



SOIL SCIENCE AND ANTIQUE HOUSES OR, WHERE HAVE ALL THE ALBIC HORIZONS GONE?

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My wife, Cindy, and I are lucky enough to live in a stone farmhouse built in 1834. As we both appreciate antiques, having an antique house, barn, and outbuildings as well is a real joy. Coincidentally, the house, unknown to us when we bought it, was built by a distant relative of Cindy's and was always owned by relatives through the years until the early 1990s when a couple bought it and lived there for 3 yr before moving to Europe. We purchased it shortly thereafter, returning it to the family.

The front part of the house, which is the oldest part, still has the original glass windows. The window panes are flawed and rippled and thicker at the bottom than at the top. This is due to the fact that glass is not a true solid, as it lacks a crystalline structure, but is actually a super-cooled liquid. As a liquid, it flows under the influence of gravity, albeit very slowly, so that, over long periods of time, any piece of glass left in position will become thicker at the bottom than at the top.



A few years ago I was discussing old houses with an elderly client of mine who has been a farmer in the area all of his life and who also lives in an old house of a similar age. When I brought up the windows, he nodded knowingly and proceeded to relate to me how those windows were made. According to him, during the early settlement of southeastern Pennsylvania, each village tried to be as self-sufficient as possible and would typically contain such necessities as a blacksmith shop, a gristmill, and a glass factory.

What, you may ask, does this have to do with soil science? The glass factories were supplied with silica sand by a rather unique method. The land was cleared for agricultural use by first cutting the trees. Then a team of horses dragged a blade, stripping off the Oa horizon. Below that a layer of high quality pale sand was found, which was then stripped off and stockpiled for use by the glass factories. The topsoil was then respread, and the area plowed. The farmers were actually mining the albic horizon for use in glass making. The glass industry in this area has long-since ceased due to the depletion of the needed raw materials.

The soils in southern Chester County are deep soils often derived from crystalline metamorphic and igneous bedrock. The soils in this area are largely lacking in any type of E horizon. The E horizons that we do encounter are usually thin, anemic, and restricted to the forested ridge-tops, although I did once encounter one in a test pit in a backyard in an old subdivision, but that appeared to be very isolated. The lack of any E horizon is usually attributed to plowing of the soil mixing the E horizon into the Ap horizon. However, this scenario, where the E horizon is actually mined before plowing, could help explain some of the dense and apparently compacted Bt horizons that I have encountered in some areas. While I have not had the time to research the local history enough to confirm this story, I have not yet seen any data to refute it either. It is possible that it may have been such a short-lived phenomenon that it may not be mentioned extensively in the literature. If anyone else has heard similar explanations, I would be interested in hearing about it.

Whether this story is apocryphal or not, it does raise two interesting points. First, that the elderly have many stories to tell us that are valuable and may be lost if we do not take the time to listen. This is especially true of the aging farming population, who know much about the world and the soils around them, which we would do well to listen to. Second, that soil science is all around us and impacts all of our lives in many ways. If you take the time to look and listen, there is always more to learn.

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