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## Romanesco Cauliflower is a Striking Example of Fractals

Thu, 04/01/2010 - 07:56 -- Barbara Damrosch

To "hold infinity in the palm of your hand," as William Blake wrote in "Auguries of Innocence," is not a thought you might associate with cauliflower.

But take a very close look at a type called Romanesco. Its vivid chartreuse color is striking, especially when glowing in the depths of its large blue-green leaves. That's not the half of it. Instead of a broad head of lumpy curds, you'll see a spiral-shaped pyramid, composed of pointy protuberances, which is why one old variety is known as Minaret, inspired by Islamic towers.

Suddenly, vegetable gardening is no longer just nutritious and rewarding; it's beautiful.

Look more closely at Romanesco's protuberances, and you'll see that they are exactly like the whole head itself, in miniature. Zooming in a little further, you'll find that they, too, are composed of bumpy spirals, each a tiny replica of the whole. The form repeats itself on an ever-diminishing scale -- into near-invisibility. This vegetable has an eye on infinity, that's for sure, and would happily go on copying itself forever were it not mortal.

The self-replicating form that such shapes take is known as a fractal, and you can find them everywhere in the plant world: in the way frilly lettuce makes frills, or ferns feather their fronds. In doing so, they embody a numerical sequence called the Fibonacci numbers, which expresses the golden ratio (also called the golden mean).

The sequence recurs with startling frequency in the natural world, not just in plants, but in animals, too. The chambered nautilus, with the beautiful inner spiral it grows for buoyancy, is a famous example. I might feel intimidated by a vegetable in my garden that appears smarter than I am, were it not that the tiny projections in my own small intestine are following the same law.

Inanimate things follow it as well: the wandering plumes that frost sketches on panes of glass, or the formation of certain storms, river deltas and beaches. The phenomenon is not visible in everything, but it is a strong tendency, a powerful striving for the efficiencies and efficacies that nature loves.

Look at a plain white cauliflower and you might see it beginning to organize itself into a pattern like that of the Romanesco, trying to pack a more complex surface into its allotted space, but in a far less refined way.

Last year I grew a Romanesco variety called Victoria. After forming a central head, it made smaller ones on the branches below. The crop was good to eat as well as beautiful. Try it as a fall crop, set out in July as three-week-old transplants, and keep its moisture and fertility constant. After harvesting a head, separate its florets, steam them briefly and toss them with pasta or a salad. But don't be surprised if someone stops and gazes, with fork suspended, at a small morsel of infinity.

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