into an almost endless variety of lighter and highly combustible intermediate illuminating and lubricating-oils, and also into such solids as vaseline, paraffin, etc. Tars and asphalts might be produced from an oxidized matter which is thrown away.

The products of evaporation may be roughly divided into 40 per cent. of illuminating-oils, and 60 per cent. of the above-mentioned articles; or more exactly, burning oil 38 to 39 per cent., gas oil 17 per cent., tar 18 per cent., waste 10 per cent., water 6 per cent., and coke 9 per cent.

The fire-test of 95 degs. Fahr., at which the oil ignites, is common to all grades of illuminating-oil.

The process of refining the illuminating-oil is to agitate it with 2 per cent. of sulphuric acid to remove the free carbon or tarry materials which are drawn off below; then, after washing it with water, caustic soda and litharge are added. The litharge combines with the sulphur present in the oil and forms lead sulphide. Flowers of sulphur is then added, which precipitates the lead and other impurities, and the oil is left cleared, but some sulphur generally remains. This sulphur gives the oil a smell in burning, and it is removed by some refiners by re-distilling the oil after the litharge and caustic soda have been added, and before the flowers of sulphur has been put in. Most of the sulphur is then left in the retort in combination with the lead. The rest of the process is then carried on with the re-distilled product as above described. Finally, in all processes the product is bleached in the light in an open vat.

The tar, or residue after the illuminating-oils have come off, is re-distilled, from which about 70 per cent. of gas oil, used in making illuminating gas, and 30 per cent. of paraffin oil are obtained, according to the grade required. The paraffin oil is put into a freezing-vat, and from 8 to 10 per cent. (or one pound to the gallon) of paraffin wax crystallizes out from it. This wax has all the oil squeezed out by pressure and is refined, one part of the resulting yield being made into wax candles, and the other smaller portion into a wax which is used as chewing-gum and for various other purposes. The residual oils, after the paraffin has been crystallized, are made into lubricating-oils.

Illuminating-oil can be distilled from the Utica shales, which, in places, contain 3 to 4 per cent. of tarry oil. This industry, however, cannot compete with the petroleum oil-fields.

Lignite.

Lignite has been found in unproved quantity in the north on the Missinaibi and Mattagami rivers, branches of the Moose river. It has also been met with on Rainy river. All the occurrences so far have been in the drift.