by evaporating and igniting, and also mixed with the sulphuric acid employed to make Glauber's salt, carbolic acid being also obtained. The sulphuric acid, after the tar has been removed, can be used in making superphosphates, ammonia salts and green vitriol, while the tar is burned to make lamp black.

In contrast with this immense industry stands the similar production of tar from Lias shale. It may here be remarked that certain kinds of paraffin—for instance, that made by Dr. Hubner—melts at 63° C. (145° F), whereas the normal melting point is 53° to 55° C. (127° to 131° F.) The heaviest oils are now treated like the analogous petroleum residues, namely, allowed to flow into strongly heated iron retorts, and thereby converted into a heavy illuminating gas, which burns very slowly and makes a good light. P. Suckhow, of Breslau, exhibited a complete apparatus for this purpose, which is easily attached and so constructed that it can be very easily masoned in.

HEAVY COAL TAR.

Very different from the light tar of brown coal is the heavier tar from bituminous coal. The latter is produced at a much higher temperature, and is a by-product in the manufacture of illuminating Although on the average only five per cent. of the coal is congas. verted into tar, yet, owing to the great extension of coal gas illumination, the total quantity produced is immense. We may suppose that in London alone a million and a half tons of coal are used in making gas, and in all England ten million tons, which would yield half a million tons of tar. The production of the rest of the world may be reckoned at an equal quantity. Coal tar can now be used profitably. It can be employed for covering roofs, making asphalt and asphalt tubing, for painting wood and other purposes. Its uses are far more varied and numerous if it be subjected to distillation. The principal products thus obtained are benzole, carbolic acid, naphthalin and anthracene. Each of these substances opens a series of highly interesting and important uses. At present Germany stands at the head of this branch of industy, and has almost complete control of the market in coal tar colors. Hence we are not surprised that many German manufacturers sent coal tar products to the exhibition. Among these were four-Rutgers near Breslau, Erkner in Berlin, Angern on the Nordbahn, and Niederau near Meissen-who together distill 6,250 tons of tar. Rutgers is largely engaged in preserving railroad ties. He uses partly chloride of zinc and partly the heavy oil of coal tar, containing carbolic acid, and which was first employed by Bethell, in England, for this purpose. He is compelled to import a good deal of this oil from England.

In general, no essential improvement has been made in the material used as foundation for the coal tar colors. Anthracene, which