One rather unusual detail which Mr. Gill used in his fountain was his idea that in a work of this kind the centre should be the point of greatest interest, and in order to bring this out, the costliness of the material should increase as the centre was reached.

In this arrangement first came the concrete of the basin, the granite of the pedestal, while next in value the marble columns, the dome of prismatic glass and the bronze lantern at the top and centre, which is the most costly material used in the construction.

The fountain was a gift to the city from Mr. Lewis J. Wild, a wealthy resident of San Diego, and was installed at a cost of $15,000.

The mechanism for operating the lights and the small electric pump which sets the water in motion is concealed in a chamber under the fountain.

Five dollars a day covers the up-keep of the fountain and includes the time of the caretaker of the park, whose services are all that are required for the running of the fountain.

CANADA'S COKE SUPPLY

The industrial value of Canada's coke supply is discussed in The London Financier by Mr. J. Lawrence-Hamilton, M.R.C.S. As neither anthracite nor lignite, when heated, coalesces, they are both incapable of making coke, he says. Bituminous coal, on the other hand, when strongly heated in the absence of air in suitably closed ovens, is gradually decomposed, yielding its water, gases, tar, oils, nitrogenous and volatile compounds, which are, of course, separated and collected.

Bituminous coals thus heated first fire, or melt or soften, and then, as decomposition progresses, they stiffen to produce a hard, light, porous, or cellular, coke, consisting chiefly of carbon combined with the contained ash from the original coal. The cellular or quasi-fossil, sponge-like structure of the coke is produced by the expansion of the heated escaping gases derived from the molten mass.

In blast-furnace smelting for treating mineral ores and metals, coke is superior to coal as charcoal is to wood, because both coke and charcoal are rich in carbon. Hence, to manufacture this class of fuel it is necessary to spend time, trouble and money to convert the coal into coke.

For metallurgical and allied purposes a superior coke is required. Such carefully manufactured coke is strong, hard and does not soften or crumple, so that when burning in the blast furnace it can carry a heavy charge of ore without crushing or melting, which would obstruct the blast and diminish the heat required.

Good coke burns without producing tar, oils or smoke. It posses a high calorific value.

Experiments show, and experts know, that Canadian coke for cheapness, quality and quantity can successfully compete with the cokes from all other countries and Colonies most of which in the near future will be more or less dependent upon the Dominion's cheap coke, delivered like coal, which is practically inexhaustible. To develop Canadian mines and allied industries, cheap. abundant local coke is necessary. Carbonite, or natural coke, made nature's own laboratory by ingenous rocks cutting across bituminous coal seams, has not yet been discovered in Canada, where, however, it probably exists in large quantities.

Cheap, abundant, pure, solvent water of Canadian "white coal," washes the previously crushed, sized, screened and separated black coal on lines similar to the ordinary methods and machines employed in dressing and concentrating metallic ores.

The commercially valuable materials or products in metallic ores are heavier than the contaminating or containing rock. Coal is the lightest of all important commercial minerals, and its natural adulterants, or impurities, are heavier than the coal itself. In other words, in coal washing, the lighter coal escapes at the top, whilst its impurities, being heavier, are discharged separately at a lower exit. In metallic ore washing the lighter contaminating rock escapes above, whilst the metallic ores are discharged at a lower level.

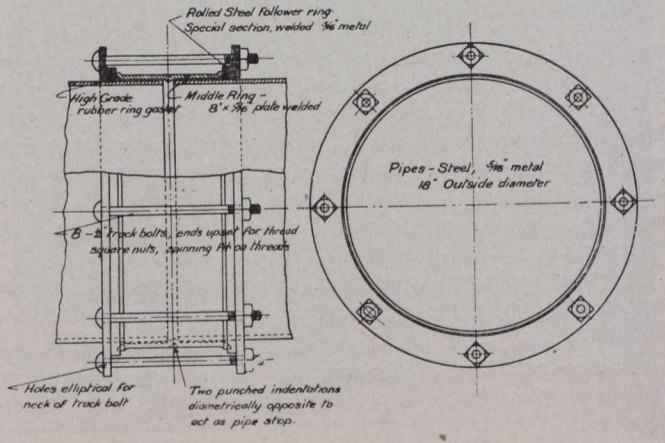
Canada having generally a very dry climate, the quantity of mechanically (not chemically) included water or moisture in Canadian coal as bought or sold averages only about 3 per cent. Of course, during prolonged or excessive wet weather this amount of contained or free water would be augmented, especially where coal is stacked in uncovered yards, or where purposely adulterated or diluted with water from a hose. Evidently small soft coal and coal dust absorb far more moisture than larger harder coals. Damp or damped coal is additionally friable or liable to waste by crumbling. In other words, where coal contains, say, 5 per cent. of free moisture—as it usually does in the United Kingdom—then in every ton there is 1 cwt. of useless water, so that the consumer on every pound's worth of coal purchased gets only 19s. worth of coal and loses a shilling for the coal's contained free water or moisture, which must not be confused with the water chemically combined as a constituent of the native coal.

Good coals as sold in London seldom contain more than 8 per cent. of free water or moisture, with an average probably approximating 7½ per cent.

AN EFFICIENT PIPE JOINT.

A very efficient pipe joint has been used recently on the new pipe line being installed for the Moose Jaw water supply. The water is being brought to Moose Jaw through nineteen miles of eighteen-inch plain end steel pipe.

There are two joints of this kind which are very similar; one is made by the Custer Coupling Company, of Bradford, Pa., and the other by C. J. Dresser Company, of the same place. The Dresser Company prefer a gland detail similar to



that used on an ordinary piston rod. The Custer joint, which was adopted on the Moose Jaw water supply, compresses the rubber gasket in a different way, and gives some latitude for variations in the size of pipe and couplings. It is stated that hundreds of these joints were made on the Moose Jaw work in a foot or more of water. The accompanying sketch gives a clear idea of the joint.

The above information, together with the sketch, has been very kindly furnished us by Walter J. Francis & Co., of Montreal, who are the consulting engineers on the Moose Jaw water supply.