by him would seem to have astonished the savans of the Institute, including such well-known men as Sir Lowthian Bell, W. H. White, of the Admiralty, and Sir James Kitson, the President of the Institute. One of the experiments, made with an alloy composed of 95.3 per cent. steel and 4.7 per cent. nickel, showed that the breaking strain of the steel was raised from 30 to 40.6 tons, and the elastic limit from 16 to 28 tons. The quality of hardness obtains as the nickel is increased until about 20 per cent. is reached, and at this point a change takes place—the successive additions of nickel tending to neutralise the influence of carbon, so that the ductility shown by the extension before fracture is marvellous. A sample of wire produced by Mr. Riley was said by one gentleman to be available, instead of cotton, to sew buttons on with, it was so very fine and strong. The whole series of nickel steels up to 50 per cent. were stated by Mr. Riley to take on a good polish and finish with a good surface, the color being lighter with the increased additions of nickel. "In the very important matter of corrodibility," he said, "it is with the greatest satisfaction I can state that the steels rich in nickel are practicably non-corrodible, and that those poor in nickel are not much better than other steels in this respect. Compared with mild steel of say 0.18 per cent. carbon, five per cent. nickel steel corrodes in the ratio of 10 to 12; while in the case of 25 per cent. nickel the corrosion is in the proportion of 10 to 870. In indicating some of the possible uses to which these alloys may be applied, Mr. Riley said he felt some difficulty in not becoming enthusiastic on the point, for in the wide range of properties or qualities possessed by them it really seems as if any conceivable demand could be met and satisfied. The fact that some of the tests gave breaking strains as high as 87 and even 95½ tons, is conclusive as to the enormous strength of the alloy; and in the making of guns, the plating of war vessels, the construction of the hulls of torpedo and similar vessels, etc., its value must be inestimable. Wherever lightness and strength, with non-corrodibility, are of vital importance, nickel steel is sure to commend itself; and especially is this sure to be the case in any provision which is required to be made for the national defence.

According to information coming from Ottawa, and published in the *Globe* recently, some copies of Mr. Riley's paper reached the United States, and very soon one got into the hands of those very enterprising men who compose the Canadian Copper Company. The importance of the tests was immediately recognized by them, for as fortunately it happens, they are the owners of what no doubt is the richest nickel property in the world—the mines in the vicinity of Sudbury.

One of the leading members of the Company, Mr. Ritchie, of Akron, Ohio, who is also President of the Ontario Central Railway, made immediate arrangements to go to Europe and get all the information obtainable there on the properties and uses of the new alloy. But about the same time Mr. Riley's paper was seen by the Secretary of the United States Navy, and hearing of Mr. Ritchie's movements, he appears to have suspected that the Canadian Copper Company had in view a business stroke with the British or some other European government. He knew that, excepting the mines of New Caledonia, which are owned by a French syndicate, there are no other mines in the world to compare with those of the Canadian Copper Company for the production of nickel, and he seems to have fully appreciated their value for purposes of naval armament. Mr. Ritchie was summoned to Washington, and although the exact nature of the interview in all its details is not known, there is reason to believe that the Secretary's fears were quieted. It is also known that he made arrangements for a metallurgical expert of the United States, now attached to the American Embassy at London, to accompany Mr. Ritchie throughout Great Britain and the Continent and aid him in his investigations. Mr. Ritchie was joined by the expert at London, visits were made to Mr. Riley in Glasgow and to certain works in London, where tests are being made with the new alloy, with the result that they were more than satisfied with what they saw. It was at this stage that Sir Charles Tupper became interested in the subject, and he spent several days with the Americans witnessing and examining experiments at the London works, when the visit to mining and metallurgical works in France, Spain, Germany, Belgium and other countries was talked of, Sir Charles felt that, as the representative of the country having the greatest supply of nickel ore, he ought to be one of the party. They visited some mines in Northern Africa; the Rio Tinto copper pyrites mines in Spain; the works of Le Nickel Company in France, where the New Caledonia ores are treated: the Krupp works in Germany, besides many other mines and establishments where information of a special character was to be obtained.

It is thought that the ores of the Canadian Copper Company can be used in the manufacture of nickel steel, and it is said that the Company's capital is to be increased to $8,000,000 for that purpose.

Manufacturing.

This department of the "Canadian Manufacturer" is considered of special value to our readers because of the information contained therein. With a view to sustaining its interesting features, friends are invited to contribute any items of information coming to their knowledge regarding any Canadian manufacturing enterprises. Be concise and explicit. State facts clearly, giving correct name and address of person or firm alluded to, and nature of business.

THE Canada Atlantic Railway Company will erect new workshops near Valleyfield, Que.

MR. E. L. DREWRY, Winnipeg, Man., will double the capacity of his brewery, plant for this purpose having been ordered.

THE Canada Iron Furnace Company, with headquarters at Montreal, have been incorporated with a capital stock of $200,000.

THE Truro Condensed Milk and Canning Company, Truro, N.S., put up 1,250,000 pounds of condensed milk during the past year.

A VEIN of Galena ore has been discovered near Lake Memphremagog, Que., which, it is said, assays 15 ounces of silver to the ton, and 70 per cent. lead.

THE Ball Electric Light Company, of Toronto, are erecting an electric light station in Whitby, which, they say, will be the best lighted town in Canada.

THE Massey and Company, a branch of the Massey Manufacturing Company, of Toronto, has been organized and incorporated with a capital stock of $500,000.

FIRE in the Watties Woolen Mill, at Valleyfield, Que., operated by the Montreal Cotton Company, on December 20th, did damage to the extent of about $10,000.

MESSRS. HOWSON BROS, Teeswater, Ont., are enquiring as to what inducements Sault Ste. Marie, Ont., will offer them for the removal of their flour mills to that place.

MR. ROBERT PRATT will establish a factory in London, Ont., for the manufacture of tents, flags, awnings, etc.; and the city will exempt his industry from taxation for five years.

THE Milton Manufacturing Company, of Yarmouth, N.S., has been organized with a capital of $20,000, and are building a factory for the manufacture of all kinds of woodenware.

THE Alpha Iron Works, of Montreal, have been incorporated with $50,000 capital stock, for the purpose of manufacturing latches, bolts, axles, screws and other lines of hardware.

MESSRS. KELLER & BURNS, who recently started a sewer-pipe factory at Victoria, B.C., are now turning out lines of very superior goods, the products being first-class in every respect.

THE Canadian Bridge and Iron Co., of Montreal, has been incorporated with $75,000 capital stock, for the construction of iron bridges, and the manufacture of iron work in general.

MESSRS, PEUCHEN, VAUGHAN & Co., Toronto, manufacturers of paints, etc., will engage extensively in the manufacture of paris green, an article which it is claimed is not now made in Canada.

MESSRS. J. C. STEEN and D. ROBINSON, of Donald, B.C., have bought out Messrs. Valentine & Co.'s shingle mill at Revelstoke, B.C., and will add $25,000 worth of saw and planing machinery.

THE Brooks' Manufacturing Company, recently established in Peterborough, Ont., will make a specialty of manufacturing electric light carbons, besides which they will also make lamps, clocks, etc.

MR. W. SUTTON, of Cowichan, B.C., has transferred his large saw mills at that place to a company of Michigan lumbermen, who will enlarge the capacity of the mills to 100,000 feet of lumber a day.

THE Canadian Switch Manufacturing Company have been incorporated with a capital stock of $50,000. The headquarters of the concern will be at Montreal, and they will manufacture railway switches, etc.

COUNT DE ROFFIGNAC has erected works at Whitewood, a town on the Canadian Pacific Railway 250 miles west of Winnipeg, Man., for the manufacture of marketable chicory, of which large quantities are grown in that vicinity.

THE Kingsville Woolen Mills, at Kingsville, Ont., of which Messrs Brown, Bird & Co., are proprietors, are being operated to their fullest capacity, manufacturing white and grey blankets, flannels, tweeds, yarns, etc.