

***Phaeoisaria clavulata* (Grove) E.W. Mason & S. Hughes, in Mason & Ellis, Mycol. Pap. 56: 42 (1953)
AEB 1332 (= PDD 117234)**

Collection site: Wainuiomata Recreation Area, Gums Loop Track (See yellow line on map insert. Dark green areas are plantation eucalypts.) The collection was made near the beginning of the Track – note the red arrow.

Substrate: *Phaeoisaria clavulata* covered portions of a fallen, very decayed, decorticated, unidentified-branch fragment.

Collection date: 28 December 2019

Collector & identifier: Dan Mahoney

Voucher materials: Dried herbarium specimen [AEB 1332 (= PDD 117234)] accompanied by 2 Shear's mounting fluid (SMF) semi-permanent slide mounts; Dan's in situ Zeiss dissecting scope photos [Kodak Professional Portra 160 color neg. film, (best ones digitally scanned)] and Olympus BX51 compound scope with DP25 camera for digital photos of microscopic detail; Dan's comments and description.

Publications consulted:

- 1) Mason E.W. & Ellis M.B. 1953. British species of *Periconia*. In Mycol. Pap. 56. Pp. 42–44.
- 2) Ellis M.B. 1971. Dematiaceous hyphomycetes. Commonwealth Mycological Institute, Kew, Surrey, England. Pp. 1–608. Ellis's illustrations of *Phaeoisaria clavulata* and *P. clematidis* from page 213 are reproduced on the second page of this pdf.
- 3) de Hoog G.S. & Papendorf M.C. 1976. The genus *Phaeoisaria*. *Persoonia* 8: 407–414. A key to 6 species, including *P. clavulata*, is provided. Index Fungorum in January 2020 now records 30 species and varieties.
- 4) Hyde K.D. et al. 2018. *Mycosphere* notes 169–224. *Mycosphere* 9(2): 271–430. See pp. 401–407 and the new species *Phaeoisaria guttulata* J. Yang & K.D. Hyde. Its relationship to *P. clavulata* and *Phaeoisaria* phylogenetic links to the ascomycete family Pleurotheciaceae R blov  & Seifert are discussed.
- 5) Heredia G. et al. 2018. Saprophytic synnematosus microfungi. New records and known species for Mexico. *Revista Mexicana de Biodiversidad* 89: 604–618 (for *Phaeoisaria clavulata* see pp. 610 & 612). Emphasized here, and on Google in general, is that *P. clavulata* is widely collected worldwide, but infrequently seen. The Heredia publication is the first record from the Neotropical region as AEB 1332 (= PDD 117234) is the first record from New Zealand.

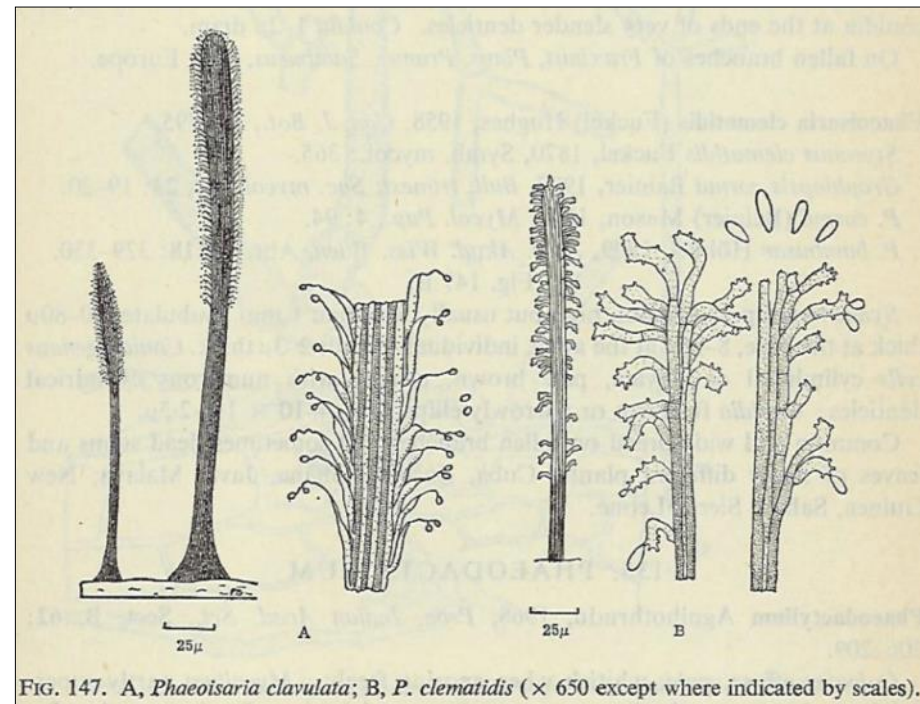


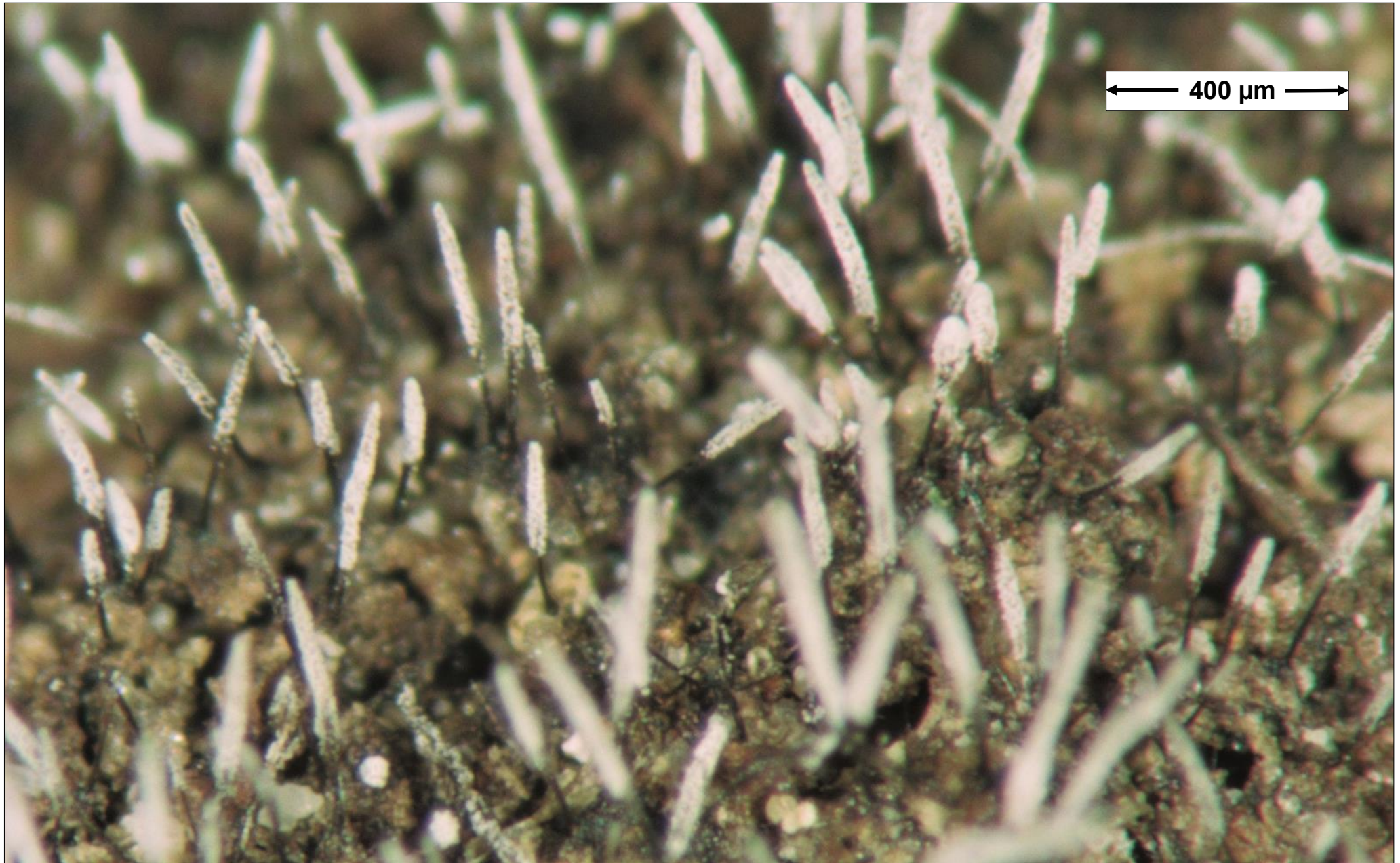
AEB 1332 (= PDD 117234) description [dissecting scope in-situ photos (1–3 & 6A) & compound scope microscopic detail photos (4, 5, 6B & 7) are inserted]:

Synnemata numerous, stiff, erect, often crowded but separate. Usually unbranched (1–4), rarely branched (6 & 7), growth indeterminate (4A, 4B, 6B, & 7B), composed of compact and parallel adpressed dark brown, septate, hyphal threads. The stalk portion appearing shiny black in-situ and dark brown by transmitted light; the conidiogenous portion emerging from hyphal threads at the periphery of the uppermost approx. $\frac{2}{3}$'s (depending on the stage of indeterminate growth). Overall size varying from 300–720 μm (length overall) \times 10–20 μm (the latter just above the bulbous base embedded in the wood). Overall widths in the conidiogenous regions not taken. The basal portion of the pale to hyaline, aseptate conidiogenous cell was markedly different (larger, often curving and awl-shaped – 4D, 4E & 7C) than the fine thin rachis at its tip from which the tiny blastic conidia were borne from minute denticles – terminally, singly, and sympodially (4C¹, 4C²). Conidia tiny, aseptate, smooth, hyaline (white to pale grey as seen in mass on in-situ photos), dry with schizolytic secession, mostly ob-ovoid (occasionally ellipsoid) but not globose as sometimes reported (5 & 7D), most measuring $2 \times 1^+ \mu\text{m}$.

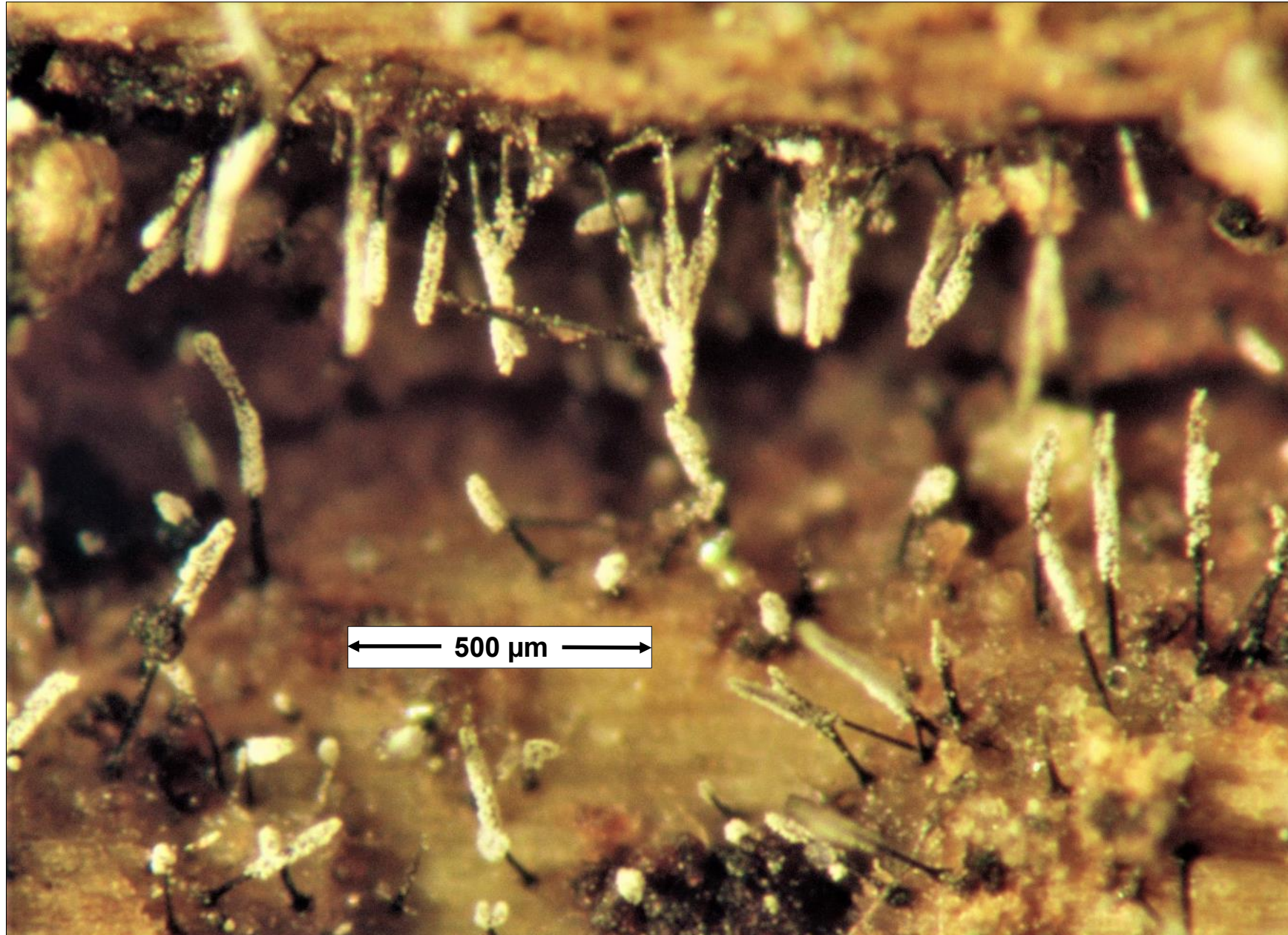
**Ellis M.B. 1971. Dematiaceous hyphomycetes.
Commonwealth Mycological Institute, Kew, Surrey,
England. 1-608.**

A portion of page 213 reproduced here

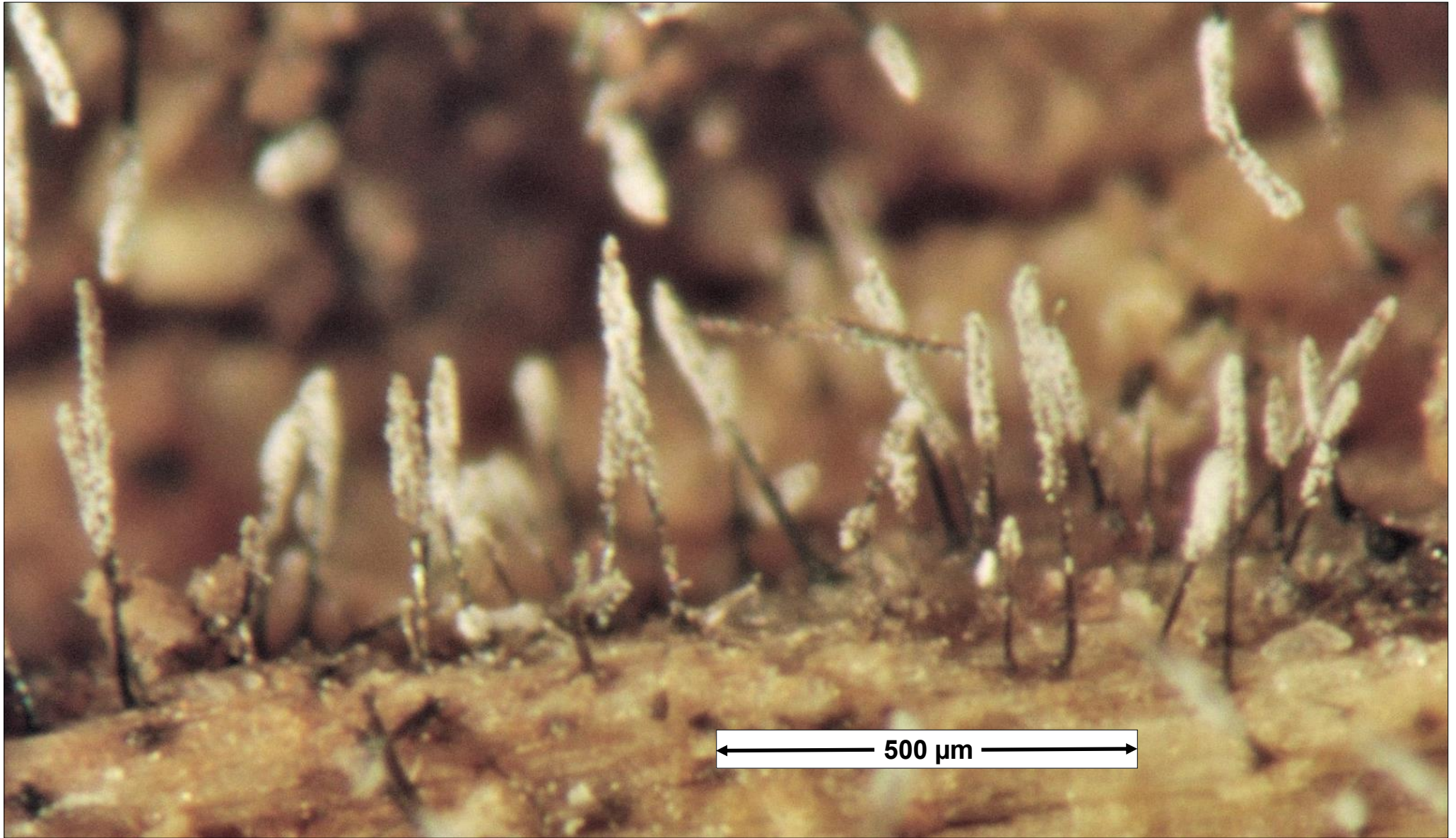




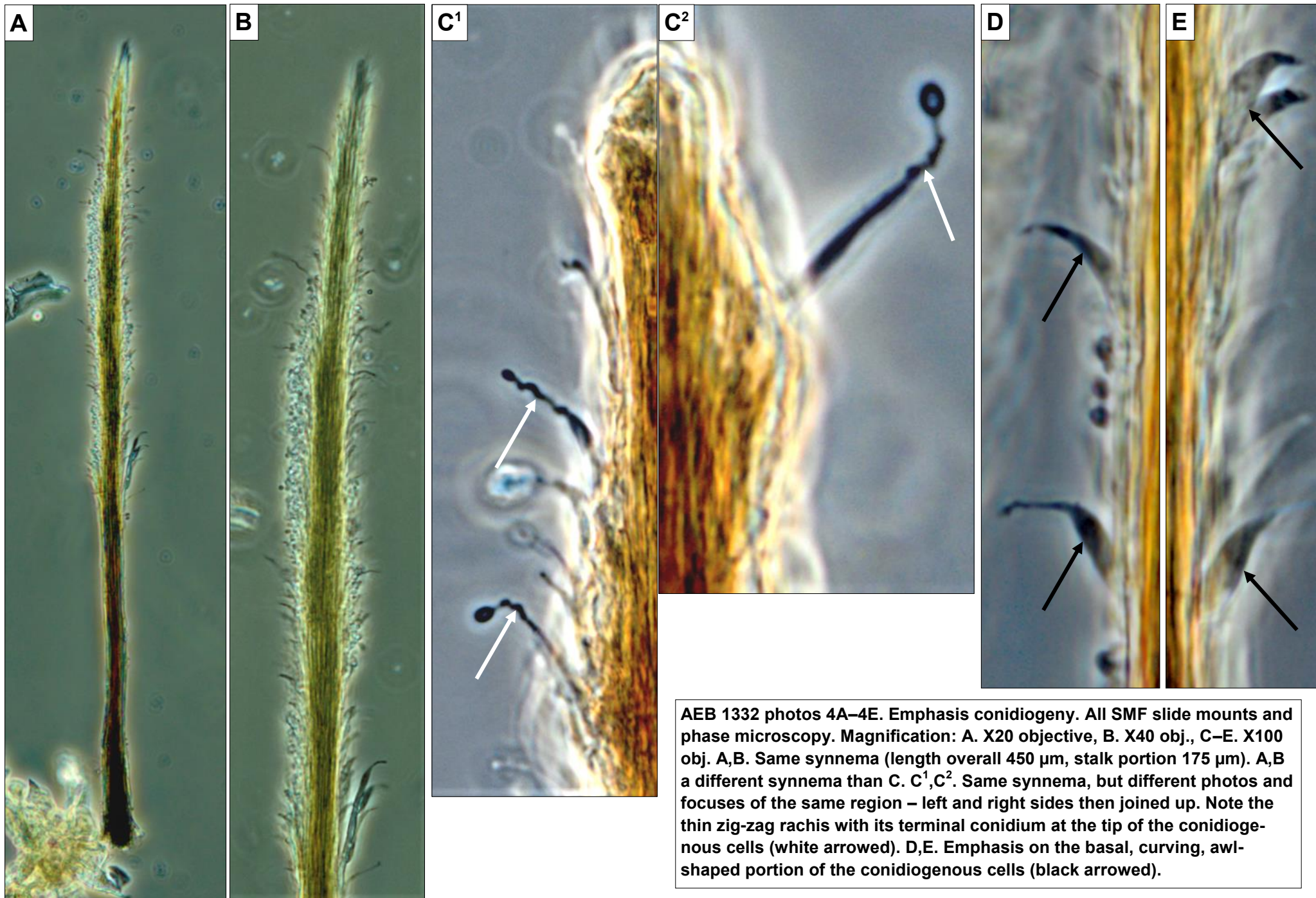
AEB 1332 photo 1. Numerous in-situ synnemata on the dead wood surface. Note their variations in length (a feature of their age and indeterminate growth), their black stalks and their white conidiogenous zones covered with thousands of tiny conidia.

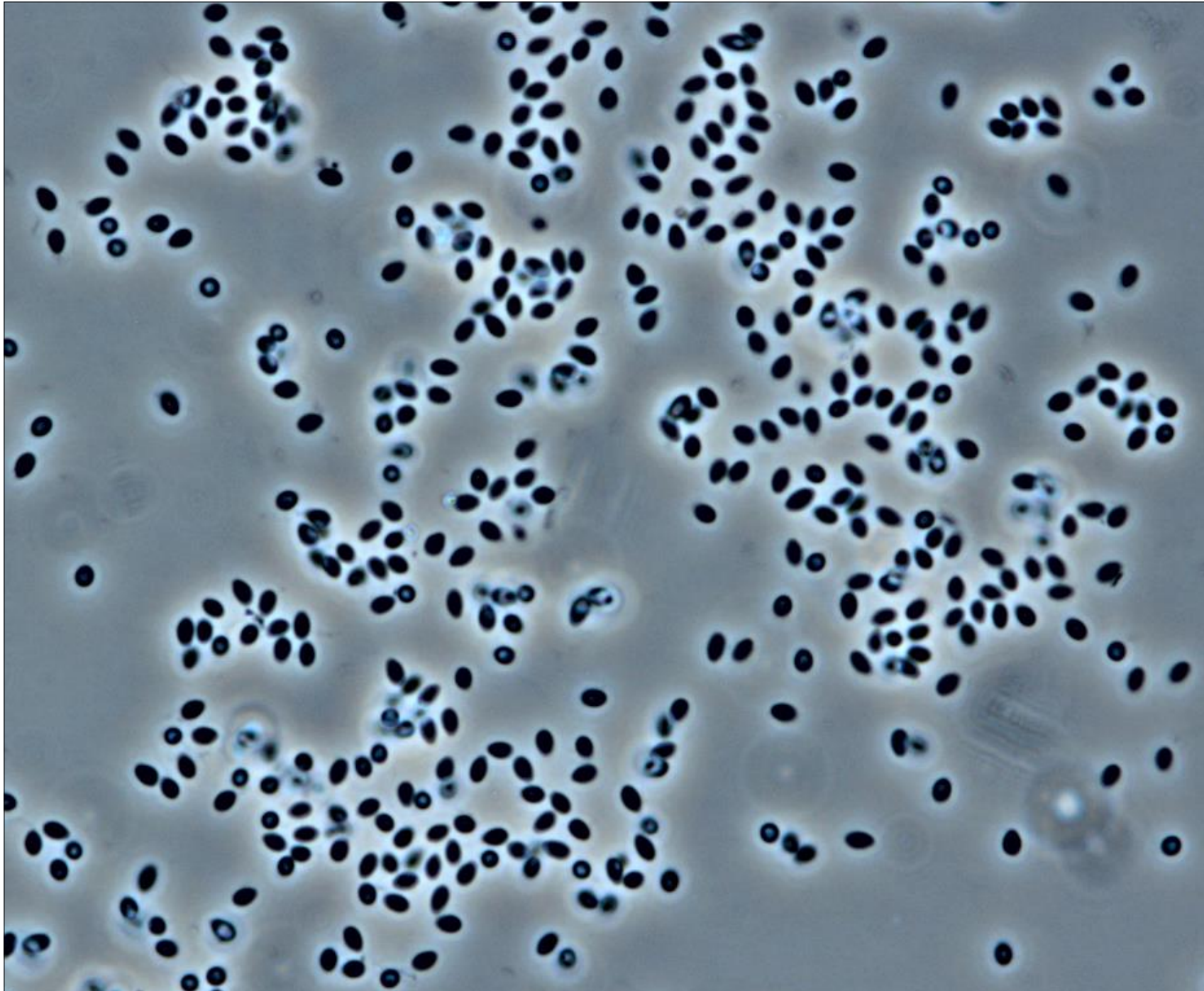


AEB 1332 photo 2. Numerous in-situ synnemata on the dead wood surface. Here seen growing on the edges of, and within, cavities on the decaying wood.

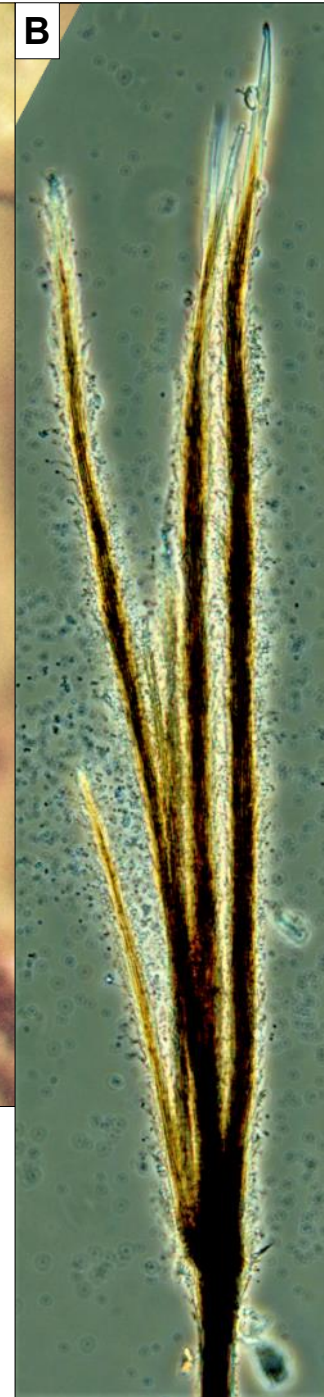
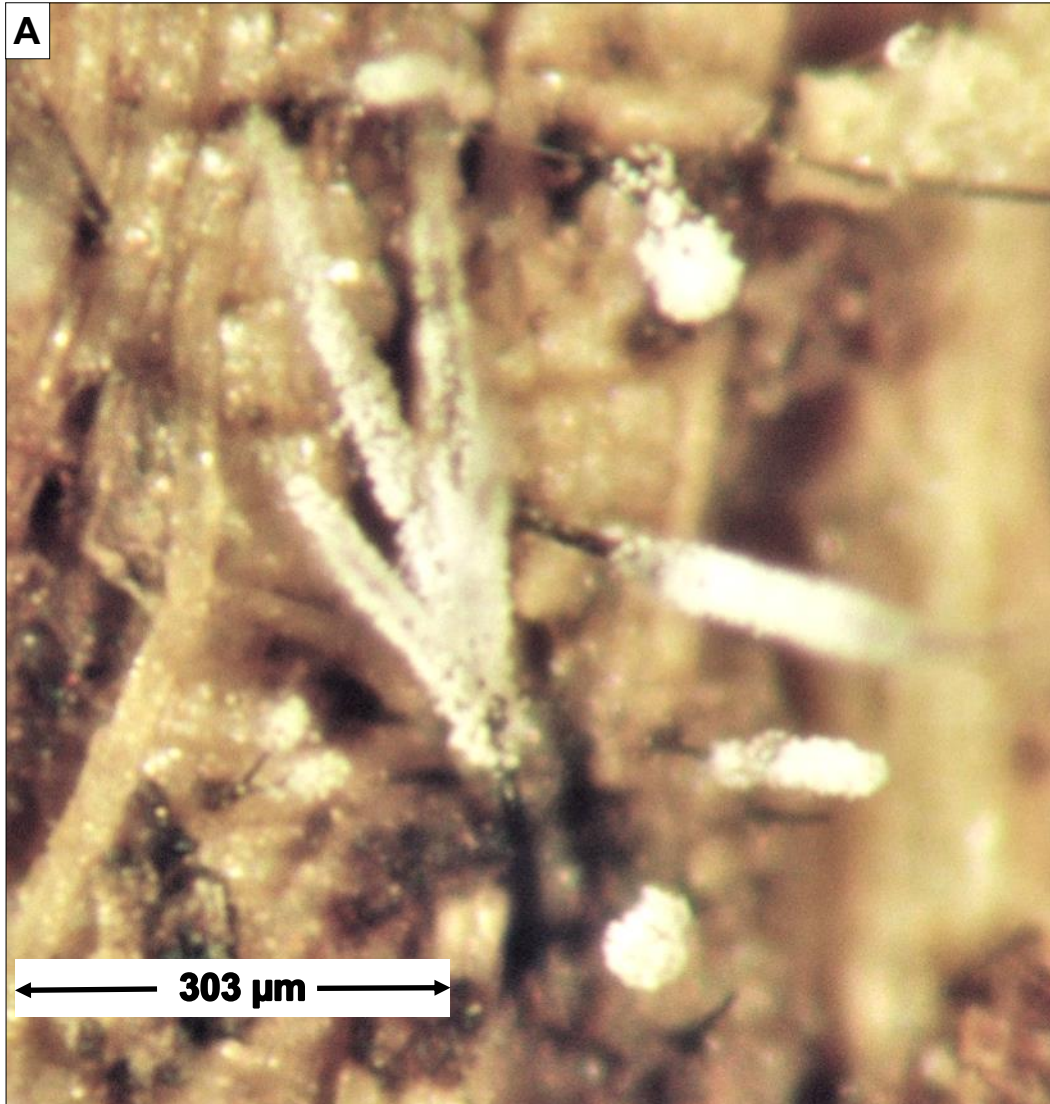


AEB 1332 photo 3. Some of the in-situ synnemata from the previous page seen here in a reoriented photograph.

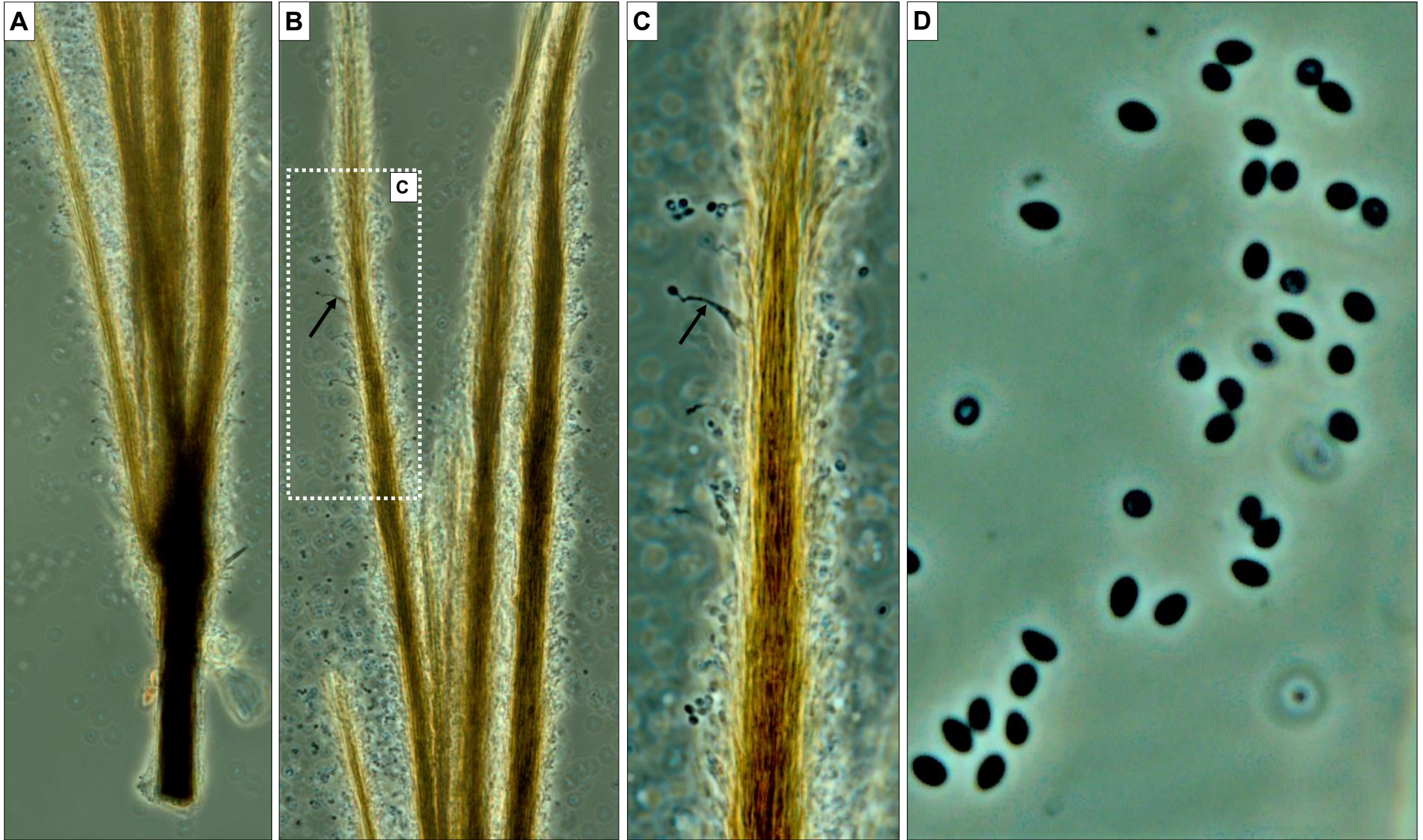




AEB 1332 photo 5. Conidia. Typically obovoid to sometimes ellipsoid. Conidia that appear globose are, I believe, actually obovoid or ellipsoid but seen here in end view. SMF microscope slide mount, X100 objective, phase microscopy.



AEB 1332 photos 6A & 6B. A rarely observed branching synnema. 6A. In-situ on the wood surface. 6B. The same synnema mounted (with luck) in a SMF mount under the X20 objective using phase microscopy. 6B measurement, from broken stalk base to longest branch tip was 700 μm.



AEB 1332 photos 7A–7D. Branching synnema and its conidia. All from the same SMF mount on the previous page (6B). 7A, 7B. Basal half and apical half of the synnema, resp., X40 objective. 7C. The dotted rectangle in 7B, X100 objective. Note the arrowed conidiogenous cell. 7D. Conidia produced by the branching synnema, X100 objective but enlarged (see comments for Photo 5).