

oils of a high boiling point, but low specific gravity, and which burn with a brilliant light and are perfectly free from danger. The coal obtained by the Murajewnsch Co., in Rjæsan, is very similar to the English material, and the product obtained from it is all that could be desired.

#### TAR FROM BROWN COAL.

The distillation of brown coal is carried on chiefly for its tar, which is very rich in paraffin, and hence the exhibitors have done well in placing this beautiful product in the foreground. Not all brown coal is suited to the profitable production of tar. In all Germany there is but a comparatively small tract of country, lying between the cities of Halle, Weissenfels and Zeitz, in Saxon-Thuringia, where such a coal is found. This coal is pulverulent, and when dry has a light yellow color; it is found chiefly in the outcrop of strata, in detached masses, and in thin layers; the tar produced equals 16 per cent. of the weight of the fresh coal, possesses a light color, and has a low specific gravity, and besides, owing to the large percentage of paraffin in it, it has a buttery consistency even in summer. It seems that this kind of coal is also found in Bohemia, but only in small quantities. Upon analysis it is found to contain as much as 11 per cent. of hydrogen. It fuses in a candle flame like sealing-wax, and a light-yellow resin, melting at 160° Fahr., may be extracted from it by boiling alcohol. The tar is obtained by distilling the coal at a dull red heat in horizontal or upright iron retorts. The latter, when formed of a series of inverted iron bells, possess this advantage, that the heat has to penetrate only a thin layer of coal, and the tar produced is immediately run off. In purifying the tar, pains are taken to avoid any unnecessary distillation, since it has been ascertained that the yield of paraffin is thereby diminished. Dr. B. Hubner, in Zeitz, has discovered that, by treating the tar directly with sulphuric acid and afterward distilling it over lime, it is unnecessary to distill the paraffin, and the yield is two per cent. higher. The quantity of soft paraffin, which was formerly destroyed by hot sulphuric acid in the final purification, is now reduced to a minimum, and is mixed with stearin for candles. The great progress which this industry has made is shown not only in the excellently-arranged exhibition made by several firms in Zeitz, Halle, Weissenfels and other places, but also by the statistics, which show the very considerable extension of this branch of manufacture. In 1871, in this district, 41 tar works, employing 1844 horizontal and 610 upright retorts, consumed over 300,000 tons of coal, and produced 33,823 tons of tar; 1,350 laborers were employed, and the capital invested exceeded \$1,700,000 in gold. The same number of laborers and a still larger amount of capital were employed in refining the tar and converting it into photogene, solar oil, paraffin oil, paraffin and asphalt. The soda employed in the purification is regenerated