



Wood-wide web

Description

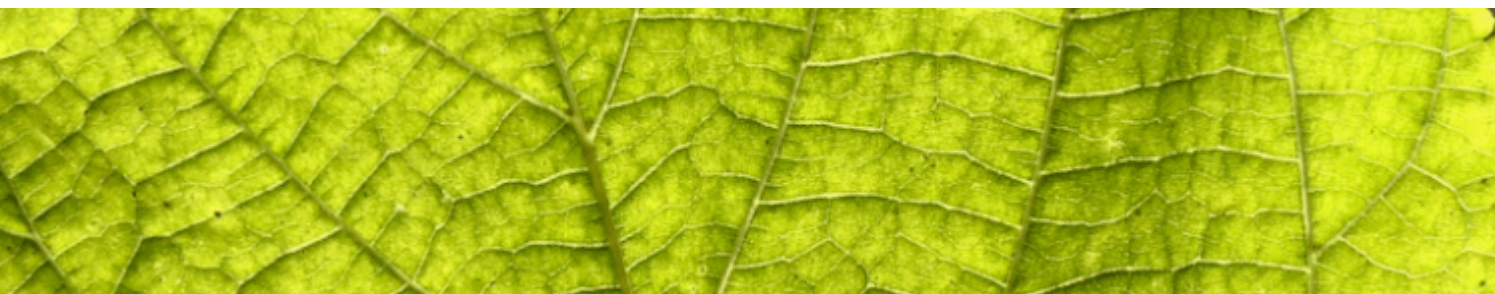
To state the obvious, a tree starts from the ground with a trunk that extends into branches and twigs. You could be excused for thinking that nature is shaped like trees. The primary biological morphology is a root and branch structure. Embryonic cells form into tubes that branch, fold, specialise and merge.

The form (morphology) of a tree is a more particular case of a network, which is any arbitrarily interconnected structure of communicating and interconnecting passages, as in a maze or labyrinth. But most networks in biology start out as trees, or look like trees, or tend towards arboreal structures.

Anastomosis

An anastomosis is an incidental opening between two otherwise independent passages in an arrangement of tubes, channels or passageways. Frequently recurring anastomosis turns a tree-shaped system into a network or mesh. The most common example is the veins on a leaf, which exhibit a distinct tree-like structure starting where the leaf joins its stem.

But the veins touch each other at frequent points, and nutrients flow between the various channels to create an efficient mesh structure for their transmission. It's efficient. If a part of the leaf gets damaged or eaten, there are other routes for the nutrients to flow.



The slow moving flows on a river delta exhibit a similar anastomotic quasi-tree structure, as channels mingle and separate, flowing towards the sea, and forming islands of land and sandbars between the channels.

These are examples of anastomosis within the same system of flows, where branches from the same stem as it were turn into short circuits, or take short cuts.

Anastomosis is a common feature in organic systems, including human and animal bodies. It can also show up as a problem, when flows happen to leak, weaken or contaminate one another (as in a *fistula*).

One of the most interesting, and potentially lethal, kinds of anastomotic leakage happens across tree structures with independent stems, i.e. across different organisms, and even across different species. This is where the flows of one system leak into another.

Symbiotic Anastomosis

Such breaches can also be woven into the evolved systems of symbiosis between plants. Here's an explanation from a scientific article of how the barely visible arbuscular mycorrhizal (AM) fungi interact with tree root systems.

AM fungi have been reported to be active in mediating nutrient transfer among plants, mainly through the extensive mycelial networks, which, due to the lack of host specificity, may link the roots of contiguous plant species. Recent studies showed a novel mechanism by which plants may become interconnected, that is hyphal fusions between extraradical hyphae originating from different individual plant root systems of different species, genera and families• (4).

That's the wood-wide web, an organic matrix of plants that interact and share nutrients with one another and across species via thin tendrils of fungi, that in turn spread underground for miles. Some think of this as a bio-semiotic system of communication. See post: [Biosemiotics](#), [Forests that think](#), and my book [Network Nature: The Place of Nature in the Digital Age](#).

References

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Category

1. Nature

Tags

1. anastomosis
2. network
3. rhizome
4. tree

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