When I teach courses of hydropedology and soil physics, I always like to ask my students a simple question: “What is the difference between cattle and the ground beef?” The answers I have received have always been refreshing. I then encourage students to give an analogy from their own imagination to illustrate the essential difference between naturally formed soils vs. ground, sieved soil materials. Here are some samples of their answers:

- a building vs. a pile of debris
- a house vs. a pile of wood and nails
- a car vs. a pile of junk parts
- a computer vs. its parts
- a tree vs. pieces of wood
- a plant vs. its broken tissues
- a wheat plant vs. a loaf of bread
- a sandwich vs. a salad
- an orange vs. orange juice

and the list goes on and on....

This leads to my point: Is there any merit in distinguishing pedology from the general term soil science? I believe so. Because a crushed sample of soil is as akin to a natural soil profile as a pile of bricks is to a beautiful building. Hence, the traditional way of studying soils using ground and sieved soil materials, or even glass beads or beach sands, and isolated soil columns (especially repacked columns) should be replaced with in situ soils that have distinct characteristics of pedogenic features (such as aggregation, horizonation, and heterogeneity) in a natural landscape context.

Ped is indeed a unique term in soil science, and pedology captures that well. Peds are naturally formed soil aggregates with various strengths, sizes, and shapes that are separated by planes of weakness (see the illustrative figures). This natural soil “architecture” is influenced by the five interacting soil-forming factors, plus human activities, at the macroscopic scale and is governed by interrelationships between inorganic and organic constituents and physical, chemical, and biological processes at the meso- and microscopic scales. Water and chemical movement or retention, mineral weathering or synthesis, gas production and temperature fluctuation, plant root or insect activities, and microorganism habitats are all strongly influenced by such soil architecture. As pedologists routinely observe and record in field soil surveys, other pedogenic features, such as hydromorphicity, soil horizonation, and different soil types over a landscape (see the illustrative figures),