OPEN HOUSE ECO-HIKE TALKING POINTS
Dr. Mike Passow  Oct 2017

• Idea for Eco-Hikes goes to Dr. Neil Pederson, formerly at TRL and now at Harvard Forest.

• Lamont campus given to Columbia in late 1940s by widow of Thomas Lamont, a prominent banker. The property was the Lamont family’s weekend estate since the 1920s. (Main home was in Englewood, NJ.) Can learn more about LDEO history on the website.

• During the 19th Century, much of the area was part of Skunk Hollow, a community of African-Americans who were not permitted to live in Nyack or other towns. They eked out an existence farming and growing fruits. We can still find the cellar holes and grape vines in places around the Lamont Forest. Allowed to move into Nyack and other towns in early 20th Century. Can learn more through Rockland history websites.

• Bedrock is the Palisades Sill. Consists of an igneous rock called “diabase,” closely related to basalt.

→ Around 200 million years ago, high mountains to the west (now the Hudson Highlands and Ramapos). What became North America and Africa joined as part of Pangaea, the super-continent.

→ Plate tectonic forces began to separate North American and Africa (Laurasia and Gondwanaland). Faulting created a series of shallow basins running from New Brunswick in the Canadian Maritime Provinces to Alabama. The Newark Basin was the largest of these. Extends from Rockland County across northern NJ toward Gettysburg, PA.

→ Erosion filled the basins with sediments eroded from the high mountains. Lots of iron minerals, so reddish-brown in color. Mostly shales and sandstones. Some conglomerates closer to the source (visible on NYS Thruway near exit 14B.) Layering reveals changes in precipitation related to long-term orbital shifts (20k+ year patterns—more information in display in lobby of Core Lab Building.)

→ Stresses as plates moved melted rocks and produced lava flows. “Wachungs” and “Hook Mountain” in northern NJ/three lava flows in Connecticut River Valley/lava flows near Gettysburg/elsewhere in these basins. Surface flows—vesicles (gas bubbles) and pillow lavas.

→ Palisades Sill forms as an underground magma flow that could not reach surface and forced its way through the sedimentary rock layers. Solidified slowly beneath the surface—crystals larger than in basalt., but not as large as in gabbros.

→ Much later, region was tilted downward to west by about 15° and overlying softer sedimentary rocks eroded (contributed to sand grains on Atlantic continental shelf.) More resistant diabase exposed as cliffs forming the Palisades along the Hudson River, and in outcrops here at Lamont and elsewhere.

• Part of the primordial (original) Eastern Woodlands biome first occupied by Native Americans more than 5,000 years ago.) http://www.u-s-history.com/pages/h922.html)
Hunters and gatherers – lived in wigwams/longhouses within protecting walls (palisades). Women raised the “Three Sisters” (corn, beans, squash) and men hunted (deer, bear, raccoons, etc.) [Influenced Boy Scout lore – learn more at Trailside Museum in Bear Mountain State Park.] Nyack = the fishing village.

- Henry Hudson sailed for Dutch East India Company in 1609, claiming area for the Netherlands. First trading posts for furs at New Amsterdam (NYC) and Fort Orange (Albany), ends of navigable river. Farmers and others arrived beginning in the 1620s.
- English ships took control in 1664. Dutch farmers allowed to remain if they accepted English rule. Many old families in Hudson Valley (including Roosevelt) and place names (Catskill, Tappan Zee) have Dutch origins. New Netherlands given to James, Duke of York and brother of Charles II. NY and NJ divided by James through gift to two friends, Lords Carteret and Berkeley. (Actual boundary not established until 1880s—marker just south of Lamont in Palisades Interstate Park at State Line Lookout area.)
- Top of Palisades not very suitable for farming – glaciers removed earlier soils down to bedrock and left glacial erratics (rocks broken off and carried by ice, left when melted.) Typical “New England” farming conditions. Erratics gathered to make stone walls, building foundations.
- Primordial woodlands extensively deforested in 17th – 19th Centuries for firewood and building materials. Almost all of original Eastern Woodlands destroyed. [Would not be a NYC if not for discovery of coal in PA and construction of canals across NJ. Very few, if any, of trees here on campus more than about 150 years old, most much younger.
- Primarily oaks and maples, some hickories, birches, and conifers. Most of campus planted by excellent B & G since Columbia took over. Can learn about area’s climatic history through dendrochronology.
- Invasive species not common in this particular location. Poison Ivy. Elsewhere, Chinese tree of heaven, species more common to the South. Important story that has been studies by TRL scientists elsewhere in the Lamont Forest. Some brought to area by ships coming to NY ports.
- Canopy prevents much light from reaching ground, so combined with recent dry conditions, little ground cover. Also reduced impact of rainfall on erosion.
- Trees may be blown down or die. Opens opportunities for young plants to grow quickly and take the place of a downed tree. “Gap dynamics” dominate in Eastern Forest. Fungi, bacteria, and insects decompose trees to provide source of organic and other nutrients, shelter for small mammals.
- Birch and other species also found here. Seeds spread by wind and birds.
- Change slow, but always happening. Climate influences slowly affecting species distribution—cold-tolerant moving poleward and warm-loving species replacing them.

Learn more about what plants can tell about climate history by visiting the TRL.