




Waring “Buck” Triple III  
Student Response to

***We are All Part of the Tangled Bank***

by Betty Jean Craige, Professor Emeritus;  
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 Hey friends, I'm Buck. I'm an undergraduate here at Georgia studying entomology and ecology. I'm really grateful to be up here, but I'll tell you - it's a bit of a challenge to respond to someone like Dr. Craige who's spent so many years reading and understanding the world's literature. I think if I were to do so, it would be because I have spent the past three years thinking about ants. Ants are remarkable organisms - they dominate worldwide ecosystems, dispersing seeds and protecting plants from herbivory, turning soil and helping with decomposition. In fact, ants comprise 15% of the terrestrial biomass. That means that if you put all of the animals in Georgia on a scale - from the deer and birds to the nematode worms, of which there are billions in a handful of soil - for every 85 pounds of all these things, you would have 15 pounds of ants. I don't know if you've ever *seen* 15 pounds of ants, but that's a lot of ants.

Yet, despite this apparent dominance, ants do not pass the five year old test. That is, if you took a five year old and asked him which insects are the most important, he'd pick the ones that are the BIGGEST and the FASTEST with powerful mandibles and scissor like claws - some sort of preying mantis or jumping spider or maybe an assassin bug. He probably wouldn't pick an ant, which is small and slow and lives underground, a middle-to-poor predator which is mostly blind and GETS AROUND BY SMELL! It just doesn't have that visceral appeal. Yet ants are the animals which dominate the world's ecosystems, not preying mantises. I think it's worth asking why.

Well one reason why is because ants talk to each other. Ants are social organisms, living in tight-knit social groups, and they are adept communicators. Ants communicate by touch, flicking their antennae, and by smell, laying down trails of chemicals, or pheromones. Through these two methods, ants are able to relate very nuanced images of the world.

Imagine an ant colony: two foragers go out looking for food in the morning. The first comes back having seen a great food source, the second finds a somewhat poorer food source. Both storm into the colony, flicking their antennae and proselytizing, laying down trails of pheromones. Both recruit a swath of followers to venture out and collect more food. But the ant which found the better food source, and all of her followers which later encounter it, communicates in a somewhat more enthusiastic manner than the other. She makes more frantic antennal movements, wider trails of pheromone, and in a very short time something incredible happens: most of the ants are going after the good food source, and an appropriately small number are going after the bad food source. This happens, mind you, without the understanding of any individual ant. No ant has encountered both foods and decided which was better, and probably no ant is even capable of ordering “92% of the workers that way and 8% this way.” The decision was made, but only at the level of the colony: it emerged from a collective action, which was above the understanding or intelligence of any of the individuals in the colony.

That, to me, is the greatest benefit of a holistic philosophy of science. Science is big and challenging and, as specialization continues, it's only going to be harder for people to synthesize it all and make sweeping discoveries. We're at a point where no person can know the whole of ant biology, not to mention all of physics or chemistry. We're going to need to increasingly collaborate, to communicate, and to work in a humble way which acknowledges our intrinsic ignorance and inability to understand the world alone. And I'll tell you what - the University of Georgia is a great place to do that. In the past 3 years, I've researched with 4 different biologists, I've hung out with ants all over Central America, I've met wonderful thinkers like Dr. Craige, and I have enjoyed a wide enough experience that I can really try at a holistic vision - that's the service which the University of Georgia offers its students. So thanks so much & happy Founder's Day!