

**An Abstract of Our Fourth Lichen Paper.** Mark H. Armitage and George F. Howe. 2006. Lichens in cross-section: Evidence for design and against macroevolution. Creation Research Society Quarterly Volume 42, Number 4, pp. 252-264.

**Tissues** in a lichen cross-section resemble tissues of higher plants that are “miles away” anatomically and taxonomically. Such striking resemblances between otherwise “distant” organisms support a “common Designer” rather than a “common ancestry.”

The lichen **dermis** and **upper cortex** function like the **epidermis** of a higher plant, providing protection, water conservation, and enhancement of gas diffusion. The lichen **algal layer** in the lower cortex is like the **photosynthetic chlorenchyma tissue found in leaves**. Not too deep and not too shallow, the **algae** are **precisely positioned** in the thallus for effective photosynthesis.

The lichen fungus varies its **wall thickness** in the different lichen tissues “as required”—making thin walls in the algal layer for absorption of food, but thick cell walls (same fungus) in the **medulla** to supply needed structural support (Figure 9).

The **lower cortex** (epidermis) of a lichen is present **only in those lichens needing it**—thus proving to be an intelligent design for foliose lichens. The wrinkled foliose lichens, which are unattached to the substrate over much of their lower surface, **need** and **do** possess a protective lower cortex. Crustose lichens, however, which are attached to the substrate at all points, do not need a lower cortex and they don’t have one; isn’t that an “efficient” design?! Does this fortunate situation arise from selection of fortuitous mutations over long time periods or was it the result of rapid design engineering? We say design and we assert that evolution flunks.

Cells of the lichen alga *Trebouxia* show skillful preparation for life in lichens in three ways: 1. needing low light intensities, they are thus well shaded by the cortex above them; 2. their slow growth fits well with the slow growth of the entire lichen; and 3. nitrogen supplies inside lichens are **organic nitrogen**, which is also exactly the type of nitrogen favored by the *Trebouxia* algae. It appears that the right alga was chosen to be part of many lichens. In these and several other ways described in the paper, lichens look like they are the product of a cogent Creator rather than the result of a chance heritage.



**Figure 7.** A **haustorium** (beginning at black arrow then twisting up and leftward) is a fungal branch sent into a nearby algal cell for food absorption in a lichen such as in the *Candelilaria* seen here—transmission electron micrograph (TEM) at 8500X. **Figure 9.** (at right) A close up TEM of fungal hyphae found in the **medulla** tissue of the lichen *Xanthoparmelia* sp. Thick walls in this tissue provide necessary strength for the lichen. Their rod-like structure closely resembles sclerenchyma fibers of the vastly different flowering plants—a likeness supporting a common Designer Who produced both lichens and flowering plants.