

British market, would quickly develop a production that would supply the mother country's *import requirements* several times over. In return the colonies to admit British manufactures at *half* the duties imposed upon foreign; it being admitted that customs duties they must have in order to raise a revenue. *There* would be a commercial union for you that would guarantee the permanent coherence of the Empire, and be the wonder of the world. If anybody has anything better to propose let us hear it.

#### WATER GAS AS FUEL

THE fact has been widely published that, since natural gas came into such extensive use in Pittsburg, a number of large manufacturing companies have either already removed to that wonderful hive of industry or have determined to do so at an early day. Natural gas is there displacing coal to the extent of many millions of tons per annum, and something like a revolution in the iron and glass trades is even now going on. The question, "How long will this big rush of natural gas last?" is already debated with keen interest; and a very practical question it is, to be sure.

What we hear quite recently from Scranton (Pennsylvania), however, is not as yet so generally known. The Scranton district is finding its fortune, not in natural gas, but in the immense heaps of waste coal, the accumulations of many years, around the mines. Recent inventions, it is said, render it possible to make use of all this waste or refuse, heretofore so called, thus making the cost of fuel merely nominal, as stated in a despatch which will be found on another page, under the heading of "Iron and Machinery." Two large iron establishments will remove there, owing to the powerful inducement of cheap fuel, and others will doubtless follow. The despatch tells further of the great revival in Pennsylvania's iron industries now going on, and will be found interesting reading.

The Scranton Board of Trade has issued a report on "Powdered Anthracite and Gas Fuel," which is making a great impression on people who have a turn for looking ahead. The idea advanced is to utilize the mountains of anthracite dust or "culm" lying around the mines for the production of water-gas, which is by some looked upon as the fuel of the future, wherever coal for its production is available. Mr. J. A. Price, the president of the Scranton Board of Trade, the author of the report, estimates the amount of culm produced since the opening of the anthracite region, and now lying above ground, at 40,000,000 tons, of which one half, or 20,000,000 tons, has been wasted by the weather, used in filling and grading and fired in the culm bank, leaving 20,000,000 tons available. Estimating that a ton will produce 100,000 cubic feet of water gas, this culm will produce 2,000,000,000,000 cubic feet of gas.

The cost of the production of this gas, as given by Mr Price, is as follows:—

One ton waste at producer . . . . .	\$ .50
Labor handling same per ton . . . . .	30
Expenses of plant per ton . . . . .	1.00

100,000 cubic feet gas . . . . . \$1.80  
or less than 2c. per 1,000 cubic feet.

This is regarded by the *American Manufacturer* as certainly an astonishingly low figure, much below the usual estimates

of the cost of water gas. Professor Lowe, as stated in the report of the judges of the Novelties Exhibition, claims 80,000 cubic feet of gas from a ton of anthracite at a cost of 10c. per 1,000. This would make the total cost of the gas from a ton of coal 88 instead of \$1.80. Of this \$1.80, 50c. was for coal culm, and \$1.30 for other expenses. Assuming that the expenses are the same when anthracite coal is used as when culm is used, the coal in Mr. Lowe's figures would cost \$6.70.

Our Pittsburg contemporary further says:—"That water gas will eventually play an important part as a fuel gas we have not the least question. That the best method for its production, or that the gas now made is the best for some purposes, say iron-making, may be questioned. There are difficulties in its manufacture, there are objections to its use in furnaces in which it comes in contact with iron, but these will be overcome, and even now for many purposes water gas is much to be preferred to solid fuel."

#### FLAX EXPORT OR MANUFACTURE.

THE *Montreal Gazette* observes that *Imperial Federation* lays much stress on a paper, read by Mr. E. B. Biggar, in the Conference Hall of the Colonial Exhibition, on the raising of flax in Canada. Hitherto the factories of the United Kingdom, have been mainly supplied with that material by Russia, but if flax and tow can, as Mr. Biggar urges, be grown in Canada, of excellent quality and in sufficiency to meet all needs, there is certainly no reason why Russia should have the preference. The statements made by Mr. Biggar were, moreover, confirmed by the speakers who followed him, some of whom had large experience in the agricultural industry in question. The fibre of the flax grown in Manitoba and the North-west is said to be superior to that of Ontario. And yet the latter, of which 1,000 tons were exported to Belfast during the present year, was pronounced by trained judges to be superior to the Russian article. Some agriculturalists hold that flax is more profitable than wheat for breaking up virgin soil, and that it will flourish where the summers are too short for wheat. There is, however, ample room in the North-west for the raising of both crops to any extent that the European demand can require. It is satisfactory to learn that leading Belfast manufacturers are disposed to encourage the industry in the North-west.

It may be satisfactory to learn that, as the *Gazette* says, leading Belfast manufacturers are disposed to encourage the production of flax in the Canadian North-west. But we submit that it would be still more satisfactory could we so manage things as to have the flax manufactured at home. And, by the way, it might be a good plan for the people of the North-west to keep their eyes on the manufacture of flax, as well as its production, as one of the possibilities of the future for that vast region. No matter what some people may say, authorities both scientific and practical are agreed that flax is exhausting to the soil, and that it must have a strong soil to grow in. But the prairie soil of the North-west is of exceptional strength and endurance under crop, that of Manitoba in particular. We suggest, therefore, that it would pay the people of that Province, first of all, to give special attention to the flax crop, and to try what they can do in the manufacture of the fibre too. If higher duties on flax goods be required, the Dominion Parliament should put them on at the first opportunity.