

placed a fresh sterile Petri dish lid on the actual colony while I examined lid ascospores in situ on the original lid. On all 3 occasions I noted that hundreds of ascospores had been freshly discharged onto the new lid during a 1-2 hour period. ALL OF THESE WERE IMMATURE -- ASEPTATE, MODERATELY VERRUCULOSE-SPINOSE AND HYALINE TO FAINTLY BROWNISH. On two of these occasions I took the new lid from the culture after the 1-2 hour period, replaced it with another fresh lid, and placed the lid with freshly discharged ascospores over a sterile Petri dish bottom containing approx. 10 ml of water. This plate I returned to the incubator at 25°C. **RESULTS:** After <2 hours I noticed that the protoplasts of the freshly discharged lid ascospores were already condensing, leaving a clear space at what would become the light cell end of the ascospore. Another observation 24 hours after the onset of incubation revealed that most ascospores were now 2-celled -- the dark cell fully pigmented and the overall ascospore completely mature. In light of my numerous observations of intact asci and the above-mentioned observations of freshly discharged ascospores, I believe that ascospore ontogeny begins in the asci but only reaches the 1-celled, verruculose-spinose, hyaline to lightly pigmented state (rarely the early 2-celled, faintly pigmented state) before the ascospores are released to mature further outside the asci.

Earlier, after reading comments on ascospore discharge during the dark cycle in "Compendium of Soil Fungi", I felt that I had missed the final stages of ascospore maturity in the asci. I switched from a continuous light cycle to a 12 light: 12 dark cycle and then later to a continuous dark cycle -- none of these resulted in asci containing mature ascospores. Having observed ascospore maturation on the Petri dish lids, I finally obtained Ingold and Marshall's article on dark-light cycle sporulation in Apiosordaria verruculosa. The 1980 "Compendium" overstates their results. They found ascospore discharge during both light and dark cycles, with overall discharge during the dark cycle being greater only when the light cycle used low intensity lighting -- otherwise they found the discharge during 12 hr dark vs 12 hr light to be approx. equal. They did find a negative dark response in the sense that the light stimulation was muted at first by the preceding dark cycle and sporulation in the light cycle didn't peak until late in that cycle. On the other hand, Sordaria fimicola peaked after only 2 hours in the light cycle. **No mention was made concerning the maturity or immaturity of the discharged ascospores of the Apiosordaria. By the time they were examined microscopically, they may have been mature anyway.**