This is the third in a series of short homilies about the lessons of climate change.

Barry Commoner called this the first law of ecology. Because "everything is connected to everything else," he said:

> the system is stabilized by its dynamic self- compensating properties; these same properties, if overstressed, can lead to a dramatic collapse; the complexity of the ecological network and its intrinsic rate of turnover determine how much it can be stressed, and for how long, without collapsing; the ecological network is an amplifier, so that a small perturbation in one place may have large, distant, long-delayed effects.

Some of what Commoner said about stability would be amended by later ecologists, but few would quarrel with the idea that "a small perturbation in one place may have large, distant, long-delayed effects." Indeed, we sometimes call this the butterfly effect today.

The significance of these connections was brought home to me in a lecture by climate scientist Inez Fung. She was explaining that a significant modeling factor involved the specific species of evergreens growing in arctic areas. Why? Some evergreens have horizontal branches which hold snow (which in turn reflects sunlight). Others have downward slanting branches that dump snow (and absorb sunlight because the branches are dark.) This actually makes a difference on a macro scale. So what kinds of Christmas trees grow up north helps determine how quickly the sea rises on tropical islands and how fast the glaciers melt in the Andes.

We've known for a long that in some general sense everything is connected with everything else. But now we're beginning to see the machinery that connects them. It's really quite remarkable!