

ENORMOUS WATER POWERS MIGHT BE DEVELOPED

American Writer Has Scheme for Damming Niagara River Below the Gorge--- Would Generate Two Million Additional Horse Power---Additional Electrical Energy has Become a National Necessity in Canada.

R. G. Sherrett in Scientific American. Niagara Falls is commonly regarded as a scenic wonder only, but without the power of Niagara's falling waters we should be fearfully handicapped in the grim task we have set ourselves of waging war. The public at large does not realize it, but our position at the forefront of the electro-chemical industry is due well nigh entirely to the energy furnished by the waters that rush from Lake Erie to Lake Ontario.

The power of the Niagara river developed at the falls has made it possible for us to produce upon a generous commercial scale metallurgical

relatively cheap electrical energy by converting the simple materials of sand, sawdust and coke, into crystals of carborundum—that wonderful abrasive that plays so big a part in latest industrial processes.

Millions of Horse Power.

According to the estimates of government experts it is physically possible to develop at Niagara Falls a maximum of 6,500,000 horse power, but because of international agreement the legal maximum cannot exceed 790,000. As a matter of fact, because of various hampering circumstances, the total energy actually available for commercial service prob-

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in question will make it possible to obtain the desired power without in any wise detracting from the charm of Niagara Falls.

A Massive Dam.

Briefly, the fundamental feature of the project is a massive dam arising from the rocky bed of the Niagara river and blocking the gorge from bank to bank at a point a little more than 4½ miles below the famous cataract and something like 2½ miles south of Lewiston, N. Y., and Queenston, Ontario. By means of this dam the water level would be raised high enough above the present surface of the river to provide an effective head of 90 feet. The local result would be to lower the visible rise of the flanking cliffs by something like one-third, but the new level would merge exactly with the existing water surface at the falls, and would therefore, in no wise change the scenic conditions there. The existing rapids would, necessarily, be submerged, but the scheme contemplates substitute rapids below the dam that would be equally tumultuous and probably more spectacular.

The hydro-electric installation that would be made practicable by the building of the proposed dam, would develop quite 2,000,000 horse power, and one-half of this would be for the United States and the other half for the Dominion of Canada. Assuming a horse power to call on an average for the consumption of 10 tons of coal a year, the energy so obtained would be equivalent to the consuming of 20,000,000 tons of fuel annually! But apart from that, it would insure an enormous amount of power which would not fail the industrial consumer should miners strike or transportation conditions hamper the prompt or continuous delivery of coal. The state of our railways today emphasizes this point.

Nature Would Help.

Influenced by the ensemble of titanic might and the seemingly irresistible sweep of the waters at Niagara Falls and immediately below them it is no wonder that most people are staggered at the mere suggestion of damming the river. The task might be well nigh impossible of accomplishment but for nature's helping hand. At Foster's Flats, the previously abrupt drop of the wall of the river on the Canadian side is radically altered by a long slope which reaches far out into the water course and narrows the river to a pronounced degree, giving it a maximum depth of 35 feet.

Here it is that Dr. Thompson would

Thanksgiving Day In Burgess Pass



FOR one who thinks of Banff as the only place in the Canadian Rockies—or for those who think of summer days playing tennis, afternoon teas at the hotels, bridge and dances in the evenings, the following paragraphs may be of interest.

Having spent the summer and fall in the mountains, making my graduating climb of Cathedral (10,453 ft.) to become a member of the Alpine Club, staying in camp south of Hector and spending the remainder of the time at the Club House in Banff. I still had not had enough of the mountains and took the morning train from Banff to Field, where I had a full seven hours before leaving at night.

Where to go in that time was the question as there were so many delightful and charming spots. Burgess Pass was said to be a very beautiful walk, and being fond of walking I started out alone at 1.15 p.m. The trail was good, having been used by ponies all summer going to the Yoho Valley. It was a steady but gradual ascent all the time; the timber was heavy and beautiful, the autumnal tints on poplar trees and fruit bushes gave just the needed touch of color. Added to the beauty of the foliage were high banks of moss in varied shades of green and bronze, and the bright scarlet of the pigeon berries was seen along the trail; a stream came rushing madly down the mountain side, as if to retard one's progress, but the usual "stepping stones" were there. I already felt repaid by my first hour's climb. Mount Stephen and Cathedral could be seen to advantage at this point and needless to say the summit of the latter interested me, for I had not forgotten my seven hours climb to reach it.

Time passed, at last the peak loomed up which I thought must surely be my goal. I immediately took a short cut over some rock and shale, thinking it would soon lead to my wonderful view, but alas! nothing but dense timber was ahead. After several attempts the trail was found and it was a steady climb till another ridge loomed up. As Mount Burgess was now on my left and I was walking along the base of the summit, and could see the sky line between some scraggy trees (they were now fewer and farther between) I knew it was no distance to my summit. Two and a half hours had now gone by, though the day was perfect and the sky cloudless, so that one could obtain the best of views, I wondered if it would be worth the climb.

Unless one has climbed, the indes-

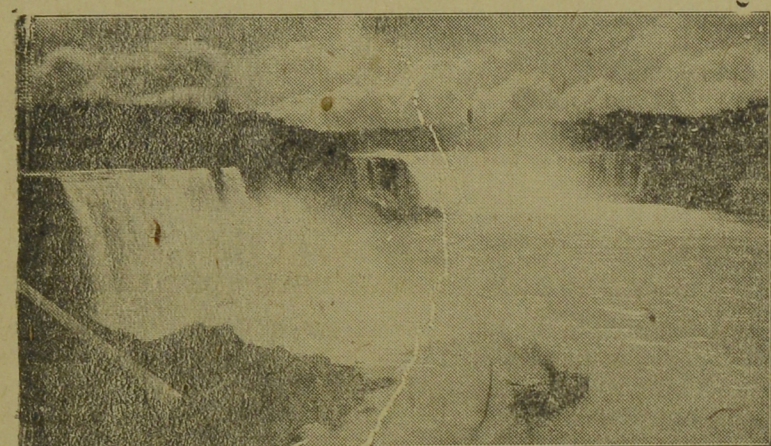
cribable expectancy as you reach a summit cannot be understood, nor can it be even by those who climb. You hold your breath and wonder in which direction to look first; each step means so much, like steps taken slowly and deliberately in some great crisis in life. They are of such import. The first snow-capped peak appears—a few more steps are taken when a glacial hung summit comes into view; then more peaks with their snow fields, even the crevasses were discernable, another few steps and the summit is reached; never as long as I live shall that moment be forgotten; looking ahead for the summit I little dreamt of the view behind. Mountains, mountains in all directions, as far as the eye could reach—Mount Burgess to my left with Emerald Lake lying at its base (more green, if possible, than any emerald) in a most beautiful valley.

President and Vice-President ahead of me, Mount Wapta to my right, with its pony trail leading to the Yoho on its side, Cathedral and Mount Stephen southeast of it, and to the south range upon range of snow-capped mountains. I was literally dumb and numb of soul. No thought or words could express such a moment, it was several minutes before I could think, and then I found my soul breathing a prayer of joy—utter joy in the fact that I was alive and could enjoy such a view—it surpassed even the Grand Canyon of Arizona. To be under the canopy of heaven with no living thing in sight as far as the eye could reach, where only silence is heard, for a silence such as that is not silence, for the "Infinite" speaks. It surpassed any service ever attended on Thanksgiving Day. I was not only on the summit, but further away I knew not where, on another plane; another world—at least in the world of thought.

The sun was now dipping behind Mount Burgess and how quickly the colors changed, the Emerald Lake became the color of olives, the mountains began to grow hazy. It was time to leave or darkness would overtake me, so I started, loath to go. After an hour and a quarter walking steadily I sat down to rest: the color-

ing was now in all the rich tints of Roman days. The mountains were blues and purples, the pine trees looked dark and dismal, and the yellows and reds of other trees looked deeper and richer than they had an hour ago.

The dusk was falling quickly, and the path was barely discernible when nearing the end of the trail. The lights of Field now began twinkling through the trees like so many stars. There were fifty minutes before my train left, though one had just passed and I wondered if I had mistaken the time on account of the mountain and Pacific time, so why leave! I sat down on the trail, the night had come, the day was passed and my wonderful walk a thing of the past, but what memories, and what a Thanksgiving Day. One never to be forgotten. "Alone!" No, one is not alone when with Nature, for many voices are heard: such were my thoughts at this moment when I heard a sound—what was moving on the trail? A figure emerged from the gloom, and he too was "alone." I spoke first and asked if the train that had just passed was the regular, and to my joy it was not. This "Lonely Figure" I had walked fourteen miles. We went back to the hotel together. Kindred spirits and one with nature. He told me of his travels in the Alps and the Sierras, but nothing touched this for grandeur. He asked if there was much to see at Banff, and I said nothing that compares with this. "I should," he said, "Imagine it were rather the edge of things," and my answer said, that expressed it perfectly. We both agreed that to see the real nature of the mountains the beaten trails and high roads should be left and the pony trails and high roads should be taken, either on foot or riding, then the grandeur, the magnificence, and awe inspiring Canadian Rockies can be seen to the best advantage. A few days should be spent at Field, or if time will not allow, at least miss one train to go through Burgess Pass, for the whole trip is certainly worth that one glorious view.—E. C. McD.



THE FALLS OF NIAGARA.

alloys indispensable to the production of steel fit for armor plate, high power guns, armor-piercing projectiles, and the extremely exacting demands of the motors for flying machines.

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ably does not exceed 550,000 horse power. The difference between fact and potentiality is the price paid for scenic beauty. The public generally, time and time again, has registered its vigorous protest against any impairment of this natural wonder. Engineers, therefore, have striven to find acceptable solutions of this economic problem, and among the latest is what is known as the Thomson-Porter Cataract project. Additional hydro-electric energy has become an acute national necessity, and Dr. T. Kennard Thomson, the engineering genius of the plan, is satisfied that the scheme

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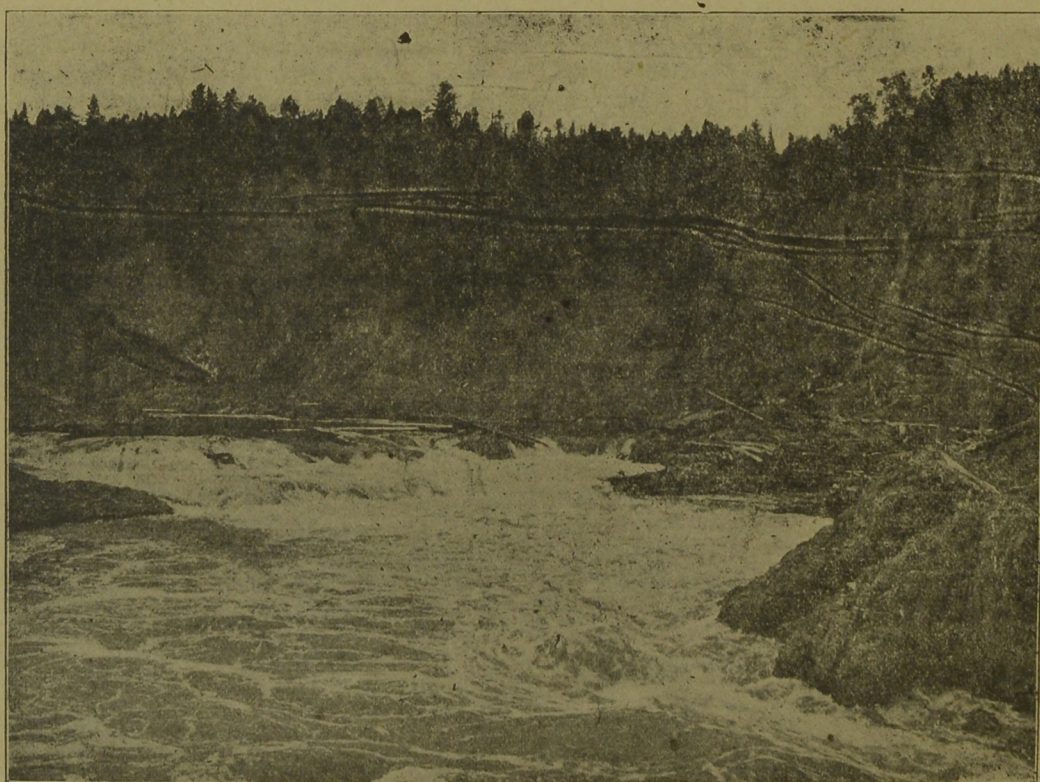
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