

HABITAT

Ground
26

Landscape
Architect
Quarterly

Features
06/ Designing Home

10/ Issues Corner

12/ Round Table
Making Home

16/ The Habitat Influence

18/ An Urban Canopy
Revived

Summer 2014
Issue 26

GAIA

letter to the editor

To the Editor:

I read with special interest and enjoyment the recent Round Table in *Ground*, "The Dirt on Soils" [*Ground* 25]. You have raised the bar on this topic for our profession. An excellent panel, and Jack Legg brought a refreshing dose of hard science to the discussion. I offer a couple of comments and additions.

First, not everyone agrees that the material into which we plant should "not be called dirt." I, for one, do not agree, and I think it might help the discussion to reserve the word soil for use only when it meets the definition of an agricultural soil scientist—that being natural, undisturbed soil. The Soil Science Society of America (SSSA) created a fabulous touring exhibit on soil called "Dig It," currently in Sacramento, California. Please bring it to Canada.

The exhibit's first informational plaque explains, and I am seriously paraphrasing here, dirt is mineral/organic material in which we can grow plants, while soil is "dirt with a history," meaning the horizons, profiles, and structure that evolve over a millennium. In a discussion with a reputable soil scientist, the scientist said, "As soon as you put soil in a truck, it is dirt." That works for me, and I think I have almost never planted a tree in soil, always dirt. We must be very clear that altering profile and structure in soil does great damage, and Jack touches on this point at the very end of the Round Table. I think this issue is the elephant in the room and, until we understand this point, all the blabber about engineered soil, compost tea, and soil amendments is just so much hot air. I think we need a different term than dirt, but for now dirt can be an understandable term and for the rest of my remarks I will use the terms soil and dirt in what I consider their correct context.

If soil structure is so important, then why do we screen our topsoil to get rid of all the structure? We then add a great quantity of sand to replace the drainage function of structure. If you do not add enough sand, the dirt may self-compact, so more sand. All this sand has no organic matter, so we add compost or other material to raise the organic content back up. In sandy dirt, organic matter actually can reduce drainage so we add even more sand to be sure the compost does not go anaerobic. The result is dead or dying engineered dirt, so we then spray compost tea and mycorrhizal inoculation to bring life back. I am still somewhat trapped in this Catch 22 effort. My book *Up By Roots*, along with many of the other references cited in the Round Table, dances along to the engineered dirt mantra. Sure the plants actually grow in the sandy material, but is it better or even equal? Is it sustainable?

Since completing *Up By Roots* in 2007, I have kept observing and exploring soil and dirt. Somewhere along the way, I came to the realization that the dirt screener was possibly the start of the problem. I recently had the honour of helping to design a screened sand lawn soil for the National Mall in Washington D.C., working in the space that Olmstead Jr. helped to construct after World War I. We had an excellent team of the best soil and turf scientists. Observing the results, the turf looks good but, when I compare it to the turf growing in the un-amended, Olmsteadian topsoil, the view was depressing. Olmstead's turf was greener, and the trees were growing fabulously (Dutch Elm disease aside). At one large university in the United States, they have been installing engineered dirt for more than ten years on various campus projects. There have been questionable long-term results, so the campus grounds team used the dirt that was originally removed to make room for the engineered dirt—with better results. They do mix in some sand and run the recycled dirt through fairly coarse screening but the mix has much more brown, fine-grained material than most of us would dare to put in current engineered mixes.

If engineered dirt for use in tree, shrub, and casual lawn applications were well researched, I might be less jaundiced about the concept, but it is not. Funding for landscape soil/dirt research other than golf and athletic fields is almost non-existent. We need basic research on this topic, and must demand that the dirt industry support the claims and sustainability praises we hear. Other industries could not get away with selling this large an idea with so little research.

In Toronto, the city's new tree-planting-medium specification is venturing into eliminating the dirt screener and reducing the sand. I hope that with additional research they can push the ratio of topsoil to sand even further to the brown side. Compost in the Toronto mix is also greatly reduced, echoing discussions in the Round Table about organic cycling and stability. Additional compost, when needed, is to be tilled into the top layer after installation to kick off the rebuilding of an A-horizon.

We are overly reliant on a few laboratory tests, mostly chemical, as the only metrics in our dirt specifications. Landscape architects need to be more focused on the physical aspects of dirt and start learning how to observe and use soil and dirt texture, colour, structure, and profile as important metrics in evaluating existing earth material at the site, some of which may be soil; when recycling the materials; as well as start using these observational tools to specify alterations and amendments to existing and imported dirt.

Please keep pushing the soil/dirt discussion. It will pay handsome dividends both to the profession and the environment. Dig it!

Sincerely,



James Urban, FASLA, ISA