the most wonderful feat in engineering here is the production of steel forgings by the Whitworth plan. The steel is cast in moulds and pressed by hydraulic pressure to insure solidity and for securing greater strength all shafts have a smooth hole through the centre, and the steam hammer finishes the piece to the desired form. A model of the shaft for the steamer *City of Rome* bearing this peculiarity of construction was seen by the writer. A glance at some of Whitworth's justly celebrated machine shop appliances, such as measuring machines, standard guages and screw threads, which are almost universal over the world, places him in the foremost rank as an inventor. All the machines in the works are severely plain, but beautifully proportioned, and the working slides (especially of most modern tools) are made in straight lines, and some surfaces, after a work of fifteen years, look as if new from the fitting shop. In conversation with the manager he remarked that the principal machine tool men in the United States often visit their works, and there is no doubt that the remarkable change observable in machine tool construction among the Americans is largely due to observation in that line, while on the other hand British tool makers draw largely from the handiest and best points in American machine practice, even copying numbers of distinct machines which have become indispensable. I may here observe that Manchester, Leeds, Halifax, Nottingham and other large towns in England, and Glasgow and Johnstone in Scotland, furnish us a host of machine tool makers, while London and Rochdale are more noticeable for wood-working machines. But the great bulk of their productions, except those of a high class, find no place on this side of the Atlantic, In visiting the engineers' shops of Britain there is one thing which forcibly strikes a Canadian, and that is the dividing off, as if by mutual consent, on specialties; thus some firms seem to have a monopoly in a class of machines suited for marine engine work, others for the locomotive shop, and so on for agricultural and the endless variety used for cotton, woollen and flax machinery. And here it might be in place to give a notable illustration of the important part occupied by the engineers' shop in iron bridge building, in the construction of Forth Cantilever at Queensferry, Scotland. In this case as the work is on such a large scale the workshops are located close to the structure so as to save the cost of preliminary erection and transit of finished material, the bridge during construction forming the nucleus for the derricks and travelling cranes, thus the Queensferry approach, which is 1700 feet long, a lattice steel structure being placed on the ten piers at high water mark, and being elevated by hydraulic presses forms the travelling crane for placing the granite blocks on the various piers till the height of 150 feet is attained. Two cantilever arches 1700 feet each have their centres resting on four granite piers, which were built by sinking caissons to a depth of 90 feet, each having a diameter of 80 feet at the base and 60 feet at the top. From the top of these four piers trusses 10 feet in diameter and made of one inch steel plate radiate upward and diagonally into the framework of the cantilevers, like the spokes of a wheel, and as each section is added, the rivetting together goes on silently by hydraulic pressure. And here comes in the work of the engineers' shop, as all the various operations are performed by special machinery mostly designed by the contractor, Mr. Aroll. In the sinking of the caissons the material was dug out by hydraulic spades and ejected through tubes by machinery. In the machine shop are a number of special tools used in preparing the work, of which one example will suffice, namely, a drilling machine for the rivet holes in the ten-foot tubular trusses, and as these could not be handled in any ordinary machine this is made for the work. Parallel and directly over a line of rails in the yard lies a tube 150 feet long, four wheels on the track carries the machine which encircles the tube, cross slides, carrying a large number of drills, pointing to the centre, perform the work. Stages for the workmen and water tubes for each drill makes this, with a steam engine, a complete engineers' shop in itself, and as one section of the tube is finished the whole is moved on the rails to another.

But while the older countries have notably made great advancement in the application of special machinery to modern bridge construction, Canada has also made rapid strides in that direction. While the country was young, her forest timber furnished the chief framework of the bridge or viaduct, but in a changeable and wearing climate iron and steel have become the cheapest material, and the result is that a number of establishments have sprung up in different localities devoted to this industry, notably the Dominion Company at Lachine, and any patriotic Canadian will be well entertained by a visit to the works and their greatest masterpiece close by, which spans the river St. Lawrence, and will soon form part of our great national highway, the Canadian Pacific Railway. Where rolled the great river a year ago unobstructed as it was in the days of Champlain in a few weeks the iron horse will be crossing almost in sight of a sister structure (the Victoria Bridge, erected by an English company thirty years ago) thus adding to the many interesting sights that delight the tourist who visits this beautiful region and instructive lessons to all who take pride in our growing nationality.

THE SILVER CURRENCY QUESTION.

(By W. K. M'Naught, Toronto.)

Probably there is no question that is at the present time receiving more general attention from manufacturers and men in all branches of business, than that of "depression of trade." The prospect of a war in Europe is no doubt an absorbing question to the people of those countries which are likely to be involved in it, but outside of that continent, (unless Great Britain be drawn into the quarrel), the interest is, we think, more of a sentimental than of a personal character.

The general business depression, however, that for the past few years seems to have settled like a pall over the entire commercial world, is a matter which not only demands, but is bound to receive the attention of every citizen of every country, no matter what his position in life may be.

Go where you will, whether to free trade England, or to the protected countries of Europe or America, the same complaint is heard. "business is depressed, capital lies idle, factories are shut down and workingmen unemployed;" and as a consequence, thinking men everywhere are looking for some panacea for this seemingly universal difficulty.

Before proceeding further, however, it might be well to note the fact, that while all civilized countries have for the past few years been in a commercially congested and depressed condition, the worst sufferers have been those which still adhere to the exploded fallacy of Free Trade; and from a careful survey of the entire field it may be pretty safely asserted that, apart from other causes, the nearer the commercial policy of any nation approaches Free Trade, the stronger has this depression seemed to take hold upon it, and *visa versa*.

In Canada, as in the United States, while we have no doubt indirectly felt the effect of this world-wide depression, it has been in proportion to that felt in free trade England, but as the wash of the incoming tide when compared to the rush and roar of the angry sea when it dashes against some rock-bound coast.

Of course, as in all such cases, there are not wanting theorists who pretend with certainty to account for the prevailing stagnation, and as a rule each advocate has some very plausable reasons in support of his contention. The two theories which have taken the strongest hold upon thinking minds seem to be the "over production of manufactured goods" and "the appreciation of gold." My own belief is that while there is much force in the arguments advanced by the supporters of each of these theories, that in neither of them is the whole truth contained. I think rather that the cause can be found in a combination of both theories, although in my opinion the growing scarcity of gold is probably the more serious of the