covered with macroconidial pustules was divided into two portions, one of which was kept damp in a Petri dish at 6 °C and the other left in a sterile plastic bag with some water but allowed to dry out slowly at room temperature. The former portion remained unchanged, but after 4 weeks pustules on the latter turned orange and microconidia were present in addition to macroconidia. After 3 further weeks, transformation to red perithecia was complete. On several occasions, freshly cut oak and willow twigs, surface-sterilized by flaming in alcohol and left submerged in Smooth Beck for periods of 1–6 months, have subsequently produced *Nectria lugdunensis* perithecia in the laboratory. This again has been in the course of slow drying out of the material, under damp incubation in unsealed Petri dishes. In nature the drying out of twigs cast up by high-water flushes seems generally to be a rapid rather than a slow process and under these conditions macroconidial pustules die rather than transform to perithecia. Precisely how perithecia form in nature therefore remains somewhat of a mystery. However, this present contribution may aid in narrowing the area of search for them.

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NATURE OF THE ASCAL STATE OF *AMORPHOTHECA RESINAE* PRODUCED IN MINERAL OIL

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Ascocarps of *Amorphotheca resinae* Parbery, the ascal state of the 'kerosene fungus' *Cladosporium resinae* (Lindau) de Vries, have been found in culture (Parbery, 1969*a*; Sheridan & Knox, 1970) and on soil and creosoted matchsticks (Parbery, 1969*b*). In culture, ascocarps appear as very small, black, more or less spherical bodies, 71–128 μm high × 43–86 μm wide, usually immersed in the medium, whereas on soil and creosoted matchsticks in some cases they produce flanged, or funnel-shaped outgrowths from their apical regions. Parbery (1969*b*) has suggested that this funnel-shaped apex is not normally produced by the ascocarp in nature but appears as a result of development at high humidity.

We have recently found the ascal state of the fungus in mineral oil (B.P. quality, sp.gr. 0·870–0·890) over 2 % malt extract agar slope cultures of the fungus. The majority of these ascocarps, in any one isolate, possess funnel-shaped apices (Pl. 39, figs. 1, 5). These appear to originate as blown out, spherical portions of the ascocarp, the weakest point being that furthest from the ascocarp body. They rupture at this point, giving a

funnel-shaped appearance. Mature ascocarps measured 139 μm high by 80 μm wide. The funnel-shaped apex ranged from 27 to 110 μm wide by 24 to 71 μm high. The narrowest part between apex and body of the ascocarp ranged from 20 to 68 μm wide. Thirteen isolates produced this type of ascocarp after 5 months under mineral oil and a further four produced atypical ascocarps which were very much elongated and some of which carried coarse, black hairs in the early stages of development. An isolate producing more or less spherical ascocarps in culture produced funnel-shaped apices on ascocarps in mineral oil. Since on both soil and in mineral oil the ascocarps produced were similar in possessing funnel-shaped apices it appears that this may be the normal form of the fungus and ascocarps lacking the funnel-shaped apex may only occur under conditions which suppress its development. In many ascocarps, produced in mineral oil, the walls are more or less transparent and the asci and ascospores can be seen *in situ* (Pl. 41, figs. 3, 4). The internal wall of the funnel is pitted (Pl. 41, fig. 3, 4). The mechanism by which ascospores are released has not yet been elucidated. Asexual spores are also produced in mineral oil (Pl. 41, fig. 2).

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EXPLANATION OF PLATE 41

Amorphotheca resinae

Fig. 1. Ascocarp with funnel-shaped apex (×430).

Fig. 2. Conidiophore and conidia produced in mineral oil (×430).

Fig. 3. Asci within ascocarp (×430).

Fig. 4. Pits inside apical funnel (×430).

Fig. 5. Ascocarps from mineral oil (×66).

DISTRIBUTION OF *COLLETOTRICHUM COFFEANUM* STRAINS WITHIN COFFEE TREES

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Colletotrichum coffeanum Noack is a ubiquitous fungus occurring in the mature bark of coffee shoots. In Kenya four culturally distinct strains have been distinguished (Gibbs, 1969) comprising three saprophytic strains,