

CCCLXXVII.—*The Production of Thiophen by the Interaction of Acetylene and Carbon Disulphide.*

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THE small proportion of thiophen that is formed, together with carbon disulphide, by the interaction of acetylene and sulphur vapour (Peel and Robinson, this vol., p. 2068) is produced probably by a direct reaction of acetylene with sulphur, and not by a secondary reaction between the gas and carbon disulphide, for the work described below indicates that thiophen is produced in quantity by the latter reaction only at temperatures considerably higher than those required when sulphur is used. The reaction of acetylene with carbon disulphide at 700° affords a convenient and cheap means of synthesising pure thiophen in quantity.

A rapid stream of acetylene, saturated with carbon disulphide vapour by passage through the boiling liquid, was delivered into the end of a horizontal silica tube (22×2 ins.), from which it passed through a water condenser to a collecting bottle. The tube could be maintained electrically at any desired temperature up to 800° , and the heated zone was packed with broken porous pot. Condensate from runs at specific temperatures was collected and separated into

its constituents by the careful fractionation previously described, At 200°, the liquid was entirely unchanged carbon disulphide; a trace of thiophen appeared at 350° and the quantity gradually increased with rise of temperature until at about 700° the condensate contained approximately 10% by volume of thiophen and about 10% of hydrocarbons. This was the maximum yield for the particular length of hot zone used, nor was it possible to increase the yield by employing bauxite or granular copper sulphide as the furnace packing. At temperatures higher than 700° the tube became choked with carbon before the amount of condensate was sufficient for investigation.

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