

years ago, and use less fuel. Take, for example, No. 7 furnace of the Illinois Steel Co., size 85 feet by 20 feet, during the month of November, 1895: averaged 314 tons a day (has gone over 350), using 30,320 cubic feet of air per minute, at a temperature of 1135° and pressure of 9.4 lbs. per square inch. The fuel consumption was only 1,620 lbs. coke to ton of iron, and 3,716 lbs. ore, 561 limestone, 90 lbs. scrap, were required to make a ton of iron. One of the furnaces of the Edgar Thompson steel works has made over 600 tons of iron in one day. The Claire furnace, at Sharpsville, Pa., size 75 feet by 16 feet, in 1895 made 75,634 gross tons of Bessemer pig, an average of 207 tons per day. The rated capacity of the furnace is only 60,000 tons per year. Andrew Carnegie is erecting at Duquesne four new furnaces. They will be 100 feet high and 22 feet in the bosh, making them the largest in the world. Rated capacity will be 700,000 tons per annum.

At an address delivered a short time ago in England by the president of one of the largest technical societies, the statement was made that Great Britain was fast losing prestige as a manufacturing people. Among the reasons given were: 1st. The superiority of the technical schools in Germany and the United States in particular. 2nd. The protective policy pursued by these countries, which had enabled them to develop their mineral resources in such a manner as to make them self-sustaining. The following table shows the relative proportion of the world's product, which was the output of the furnaces of Great Britain, United States and Germany, respectively:

Date.	Great Britain. World's prod. Per cent.	United States. World's prod. Per cent.	Germany. World's prod. Per cent.	World's prod. In tons.
1870	52.30	14.60	9.97	1,402,568
1880 . . .	43.43	21.50	15.05	17,841,760
1890	29.38	34.21	17.04	26,899,099

The Morrill protective tariff was imposed in the United States in 1861. In 1860 she produced 821,823 tons pig iron; in 1895, 9,446,308 tons. In 1865 only about 100,000 tons of coke was used; last year over 7,000,000 tons was consumed. Previous to 1860 only about 100,000 tons of Lake Superior ore was used; 1895, 10,429,037 tons were produced, and to December, 1895, about 100,000,000 has been taken out of this region. I cite the advances and conditions in the United States, not because of any extra good-will towards them in particular, but for the reason that they have driven the British ironmaster from our market, cut into our own furnaces terribly, and they are our competitors in the field to-day, and we have to look sharp under present conditions to maintain our own production, which gives employment directly and indirectly to thousands of Canadians.

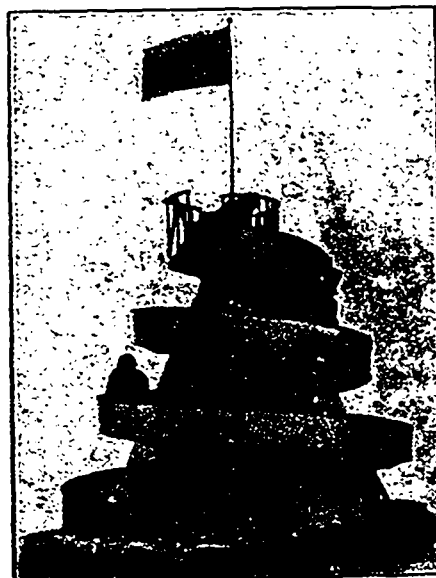
It is more difficult to-day to reduce the cost by cents than it was dollars twenty years ago, and in the rapid interchange of technical information the leaders must reap their profits quickly, because others soon follow in their lead. Plant must be engaged to its fullest capacity; partial idleness means increased cost, suspension of work, and, finally, failure. We are making excellent progress, considering everything, during the last few years. Our technical schools are improving fast, and we have a kind of protection to our mines; although not amounting to much, the intention was good. We have mines awaiting development in every province of the Dominion. The outlook for the coming season is the most promising in the history of the country, which is very gratifying, as we all know if

we are going to make this Canada of ours continue to grow and prosper, it must come through its immense mineral resources.

THE SPIRAL SLIDE.

Our engraving, with the words "Modele de Glissoire Spirale" inscribed, is that of a working model of a novel conception by Chas. Baillairge, C.E., city engineer of Quebec, of a "Spiral Slide," the slide being built around the frustum of a cone.

This model, of which the nucleus or frustum of the cone is 10 feet high, 3 feet in diameter at top and 12 at base, is built on a truck or carriage, and formed one of the allegorical cars of the procession during the late Quebec Ice Carnival; a number of boys during the promenade mounting by an inside ladder up the centre, sliding down the spiral track around the cone, and, as seen in the cut, entering the structure ready to ascend the rungs again and start on another tour.



MODEL OF A SPIRAL SLIDE—(MODELE DE GLISSOIRE SPIRALE.)

The number of circuits around the model is by the height limited to three, to afford head room for the slider, and reduces the total length of slide to about 85 feet; but when built where there is room enough for a fourth circuit, say a diameter of 16 feet, the acquired velocity would take the slider around a fourth or fifth time and lengthen out the slide to 130 feet or more, by merely having an outer rail super-elevated in a way to counteract the tendency of the sleigh to go off at a tangent by centrifugal action; the object being of course to hug the cone and always be close to it, and ready to re-ascend, instead of having to walk back as with an ordinary straight slide.

The structure as planned by Mr. Baillairge would have been 50 feet high and 60 feet in diameter at base, with some seven circuits instead of only three, and a stretch of slide of over 1,000 feet, instead of one hundred. In the slide as proposed, there is, instead of a mere ladder, a circular stairway of convenient size, the diameter at top being 12 feet instead of only 3, as in the model. Had it been erected as proposed, near the Frontenac, arrangements could have been made by which parties might have availed themselves of the hotel elevator to reach the top and walk out on to it without the fatigue of mounting a stairway; or a lift of any simple kind could be built to answer the purpose at little expense.

Such a slide, though designed for winter, may be used all the year round by the mere substitution of