

The N. P. can carry itself in public opinion; as a matter of fact it is now carrying itself and a great deal more besides, just because it is the strongest plank of all in the Government platform. But manufacturers would do well to see to it that the N. P., strong as it is, is not weighted down with extraneous burdens not properly belonging to it at all. The tariff which makes manufactures to prosper in Canada can be defended openly and above-board, and strictly on its own merits. But people must not be suffered to get it into their heads that to neglect precautions against fire, and the providing of proper conveniences for workers in factories, are part and parcel of the N. P. The N. P., we say, can carry itself triumphantly through, but it must not be burdened with unpopuliarities which have really nothing to do with it. And we think that in calling the attention of manufacturers to these things we are doing them better service than if we were shamming "blind," and pretending not to see these things at all. Our remarks are offered in all honest solicitude that the sound public policy which makes extensive manufacturing possible in Canada should not be endangered by the neglect of individuals—by abuses which are certainly no part of the policy.

#### DECLINE OF MANUFACTURED EXPORTS

The *Toronto Globe* draws attention to a falling off in Canada's export of manufactured articles, as shown by the Trade and Navigation Returns for the fiscal year 1880-81, just presented to Parliament. The following are the exports of such articles for the years named:

1878	\$4,715,776
1879	3,228,761
1880	4,484,211
1881	4,043,123

The exports of 1880-81 are less than those of 1878 by \$796,078, therefore, says the *Globe*, this represents a loss of 796 artisans and their families, supposing \$1,000 production to be the average for each man employed. In making up this neat little calculation the *Globe* leaves out the important fact, that as we have now better times and a better demand for commodities, we are actually consuming far more goods of home production than we consumed four years ago. The very same thing happened in the United States, and we are not to be surprised that it happens in Canada too. The adoption of the protective policy in the States had the double effect of increasing both the consumption and the production of home manufactured goods. More goods were made, while at the same time more were bought by the people, for the reason that they were better employed and better able to buy. The general prosperity due to full employment actually sent the home demand up beyond the increased production; an important fact, which Free Traders take no note of, but which when rightly looked at explains that puzzle to their school—the large import of foreign goods by the United States under high protection.

The same explanation applies to another startling discovery recently made by the *Globe*—the fact that our export of flour has been falling off since the N. P. came in. The fact is simply this, that Ontario flour that used to go out of the country, afterwards appearing in the figures of exports, now goes to the Maritime Provinces, and does not appear in any return at all.

Horace Greeley used to give this illustration, as the *reductio ad absurdum* of the theory which sees national wealth in imports and exports merely. Suppose that the baking of bread had been an industry totally unsuitable to America, and that it had to be carried on, and could be carried on only in large factories in England: all the flour used in America would have to be exported to England, there made into bread, and in the latter form shipped back to America again. The increase of exports and imports, on the books, would be something tremendous, scarcely could ships enough be found for the business, and sailors would be employed by thousands where now there are only hundreds. Yet there would be no gain to the world in all this extra carrying to and fro, but on the contrary an immense loss instead. Free trade theories are apt to look ridiculous when pushed to their logical conclusions.

#### USE AND ABUSE OF STEAM BOILERS.

Those who use steam power should be specially careful in purchasing boilers, that they get them of such size and capacity as will meet their requirements without being over-worked.

They should be willing to pay a fair price, and should insist upon getting an honest return for that price, in the shape of boilers of sufficient strength safely to resist, for many years, the pressure of steam at which they are to be worked.

Second hand boilers should never be bought, without an accurate knowledge of their present condition and previous history.

Having secured good boilers, strong and safe, the next point to consider is how they are to be kept so. From the first hour in which a boiler is started to work, destroying influences are brought to bear upon it. Every change of pressure in it, and every change of temperature in the furnace, lead to expansion or contraction of the plates, and cases have occurred where from some peculiarity in the design of the boiler, or arrangement of the plates, this alone in a few years destroyed the boiler.

The accumulation of mud or scale or grease inside of boilers is a fruitful source of waste of fuel, as well as being the direct cause of the ruin of many boilers.

The destroying action of fire on one side of a boiler plate is very slow, provided clean water be kept in actual contact with the other side of the plate. But let a deposit of mud or grease or some other bad conductor of heat come on the plate, and immediate injury from over-heating is the result.

A new boiler only in use for a few days was found to have a bad bulge in one of the plates over the furnace. An examination as to the cause was made, when it was found that a careless workman had let a piece of the rubber packing with which he had been making a steam joint at the shut off valve, fall into the boiler; it had made its way to the bottom and stuck fast on the plate.

Nearly all the water used in boilers contains more or less of some impurity or holds some salt or lime in solution; and as the water evaporates into steam these are left behind and gradually increase in quantity inside the boiler.

Hence the necessity for frequent cleaning out. These deposits are generally bad conductors of heat, and so while there lead to waste of fuel, as the heat passes up the chimney instead