

act as a condenser. The heat must be increased gradually to low redness, and continue as long as any tarry matter continues to distil. In this way a product is obtained amounting to about one-third the weight of the gum employed.

This tar is again placed in an iron retort and distilled, when it yields about one-third of its bulk of a light brown oily liquid. This brown oil is treated with a solution of caustic soda, which dissolves a part of the oil, but leaves a considerable quantity which must be separated and rejected. The alkaline solution of the oil is now placed in a retort and subjected to prolonged distillation, water being added from time to time, to make up for that which distils over. In this way a quantity of light oily matter passes over, having a very offensive smell, and floating on water. This is to be rejected, and when no more oil is observed to pass over, the alkaline solution in the retort is diluted, and a slight excess of sulphuric acid added, by which means a dark colored heavy oil is separated. This is distilled, and the oily product again treated with caustic soda and distilled as before, by which means a further small quantity of the light oil is separated. This alkaline solution on exposure to air soon turns of a very dark brown, almost black color, and when an acid is added after a few days a very dark purple colored oil is deposited. This oil-distilled gives a light yellowish oily liquid, which after several distillations yields a colorless heavy oily liquid, which is the pure or nearly pure guaiacol.

Guaiacol is an oily liquid, considerably heavier than water; it is quite white when first distilled, but soon assumes a pale straw color. Its smell is characteristic of creasote, but not so disagreeable as some of the samples of that body found in commerce. The sample I have made begins to boil at 200° C, and soon rises to 210° , at which point eight-tenths distil over, and the remainder comes over at 215° . Pure creasote is stated in the books to boil at 210° . Guaiacol refracts light strongly, and has the taste as well as the general physical properties of creasote. It is soluble in glacial acetic acid, but insoluble in pure glycerine.

It appeared interesting to compare this body with creasote as found in commerce, more especially as some attention has lately been drawn to the fact, that creasote is sometimes sold consisting mainly of carbolic or crysylic acid, or other products of the distillation of *coal* instead of, as it ought to be, of *wood*.

In commerce we find two kinds of creasote, said to be derived from wood, one well known in England, manufactured by Messrs. Morson and Son,—which I shall call “English” creasote—is said to be made from Stockholm tar, and if so, is the product of pine-wood probably. The other, of German manufacture, is said to be the product of beech-wood. Of the common German coal-tar creasote, I have made no especial note, but have employed pure