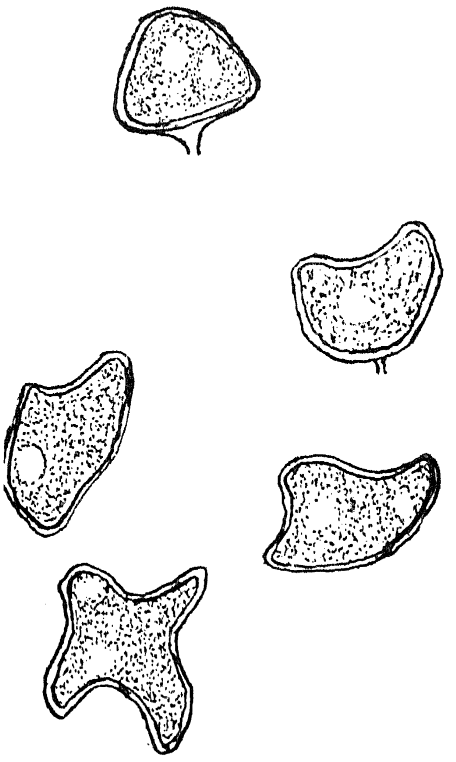

FIG. 3. Teliospores. × 600.

Hemileia jasmini sp. nov. Uredosori hypophylli, gregarii, pulverulenti, levis aurantini—flavi coloris minutissimi; uredeiosporia variantia sub-globosa ad aurantini—segmentiformia, 24 × 18 μ continua, paries hyalinus, crassuset echinulatis, non vero super planum vel concavum latus contenta levis flavi coloris; telia ur:diis mixta; teliospora, irregularia, hyaline laevia 27 × 22 μ.

In vivi foliis *Jasmini Ritchiei* Clarke. Yercaud, Shevaroys (Salem District) 27-9-1946 (Leg. C. S. Krishnamurthy et G. Rangaswami). Typi specimina deposita in Herbario, Governm.nt Mycologist, Coimbatore, et Herb. Crypt. Ind. Orient, New Delhi.

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DEVELOPMENT OF THE FISCHER-TROPSCH PROCESS IN GERMANY DURING THE WAR

A GIST of the developments made in Germany during the war in the Fischer-Tropsch process of making oils and waxes from coal was given in a recent press-release from the Department of Scientific and Industrial Research, London.

Altogether nine plants seem to have been engaged on this process, most of them operating at atmospheric pressure, while some others employed medium pressure of about ten atmospheres. The combined annual output of these plants was estimated at about 570,000 tons of total hydrocarbons, which is less than 8 per cent. of the total German production of oil during the war.

The gasification of hard-coke in normal water-gas generators was the principal method employed for preparing the synthesis gas, the required ratio of $CO:H_2$ (*viz.*, 1 : 2) being obtained either by catalytic conversion of part of the water-gas into hydrogen or by adding the hydrogen-rich gas obtained by cracking coke-oven gas in the presence of steam. Two of the plants prepared the synthesis gas by the direct gasification of brown coal.

The synthesis catalyst used in all the plants had the gravimetric composition of Co = 100, thoria = 5, MgO = 8, and kieselguhr = 200 and was prepared in the usual way by precipitation from solutions of the nitrates and reduced in hydrogen at about 400° C. under carefully controlled conditions.

The reaction temperature employed varied between 180° and 200° C. In order to dissipate the heat of the synthesis reactions, water-cooling devices were incorporated in the design of the reaction-chambers. The process was also conducted in two or three stages, with inter-stage cooling.

The reaction products, which were mainly straight chain paraffins and olefines, were recovered by cooling and adsorption on active carbon. They were fractionated and stabilised by conventional methods. Irrespective of the pressure used, the most efficient plants obtained yields of 160–165 g. of C_4 and higher hydrocarbons per cubic metre of inert free synthesis gas, *i.e.*, about 80 per cent. of the theoretical maximum yield.

While the lower fractions were used as power-fuels, most of the 230–320° cut was converted into "Mersol" soap-substitutes, by sulpho-chlorination, followed by saponification. Part of it was also cracked with soft wax to yield lubricating oils of good quality. The bulk of the soft-wax, however, was oxidised to produce fatty acids for use in the soap industry and in the production of edible fat. Most of the hard-wax found application in the wax industry for polishes, paper-impregnation, electrical insulation and the like.

A development worthy of special mention is the "Oxo-synthesis" in which the olefines react with carbon monoxide and hydrogen to form aldehydes. Although developed mainly for production of long-chain alcohols from Fischer-Tropsch olefines, this process is said to be of general application to compounds containing ethylenic linkages and has a great future.

M. V. C. SASTRI.