

## THE YEAR'S JEWELS.

BY M. C. GILLINGTON.

GARNET : JANUARY.

*Constancy and fidelity.*

A ROSY stone, a rosy sky,  
 A hand and a world of snow—  
 Why do they flicker before mine eye,  
 And harry and haunt me so?  
 What should a rosy sky presage  
 But a fair new year to be?  
 "Constant love" was the garnet's pledge,  
 As she stood in the path by the frosty hedge,  
 And thawed the heart in me.

A rosy stone, a rosy lip—  
 If they shine so warm to-night,  
 While the keen wind strikes like a stinging whip  
 Over the cold grey light,  
 How might they burn at the mid o' the year  
 When the tide of the May runs high?  
 But the fields are dumb and the fells are drear,  
 And the snow lies white on her pathway here,  
 Under a rosy sky.

## TREASURE-TROVE IN CENTRAL CANADA.



BLIZZARD SMELTER MINE, SUDBURY.

ONLY recently the eyes, not only of the mining, but also of the commercial world have been fixed upon one little town in Canada. This town is Sudbury, a junction on the Canadian Pacific Railway, which the westward traveller but a short time ago would have passed with nothing but a sigh of boredom. It has now been discovered to be the centre of nickel and copper mines larger than the world has hitherto seen. With the uses of copper we are already familiar, but it is only within the last few years that science has revealed the possibilities that lie before the other metal. The Chinese, indeed, claim to have known the value of nickel cen-

turies ago, but Europeans only knew of its existence in the eighteenth century. Up to as recent a date as 1889, nickel was considered useful, and no more—it is now found to be indispensable.

The history of the small hamlet of Sudbury—now a second El Dorado—reads like a romance. It started as a lumber town, although its prospects in that direction always seemed limited, as well through scarcity of timber as through difficulty of transport. Indeed, it was only by the discovery of copper in the neighbourhood that its inhabitants were rescued from distress caused by the large forest fires. Mines were opened, and large quantities of ore exported in utter ignorance



BLIZZARD MINE, SUDBURY:  
SURFACE NICKEL MINING.

of the fact that the copper ore contained a considerable percentage of nickel. It must always remain a mystery as to who first made this discovery. It is said that it was due to the action of some conscientious manager in a New York smelting company, who remitted the money for the nickel as well as the copper to the mine owners. At any rate, the metal was now known to exist, but it was uncertain in what quantities. Important experiments having revealed the value of nickel to the American Government, they sent surveyors to the spot. These more than confirmed the reports of the local mineral commission; there was visible above ground 650 millions of tons of ore. The whole area of land rich with metal covered 15,000 square miles; enough nickel was already discovered to supply the world for fifty years!

For a short time it seemed as if there would be a "boom" at Sudbury rivalling, if not surpassing, that of the days of the gold fever in California or silver in Nevada. Rich and poor flocked to the spot: the speculator, with his thousands, was there, side by side with the penniless man of fashion. There, too, collected the band of ne'er-do-weels with whom all mining districts abound, who hoped that the scanty knowledge of mines and minerals picked up in British Columbia or North Michigan would at last bring

them good fortune. Land lots were bought and sold with intense rapidity. A man who buys a lot one day for £50 is offered £5,000 for it the next, when it is found that he has chanced upon one of the richest veins of ore. He refuses the offer, and in two months gets £20,000 instead. Like the soldiers in Napoleon's army—each one of whom carried the field-marshal's *bâton* in his knapsack—each man you meet at Sudbury sees before him the vision of untold wealth. Those who have read Mark Twain's account of "Flush Times in Virginia City" can easily pourtray the hubbub in this once stagnant village.

Meanwhile, the army of prospectors, whose trade it is to find and value the veins of ore, wander doggedly over the country. Never an inviting district, it now looks particularly cheerless to the passer-by, with its coating of snow and charred stumps of pines as far as the eye can reach. Nature, in revenge for the discovery of her wealth, seems to have haughtily veiled the beauty of her face. The prospector is generally a man of strong constitution. For weeks he wanders alone, feeding on food coarser than that of a labourer, yet seeking vast treasures. Every step he plants he fancies may be on a mine; a bush, a branch, may be the only thing between him and the realisation of his wildest dreams. Socially, he is most entertaining; he

knows a little of everything, and is veritably "not one, but all mankind's epitome." He talks freely, and no one need be afraid of trying to extract information from him, for he will say what suits him, and no more.

But apart from the prospector, who knows his business more or less, every man you meet at Sudbury has a lump of rock in his pocket. All have wonderful reliance on their own luck, and the most inexperienced will tell you, in a hushed whisper, how the great Comstock silver lode was walked over a thousand times unseen by the cleverest experts in the land.

The uses to which this newly-found wealth of ore is to be applied may be grouped under two heads. In the first place, it has been proved by a series of experiments that nickel steel, a material made of four parts of nickel to ninety-six of steel, is superior to the plain steel used at present.

Breaking and hoisting tests have been applied to the new combination, and it is found that the strength of the metal is largely increased: two pounds weight of nickel steel will effect the purposes of four pounds of the old substance. Again, the non-corrodibility of the material is established. It is easy to see that with such qualities as these the new metal will be adopted for such things as locomotives, bridges, and rails, while it will change the character of machinery and revolutionise the present armament system. As to the part it will play in the future warfare of the world, experiments lately conducted by the American Govern-

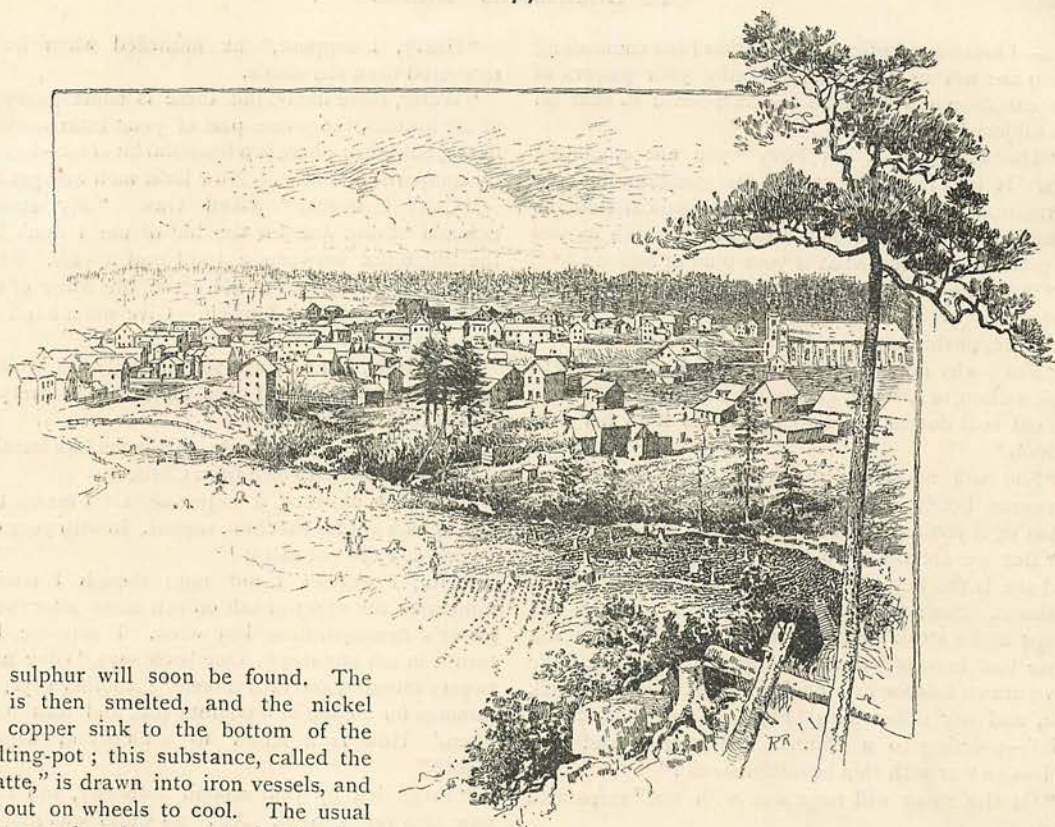
ment have given ample testimony. If introduced into the construction of heavy guns, it will reduce the chances of bursting to a minimum; if used in heavy armour-plating, it will be almost impenetrable. For further proof of its value, we have only to point to the fact that England, France, and Germany have offered ten years' contracts to one company working the mines for all the material they can supply. The offer has been refused, and for this reason: in addition to its nickel, there have been discovered in this neighbourhood enormous iron-beds, and it is from a combination of these two that the material of the future is formed. Other lands have nickel, other lands have iron: none, it may be said, have both in such profusion. It is the aim of those owning the mines to complete the whole process of manufacture on the spot, instead of exporting the raw material to be reduced elsewhere. The American Government have already shown that they are anxious to perform the separation of the metal from its accompanying substances in their own country and in their own manufactures. Heavy duty is imposed on pure nickel, but none whatever on the "matte"—the name given to the combination of nickel and copper; therefore, until this restriction is removed, Canada will have to rely on her English and European markets if she wishes to separate the "matte" herself.

It is expected that in a short time millions of money will be added to that already invested in this country, and that nickel will thus draw capital across the water to work the hitherto untouched iron mines.

The mines in the neighbourhood of Sudbury are, indeed, rapidly absorbing the nickel supply of the world, to the detriment of the New Caledonia mines, which up till recent years monopolised the market. Nor could it be otherwise; for New Caledonia, in addition to its distance, is a French colony, tied down by the strictest protective regulations. Sudbury wants but one thing to place it first and foremost in the market, and that is an improved method for the separation of the copper from the nickel as it is extracted from the mines. To the outward eye, copper is the principal factor of any piece of rock picked up by a visitor to this district, but there is a large percentage of nickel always there, as well as a quantity of sulphur. The ore is first crushed and then laid on stacks of wood, where it is roasted for months, during which dense columns of sulphur-smoke pass off wasted into the air. Doubtless, a method for preserving



ORE BEDS (DOMINION MINERAL CO.'S MINE, SUDBURY).



THE TOWN OF SUDBURY, 1890.

this sulphur will soon be found. The ore is then smelted, and the nickel and copper sink to the bottom of the smelting-pot; this substance, called the "matte," is drawn into iron vessels, and run out on wheels to cool. The usual means employed to separate bodies thus blended here fail, for nickel and copper are of the same specific gravity. This difficulty is, however, said to be almost overcome.

At the present moment, while the mines are in their infancy and the demand for nickel has to be met, copper is at a discount, and, strange as it may seem, the ore is valued by the absence of copper. Thus 15 per cent. of nickel and 10 per cent. of copper is of greater value than 15 per cent. of nickel and 20 per cent. of copper. It is obvious that it cannot be long before science has reversed this state of things.

The second great use to which the new metal is to be put in the future is in a combination of nickel and copper, which will supplant German silver and Britannia metal; hence it will be used in the making of household utensils and fancy articles of every description. It is to these two uses that the nickel and copper just found are to be applied; and it is to be hoped, for the sake of the country that owns them, that science and legislation will join in giving her the full benefits of her wealth.

---

### A BACHELORS' BROIL.

---



"WHAT is the row, may I ask?"

"Forcible, but as usual, not polite Teddy! Yes, you may ask; furthermore, you shall have an answer, and if you can throw oil on the troubled waters——"

A loud laugh followed, and then the quietest member of the group attempted an explanation, by nipping in the bud the speech of his companion, Gus Morrison,

who was noted for, and unmercifully chaffed on account of, his powers of rhetoric.

"I'll tell you, Teddy; the fact is we are all sick of chops—at least of Mrs. Grim's way of serving them; and in counsel assembled we are, or were, endeavouring to solve a problem, namely——"

"Whether a chop, or steak," broke in Gus, "must of necessity, be black, be greasy, be smoked, or be tough!"

"Thanks, that will do; what a string of horrors! Judging from your surroundings, you have been reading up your subject."

"Rather! and, as Jimmy here always declares when exams. are at hand, the more we read the more we are mystified. Oh!" with a groan, "how these authors