

Termites Build Mounds Over the Course of 4,000 Years

The Wired Word for the Week of December 2, 2018

In the News

Termites have been building mounds in Brazil for thousands of years, and the network is so large that it can be seen from outer space. When combined, these 200 million termite mounds cover an area the size of Great Britain. "This is apparently the world's most extensive bioengineering effort by a single insect species," said Roy Funch, a biologist at a state university in Brazil. He added that "the mounds are extremely old -- up to 4,000 years, similar to the ages of the pyramids."

According to entomologist Stephen Martin of the University of Salford in the United Kingdom, the amount of soil excavated is "equivalent to 4,000 great pyramids of Giza, and represents one of the biggest structures built by a single insect species." Human beings "have never built a city that big, anywhere," he added.

Each of the mounds is about 8 feet tall and 30 feet in diameter. Although visible from above, they are largely hidden from view at ground level in semiarid, thorny-scrub forests. The mounds, which continue to be built by half-inch-long termites, were noticed by scientists when some of the lands were recently cleared for pasture.

The network was constructed over the course of thousands of years by termites that dug interconnected tunnels. "These mounds were formed by a single termite species that excavated a massive network of tunnels to allow them to access dead leaves to eat safely and directly from the forest floor," said Martin.

The mounds are not nests, but are the result of the excavation of tunnels, which causes waste to build up in cones on the surface. The distance between mounds -- about 60 feet -- is not a sign of conflict between competing colonies. Instead, it is simply an efficient spacing of garbage piles. In effect, when the food in one area is used up, the termites move on, leaving the mounds of garbage as a record of their existence.

The building of the mounds was driven by episodes of leaf-fall in the dry forest, and was made possible by what researchers call "self-organizational processes" among the termites. The vast tunnel network appears to allow safe access to a sporadic food supply. This is similar to naked mole-rats, said the researchers, which also live in dry regions and construct extensive burrow networks to obtain food. Many unanswered questions remain, including the physical structure of the termite nests. No queen chamber for the species has been found to date.

"It's incredible that, in this day and age, you can find an 'unknown' biological wonder of this sheer size and age still existing," said Martin, "with the occupants still present." Such praise of termites has been offered since at least 1781, when an English naturalist named Henry Smeathman wrote a report for the Royal Society. In it, he celebrated termites as "foremost on the list of the wonders of the creation" for "most closely imitating mankind in provident industry and regular government." Termites, he wrote, surpassed "all other animals" in the "arts of building."

"Termites appear to do all this without any centralized planning," wrote Amia Srinivasan in *The New Yorker*: "There are no architects, engineers, or blueprints. Indeed, the termite mound is not so much a building as a body, a self-regulating organic process that continuously reacts to its changing environment, building and unbuilding itself." Individual termites are not very intelligent, but put enough termites together, she said, "in the right conditions, and they will build you a cathedral."

More on this story can be found at these links:

Applying the News Story

The church is often described as the body of Christ, an organism made up of members with roles to play in mission and ministry. The remarkable termite mounds of Brazil offer guidance to Christians in the areas of "self-organizational processes," cooperation and coordination.

The Big Questions

1. TWW Team member Jim Berger observes that the church spread through the first five centuries by word of mouth, "one believer at a time, talking to another person." As members of the body of Christ, how do our individual efforts grow the church?
2. TWW team member Bill Tammeus writes, "humans hate termites, generally, because termites eat up the wood in their homes -- wood that got into those homes because humans destroyed a living tree. In some ways we live by mutual destruction." What, if anything, needs to be destroyed in order for the mission and ministry of Christ to be advanced?
3. The termites of Brazil have been building for 4,000 years, but their efforts were largely unnoticed until this year. What are the hidden contributions of the Christian community to your neighborhood, town, city or region?
4. Termites show remarkable perseverance, working together to build tunnels throughout their lifetimes. What can the church do to inspire its members to remain faithful to the mission and ministry of the church, in good times and bad, over the course of many years?
5. The Anglican clergyman John Newton wrote, "Remember, the growth of a believer is not like a mushroom -- but like an oak, which increases slowly indeed -- but surely. Many suns, showers and frosts pass upon it before it comes to perfection." Where do you see similarities between the growth of a believer, the growth of an oak, and the building of a termite mound?

Confronting the News With Scripture and Hope

Here are some Bible verses to guide your discussion:

Numbers 11:16-17

So the LORD said to Moses, "Gather for me seventy of the elders of Israel, whom you know to be the elders of the people and officers over them; bring them to the tent of meeting, and have them take their place there with you. I will come down and talk with you there; and I will take some of the spirit that is on you and put it on them; and they shall bear the burden of the people along with you so that you will not bear it all by yourself." (For context, read 11:10-17.)

Questions: What help do religious leaders need today? Where do you see evidence that God equips the elders of the church to share the burden of leadership? How can congregational leaders be better organized?

Matthew 4:18-20

As [Jesus] walked by the Sea of Galilee, he saw two brothers, Simon, who is called Peter, and Andrew his brother, casting a net into the sea -- for they were fishermen. And he said to them, "Follow me, and I will make you fish for people." Immediately they left their nets and followed him. (For context, read 4:18-22.)

Questions: Why does Jesus need the help of four fishermen as he begins his ministry? What inspires them to join him? How are groups of people more effective than isolated individuals?

1 Corinthians 12:12

For just as the body is one and has many members, and all the members of the body, though many, are one body, so it is with Christ. (For context, read 12:12-31.)

Questions: What sort of self-organizational processes do you see in the body of Christ? Where do you see evidence of one mission being supported by diverse talents? How do individual efforts support the growth of the church? Where do you see dissension within the body?

Colossians 1:17-18

[Christ] himself is before all things, and in him all things hold together. He is the head of the body, the church; he is the beginning, the firstborn from the dead, so that he might come to have first place in everything. (For context, read 1:15-23.)

Questions: How does a head relate to a body, and a leader to a group of followers? Does a group need a leader, and if so, why? What are the responsibilities of faithful followers?

Prayer

Creator God, you have made a world of remarkable creatures, from soaring eagles to tunneling termites. Help us to learn from what we see around us, and apply the lessons of your creation to our lives. In Jesus' name. Amen.