A sample of local lignite was sent to a briquette machine maker and this he made into briquettes which are on view to-night. Owing to the smallness of the quantity of the sample, the maker referred to found he was unable to carry out the experiment as efficiently as he would wish. Consequently, the briquettes before you are not good specimens. Samples A and B have been briquetted by a certain special steaming process without the use of any binder, but these briquettes do not appear to be satisfactory. Samples C to F are made with five per cent. pitch, sample F being the best. It is hoped that further experiments will be made. Other experimenters are endeavoring to find a cheap and simple process by which raw lignite can be satisfactorily briquetted.

What promises to be a solution of this problem is the carbonization of lignite at low temperatures. Although North American lignite has not been subjected to this treatment, non-coking Illinois coals have, and a few of the results obtained may be stated.

When the coal was distilled for an hour at a temperature of 500 degrees to 900 degrees Fahr., the percentage of fixed carbon was increased more than 25 per cent., and there was a corresponding decrease in volatile matter, and furthermore, the fuel became smokeless. Another feature of low distillation of Illinois coal is the production of gas of exceedingly high heating value, almost equal to that of natural gas. Illinois coal is not of high quality, nor has it the propensity of making coke, and in these respects it is similar to lignite. Prof. Lewis, in another experiment, found it was cheaper to manufacture gas at low temperature of 720 deg. Fahrenheit and the value of the gas was higher, whilst more coke and ammonia products were obtained. The temperature of ordinary gas-coal distillation is about 2,200 deg. Fahrenheit and the composition of the tar produced is quite different from that at low temperature. The latter yield paraffin oils valuable for lubrication and power purposes.

In Germany thousands of tons of tar are annually produced by the distillation of lignite at low temperature. Gas oil extracted from the tar is used for making oil gas, and it is stated to be equal in value to the residuum of crude petroleum, known in the States as Pennsylvania gas oil, such oil could probably be used to enrich lignite gas. The German manufacturers also obtain paraffin wax from lignite tar, also the following:—

Solar oil is obtained by distillation of tar, and this oil is used for driving motors.

Putrol is a yellowish cleaning oil, used for cleaning greasy metal, for extracting and producing wagon grease.

Gas oil is a reddish brown oil used for producing oil gas.

Paraffin oil is used principally for driving Diesel motors.

Creosate oil for impregnating timber.

Peat, as far back as 1786, was converted into gas and coke and the tar more or less resembles lignite tar. Fifty years ago gas was made from peat in New England, New York and Jersey States, but the cost and quality of peat rendered the process unprofitable in these and other places.

There is, however, no known process by which lignite coke can be made into a coherent mass like gas-coke, metallurgical coke. As there are plenty of coals in the Eastern States which will produce good coke, very little attention has been paid to solving the lignite-coke problem.

In response to enquiries, the author has interested a number of people in different parts of Europe and America in this matter, and it is to be hoped that a process can be found whereby the raw lignite and lignite-coke can be made into serviceable fuel.

It will have been observed that low-temperature distillation of lignite promises to be the solution, and it may be advantageous at the point to outlive what the author considers the possible scheme.

The lignite should be partially distilled at low temperature, the gas to be either distributed for use in the district or in firing the furnace. The tar distilled to extract the paraffin and oils. The coke to be briquetted with some binder obtained from local products and waterproofed with paraffin, and made into a fuel which will equal any imported coal, and probably at a much less cost.

It will doubtless be recognized that whilst the information given to-night is limited, and necessarily supplementary to the report, which the author has prepared, it will require more time, funds and facilities to develop the enquiries and carry on experiments.

Lignite is out local fuel and it will manifestly be to the advantage of the community if fuller use can be made of it. If a central power plant is erected, its value will be circumscribed by the range to which it can be economically transmitted, and the increase in the consumption of lignite will be, say, 50 per cent.; but every farmer, householder and industry requires fuel, and the cheaper it can be supplied, so much the better. If, however, its quality can be improved for transportation and general use, then the demand will doubtless increase greatly, because it has the advantage over imported fuel, inasmuch as less freight has to be paid.

THE NEW CANADIAN PACIFIC LINERS.

Two new vessels for the Pacific service of the C.P.R. are now being completed at the Fairfield Works in England; the second, which was launched last week, is the eighth constructed by the Fairfield Company for the same owners. It will surprise no one who knows of the courage of the Canadian Pacific Railway, to learn that the new vessels will be by far the largest trading between the American continent and Japan and China, and, further, that they represent in their design the highest achievement in naval architecture, alike from the standpoints of safety, comfort, and economy. As regards the first, the water-tight bulkheads are more closely spaced than has hitherto been usual, so that four compartments can be opened to the sea without affecting the flotation of the ship. As to comfort, the 200 first-class, 100 second, and 800 third-class passengers to be carried are ensured every convenience which experience can suggest. As we hope later to illustrate the vessels, we need only here remark that one—namely, the Empress of Russia—is decorated in the Louis XV. and Louis XVI. styles, whilst the second, the Empress of Asia, is treated according to the Georgian period. The first-class cabins are all in a deck-house, 340 ft. long, on the bridge deck. Whilst the rooms are nominally for two persons, the arrangement is such that when one person is occupying a room, all evidence of the other berth is hidden, leaving only a single brass bedstead with the other stateroom furniture. In nearly every case each pair of cabins can be converted into a suite. The vessels are of 15,000 tons gross, the length being 590 ft., the beam 68 ft., and the depth 46 ft. A considerable amount of freight, particularly of the perishable type, can be carried. There is an innovation in connection with the form aft, as the vessels have been given a cruiser stern, which increases the water-line for a given over-all length and facilitates the propulsion, while adding to the available deck area aft. There is the further advantage that many of the lifeboats can be carried over the poop, and here it may be noted that boats are provided for the maximum number of passengers arranged for. The vessel is propelled by turbines, with the construction of which the Fairfield Company have had very large experience. A high degree of propulsive efficiency is thus sure to result.