall. They had become accustomed to this kind of travel, however, and no mishap occurred. Soon we were traveling down the valley of the Quinaiult. The country was so comparatively open that in five days the train was able to make the forks, and for two days traveled behind the trail makers.



The day before arriving at the forks we lost another mule. We had passed the dangerous places on the trail, and were congratulating ourselves on having passed safely through the canyon, when we noticed a commotion among the mules. They had run into a yellow-jackets' nest. Blinded with pain, they broke from the trail; four made for the bluff. We succeeded in stopping three, but one passed, and with one bound was over the edge, and a dull thud told us that she had struck on the first ledge nearly 200 feet below. Under ordinary circumstances I would not have allowed anyone to undertake a climb so dangerous for so little gain, but this mule, in her pack, carried the coffee and some public papers of mine. By the aid of the omnipresent huckleberry bushes I swung down to her, followed by the packer, the doctor, and Haffner, and reached the place where she was held to the side of the cliff by two trees, which she had fallen onto. It was impossible to recover anything except a small bag of rice which had loosened in her fall. Her neck was broken. We continued our march, nothing of note occurring until we separated from the pack train the next day.

The 22d of September was the day we sent the pack train back to civilization, while with Mr. Church, Dr. Church, and a Mr. West I took my direction for the head of the North Fork of the Quinaiult. Sergeant Marsh, with a man named McCarty, was directed to cross the Hoquiam Range and try to strike the head of the Humptolips River. We found the traces of many camps of the Seattle Press exploring party, and comparing their report, which I had with me, I found that it was a very accurate description of the country passed over. Their map, however, is not entirely correct, from the fact that they took bearings on mountains which they supposed were Mounts Constance and The Brothers, which were Mounts Anderson and Clay Wood. These mountains are much farther from the canal than the mountains they supposed they were sighting at. This threw their map and their position much out of its proper place. They must have traveled very slowly, for in three days we passed over the distance that they traversed in seventeen days.

At the mouth of the main canyon we sought to make the divide, but were forced by the steepness of the mountain into the bed of a creek which joins the main stream at the canyon. This creek we called Canyon Creek. Its banks rose perpendicularly from its narrow bed, sometimes to the height of 200 feet. At every few rods cascades varying in height from 10 to 50 feet and the damp walls of porphyry presented a spectacle which might have at any other time pleased us, but now only wearied us. Wet through to the skin, and tired and hungry, we made camp in this rocky bed, having progressed only  $2\frac{1}{2}$  miles since 10 o'clock a. m. The next day a little after noon we made a lunch camp in a beautiful park about 500 feet below the ridge of the divide. After lunch we pushed on to gain the summit, and here we beheld far in the distance the sinuous course of the Quia River wending its way to the ocean.

Mount Olympus, with its forty glaciers, loomed up above the jaggy mountains that surrounded it; its height has been heretofore greatly overestimated. The actual height, as taken by our aneroid while our party was at the summit, is only 7,875 feet, but its immensity make the mountains around it, though they are only from 1,000 to 1,200 feet lower, seem insignificant. The Quia River rises on the southeastern slope of Olympus, but it has large tributaries coming in from the south and the north; its general direction is almost due southwest. Mr. Church and the doctor were sent down this river. Mr. West and myself turned back to find the head of the Raft River. I was much disap-



pointed, expecting to find the Raft one of the largest of the western rivers, that I had passed its source, which was so insignificant that I had overlooked it. On our return we found it and traveled on the ridge some distance to observe it and get its general direction. We then turned eastward to strike a stream on the other side of the divide which we knew to be the North Fork of the Quinaiult, or one of its tributaries. We reached it, but were unable to travel either on the ridge or hillside, and again forced into the bed of the stream.

Down grade is always more dangerous than uphill work. We had several narrow escapes. In the most perilous place we lost our footing and rolled together to the brink of a precipice, where we were stopped by a small tree that had fallen there. The only injury, besides some bruises, was a broken finger. This was the most severe accident that happened to any member of the expedition, and it was providential that traveling with so large a party over so rough a country no more serious accident should have occurred. Once again that day, in descending a place where the water fell about 15 feet, we attempted to slide down the rocks in a shallow part of the stream, of course, intending to go down feet first; but my spike catching in a crevice, I reversed my intention and position, and dove into a deep pool of water. It was fortunately so deep that I sustained no injury, other than breaking my watch and losing all the provisions I carried.

This stream increased in size very rapidly, fed by its numerous tributaries, and I was puzzled to know where it joined the North Fork of the Quinaiult. But what puzzled me more a little later was where the stream we had been following, a rushing, foaming body of water, fully 30 feet wide and from 6 inches to 5 feet in depth, disappeared and as completely as if it had never existed; and for three hours we tramped along in its bed, which was as dry as if water had never touched it. We dug several feet but found no water. At last we had about resolved to make a dry camp, when just in front of us flowed the stream, much larger than where it disappeared. We afterwards noticed a great many of these freaks, the water sinking and again rising some 8 or 10 miles distant.

We had mistaken the location of this stream, for instead of flowing on to the North Fork it makes a curve and joins the main Quinaiult River about 5 miles above the lake. I called this stream the West Branch, for Mr. West. He proved himself a thorough mountain man.

On the 28th we arrived at the lake and were glad to get under shelter once more, for we had been in a drenching rain for three days and nights. After drying ourselves, we started in a canoe across the lake and down the river to the ocean.

The Quinaiult Indian Reservation extends to and includes the waters of the lake. It contains about 30 square miles and about 100 Indians.

The Quinaiult River from the lake to the ocean is about 35 miles in length, but it is rendered this long by the great number of bends, it being a very tortuous stream; with comparatively little expense it could be rendered navigable for steamers. The agency is situated at its mouth on the left bank of the river. It is a rather neat looking village. The Indians all live in frame dwellings, some of which are very comfortable in appearance. There is no agent there at present, and the school superintendent, Mr. Sager, is now in charge. The Indians are well-behaved, orderly, and have attained a higher state of civilization than any I have seen, and they seem contented. One of the saddest sights is the number of Indians that are blind, or nearly so. This is caused to a great extent by the smoke in their shacks.

When we started on the lake in our frail bark the rain accompanied us and was a constant companion during the two days we were paddling down the river; many times we were forced to land and bail out. About 7 miles from the agency the Indian habitations appear; they are spread with great scarcity down the river from this point. We stopped over night at Ha Ha a Mally's place; this place was occupied by Charley High as man Chow Chow and Ha Ha a Mally, and their squaws and papooses. It was any port in a storm, and the rain had given us such a thorough drenching that I was willing to go anywhere. I was agreeably surprised at the neatness of everything, and especially the cooking, the squaws even washed their hands before beginning the preparation of the meal, which consisted of dried fish, boiled potatoes, coffee, and bread. The rain had continued during the night, and was raining torrents when, after a warm breakfast—an unusual thing—we continued our way down to the agency, where about noon we arrived. We were treated very kindly by the superintendent, given dry clothing while ours were drying, and a good dinner. In looking over the reports of prior agents I found the reservation classed as worthless land by many. The present superintendent seems to have inspected it more closely, and agrees with me that this land is exceptionally good.

The Indians are anxious to have their lands allotted in severalty. This would be advantageous, for at present there are very few Indians occupying this immense tract, and none of it is cultivated or worked, except a few acres near the agency. The reservation contains exceptional land and very good timber; there is some swamp land near the center, but it is only about 8 miles in extent.

I had arrived at the agency on the 30th of September. At dinner I was informed that the party under Mr. Lindsay had passed through the day before, on its way to the O He Hut, to take steamer for Hoquiam, so instead of delaying here to rest I immediately started to overtake the party and arrived at Hoquiam on the 1st of October.

The party to explore the northwest section had suffered considerable hardships, and the travel was very rough. I do not feel satisfied, however, by the work done by them, and on account of the early camps made and the time wasted in them, they were unable to carry out their instructions. And I was much disappointed that I had no explorers of my party to go to the railroad engineers' trail at the mouth of the Bogachiel and Solduck rivers, where they unite and form the Quillayute. Still, this lack was supplied by Mr. Davis's notes, which were sent to me, and which I have freely used in compiling my map of this portion of the country.

Mr. Brotherton fixed the copper box, containing records of the trip and records from the pages of the Oregon Alpine Club, on the summit of Mount Olympus, where, I believe, human foot had never trod. From this summit they could descry the Ho in the far distance. Private Fisher, who had been acting, and with much success, as botanist since Professor Henderson's departure, got separated from the party, struck the head of the Quiets, and followed it down to its mouth.

Two days later Mr. Lindsay got on the same river, and having mistaken his bearings, thinking it was the Ho or one of the branches of the Quillayute, followed and got traces of Fisher, who had by that time become convinced that this must be the Quiets. The foot wear of the men, however, had given out, and the rations were low. Mr. Lindsay thought best to bring the party down to Hoquian, where the various other parties I had sent out were to meet. Had this trip no results other than ascertaining the height of Olympus, it would have been a

success, but though it failed in its exploration of the Ho and the Quillayute, it located the head of the Elwha and the Ho—this latter from a distance, however—as I was afterwards able to supply most of the missing data of the Quillayute district. The Ho is the only river of the West that we must pass with no remark.

The country on the west side of the mountains is capable of great possibilities; though the undergrowth is rank and luxurious, and the entire country heavily timbered, it is no more difficult to clear than are the farms of western Washington. There are many patches of so-called prairie land on all the rivers. The river bottoms have very rich soil, and are mostly covered with alder and vine maple in the valleys. All the country will eventually make good farm land. Before this is accomplished many million feet of timber will have been taken from it. With a market for the lumber there is hardly a quarter section that would not almost pay for itself. Our explorations or the reports received from auxiliary parties did not extend north of the Quillayute River, but from that river to Grays Harbor, a distance of about 80 miles, and for 25 miles back, the country is the same as that on the south slope of the mountains before referred to.

I have the honor to be, very respectfully, your obedient servant,

JOS. P. O'NEIL,  
*Second Lieutenant Fourteenth Infantry,  
Commanding Olympic Mountains Exploring Expedition.*

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#### REMARKS ON THE OLYMPIC MOUNTAINS.

In the summer of 1885, under the direction of General Miles, then commanding the Department of the Columbia, I made my first trip into these mountains. The strength of the party was eight men, and we had eight pack animals. We spent about six weeks, when I was ordered back to Leavenworth, and the entire party returned.

That time I started from Port Angeles. The trail was cut from that town southward to Mount Sherman. The name of this mountain has since been changed by the people of Port Angeles to Mount Angeles. Near this peak we found a pass which led across the first ridge of mountains to the head of what we called Hawgood Creek. The mountains of the northern slope, like those of the eastern, come close to the water. The first range is only about 9 miles from the Straits.

The trail from Victors Pass goes straight south until the ridge on the south side of Hawgood Creek is reached; it there tends southeast about 12 or 15 miles. In passing on this trail from the summit of any of the peaks the Dungeness River can be seen, while south of it the most eastern and northern branch of the Elwha runs.

The southeasterly direction of the trail is stopped by a very sharp peak; at this point it turns almost south for about 10 miles, when it was abandoned. On this trail some very fine but small valleys are passed. Game—elk and deer—were found in great abundance, and after passing the first divide, until the slope to this tributary of the Elwha, no undergrowth was found. There are three small valleys that at the time I believed would be valuable for small ranches.

The timber in all sections is much the same. Alaska cedar was found on the first ridge, south of Angeles, near its summit; a few trees of Port Orford cedar were found there as well as on the east slope.

There is, I believe, no precious mineral in these mountains; some few specimens of gold have been found, but entirely placer. Captain White many years ago owned a place on White or Yennis Creek, near Port Angeles. He tried washing for gold. I have lately discovered that he stopped because it did not pay expenses. Gold has been panned on the Lilliwaup Creek in the southeastern section, but only a few colors were found. Old experienced miners prospected this place, and it is on record that a man panned \$1.50 in one day. Even the most sanguine abandoned their prospecting trips. An article was shown to me saying that an assayer had determined that a piece of ore brought from these mountains carried \$200,000 to the ton (estimate of Mr. Everett, of Tacoma, Wash.). I would unhesitatingly pronounce this bosh. Such ore never came from there. I found one man with some magnificent specimens of silver in the mountains. I took him with me, made him all kinds of promises, and at last found out that they were the products of a mine in the Cascade Range. Many unprincipled men have done this and reaped rich harvests from speculators.

Quartz, porphyry, slate, and such gold-bearing rocks abound. In the valley of the East Quinault I found a vein of quartz fully 3 feet thick, but barren. Because quartz is found in gold fields it does not follow that gold is found in quartz fields.

The reason I assign for the absence of precious minerals here is that these mountains bear every indication of being of very recent formation, and I fully believe they are.

There is, however, a ledge of copper. I first discovered it in the Skokomish Valley, and afterwards found traces of it on the Wynooche, Whiskan, and Humptulips rivers; the ledge appeared to be the same, and was in the same formation. Parties are now prospecting this in the Skokomish, Wynooche, and Whiskan valleys. There have been no favorable reports of this yet received. The best indications I saw were at the head of the Humptulips River.

While out in 1885, south of Angeles, I found strong indications of iron. This was of magnetic quality, and its effect on the needle of my compass was marked. I did not, however, at the time examine it, and lost by a mule's fall all my specimens. Though many reports have been sent out about the quartz of coal of this district, I have seen no specimens, nor have I ever come across any indications. I made a diligent search for any trace of limestone and found none. There is in the copper ledge an agate that at first I thought might be some crystal of lime, but the mineralogist decided that it contained no trace of lime. I was also informed that on the Prairie River, a small branch of the lower Quinault, limestone was to be found; but in passing down by it I could see no formation to induce me to waste time in prospecting it, especially while I had three experts who passed within 10 miles of this creek, through a canyon where the walls had been cut several hundred feet, and while they were looking for it did not discover the slightest trace. As I reached Humptulips City great excitement prevailed because of the report that in the canyon, some 20 miles above, granite had been found. I took with me an expert I had sent to me for this special trip. I got down into the canyon, at the imminent risk of my neck, and the nearest approach to granite was porphyry.

There is a great wealth in this district, and that is its timber. It seems to be inexhaustible. A story was told by a man sitting near me in a dining room. He said that they tried to dissuade him from coming to Grays Harbor, saying that there was nothing there, and elk walked across the mouth of the harbor at low tide without wetting their bellies.

"When I came," he remarked, "and found a vessel drawing 17 feet in the harbor and 22 feet of water on the bar, I concluded that a country that grew timber 12 feet in diameter, and elk with legs  $22\frac{1}{2}$  feet long was good enough for me." I could not quite agree as to the elk, but I have measured many trees over 40 feet in circumference, and some over 50 feet. The foothills are nearly all covered with fine fir and red cedar timber. On the Humptolips larch is found. At the head of the Quiets is an immense quantity of red cedar. Should the Alaska cedar in the Skokomish ever be gotten out it will prove more valuable than a coal mine.

As before mentioned, the land in the southeastern corner is not very favorable for agriculture on account of the stony soil, but with this exception the soil is very good, and a glance at the map will show how well watered it is. In the Quinaiult Valley, near the lake, an old gentleman invited me into his garden to help myself. I had had no vegetables for over six weeks, but from one turnip I made a hearty meal. The place where this garden stood was last winter a tangle of trees and underbrush. Near the Humptolips, in August, I was offered some magnificent strawberries, and that night we fed on pease, cabbage, and potatoes; yet last winter this place was a wilderness.

The game is very plentiful, particularly elk and bear; deer are somewhat scarce. I did not see as many elk on this trip as on my former. All the large game seeks the higher altitudes during the midday, but may be found in the valleys morning and evening. We were entertained one night in the latter part of September, when the elk were beginning to run, with the whistles of the bulls. This is sweet music in the wilds.

The black bear are the only specimens of bruin's family we ran across, or saw signs of; no new species were seen. This bear is cowardly and will on the slightest noise make away. We came across two exceptions, however; one disputed the possession of an elk with Fisher, who was armed with a small-caliber revolver; Fisher concluded to let the bear have the elk. Once again a she bear was walking with her cub; a rifle shot wounded her; she turned, her hair, like the quills of the porcupine, showing her anger; she was killed, however, before she reached the party. Cougar are found in the foothills; I have seen none in the mountains. Beaver, mink, otter, and skunk abound in the valleys. The whistling marmot is found on the Rocky Mountain sides. A small animal much resembling him, called the mountain beaver, is found in soft places on the mountain sides. These are very industrious little animals and adept engineers; they dig canals to bring water to their holes and cut drains to prevent themselves from being flooded.

#### TRAILS.

The trail made in 1885 before described is, I understand, still in use. This leads from Port Angeles to Noplace, in the heart of the mountains.

There is a trail from the Quilicene to near the mouth of the Elwha River. Leading from Pisth southwest over the hills to the Pacific, near the Quillayute, is another trail.

Our pack mules traveled from Hoods Canal across the heart of the mountains to Lake Quinaiult and then to Hoquiam in nine days. This trail I hope will be a monument to the expedition. It is over 93 miles in length, through forests, across chasms, up and down almost perpendicular mountains, across rivers and torrents, and, worst of all, quagmires.

There are two termini on the east of the trail that may be taken at either Lilliwaup or Hoodsport, on Hoods Canal, to Lake Cushman; from thence it travels almost west for about a mile, crosses to the right bank, which it keeps until the miners' camp is passed about 3 miles. The river is then forded several times. Each ford is prominently marked. It follows the right bank after the sixth ford and continues until it passes the North Fork about 1 mile.

Jumbos Leap (the South Fork) is bridged. This might be now carried away, but the foot log will last for ages. From the camp (No. 6) the trail turns after crossing the river, strikes for the North Fork, and follows it for about 10 miles. At this camp (No. 9) it turns northwest, takes up the divide, and passes over into the Duckabush, which it follows about 6 miles, then turning southwest crosses the branch it had followed, and travels up the main fork about 4 miles, crosses this fork and ascends to the Duckabush-Quinaiult Divide; crossing this divide it descends into the Quinaiult which it follows to the lake; from the lake it turns south to Humptulips City, then southeast to Hoquiam Landing. A steamer can here be procured to Hoquiam. The trail is well blazed throughout its entire extent.

The expedition called much attention to this country. Since its organization the towns of Lilliwaup, Hoodsport, and Quinaiult City have been established and are on the trail. Last March there were 2 settlers on Lake Quinaiult; to-day there are over 125. The Quiets country has now about 60 settlers. Men were going into the mountains as I was returning. One of the great inconveniences of the trip was that a number of prospectors and others followed, and a guard had to be left at each cache camp to protect our stores.

The rare bits of scenery, the hunting and fishing, will always attract numbers to these mountains for a summer outing.

In closing, I would state that while the country on the outer slope of these mountains is valuable, the interior is useless for all practicable purposes. It would, however, serve admirably for a national park. There are numerous elk—that noble animal so fast disappearing from this country—that should be protected.

The scenery, which often made us hungry, weary, and over-packed explorers forget for the moment our troubles, to pause and admire, would surely please people traveling with comfort and for pleasure.

I have the honor to be, very respectfully, your obedient servant,

JOS. P. O'NEIL,

*Second Lieutenant Fourteenth Infantry,  
Commanding Olympic Mountains Exploring Expedition.*

True copy.

GEO. S. WILSON,  
*Assistant Adjutant General.*