

MAP OF ALASKA AND PART OF BRITISH COLUMBIA, SHOWING THE YUKON RIVER FROM ITS SOURCE IN BRITISH COLUMBIA TO ITS MOUTH IN ALASKA, BEING THE COURSE OF LIEUTENANT SCHWATKA'S RAFT-JOURNEY IN 1883.

THE GREAT RIVER OF ALASKA.

EXPLORING THE UPPER YUKON.*

THE Yukon River naturally divides itself into three portions: the Upper Yukon, measuring about five hundred miles, and reaching from its source to Fort Selkirk, where it is joined by the Pelly; the Middle Yukon, extending from Fort Selkirk for another five hundred miles to Fort Yukon, at the junction of the Porcupine or Rat River; and the Lower Yukon, nearly a thousand miles in length, reaching from Fort Yukon to the river's many mouths in Bering Sea and Norton Sound. The middle and lower rivers had been traversed by Russian navigators or in the interest of the Hudson's Bay Company, thus completing the exploration of three-fourths of the Nile of Alaska; but the upper river was still unknown till the early summer of 1883. To describe briefly the Yukon and its exploration from Selkirk to its source, thus completing the chain, is the object of this article. Or, speaking more correctly, from its source to Fort Selkirk; for it was with the current that my little party floated on a raft over this part of the river. That Alaskan Indians of various tribes had broken through the different passes in the glacier-clad mountains which separate the Pacific from the head-waters of the Yukon, in order to trade with the Indians there, has been known for over a century. Why this route had not been picked out long ago by some explorer, who could thereby traverse the whole river in a single summer instead of combating its swift current from its mouth, seems singular, and can only be explained by supposing that those who would place sufficient reliance on the Indian reports to put in their maps the gross inaccuracies that fill even all our Government charts of the Yukon's source, would be very likely to place reliance on the same Indians; and these, from time immemorial, have united in pronouncing this part of the river unnavigable even by canoes, filled as it is with rapids, whirlpools, and cascades.

Arriving in Chilkat early in June, 1883, I found that miners had pioneered the way some distance down the river in search of gold, but no white person had as yet explored this part

of the river; and when I humbly suggested a raft as my future conveyance, and hoped to make the whole river in a summer's dash, I was hooted at and ridiculed by natives and white men alike.

There are four passes known to the Indians leading over from salt water to the sources of the Yukon. The one by way of Lynn Channel and Chilkoot Inlet is the best of all, and is the one that was undertaken by my party. For many years this pass had been monopolized by the Chilkoot Indians, who did not even allow their half-brothers, the Chilkats, to use it. Both bands united in opposing the migration of the interior tribes to the coast for trading purposes, wholly monopolizing this Alpine commerce. I used numbers of each of these three bands of Indians in packing my effects over the mountains. As I have intimated, the journey began on the 7th of June, when we left Chilkat with thirteen canoes, I believe, towed in a long, continuous string by a little steam-launch kindly placed at my disposal by Mr. Spuhn, the manager of the Northwest Trading Company. They formed a pretty sight as they were towed down the Lynn Channel and up the Chilkoot Inlet, some twenty miles to the Chilkoot mission, where four or five canoes full of the latter tribe of Indians were added to the already long chain. Leaving the Chilkoot Inlet and entering another that the Indians called the Dayay, we could fairly say that our explorations had begun.

This inlet, like so many in Alaska, has more the appearance of a large river than a salt-water estuary,—flanked on either side by immense precipitous mountains, covered nearly to their tops with a dense growth of spruce and pine and capped with snow-white glacier ice, which feeds a thousand silvery waterfalls, whose gleaming stripes down the shaggy mountain-side give a beautiful relief to the deep, somber green of the foliage. The mouth of the Dayay was reached that evening, and our effects of some three or four tons were lightered ashore by means of the Indian canoes;

* Lieutenant Schwatka's expedition to Alaska and the British Northwest Territory in 1883 had for its object the seeking of military information regarding the Indian tribes of those regions. A subordinate purpose was geographical exploration. The party consisted of seven

white men—two officers, four soldiers, and one citizen (Lieutenant Schwatka, Dr. Wilson, Topographical Assistant Homan, Sergeant Gloster, Corporal Shirecliff, Private Roth, and Mr. McIntosh)—and such Indians as were added from time to time during the journey.

the launch steamed out of sight, and my little party of seven white men were left alone with nearly ten times that number of Indian allies, to fight our way over the mountain range whose eastern slopes feed the great river that we desired to explore. Up the swift current of the Dayay, only thirty to forty yards in width, the Indians transport-



CANOING
UP THE DAYAY RIVER.

ed the load in canoes, two to each canoe, one pulling by a rope fastened to the bow and the other keeping the craft out in the stream by a long stiff pole reeved into the rope. Reaching the head of navigation at the foot of a boiling cascade, the canoes were unloaded and drawn out of water, and placed under cover of the dense willows that line the banks of this stream. Each human pack-mule now adjusted his load for the struggle ahead, the average weight of a pack being over a hundred pounds for the adults, one Indian carrying as much as one hundred and thirty-seven pounds; boys of fourteen or fifteen, who had eagerly solicited "a pack," carried from thirty to seventy pounds.

We followed the trail which led to the very head of the Dayay, where its waters poured beneath bridges and banks of snow, until we stood at the base of the pass, towering some three thousand to three thousand five hundred feet above us, capped with snow, and with long finger-like glaciers of clear blue ice extending down the granite gulches to our very level. Early on the morning of the 11th the pass was essayed, and it was an interesting sight to see our sixty odd packers strung out along the steep snow-covered mountain-side. In many places the ascent seemed almost perpendicular, the Indians using their hands and knees, and laying hold of the stunted juniper and spruce roots that stuck through the thin covering of snow. Along the steep drifts, where a misstep would have hurled them down the mountain-side, the foot-tracks of the leaders were made deep and inclining inward so as to give a firm foothold, and many of the party used rough alpenstocks to aid them. At the top of the pass, four thousand feet and more above the level of the sea, we were in the drifting fog that forever hangs over these vast fields of elevated ice, and which cut off the fine view

that we had anticipated from such a favorable height. The descent from Perrier Pass, as I called it, is very rapid for a few hundred yards, but it is a pleasant walk compared with the toilsome struggle to its summit. I noticed that the Indians in following a course on the snow, up-hill or on a level, or even on a slight descent, always step in each other's tracks, so that my sixty odd Indians made a trail that looked as if only five or six had passed that way; when going down a steep descent, however, each one would follow a separate course, and they would scatter out over many yards. I could not help being impressed with the idea that this would be worth remembering if one ever had occasion to estimate the number of a party of Indians that had traveled over a fresh trail.

Passing by a number of small lakes on our left, some few of which yet contained floating ice in small quantities, we sighted the main lake late in the afternoon, and in a couple of hours found ourselves upon its banks at the mouth of a beautiful clear stream, boiling down from the mountain-sides. This lake, which I named Lake Lindeman, was a beautiful sheet of water, some ten or twelve miles long, and looked not unlike a limited area of one of the broad inland passages traversed by the steamers plying to Alaskan ports farther south. Fish were very scarce in these cold glacier-fed streams and lakes, but we managed to vary the stereotyped fare of Government bacon with a few dusky grouse and equally tough ducks, for it was now getting to be the breeding season of all the feathered tribe. Flowers were in bloom on all sides, and the deciduous trees had long since put on their

spring and summer fashions, and robins and many other singing birds fluttered through the foliage, while gulls and tern hovered over the waters of the lake.

boiling cascade, but a few minutes' hard work sufficed to pry the raft off; and as we brought up on the gravelly beach in the still waters of Lake Bennett, we all felt grateful that the



PERRIER PASS.

Here we commenced building our raft. The logs were of the smallest kind, consisting of dwarfed spruce and contorted pine, and it was a question whether a raft 15×30 would carry our effects and all our party, white and Indian,—a question which was finally settled in the negative, by sending only three persons and a little over half the material on the first voyage of the raft, a Government tent serving the purpose of a sail, which was amply filled by a southern gale that in other respects made navigation quite hazardous.

On the 16th we steered the raft through the mile of rapids and cascades that make up the short river that connects Lake Lindeman with the lake to the north, called by me Lake Bennett. Once we were jammed between a protruding rock and the shore in a narrow

safe passage had saved us a few days' hard work. But it was a necessity to remodel the raft on a larger plan in order to carry all that must find passage on its corduroy decks. Larger logs were found near the Payer Portage, and our raft was built on the plan of 15×40 , although really nearer 16×42 . Two decks were built up, fore and aft, leaving spaces at the ends for bow and stern oars, while the central part of the raft between the decks gave working-room for two side oars, with which the unwieldy craft could be rowed on still water at the rate of about three-quarters of a mile an hour. Behind the forward decks was a strong nine-foot mast, and the sail was a wall-tent with its ridge-pole for a yard, and the projecting poles of the deck gave lashing-points for the ends of the tent as we trimmed

sail to vary our course before the wind; for, rude as our raft was, we could sail her for two or three points (about 40°) to the right or left from a straight-away course before the wind. Not one of the smallest discomforts of the trip was the necessity of standing all day in the water while building the raft. The water in the lake was icy, having just poured down from the glaciers and snow-fields that crown the surrounding mountains; ice-water and mosquitoes were a singular combination of discomforts. Caribou and bear tracks were found not far from the shores, but the animals themselves were never seen.

The morning of the 19th of June the new craft cast off bow and stern lines, and rowing a few hundred yards we set our primitive sail; and as the never-ceasing southern wind grew with the sun, we soon found ourselves lubbering over the beautiful lake at a speed of from two to two and a half miles an hour. Through the ice-fields capping the timbered mountains to the east protruded many a dull red rock and ridge surmounted again by the everlasting white fog. Specimens of this rock found in the terminal moraines of the little glaciers showed iron, and I named this bold range after that metal. By three in the afternoon the wind had increased to a gale, and the huge waves of the lake were sweeping the rear space of the stern oarsmen, and even at times breaking over the pole-deck itself; but still our faith in the queer sailer was sufficient to hold her head straight for the north. For two long hours we held our course, for a favorable wind over the lakes must be utilized to the last second possible; but the gale increased to a cyclone and threatened to carry away our mast; the white-capped seas swept both decks and deluged between so as to make rowing impossible; and the two ends of the craft worked like a hinged gate in the huge waves, for there was not a single log that extended much farther than half-way of the raft. When a few of the pins commenced snapping and a little sheltered cove was seen to our right, we turned the raft's head to the eastern shore, and in a little while were threatened with destruction in the seething breakers that broke upon the rough granite beach. A line was carried ashore by the Indians in a canoe, and with some to hold her off by means of stiff poles, the rest of us "tracked" or towed her back to the shelter of the cove. Here we remained a day and repaired the raft; four fine logs were found which would reach her whole length, and by their size so increased her strength and buoyancy that we thought she might be able to carry a name, and so dubbed her the *Resolute*, though I doubt if the name was heard half a dozen times afterwards.

The next afternoon by five o'clock we had



CREEPING THROUGH
THE FOG.

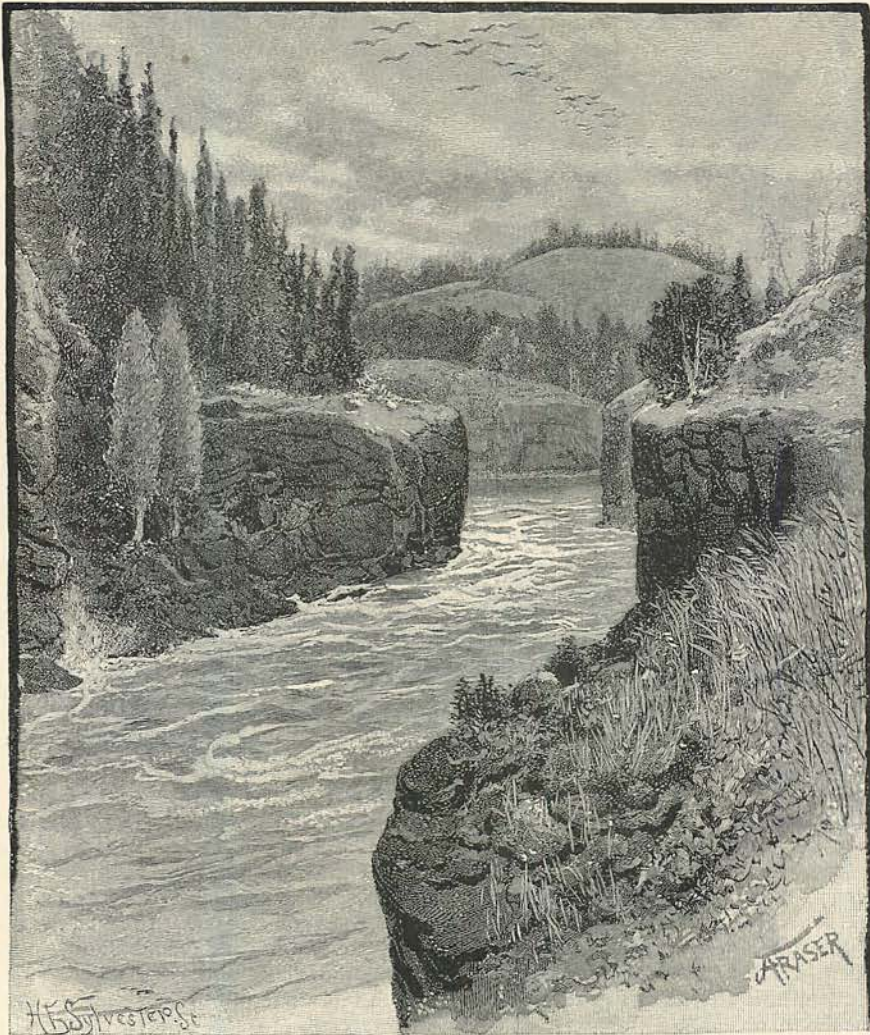
reached the north end of Lake Bennett, thirty miles long, and entered a short river that gave us a taste of the fact that drifting with the current also had its difficulties, for we were two hours prying the *Resolute* off a sand-bar at the mouth of this short river. This limited stream is known to the Tahk-heesh Indians as "the place where the caribou cross," and in certain seasons of the year many of these animals ford its wide, shallow current. The general trend of the new lake into which the river emptied was towards the east, and our old friend the south wind was of but little use; and though there were only three or four miles to traverse, it was three days before we got a favorable wind that carried us across. This little lake (Lake Nares), whose entire outline could be viewed from the high hills on the north, was the prettiest one we found nestling in these northern hills. The country was perceptibly opening, many level places could be seen, the hills were less steep, and the snow was disappearing from their crests. Many roses and wild violets were in bloom, and wild onions lined the lake shore in profusion and gave us a fair substitute for the vegetable diet that we had left behind; and everywhere there was a general change of verdure for the better. Grand terraces that looked like stairways for giants, symmetrical on opposite sides of the lake, showed its ancient and subsiding levels. These, too, in a less conspicuous

manner, had been noticed on the northern shores of Lake Bennett. Grouse abounded everywhere, and the little broods were met every few yards in walking over the hills, the tiny ones scampering off in the weeds while the mothers walked along, clucking anxiously, often only a few feet ahead of the intruder. Once out of the little lake through a short river of a hundred yards, we entered another lake, still trending to the east, and eight or nine miles long, which I called Lake Bove, and on whose limited shore-line I was compelled to make two camps and half a dozen landings, so baffling was our motive power, the wind.

At one time, when we had rowed ashore to avoid a sudden head-breeze, our Indians carelessly set fire to some of the dry dead spruce timber, and the flames, enveloping the living trees for hours afterwards, sent upward dense volumes of smoke that we saw from many miles beyond. Toward evening, some fifteen or twenty miles ahead, a smoke was seen curling upward, and our Indians told us that it was an answer to the one we had accidentally made on Lake Bove. These signal-smokes were quite common between the Chilkats and Tahk-heesh Indians, the former thus announcing to the latter that they had crossed the mountains and were in their country for trading purposes. An old trader on the Middle and Lower Yukon told me that this Chilkat-Tahk-heesh traffic was so great some years ago, that as many as eighty of the former tribe have been known to cross the Kotusk mountains by the Chilkat and Chilkoot trails twice a year; or, in brief, eight tons of trading material found its way over Perrier Pass and, ramifying from this as a center, spread over the whole north-west. Fort Selkirk, for a brief period a Hudson's Bay Company post, interfered with this commerce; but a war party of Chilkats in 1851 extended their trading tour five hundred miles in order to burn it to the ground, and the blackened chimneys still standing in a thick grove of poplars are monuments that attest how well they did their work. We had an immense volume with us purporting to be an authority on Alaskan matters, and as we read that it was but two days' journey ("nay, hardly a day and a half") for the Indians from here to Selkirk in their swift birch canoes, we thought that possibly the worst of our journey was behind us; until our Indians, some of whom had grown gray-headed traveling this country as traders, dashed our hopes with the information that there were three rapids aggregating five or six miles in length ahead of us, that the Indians here never used birch-bark canoes, and that the journey took them nearly two weeks in their cottonwood ones and would take us three,

if we ever got through with the raft at all; for though their wavering faith had been strengthened by the actions of the *Resolute* in the past, they were not yet perfectly settled. Instead of being one hundred and twenty miles from Tah-ko to Selkirk, as guessed at, it was four hundred and thirty-three. A roughly built Tahk-heesh house stood upon the banks, and is the only one on this part of the Yukon River for hundreds of miles on either side. The next lake is nearly thirty miles in length, and proportionally much broader than any we had passed. I called it Lake Marsh, after the well-known scientist of our country. The waters of this lake were much warmer than those we had passed, and we all refreshed ourselves with a few minutes' bathing on its shores. Nearing the beach at Lake Marsh during the two or three camps we made on it, we found it impossible to get much closer than fifty to one hundred yards, owing to the huge deposits of "glacier-mud" that had been brought down by the streams whose waters at their sources came out from under these colossal pulverizers of the mountain flanks. The *Resolute* drew about twenty inches, and the stage of water was just such that we were compelled to pack our camping material this distance through a species of mud that almost pulled our rubber boots from our feet as we floundered through its tenacious mass.

We were now having our longest days, and so close were we to the arctic circle that type like that of *THE CENTURY* Magazine could easily be read at midnight. On the night of the 28th of June we sailed till after midnight, so imperative was it to take advantage of every favorable breeze, and at that time but one star in the cloudless sky could be seen, which was made out to be Venus. Faint signs of terraces were still observable on the hillsides, but they were lower, nearer together, and not so well marked. The trees on Lake Marsh, as had been often noticed before on the upper waters of the Yukon, all leaned, in more or less conspicuous inclinations, toward the north, or down-stream, thus plainly showing the prevailing direction of the stronger winds. About noon on the 28th, while sailing on Lake Marsh, we had an energetic thunder-shower, which lasted till past two in the afternoon, and which is worth noticing as the first thunder-shower ever recorded on the Yukon, they being unknown on the lower river. Many of the flat, level places on the eastern hills were still covered with last year's dense growth of dead yellow grass, that from the lake, as we slowly sailed by, looked strangely like stubble-fields of oats or wheat. The outlet from Lake Marsh was very annoying to our mode of navigation with its endless banks of "glacier-mud," most

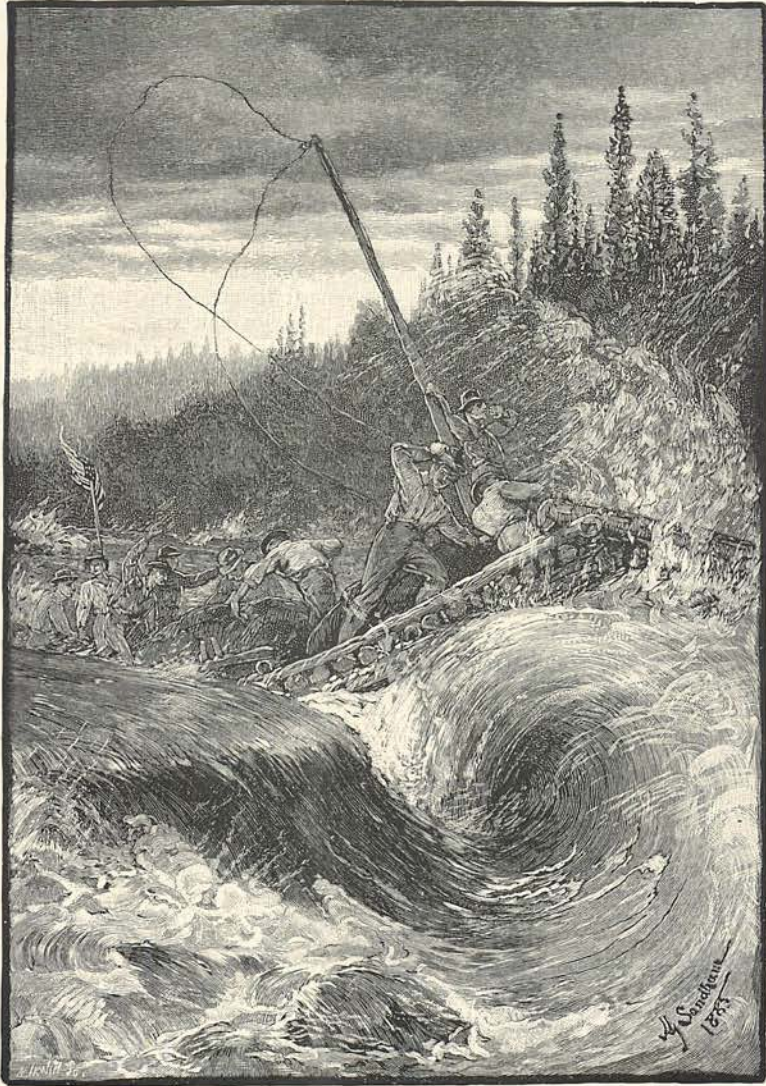


THE GRAND CAÑON, UPPER YUKON.

of which was probably brought down by a large river—the McClintock—that here comes in from the east; a river so large that we were in some doubt as to its being the outlet, until its swift current settled all conjectures by swinging us around into the proper stream. This new river that we entered was much more picturesque than any we had so far met on this journey, and strongly resembled many of the streams of more favored climes. Its hillsides were covered with pine, hemlock, and spruce, with here and there little grass-covered prairies, while the valley was fringed with poplars and willows in the densest profusion. In fact these latter were so impenetrable and grew so close to the very water's edge that we were often baffled in finding good camping-places, unless some friendly from the hills threw

out a pine-covered spur to the river-bank, that would allow a tent or two to be pitched under the evergreens, or at least give us room to bivouac and spread our blankets. The deck of the raft itself was preferred by many to the variety of uncomfortable beds that this country can offer to the traveler.

The exact location of the great rapids ahead of us was not known to our Indians, and we were in a nervous state of anxiety caused by watching for them in a craft that we could not get to shore for a landing in less than three hundred or four hundred yards run, and possibly a mile, if combinations should be unfavorable. The persistent fishing of the doctor and some of the men had occasionally been rewarded with success, and a few lake trout and graylings had been added to our slim fare. On the last



CASCADE NEAR THE END OF THE GRAND RAPIDS.

day of June, as we rounded a high bold bluff, we heard rapids ahead and saw that the current was getting swifter and the water much more shallow; and we ran our raft on shore with more haste than discretion, for an examination showed the rapids to be of the lightest character, with the worst part of them in the shape of a rocky reef some thirty or forty yards directly in front of the raft. It was, of course, impossible to clear this impediment when we cast loose, and so we floated against it, depending on a series of swings outward until its end was reached and passed. As the raft brought up on the reef and the water was seething through the logs and the men preparing to get overboard to pry her around, a most

energetic splashing was heard on the farther side of the craft, and much to our astonishment a large grayling was seen floundering on the end of a fish-line that some one had left hanging over the raft in the hurry of more important duties. This was our initiation into the grayling fishing-grounds that gave us some four or five hundred of these delicious and "gamy" fellows in the next few days, until we actually tired of them. The fish caught that evening in the ripples along the river-banks were of two distinct sizes, with very few that could be called intermediate, the larger weighing about a pound and a quarter to a pound and a half and the smaller about one-fourth as much. The next day, the

1st of July, with a Tahk-heesh Indian whom we had picked up as a guide, we approached the great rapids of which we had heard so much. Our guide in his canoe had told us that he would inform us of their proximity in time enough to reach the shore, but we could not help fearing that he considered our craft about as easy to handle as one of their canoes and would give his information accordingly,—a supposition that we found to be correct, for had we not closely followed at considerable labor the eastern bank, which we knew to be the one on which we must camp, it is more than probable we would have gone through the cañon without warning and been wrecked. Even when the conspicuous mouth of the cañon was descried but a little distance ahead, our fate hung on a quarter-inch halliard with which we suddenly fastened our craft to a poplar-tree on the bank. The line fairly sang like a harp-string as the swift water poured over the logs and the huge craft swung slowly into the bank, where we were a very few seconds in making it snug and secure.

An inspection of the rapids showed them to be nearly five miles long, in places narrow and deep, then shoaling out and exposing dangerous rocks. The first quarter of a mile the swift river pours in boiling foam through a cañon fifty or sixty feet deep, and but little greater in width, the sides of the chute being regularly laid basaltic columns that in places rival human workmanship. It then widens out into a large basaltic basin full of seething whirlpools and curling eddies, and then again for a third of a mile passes through another cañon the exact duplicate of the first. The current again spreads out some quarter of a mile into shallow rapids, looking much less dangerous than the cañon, but being really much more so with its countless boulders and swift-dancing current. After running along for three or four miles in this manner, it again courses through basaltic columns hardly twenty feet high and narrowed to a cascade not over thirty feet wide, with waves running four or five feet high. As we descended through this chute the banks grew higher, and so swift was the current and so narrow the passage that the water would run up these banks for a long distance on either side and pour back in solid sheets into the foaming current below, making veritable horse-shoe falls. A rafting party of three were sent ahead next morning to be stationed below the cascade and give assistance when the raft came by; and at 11:25 that morning we turned the *Resolute's* head toward the upper end of the Grand Cañon of the Yukon. After spinning around four or five minutes in an eddy, as if fully comprehending

and dreading the dangerous trip, she at last swung slowly into the current and then shot forward with its swift waters. We soon entered the narrow cañon, going at a rate and urged by a power that a dozen giants could not have controlled had they been aboard. The raft's first encounter was with the perpendicular western wall, striking a fearful blow that tore the inner log from the side; and like the philosophical experiment with the suspended ivory balls, the outer log shot far away with an echoing snap. It took the craft but a mere moment to swing on her basaltic pivot, and down again she started in the race. Nearly down to the fearful chute a couple of my Indians jumped on the flying raft from a canoe in which they had paddled out from the shore, and in a few seconds more the cascade was reached. First the clumsy bow was buried in the boiling foam and waves, and the next instant it was reared high in the air, the whole body of the craft standing at the angle of a fixed bayonet as it shot through the narrow neck and slowly subsided in the bubbling waters beyond. A rope was soon gotten to the shore, and although the first time it was fastened it snapped with a twang, the second effort was successful. For two days we were repairing and strengthening the raft, and putting on a couple of new decks made from the fine slender pine poles that were here abundant, and dry and light as pipe-stems, the result of a fire that had swept through them probably two or three years before. Like all the coniferæ growing in dense masses, these timber districts have their periodical devastations of fire that feed on their resinous foliage, burning the bark to a blackened crisp; and when the first severe gale comes from the south, the roots having been weakened by rotting, they are thrown prostrate, making a perfect labyrinth of matted limbs and tempest-torn trunks that have not half decayed nor ceased to be impassable *chevaux-de-frise* before the next generation has sprung up and grown sufficiently high to add confusion to disorder. A sort of poplar chaparral borders the ravines that cut across the trails, to vary the misery and keep it from getting monotonous. In and around the Grand Rapids the grayling are numerous beyond computation, and it was but the work of a few minutes to catch a plentiful mess for even our party of over twenty whites and Indians; and most singular of all, this was done despite the fact that myriads of small brown moths or millers filled the air during our fishing-days, while their bodies often floated by thousands down the river, to be food for the graylings. The trout flies we used were often the "brown miller" and "brown hackle." While the

graylings could be caught at any time, they would bite more freely during cloudy weather.

We had employed a few Tahk-heesh Indians to carry over the portage our valuable effects that we had taken from the raft to lighten it, and for safety in such a dangerous rapid. I could not but contrast the kindness they showed each other, and especially their women, with the ungenerous conduct of the more warlike Chilkats in their mutual intercourse. The latter when canoeing on the Dayay, after having left the launch and before reaching the head of canoe navigation, had a certain number, including even the boys, who were not provided with canoes; and although it would have added little to the labor of the canoemen to take the burdens of the others into their boats, they refused to do so. Those without canoes had to carry their loads on their backs, some ten or eleven miles. Nay, they would not ferry the porters across the rushing river in its serpentine windings from bluff to bluff, but forced them to wade the streams, often up to their middle, or make extended detours that would lengthen the direct ten miles to double that distance. Many other similar acts, shown even in cases of sickness, did much to strengthen this unfavorable impression. The mosquitoes were now thick beyond anything I have ever seen. As we crossed boggy places or the marshy rims of the numerous inland lakes, they rose in dense swarms. Hunting, the only object one could have in inland excursions, became impossible on account of these insects. Their stings could not be endured, and in looking through such swarms it was not possible to take sure sight at the game. The vigorous exercise needed to defend oneself was enough to fatigue the strongest to the verge of exhaustion; besides, these gesticulations would frighten the game. I believe this part of the Yukon country to be scarcely habitable in the summer on account of these pests, and think their numbers to be sufficient reason for the complete absence of game during that part of the year. On the lower river, beyond Fort Yukon, their numbers appreciably decrease; but as they are reënforced by the little black gnats and sand-flies, life for the traveler even there is not pleasant. It is not until the first severe frost comes, about the first of September, that this annoyance is abated completely, although for a short time before this the hopeful wanderer in these wilds thinks he notices a falling off in the census. Captain Petersen, a trader on the lower river, a person whom I found not given to exaggeration in any particular, says he has known Eskimo dogs to be killed by mosquitoes; and the Indians tell him, and he says he has no reason to doubt

them, that even the brown bear of Alaska, almost the peer of the grizzly, has been known in rare instances to be slain by them when he ventured into their swampy haunts. Captain Petersen and the Indians account for this by supposing, as the bodies show, that the bear, instead of securing safety by precipitate retreat from such places, fights them, bear style, reared up on his hind-quarters, until the stings near his eyes close them, and he is kept in this condition until starvation eventually causes death.

About eight o'clock in the evening, while camped a quarter of a mile below the cascades in the Grand Rapids, we could hear heavy concussions in single blows at two and three minute intervals. It was noticed by more than one, and thought by some to be distant thunder, although it sounded strangely unlike that noisy element in other climes, and there were no signs of a storm in the sky. A very light series of earthquakes also seemed a poor theory, and there was little or nothing else to which it could be attributed except the cascades, which I believe have been known to cause earth-tremblings and analogous phenomena.

The 5th of July we bade adieu to the worst cañon and rapids on the Yukon River. About noon we passed the mouth of the Tahk River (the Tahk-heen'-ah of the Chilkats), which measured probably two-thirds the size of the Yukon proper. It was flowing muddy water at the time, and our surmise that this would spoil our splendid grayling fishing proved to be correct. While the Tahk-heen'-ah noticeably flows less water than the Yukon, and therefore is not entitled to be called the river proper, its bed seems to correspond with the general characteristics of the Yukon from its mouth on. From the Grand Cañon to the Tahk River (*heen'-ah* in Chilkat signifying river) the banks of the Yukon are high and bold, and often broken into perpendicular bluffs of white sandy clay, while from here on the shores are much lower, similar to those of the Tahk-heen'-ah, and wooded to the water's edge.

We reached the last lake about five in the afternoon, and had the misfortune to stick in the apex of an acute-angled sand-bar at the mouth of the river, and this with a fair wind in our favor to help us over the like. Two hours and a half's steady work swung the *Resolute* clear of her sandy anchor, and we went into camp alongside our lightered cargo, wearier, wetter, and wiser men,—certainly wiser in the fact that a sand-bar was a much more formidable obstacle to our peculiar craft than a gravel-bar of equal depth. On the latter it was necessary only to be able to lift the raft by a series



IN THE RINK RAPIDS, UPPER YUKON.

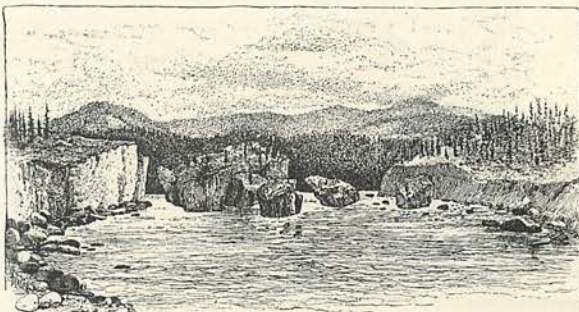
of combined efforts, the swift current carrying it forward over even the widest bars, while with the former the raft would rapidly settle during the short rests that were rendered necessary by such fatiguing work, and could be pried forward only the short distance the current had cut out the sand ahead of the logs. On sand-bars a series of laborious swingings of the raft, end for end, even against the current, until the ponderous concern was clear, was generally the quickest solution of the problem, while the raft could be pried over gravel-bars with ten inches of water, although it drew double that amount. The new lake was called by my Indians the Kluk-tas'-si. Like all the

lower lakes, it was full of banks, occasioned by the deposition of the glacier-mud brought down by the mountain streams, for their outlets all become clear again until receiving the waters of some muddy river heading among the glaciers. It is a mere matter of geological time when these lakes will be filled by these deposits, and nothing but a river left coursing through bottom-lands. Such ancient lakes are noticeable on the course of the great stream farther on.

The right bank of Lake Kluk-tas'-si is composed of rounded cliffs of gray limestone, the gullies between being filled in with foliage, especially spruce and pine, and from the opposite side of the lake this effect is quite pretty and peculiar. On the west bank of the lake great towering red rocks culminate in what appears to be a picturesque island of this material, but an Indian with us says that these are part of the mainland; and near this comes

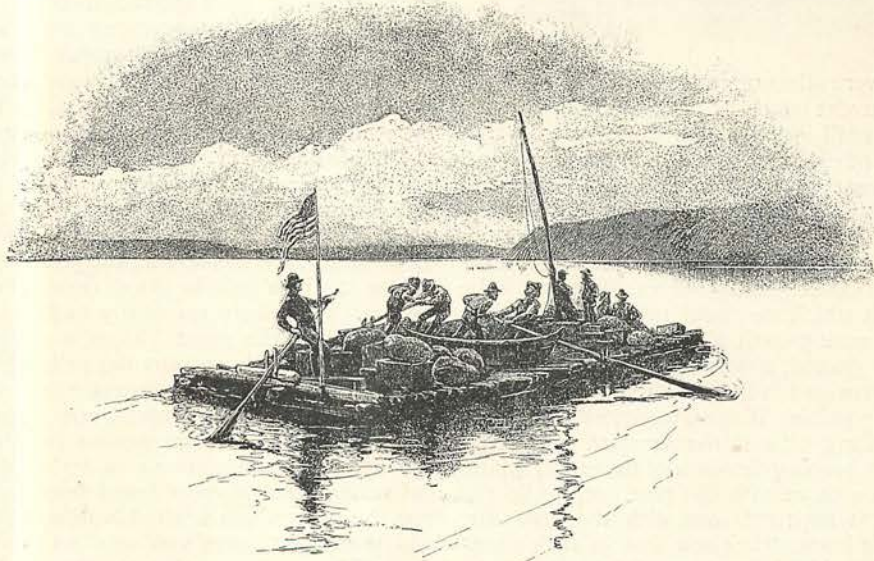
in a large river whose whole course is flanked by such scenes, from which the Indians give it the name of Red River. Not desiring to add another Red River to the geography of the world, I called these the Richthofen Rocks and River, although the latter we were not able to make out from our position on the lake as we sailed by, and the former from all points seemed strangely like an island. Quite a number of salmon-trout fell victims to our pot-hunting trout-lines, one of which weighed over eight pounds, the limit of the doctor's fish-scales.

The 9th of July saw us sail out of Kluk-tas'si, the last of the lakes, and as we hauled down the old wall-tent that had done us double duty as a sail and a tent, I think we were all light-hearted enough to make the *Resolute* draw an inch less water. The river was now very shallow, wide, and swift, and we were constantly grating over bars of gravel, and occasionally sticking on one, but so rapid was the current that merely jumping off the raft was sufficient to start it forward and override the most of these. On both sides of the river the forest fires had done considerable damage to the timber, and on every side were stumps of all shades of darkness, from the blackened crisp of this year's conflagration to the light-brown ones covered with moss and rotting to the earth's level. "How closely that one resembles a big grizzly bear!" remarked one of the party, pointing to a huge shaggy brown stump some

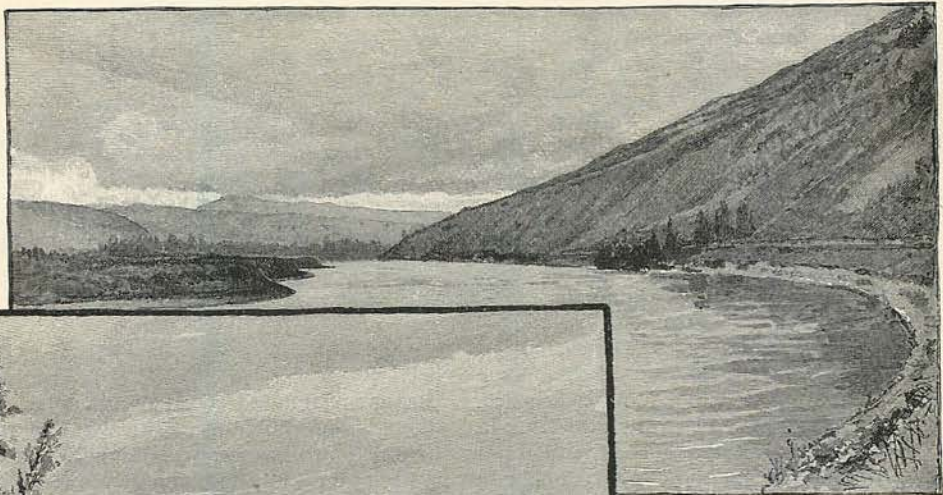


GENERAL VIEW OF THE RINK RAPIDS.

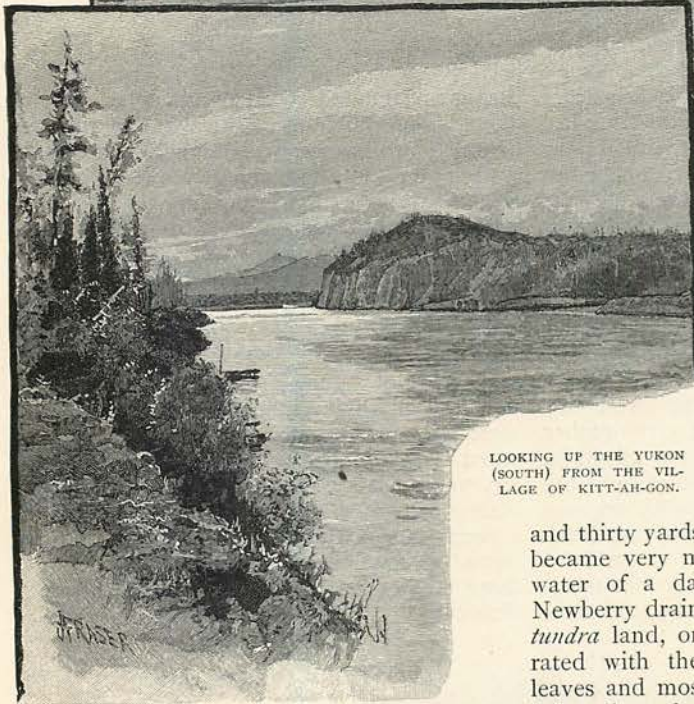
six or seven hundred yards ahead of us on the edge of a high clay-bank overlooking the river. The likeness to this animal was close, and as we rapidly floated down towards it and it came walking down the edge of the cliff, the resemblance was sufficient to produce two or three guns from their cases. At four hundred yards the "stump" got one good look at the formidable raft, evidently just bursting on his vision, and before we could fully realize how quickly he had done it, he disappeared in a grove of spruce, and we never saw him again. Every living thing avoided us as if we were a known pestilence, and grizzlies, the worst terror of the Indians in all this country, never felt satisfied until they had put a glacier or two between us. Rounding a bend a young lark, sitting on an overhanging bush turned its head, and in its hurry "to do something mighty quick," fell into the water and drowned.



THE RAFT.



LOOKING DOWN THE YUKON (NORTH)
FROM THE VILLAGE OF KITT-AH-GON.



LOOKING UP THE YUKON
(SOUTH) FROM THE VIL-
LAGE OF KITT-AH-GON.

while scraping along had no bad effect, and often slowed our gait to half its usual rate, until a line ashore would complete our stoppage and allow us to go into camp.

On the 9th we passed the mouth of the Newberry River, about one hundred and thirty yards wide, and the Yukon at once became very much deeper, swifter, and the water of a darker hue, showing that the Newberry drained a considerable amount of *tundra* land, or land where the water, saturated with the dyes extracted from dead leaves and mosses, is prevented from percolating through the soil by an impervious substratum of ice, and is carried off superficially directly into the draining rivers. The 10th, forty miles farther on, we passed the mouth of D'Abbadie River, over one hundred and fifty yards wide at this point, and said to be over two hundred and fifty miles long to its head. The D'Abbadie is important in an economical sense as marking the point on the Yukon at which gold in placer deposits commences. From here on nearly to the mouth or mouths of the great Yukon, a panful of dirt taken from almost any bar or bank with any discretion will give several "colors," in miners' parlance. The Yukon, now widening out, was studded with numerous islands. It also became quite tortuous in its windings, and at one place where a grand river came in from the west (which I called Nordenskjöld) a bald prominent butte was seen no less than seven different times, directly ahead of the raft, on different stretches of the river. Tanta-

We were all congratulating ourselves on the swift current which was carrying us so speedily on, until along in the evening, when the subject of camping came up. Then we found the current too rapid to make a landing without possibly tearing a log or two off the shore side of the raft. The river was of a perfectly uniform width that would have done credit to a canal, and consequently not an eddy was to be found in which we could retard our motion; while a rank growth of willows springing from marshy ground, stretching for miles along the river, gave us but little desire to camp, even were it possible. We now instituted a system of "down-brakes" with the *Resolute*, which consisted in keeping the stern of the raft dragging along the shore with the rear oar, while the head was kept well out with the bow oar. Had she been struck bow first in such a current, it would have converted her shape into that of a lozenge at the expense of a log or two;

lus Butte marks the spot on the map. The very few Indians we now saw along the river were of the most abject appearance, living in houses formed of three poles, one of which, being much longer than the rest, was used as a support for a couple of well-ventilated caribou skins; and this dilapidated but simple arrangement was their residence in a country that abounded with good timber for log-cabins. The only use to which this timber was put, besides fuel, was in the construction of small rafts, canoes being almost unknown from the Grand Cañon to old Fort Selkirk. Their winter quarters are just above the latter point, and when in the spring they sally up the river to their hunting and fishing grounds, their household effects are of so simple a nature that they can be readily carried upon their backs. Returning in the fall, they build a small raft to carry the meager addition accumulated by the summer's hunt. Moose, caribou, black bear, and salmon form their principal diet. These rafts are collected from the dry drift-logs that accumulate on the upper end of each island in wooden bastions from ten to fifteen feet high, deposited during the spring (June) freshets. So uniform are these driftwood deposits that, in the many archipelagoes through which we had to pass, the islands would present an entirely different aspect as one looked up or down stream at them, having quite a pretty appearance in the former and looking like tumble-down and abandoned wood-yards in the latter case.

On the 11th one of my Indians told me that the next day we would have to shoot our fourth and last serious rapid; and while he had known Indians to accomplish this with their little rafts of a few small logs, he felt anxious regarding our ponderous craft. There were three channels through the rocks, the middle one being the widest and for most craft the best, but it had the serious disadvantage of having a sharp right-angled turn about half-way through and a projecting rock in its center. The rapids could be heard (on the 12th) quite a while before we reached them, and beaching the raft a few hundred yards above them, they were given an inspection of a hurried nature. This disclosed a most picturesque gorge with perpendicular columns of rocks forty or fifty feet high, standing in three or four groups in the very midst of the narrow rapid. The right-hand channel was the straightest, although quite narrow, and the waves were running high enough to make us fear they might sweep something from the decks. When we did finally essay this passage, it was amongst the greatest clattering of gulls, young and old, that one would care to hear. The summits of the rock islands were splendidly protected

from the invasions of any land animals, and hundreds of gulls had selected these fortresses of nature as their breeding-places, and we were saluted as we shot through as intruders of the worst character.

This right channel of the Rink Rapids, as I named them, is situated within a sharp bend of the river; so that a steam-windlass operated from a river steamer's deck could be worked to the very best advantage in ascending these rapids. Counting on such ascent, the Grand Cañon would be the true head of navigation on the Yukon, and thus the great river would be passable for light-draught river boats for eighteen hundred and sixty-six miles from the Aphoon or northern mouth, being the greatest length of uninterrupted navigation in any stream emptying into the Pacific Ocean.

On the 12th our first moose was seen,—a great awkward-looking animal that came rushing through the willows, his palmated horns making the first observer believe that it was an Indian swinging his arms in the air. We occasionally caught sight of these broad antlers and his brown sides, and I saved my reputation as a shot by the gun not going off when the hammer fell. That night we camped on the eastern bank of the river at the first true Indian village we had so far encountered, and even this was deserted, the inhabitants being up the river fishing and hunting, as already explained. It is in a most picturesque position, and is called Kitt-ah-gon, meaning "the town between two cañons." On one side comes in a small creek that drains a conspicuous and beautiful valley among high hills, and one which looks as if it would support a much larger stream than the twenty-yard creek that empties near Kitt-ah-gon. The village itself consists of but one log-house about 18x30 and a dozen or more of three-sided camping-places of poles and brush, which are houses to be covered in with skins. The next twenty miles, through an archipelago of islands which hardly gave us a chance to know our distance from the two banks, brought us to old Fort Selkirk, which we found on the left bank, despite the fact that the five or six maps we had consulted placed it at the junction of the Yukon and Pelly, a large stream that here comes in from the east. Its blackened chimneys, three in number, still held out against the elements after a third of a century, and were now almost lost in a little grove of poplars that had taken root since this frontier post of the Hudson's Bay Company had been burned to the ground in 1851. We were now on ground familiar to white men. Our journey to Fort Yukon, five hundred miles farther on, and thence to the river's mouth will be described in another article.

Frederick Schwatka.

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No. 6.

THE GREAT RIVER OF ALASKA. II.

EXPLORING THE MIDDLE AND LOWER YUKON.

OLD Fort Selkirk forms the connecting link between the article which appeared in the September CENTURY, entitled "The Great River of Alaska," and the present paper. (See map with the former article.) The fort had been erected as a trading-post by the Hudson's Bay Company on ground the Chilkat Indians claimed as their own trading ground. The Chilkats received their trading stores from the Russian Fur Company, and, having no use for Fort Selkirk, took the Indian method of weeding out competition.

The scenery around Selkirk is fine, though hardly so grand as the high ramparts a hundred miles below. From the mouth of the Pelly, across the river, a high basaltic bluff runs down the Yukon for nearly twelve miles, and is then lost among the bold hills that crowd upon the river. Beyond this bluff lie high, rolling hills, with their green grass tops contrasting vividly with the red ochreous soil of their steep sides that the land-slides leave bare.

Selkirk was first occupied by traders who came down the Pelly from the tributaries of the Macrough was the way down the Pelly to Selkirk, was finally supplied by the roundabout way of lower down the river. On the site of Selkirk Ayan grave, not unlike a very rough attempt one, and is probably borrowed from civilization. formerly buried their dead on rude scaffolds trees, like the Indians of the great Western when adopting the burial methods of the part, they cannot abolish the ever-present ing strips of many-colored rags, surmounted nates the clan, a fish, or a goose, or a bear, thing converted into an idol. As this pole is or twenty-five feet in height, the place for selected near the foot of some healthy young ing and peeling of the bark is, in this case, the

kenzie. So that the post Fort Yukon, kirk stands an at a civilized The Ayans among the plains. Even white man, in pole, with its flaunt-by the totem that design some other earthly from fifteen to twenty the grave is generally spruce. A little prun-only labor. The graves are always near the river banks, but I never noticed any number of them together. At Selkirk several Ayan Indians met us and anxiously asked us to visit their village, but a short distance below. They were a far superior race to the abject tribe we had left behind us on the Upper Yukon. A conspicuously Hebrew cast of countenance was noticeable in this tribe, and some of its younger numbers were respectably neat and



A MEDICINE-MAN.

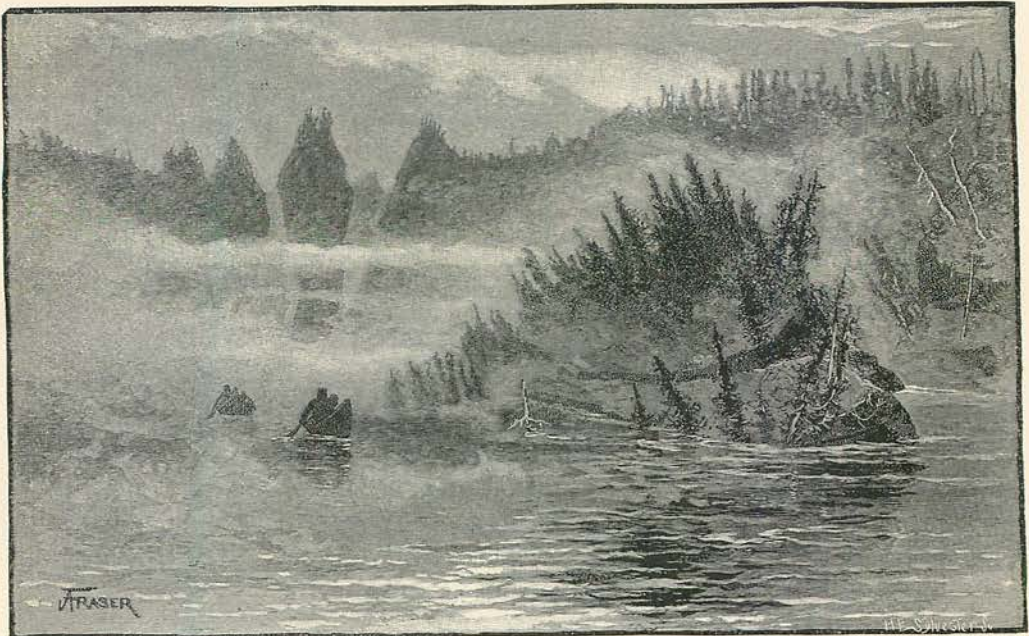
clean compared with Indians in general. Their canoes, of birch-bark covering and fragile cedar framework, were the smallest and lightest I had ever seen, except the skin canoes of the Eskimo, and they were well made to the smallest detail.

Though the grass was almost luxuriant on the plain about Selkirk, no signs of game were seen. It seemed fair to infer that the dense swarms of the omnipresent mosquito could alone account for the absence. This pest is sufficiently formidable in the summer months to put an end to all ideas of stock-raising as a possible future industry. Shortly after noon on the 15th of July the raft was cast loose, and we started down the picturesque river. So scattering had been the Indian population on the river above Selkirk, that we were greatly surprised, on rounding the lower end of an island, to see nearly two hundred Indians drawn up across the south channel of the river. We worked at our cumbersome oars valiantly, cheered on by the wildly frantic throng, that plainly feared that we, the supposed traders, would pass. Many excited Indians came out to assist us, and placing the prows of their canoes against the outer side of the raft, paddled us furiously towards shore. Our line was run out at last, and, seized by nearly two hundred Indians, who brought us to land with a crash. Shortly after our landing the throng formed a line, from one to three deep, the men on the left and the women and children on the right, and gave us a dance,—

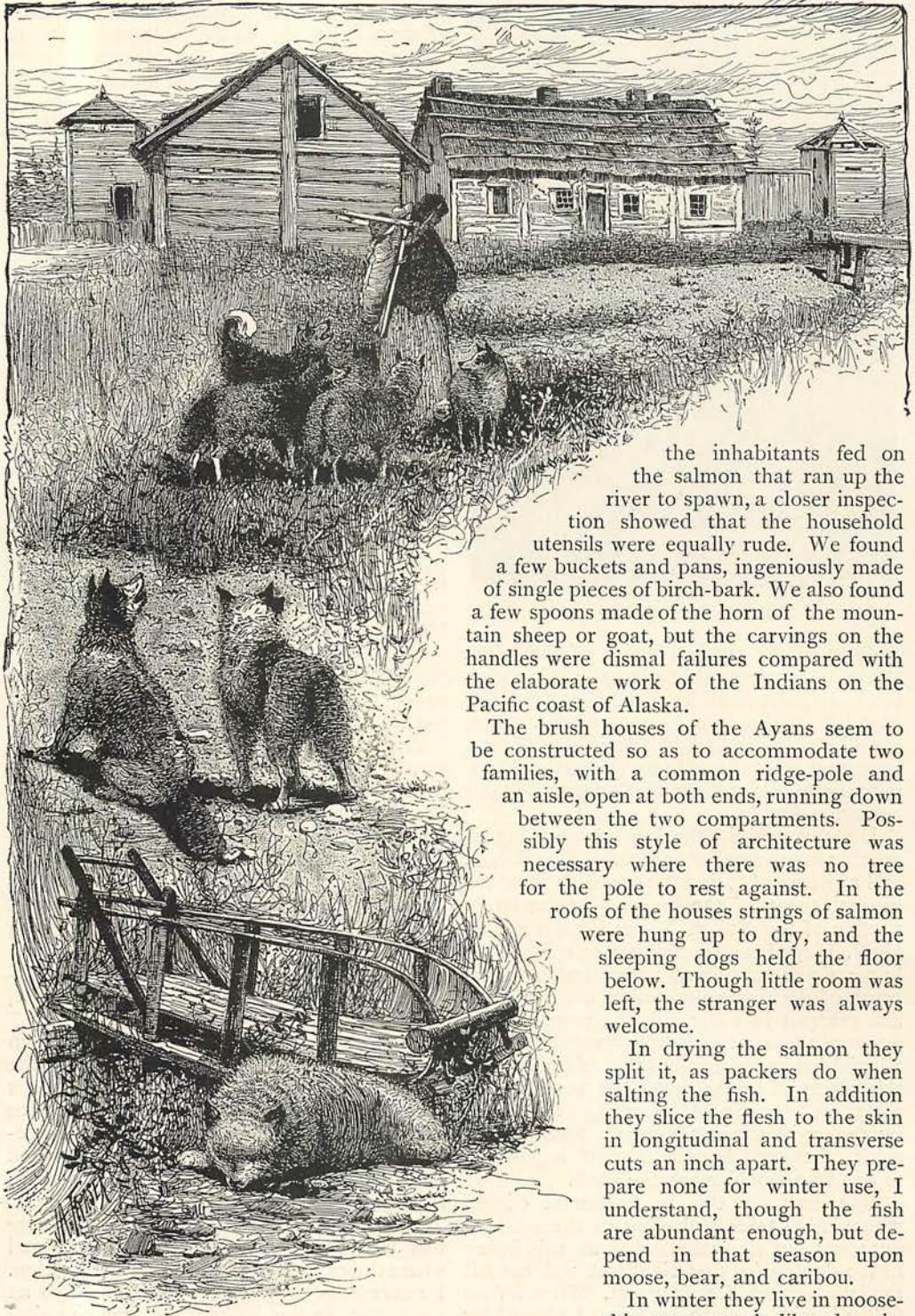
the same old Indian monotonous *Hi-yi-yi* with the well-measured cadence as its only musical part, and with an accompanying swaying of the body from side to side, while their long mop-like hair swung round like a magnificent mosquito-brush.

After I had distributed a few insignificant articles among them, I tried to get a photograph of some attitude that was a part of the dance, and though I am sure my object was understood by the more intelligent, I did not succeed. Often, when ready to take the cap from the camera, we were foiled by some young man starting a low *Hi-yi-yi*. In an instant it ran the whole length of the combustible line, and all were swaying like leaves in the wind. A similar attempt to get a picture of the three head men, Kon-it'l, his son the hereditary chief, and the medicine man, was almost equally futile, until I formed the center to the group. The tube of the camera had a gun-like appearance that made some of them uneasy. My willingness to sit with them was sufficient assurance of no danger. The village proved to be a much ruder affair than the improved appearance of the Indians over the natives of the Upper Yukon gave me to expect. Their houses were mere hovels of brushwood, with here and there a covering of moose-skin or a worn strip of canvas.

Though the slight character of the houses might find excuse in the fact that these were only used during the summer months, while



ALONG THE BANKS.



OLD FORT YUKON.

the inhabitants fed on the salmon that ran up the river to spawn, a closer inspection showed that the household utensils were equally rude. We found a few buckets and pans, ingeniously made of single pieces of birch-bark. We also found a few spoons made of the horn of the mountain sheep or goat, but the carvings on the handles were dismal failures compared with the elaborate work of the Indians on the Pacific coast of Alaska.

The brush houses of the Ayans seem to be constructed so as to accommodate two families, with a common ridge-pole and an aisle, open at both ends, running down between the two compartments. Possibly this style of architecture was necessary where there was no tree for the pole to rest against. In the roofs of the houses strings of salmon were hung up to dry, and the sleeping dogs held the floor below. Though little room was left, the stranger was always welcome.

In drying the salmon they split it, as packers do when salting the fish. In addition they slice the flesh to the skin in longitudinal and transverse cuts an inch apart. They prepare none for winter use, I understand, though the fish are abundant enough, but depend in that season upon moose, bear, and caribou.

In winter they live in moose-skin tents much like the circular tepees, or lodges, of the Sioux, Cheyennes, and other



INDIAN BURIAL GROUND.

Indians of the treeless plains of the West. When one reflects that winter in this region is simply polar in all its aspects, one wonders how life can hold out in such abodes. From a trader's description of the winter tents, I learn that the Indians know the non-conducting powers of a stratum of air, for these tents are made double.

Directly opposite the large Ayan village is another much smaller one, called Kowsk-hou, and a sketch of it is introduced to show the general tenor of the banks over the larger portion of the Yukon River:—great rolling bluffs, fringed with a footing of spruce, and lower down an almost impenetrable underbrush of deciduous vegetation, make a pleasant contrast in color with the more somber green of the overtopping evergreens. On low alluvial banks, especially those of the islands, this glaucous bright green has been washed away, and the spruce, becoming undermined by the swift eroding current, form a network of ragged boughs, almost impassable to one who would reach the bank.

One may see this in temperate climes, where felled trees still cling to the washed-out roots, but along the Yukon the soil, frozen to the depth of six or eight feet, will not fall until undermined for many feet. When it does fall, it is with a crash that can be heard for miles, reverberating up and down the valley like the report of a distant cannon. The

whole bank, sinking into the shallow current, presents to one approaching its intact forest of trees, like a body of Polish lancers. Where the current is swiftest the erosion is most marked, and on the swiftest current our raft was always prone to make its onward way.

The morning of the 16th of July we took an early start to avoid much begging, and dropped westward with the current. It was hard that day to imagine, with a blistering heat on the river and thunder-showers often going over us, that we were within a few days' journey of the Arctic circle.

Shortly after one o'clock on the afternoon of the 17th we passed the mouth of the White River. Here the Yukon entirely changes its character. Heretofore a clear, bright mountain river, with now and then a lake-like widening that caught and held the little sediment it might bear, it now becomes the muddiest river on the western coast of North America, and holds this character to its mouth.

This change is caused by the White River. The White is very swift, and is thus enabled to hold in solution the débris that the glaciers pour into its head-waters. Meeting the Yukon, its rapid current carries its silt and sediment nearly across that river, and changes the blue of the greater stream to a chalky white. All our sport with hook and line now disappeared, and we were thereafter dependent upon the nets and weirs of the Indians for our fish.

A few miles below the White a river of nearly equal size comes in from the right. This is the Stewart, or, as the Indians call it, the Nachonde. Years ago the Hudson's Bay Company had a thriving trading-post near its head-waters, but it, too, fell shortly after the fall of old Fort Selkirk. A small party of American miners had found good prospects in placer digging at the mouth of the Stewart, and were preparing their camp. They certainly deserved success. I took our old water-logged canoe, and, with a half-breed native, visited them at their camp.

Returning late in the evening, with the sun in my face and with no knowledge of the resting-place of my party, I found, in the vast spreading network of islands, no assurance of a speedy meeting. We had made an agreement on parting that the advance should burn spruce boughs at reasonable intervals, that I might have a sign on my return. Though spruce was everywhere in sight, there was that night none found on the island where the camp was made. So I had no sign. I never knew until that evening how like an ascending smoke looked the pencil-points of ridges of spruce fading into the water's edge, and tinged with the rays of the setting

sun. An occasional shout was at last rewarded with an answering cry.

We met a tribe of Indians calling themselves "Tahk-ong" on the following day. With them we found resting four of our Ayan friends, and both said that a short distance ahead we would come upon a trading-post. It was not until the following day that we drifted past the post, marked on the map as Fort Reliance, and found it deserted, to our great disappointment, for we had there hoped to obtain stores.

That evening at ten o'clock we went into camp at a point where a fine river came in from the east, with water so clear that it

ing by astronomical observations, and waited till noon. Only two rough "sights" rewarded my delay. During this time of the year the prevailing winds, I noticed, were from the south, and always brought fog or light rain, a circumstance easily explained by the theory that the winds, coming off the warm Pacific loaded with moisture, have the moisture precipitated in crossing the glacial summits of the Alaskan coast-range.

At the Indian village of Nuclaco, opposite the site of Fort Reliance, the entire population, with a large number of Indians from the Tanana River, received us with a great banging of guns. From here to the mouth of the



SWEEPERS.

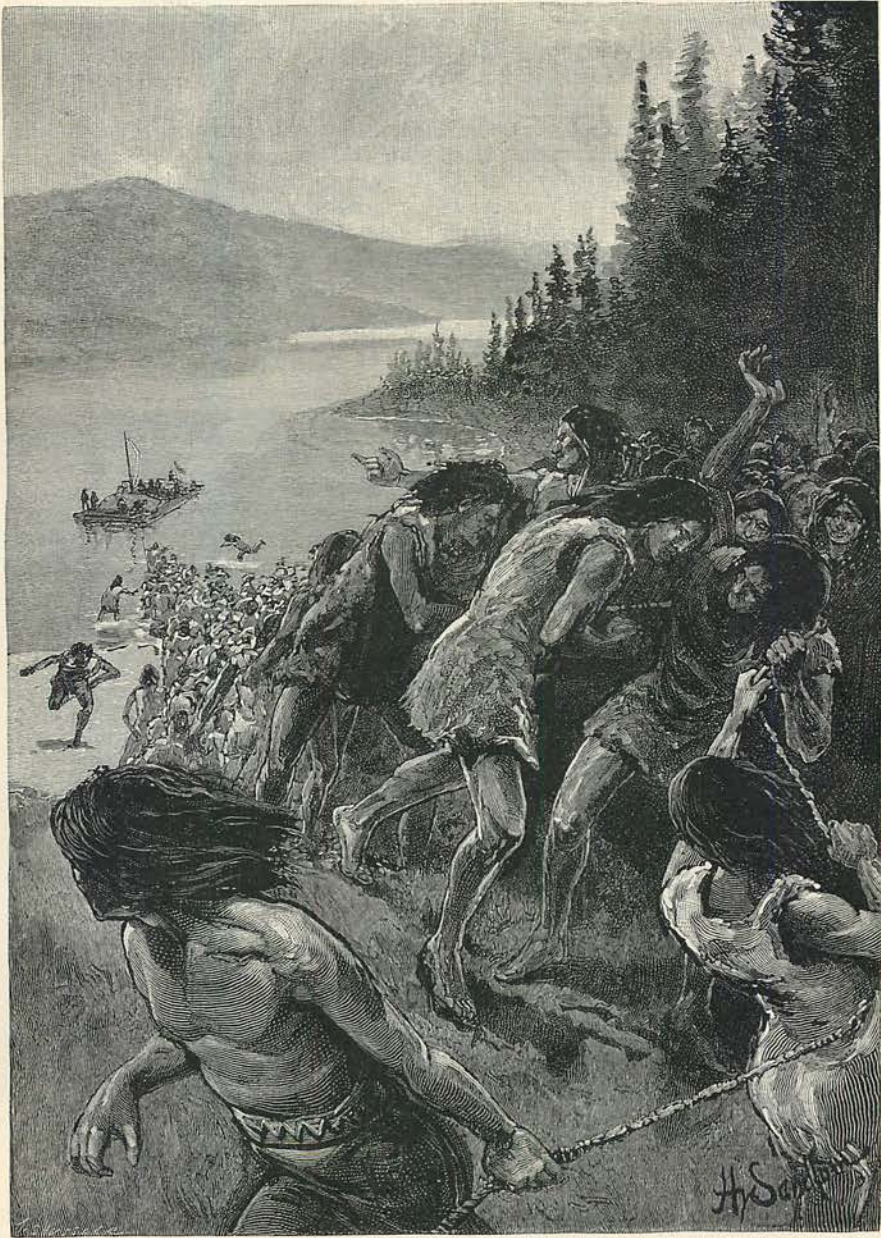
tempted some of our party to get out their fishing gear again, but to no purpose. This the traders call the Deer River, from the large number of caribou that congregate in its valley during certain seasons of the year. Here lies the narrowest part of the Yukon for many hundreds of miles. Though its width here cannot be more than two hundred and fifty yards, the majestic river sweeps by with no added force or haste, showing the great depth it must have to discharge the vast volume of water that a short distance above had spread over a bed two or three miles wide.

Here I tried to "check" my dead-reckon-

ing by astronomical observations, and waited till noon. Only two rough "sights" rewarded my delay. During this time of the year the prevailing winds, I noticed, were from the south, and always brought fog or light rain, a circumstance easily explained by the theory that the winds, coming off the warm Pacific loaded with moisture, have the moisture precipitated in crossing the glacial summits of the Alaskan coast-range.

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On the 20th of July we drifted a little over



AYANS PULLING THE RAFT.

fifty miles in eleven hours. This was one of the very few days that we were not aground for any appreciable length of time, and the distance traveled was great enough to establish firmly the reputation of the river as probably the swiftest stream of any magnitude in the world. We were aground but once that day, having run upon a submerged rock while the entire party was occupied in using four bears for movable but untouched targets. We came to a halt with a shock that would have dis-

jointed our craft had she been less staunch than a well-nigh solid piece. She swung safely around, however, and in three minutes was again holding her undisturbed way.

About three o'clock a most remarkable rock was seen on the east bank of the river, springing directly out of a level plain, bounded in the distance by a crescent of low hills sweeping around a huge bend in the river. It was probably three hundred feet high, and rose with perpendicular sides from the plain. On



JOHNNY'S VILLAGE, OR KLAT-OL-KLIN.

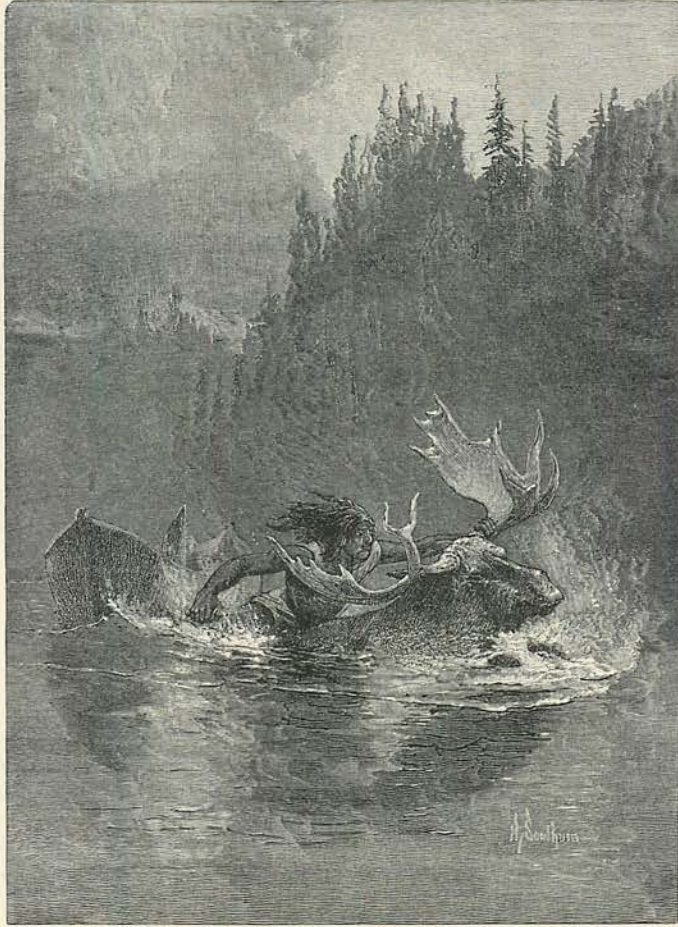
the other side of the river, directly opposite, stood another rock, the exact counterpart of the first, except that the second fades away into the bluff behind it. The Indians explain the situation by a legend which holds that the rocks were long ago man and wife, but incompatibility of temper led the husband to kick the wife out into the plain and draw the river from its bed, near the distant hills, for a perpetual barrier.

July 21st brought us to the Indian village of Klat-ol-klin, a name we found with difficulty, as even the natives call it "Johnny's village," from the Americanized name of its chief. This was the first permanent village we had seen on the river. There were but six log houses in all, abutting against each other, with their gable-ends turned towards the river. It was perched on a steep bank, so close to the crest that two could not pass between the houses and the river. At the water's edge was a perfect network of birch-bark canoes, and back of these an inclined scaffolding of spruce poles, where salmon hung drying in the sun. Here, for the first time, we found the Indians preparing any considerable number of this fish for winter use. The fish are caught with scoop-nets three or four feet long, fastened on two poles from ten to twelve feet in length. A watcher, generally a squaw, standing in front of the cabins, heralds the approach of

a fish, perhaps a half-mile down the river. Never more than one fisherman starts. Paddling out to the middle of the river, he guides his canoe with his left hand, as the voices from the shore direct, and with his right dips his net to the bottom. Upon the



FISHING ON THE YUKON.



KILLING A MOOSE IN THE WATER.

careful adjustment of this depends his success. Failures are rare. As the fish swim near the bottom, I do not understand how they are detected in the muddy water of the river.

On the 22d the soil appeared thick, black, and loamy, and grass, always good, was now becoming luxuriant, with the mosquitoes increasing in number and the country perceptibly opening. On the 23d we came to "Charley's" village, an exact duplicate of "Johnny's," even to the number of the houses and the side of the river.

The next day we camped at St. Michael's Bar, or Island. From here to Fort Yukon the country is as flat and open as the Pampas, and but five or ten feet above the level of the river. Our Indians, having never been so far, thought we were going out to sea, although we were over a thousand miles from the river's mouth.

As soon as this flat country is entered the channel splits and subdivides every few

miles, until for days we could not tell whether we were on the main stream or on one of the many waterways between the many islands. At Fort Yukon the river is said to be seven miles wide. In spite of the many channels into which the river spreads, the current never decreases, and we went drifting on in the same good old way until Fort Yukon was reached.

At this point, one thousand miles from the river's mouth and about the same distance from its head, the river sweeps with a marked curve into the arctic regions, and then, with less enthusiasm than most polar seekers, turns back into the temperate zone, having been in the arctic for less than a league, and, as the current runs, for less than an hour. The early traders at Fort Yukon supposed their river ran parallel to the Mackenzie; and so it was mapped, its bed being continued north to where its hypothetical waters were poured into the Arctic Sea. The conservative slowness of the English to undo what the English have done

had a new illustration as late as 1883, when one of the best of English globe-makers, in a work of art in his line, sent the Yukon with its mighty but unnamed tributaries still into the Arctic. There it will be made to flow until some Englishman shows that it surely flows elsewhere.

For a hundred miles above and two hundred miles below Fort Yukon, the river flows through a region so flat that it seems like the floor of an emptied lake. This area is densely timbered with spruce, and but for this would be nothing but a salient angle of the great flat arctic tundra of the polar coast. The dreariness of unlimited expanse is broken to the northward by the pale-blue outline of the Romantzoff Mountains, so indistinct as to seem a mirage; while to the south arise, in isolated points, the Ratzel Peaks, the outlying spurs of the Alaskan Range, from the Upper Ramparts of which the Yukon flows towards the Lower. Fort Yukon was left behind on the 29th of July, our raft that day drifting by a village where nothing greeted us but a howling troop of dogs. This village would have attracted no attention further up the river, but here, where the river divides itself in many channels, making salmon-catching of but slight importance, villages are very rare.

The 29th was a hot, sweltering day, with the sun and its thousand reflections sending their blistering heat into our faces. In fact, our greatest inconvenience near this short arctic strip of the stream was the tropical heat and the dense swarms of gnats and mosquitoes that met us everywhere when we approached the land. That night none of the party could sleep, despite the mosquito-bars over us. Mosquitoes do not depend for their numbers so much on their latitude as on the superficial extent of stagnant water in which they can breed, and nowhere is this so abundant as in the tundras and timber-flats of the polar coasts. The intense cold of winter sinks its shafts of ice deep into the damp earth, converting it into a thick crust of impervious stone. However warm the short summers may appear to one who judges it from the acclimated standpoint of a rigorous country, it is insufficient to melt more than a superficial portion of this boreal blanket, where only a swampy carpet of moss may flourish upon the frozen stratum below. Through this the stagnant water cannot sink. As the weather is never warm enough to carry it off by evaporation, these marshes extend far and wide, even up the sides of the hills, and give the mosquito ample room to propagate.

We took an early start the next morning, and drifted down the hot river, by low banks that needed nothing but a few breech-clouted

negroes to convince us that we were on the Congo. Between six and eight in the evening the thermometer stood about eighty degrees Fahrenheit in the shade, with shade for nothing but the thermometer. Hoisting one of the spare tents for a protection from the sun would have prevented the helmsman from seeing his course and made grounding almost certain, and heat was to be preferred to this, with its attendant labors.

Singularly enough, at this very time a couple of sun-dogs put in an appearance, a phenomenon we usually associate with cold weather, and now sadly out of place. Rain made sleep possible that night and traveling impossible the next day, and left us nothing to do but to sit in the tent and watch nature waste itself in a rainfall of four inches over a vast marsh already six inches deep. Some of our party, wandering over the gravel-bars, through the showers, found the scattered petrified remains of a huge mastodon. All through the valley such remains are numerous.

On the evening of the 2d of August we came in sight of the high hills where the "Lower Ramparts" begin. So closely do the ramparts of the lower river resemble those of the upper that I could not help thinking them parts of the same range, which bears eastward and westward like a bow-string across the great arc of the Yukon, bending northward into the flat arctic tundra.

Near our camp that night we saw the only family burial-ground we had seen on the river. It contained a dozen graves, perhaps, and was decorated with the usual totems perched on high poles, some of which were fantastically striped in the few simple colors the Indians had at their command.

A gale of wind on the 4th allowed us to drift but twenty-six miles. From here to the mouth of the river strong head-winds are generally raging at this season of the year. On both sides of the river, from this point, the small tributary creeks and rivers bear down clear, transparent water, though deeply colored with a port-wine hue. The streams drain the water from the turfy tundra where the dyes from decaying leaves impart their color. Probably iron-salts are also present.

On the 5th we approached the rapids of the Lower Ramparts, and made all preparations for their stormy passage. Making hasty inquiries at an Indian village concerning them, we found that we had already left them behind us. This part of the river was picturesque, and not unlike the Hudson at West Point. I should have stopped to take some photographs but for the dark lowering clouds and constantly-recurring rain-squalls.

Eighteen miles below the mouth of the



ANVIK INDIANS.

Tanana, we found the trading station of Nuklakayet. Here our raft-journey of over thirteen hundred miles came to an end, the longest of its kind in the interest of exploration. As we dragged the raft upon the bank and left it there to burn out its existence as firewood, we felt that we were parting from a true and trusty friend.

We met our first Eskimo dogs here, a finer and larger race than those I had seen farther to the east. They seemed a distinct type of dog in their likeness to each other, and not the vagabond mass of variable mongrels of all sizes and conditions that my previous knowledge of cold-weather canines had led me to consider them.

At Nuklakayet we were furnished with a small decked schooner of eight or ten tons, called, in the rough Russian vernacular of the country, a "barka." It was said to be the fleetest "barka" on the river, when the sails were spread in a good wind. We had good wind in abundance, but there were no sails, so the current was again our motive power. There was, indeed, a palsied jib that we could tie up when the wind was just right, but the wind rarely made its use possible. We got away from Nuklakayet on the 8th, and drifted down the river till camping-time. Then we found that the "barka" drew so much water that we could not get within thirty or forty yards of shore, and were obliged to bring our rubber boots into use.

All the next day we had a heavy head-wind and made but eight miles, our craft standing so high out of water that at times she actually went up-stream against a three-mile current. At night, however, these daily gales fell and left us a prey to the swarms of mosquitoes. All day the 10th we passed Indian villages, with their networks of fish-weirs spread on the river. We passed, too, the mouth of the Newicargut, or Frog River. On this part of the Yukon we pass, in succession, the Sooncargut, Melozcargut, and Tossecargut, which the traders have simplified into Sunday-cargut, Monday-cargut, and Tuesday-cargut, *cargut* being a local Indian termination meaning river or stream. The Newicargut marks the point where explorers from the upper river connected with those of the lower, and established the identity of the Pelly of the English and the Kwichpak of the Russians. Since then the river has been known as the Yukon, the Russian name disappearing, and the name Pelly becoming restricted to the tributary that flows into the Yukon opposite Selkirk.

Near the Indian village of Sakadelontin we saw a number of coffins perched in trees. This was the first time we had seen this method of burial on the river. In all the Indian villages on this part of the river we found the number of women greatly in excess of the men, for at this season all the able-bodied hunters were inland on the tundra north of the river hunting for their winter stock of reindeer clothing and

bedding. The Russian or local name for the reindeer coat is "parka," and here we saw the first one made from the spotted or tame reindeer of the native tribes of eastern Siberia. The spottings are great brownish-red and white blotches like those on a "calico" pony. A generous offer to the owner of this particular "parka" was immediately and scornfully refused.

Facing the usual gale, we drifted slowly down the river to Kaltag, where the south bank becomes a simple flat plateau, though the north bank is high and even mountainous for more than four hundred miles farther.

It seemed not improbable that this had been the Yukon's ancient mouth, when the river flowed over all the flat plain down to the sea. Certainly the deposit from the river is now filling in the eastern shores of Bering's Sea. Navigators about the coast say it is dangerous for vessels of any considerable draught to sail within fifty or a hundred miles of land near the Yukon's mouth, and every storm lashes the sea into a muddy froth.

We amused ourselves, late in the evening of the 18th, by drifting far into the dark hours of the night in search of a fair place for a camp, but without avail. Two days later it blew so hard that we could not think of stirring, but lay at our moorings in momentary danger of shipwreck. Anvic, a picturesque little trading-post, was reached on the 22d. The trading-posts become more numerous now, but just beyond Anvic the last Indian village is passed, and forty miles below the Eskimo villages begin.

Myriads of geese were now seen everywhere, mobilizing for the autumn journey to the south. We had a further token of coming autumn on the morning of the 24th, when we found the high grass white with frost, and we were told by the trader at Anvic that ice would sometimes be thick by the 1st of Sep-

tember. The little trading-steamer came down the river the same day, and taking us in tow, brought us down to a mission where an old Greek church of the Russian Company still draws subsidies from Russia. The following day we reached an Eskimo village, and slept for the first time since spring under a roof. Andreavsky was made the next day, where the hills were plainly lowering. The spruce and poplar disappeared now, and low willows took their place, though plenty of wood still abounded in immense drifts on the upstream ends of the numerous islands. Near Andreavsky begins the delta of the Yukon, with its interminable number of channels and islands.

We reached Koatlik, at the mouth of the river, on the 28th, and came to St. Michaels on the afternoon of the 30th, meeting our old acquaintance, the southern gale, outside. We had hoped to take sail on the revenue cutter *Corwin*, but she had been gone already two weeks, and we were forced to turn our hopes to the schooner *Leo*.

It was not until the 8th of September that the *Leo* hove in sight, bearing down upon St. Michaels in a gale of wind. She had on board Lieutenant Ray's party from the international meteorological station at Point Barrow, and, although overcrowded already, we were kindly made welcome. The *Leo* was in a bad way, having "stove in" her bow against the ice while trying to make Point Barrow, and a few doubts were expressed as to her seaworthiness in the choppy seas of the autumn. We got under way on the 11th, however, and, once out of Norton Sound, made a quick passage across to Oonalaska in the Aleutian Islands. Here the *Leo* was beached and repaired. We had grown tired of long strolls and trout-fishing in the mountain-streams at Oonalaska, and were glad at last to take ship and bear away from the last foothold on Alaska.

Frederick Schwatka.

