AROUND THE CHAUDIERE.

BY MOSES OATES.

FROM an interesting sketch of the Chaudiere, published in a recent issue of the Empire, written over the well-known pseudonym of "Moses Oates," we reprint the following excerpts, which more particularly describe the lumber side of this great lumber district:—

"The Parliament buildings and the Chaudiere, with the industries clustered around it possess, however, more interest than anything else in the environments of the twin cities of Ottawa and Hull. Comparatively few Canadians have visited Ottawa, but the architecture of the buildings has been made familiar to everyone through engravings. The beauty of these stately piles, with their exquisitely graceful towers, cannot be appreciated unless they are actually seen. Engravings can scarcely hint the rich, warm, restful coloring which here, more perhaps than in any public structures on this continent, give the architecture an indescribable and surpassing charm.

The Chaudiere is a more magnificent and more interesting spectacle. It almost defies description and cannot well be photographed; so it does not receive the attention from the public at a distance that it merits. In stupendous turmoil it surpasses Niagara. It is full of sentiment, and yet is one of the most practical bread-and-butter affairs in existence. Its height falls short of the expectation of a visitor. Though the total descent of the river is sixty feet, the fall proper is only about forty feet high, and scarcely seems half so much. But when you are in Ottawa you cannot forget the cataract. The roar is everywhere. It penetrates the hotels. A stranger—I have several times mistaken it for the roar of rain on the roof. Its sound is a multitudinous murmur. It enters the halls of Parliament at times; on the square it is as the sound of a Niagara. But when you look over the cliff westward up to the broad city of lumber that stretches, with its slides and water avenues, across the valley from Ottawa to Hull, you see no adequate cause. A latticed bridge spans a narrow chasm hemmed in by mills. Behind it, above it and below is a gleaming roll of mist from which emerges on the dark waters a long, tossing undulating serpent of foam that winds slowly down the widening river, passes below your eyes, and miles away eastward till lost where the river curves out of sight. The river view towards and beyond the falls is beautiful, but no falls are visible; only a glinting as of bright bayonets flashing in the sun amid the smoke of battle.

ON THE LUMBER FLATS.

To understand the Chaudiere you must go there. Winter has its peculiar charms for this excursion, but summer, on the whole, is better. A horse-car line, winding deviously along the streets on the bluff, gives you glimpses now and then of the lumber flats below. At last you descend into the strange wooden city of the Chaudiere, the largest lumbering centre in the world. Interest grows with every yard of your progress. Lumber, lumber everywhere; countless piles on piles, that shut out the vision and fill your nostrils with the balm of the piney woods. Railway tracks cross your path and wind in amongst the mills. The famous slides, the running of which is one of the most coveted and thrilling experiences life conveniently affords, pass under you and away. Lanes of water run here and there. Where they open on your way you catch momentary vistas of mills and wooden causeways and bridges, of terraces and gorges of water and roaring cascades that leap or tumble from glassy basins into foaming depths, whose multiplicity and distribution are confusing. Your ears are stunned by the sounding waters. Your eyes are delighted with phalanxes of crystal spouts, breaking into foam, and sending up from shady depths almost impalpable clouds of spray, against which rainbows bridge the mysterious waterways, and veil in glory the dim interiors of the wide-mouthed mills where men move and saw rip their stately, deliberate way, as in a pantomine. Now and then, as your car rattles on, you get a glimpse in the sombre east, above the lumber piles and rainbows and noise and turmoil, of the calm and beautiful towers and facades on Parliament hill, while up water lanes leading into the glowing west you see booms and logs, and beyond them the lake-like expanse of twinkling river, stretching towards the wilderness.

The car stops near the bridge, and opposite that colossal congregation of belts and saws, pillars and beams and shafts, known as Booth's sawmill. It is, since its recent enlargement, the greatest lumber mill in the world, and has a capacity of 100,000,000 feet per annum. The car stops and trembles, and as you leave it and walk on, the quivering is that of a gentle earthquake. The ground seems solid enough, but you doubt whether or not you are on terri firma; whether the quaking is due to the buried Ottawa, tossing and tumbling along subteranean ways, or to the mighty impact of the falls near by. You step upon the suspension bridge, and suddenly, past the angle of the great mill, with a roar at once augmented a hundred-fold, the Chaudiere, enwrapped in shining mist, bursts upon you..

A SCENE OF STUPENDOUS TUMULT.

As you lean over the railing your first thought is scarcely of the falls. Their height is insignificant; they are much overtopped by the by no means lofty structure of plank and beam that pushes out into the mist and surges of the basin. But you do not think of that for the moment. Your senses are filled with the stupendous tumult and slow and awful strength of the surging floods pent and struggling through the chasm below. The sound of many waters is in your ears, the thud and thunder of the fall of mighty floods; the hiss and swish and roar of a thousand voices of the cataract calling from the seething chasm, from the cascades pouring over timbers and rocks on either side, and from the rolling spouting clouds of spray, through which in front a myriad blades of light flash dazzling from the face of the falls.

Then you have leisure and disposition to enjoy the scene in detail and appreciate the very varied beauty which, in a measure, unequalled in any noted cataract elsewhere appeals to every mood and change of the soul. Through the spray above the falls is seen the broad surface of the Ottawa, twinkling against the green of the distant shore and spanned far out to the islets in midstream by the silver gleam which marks the first roll of the cataract. Then the great river, here a full mile in width, suddenly converges within a quarter of a mile, and almost at right angles, and after yielding minor rivers to the lumber flats, gathers for its plunge into the "cauldron" of the Chaudiere.

On the right, or Ottawa side, the river comes in deep, smooth, stately flow; on the left the shallower waters, curving in by the Quebec shore over ledges of limestone far apart, flow down a succession of long lines of little glistening falls. In mid-stream the deep river becomes more and more disturbed as it nears its plunge. It breaks and tosses now and then into feathery foam, and here and there swells into rounds and ridges, or sinks into permanent hollows, where the gathering waters pour in from either side and go raging down the rock-rifts worn up stream from the edge of the gorge. Then comes the mighty plunge.

A UNIQUE CATARACT.

If the spectacle of a great river, ranking with the largest in Europe, suddenly contracting from the width of a mile to force its furious way through a rock-bound passage not 200 feet across, has a few parallels, in irregularity of outline the falls of the Chaudiere are absolutely unique amongst great cataracts. The river flows from west to east; but the waters fall from every direction. A deep crack or gorge, 500 feet in length, extends north and south athwart the stream, but not the whole way across. A second gorge runs eastward from the south end of this crack with the direction of the river and passes under the bridge. Above the bridge a third ravine enters the second from the north. The three gorges form the edges of a somewhat quadrangular plateau of rock extending out from the Quebec shore, and on a level with the riverbed just above the main falls. Over this plateau the river flows and spreads, and falls from three faces, west, south and east into the chasms. As the mid-waters of the river flow directly over into the great transverse crack, and the waters converging from the left pass the main fall by and pour into the gorge from the south, the Chaudiere has five sides. In full flood the cataract has a continuous angular front of nearly 2,000 feet. It is this extraordinary peculiarity of outline which gives to these falls their unrivalled magnificence of tumult and makes their name Chaudiere, or "Cauldron"—so peculiarly appropriate.

Nor is the Chaudiere lacking in historic interest. More than two and a-half centuries ago Champlain camped here. The cauldron was familiar to nearly every adventurous spirit of the ancient regime, for this was the gateway to the vast and mysterious west before a white man had seen Lake Erie, or heard the roar of Niagara Falls. Here the great canoe fleets of the Hurons paused on their way to and from the little trading fort at Montreal, and through the dark woods fringing the chasm poured hundreds of dusky warriors in the arduous toil of the portage. Here the bloody Iroquois, boldly penetrating from their southern home, lay in wait, and sometimes their dreaded warwhoop mingled with the roar of the cataract.

All is changed: the last vestiges of the primeval forest have long since disappeared. But the Chaudiere is more a place of portage than ever. Steamers puff their strenuous way into the lower surges of the cataract. From hundreds of miles above the forests come down and emerge on the broad river below in lumber destined for the markets of two continents. A great causeway runs from the bridge to Hull and overlooks the terraced cascades of the ravine. It is thronged from morning till night with thousands of busy feet, for at its further end clusters one of the marvels of the Chaudiere, the colossal factories of Eddy, of Hull, from whose industry within a generation a whole city has sprung into being."

CAN SMOKE BE BURNED?

AS a matter of fact smoke, at the temperature necessary to ignite carbon, may be consumed, but smoke once created and carried by excess of draught from the hottest part of the furnace onward to the smokestack, may not be consumed. It requires a temperature of 800 to ignite carbon. The answer to the question must be with a view to practical value, and to compress the matter necessary to be understood. For answer we will assume a fresh fire be made and fed with bituminous coal. A large volume of smoke is seen to be given off and hurried by the draught to the smokestack.

Of what is that smoke composed? There is, firstly, the water that is in the coal converted into vapor, and that vapor is the carrier of the matter that we call smoke; that smoke is composed of hydrocarbons, and the more solid matter that is chiefly carbon. Now, bear in mind that the smoke is of the coal a part; yet one part is consumed and the other part escapes as soot and smoke. Why, burning is an act of contact, intermixture, ignition and union, by which the hydrocarbons and the solid carbon in the fuel enter into union with the oxygen derived by the draught from the outer air; that union, to be perfect, must be in scientifically determined proportions; if the air supplied be insufficient, then the union will be limited and the volatile constituents of the coal will pass away as soot; if the air be in excess the temperature will be lowered and the solid particles of carbon from the disintegrating coal will be carried by the draught from the fire-bed unconsumed to the smokestack as smoke.

If the requisite oxygen was supplied in contact with the ignited and igniting coals, then the smoke would be consumed, for that smoke is only comminuted parts of the coal resulting from disintegration of the greater parts, the disintegration caused by the heat resulting from the union of the oxygen supplied and as much of the combustible particles of the coal in a gaseous state as that oxygen can take up.

Now, as combustion is an act of union, there will be no smoke from that which enters into union, and if there be a sufficiency of oxygen to enter into union with all the gases of the furnace, then by their intermixture there will be union, creating sufficiency of temperature for ignition of and combustion of the solid carbon particles, as well as of the volatile constituents; and no smoke.

The answer, therefore, to the question: "Can smoke be burned?" is yes, with the exact required proportion of oxygen in contact with, and intermixing with, the gases in the furnace; without the exact required proportions, and under the ordinary usual conditions of firing, with or without the hundreds of schemes, many of them revived fallacies for smoke-burning, it is not possible to burn smoke in the furnace; that is to say, it is not possible to burn smoke in the furnace except and to the extent of the portion that has entered into union with the oxygen provided by the draught from the atmosphere.