

Deer/tick: A Synthesis and Lyme Disease Awareness Installation

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An assemblage arises from its own materials, but can share its own diagram with other unrelated processes by metaphor. What does this mean? The materials of the Plumbutter synthesizer are various forms and flows in time, such as the triangle oscillator, the resonator, and pulse brains. Can these circuits act as metaphors for processes in other fields? How about the environment? In Connecticut, where I was born and now am residing temporarily, I became concerned with the epidemiology of Lyme's disease, since it was discovered here but has spread widely over Eastern U.S. and the world. Its vector, the almost invisible deer tick, *Ixodes scapularis*, has profited from global climate change as well as suburban incursions and overlapping with rural segments. "Deer/tick" uses the Plumbutter diagram to explore the life cycle of Lyme disease, through deer migration patterns, deer tick brain signals, and the unique morphology of the bacteria *Borrelia burgdorferi*.

During the installation, two completely reconstructed "Roolz-Gewei drum machines" and four Deerhorn circuit boards provides a tapestry of organic synthesized sound that reacted to proximity through radio fields and light sensors to modulate the wiring and response of the pulse brain circuitry. A first analogy made here is to understand how the deer tick decides to jump, from underbrush, onto its host by various sensory inputs and a simple configuration of neurons tailored for this host trigger reaction. The certainty of internal rhythms provided by square Rolz is mixed with more edgy signals from the paradox generators. We are trying to hear the sound of the tick brain as it sits in wait, marking time and the seasons in a simple quest for blood, its nourishment.

Then the deer walks quietly through the woods, exciting the tick. Or so it was for many years until Europeans cleared the forest, leaving many liminal zones. In fact, deer prefer habitat between the farm field and the forest, where grass is high, and food is plentiful as well as shelter. The deer tick also prefers this high grass between field and forest, as it provides a great springy vantage point from which to attach to host. Thus we can explore how suburban incursions create more habitat for deer and ticks by extending the frontier line in an ever fractal zig zag; every yard has a boundary with the woods, and it is these boundaries that the deer and ticks follow. This is manifested in the sonic relationship of drum and drama in the plumbutter. Drum is the machinery that forms building materials for buildings, utilities and roads; drama is the breath of the forest and the organic swell of foliage over the seasons. The two come together and it is their boundary that inhabits the deer and tick.

Lyme disease can be seen as profiting from global climate change; warm winter thaws and the abundance of moisture benefit ticks. Taking ordinary resonators and modulating them with increasing amounts of chaos can model the drama of environmental change; heat creates unpredictability. The goal in any synthesizer performance, methinks, is to short circuit any kind of predictability while still providing an undulating bed within which to dwell. The art of "Deer/tick" is to create sonic environments reminiscent of our new global weather patterns. Dealing with this new environment of constant change, wet hot summers, snow lightning, can be informed by the techniques of chaos magic. Essentially, be aware. Even if it is the dead of winter, ticks can prowl due to a temporary thaw. If you planned to skirt the woods, go with your senses if they should say danger.

Finally, there is the microbe itself, *Borrelia burgdorferi*, a spirochete. It is a long and slender bacterium, with two cell walls, and a shape like a corkscrew. It moves by wriggling through the bloodstream or the tick gut, by the unique action of flagellae inside its two skins, which act as muscles for it to swim. It is usually covered in slime to prevent detection. In Lynn Margulis' theory, these bacteria that wriggled became the genetic basis for neurons in higher life forms, by a process Endosymbiosis, or appropriation of one cell into another. The *Borrelia* bacteria can also roll up into a cyst and wait, hibernating, in the host; Lyme's disease is thus very hard to treat because at times it is hiding. This morphology of spiral and the roll is also present in the pulse brain of the Plumbutter, with its odd spirals of paradox and even rolls of rhythm. Thus it is an extended sonic metaphor for highly sophisticated bacteria that fool pursuers by sliming them, wriggling past them, or lying like a rock amongst them.