EXPLOSIONS & Radial Design

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Last time (issue #94) we looked at dendritic, or branching designs, at Dry Bone Lake. Now I have been moon-gazing. Radial designs are really a special case of branching patterns, from the randomness of impact craters on the moon, to the hexagonal symmetry and apparent geometric order of snowflakes.

The infinite variety of ice-crystals was only revealed when instruments became available to see them, relatively recently. The lovely one shown here was 'grown' between glass in laboratory conditions. And yes it is true - no two exactly the same have ever been discovered.

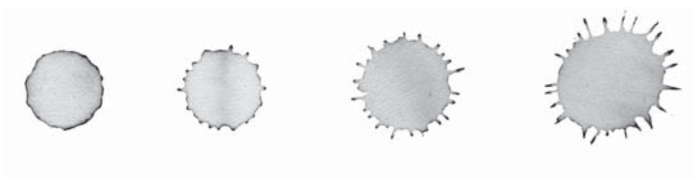
A friend of mine recently had one of those 'significant' birthdays, and after a wonderful dinner with beautiful wines we were asked to go outdoors for a special treat. On the very mark of midnight we were treated to fireworks. We waved our sparklers as rockets bloomed in the sky, with cascades of shimmering light falling against a background of stars. Ephemeral, beautiful, spellbinding and so fleeting, they give the tiniest insight into the fascination astronomers must have with finding distant exploding galaxies.

The explosion as a pattern-type is especially easy to understand. Although such patterns have the simplicity of direct pathways from the center to every outlying point, it can seem to be pretty random. Consider the craters of the moon, so much in the public awareness right now. They can only be apprehended from a huge distance since moon rock has been splashed for something like 1500 kilometres in every direction.

Of course, we seem to intuitively know that the bigger the object, the harder it falls and the bigger the splash. While we can't match meteors on the moon, we have all enjoyed the innocent fun of bombing the swimming pool, dropping pebbles in a puddle or splattering ink-pellets, but without serious attention.

In his book, Patterns in Nature, Peter S Stevens recounts a simple experiment that all can try. You only need a sheet of white paper, some food dye and a ruler. Try releasing one drop of dye from say 6cm, 12cm, 24cm, and 48cm. The first drops make round blots, but the later ones splash, not necessarily making much bigger blots, but instead making longer spikes on the splash. He says that as a response to being dropped at different heights with different velocities, the splashes change form.

A second simple experiment involves dropping dye onto something gluey, like glycerin, and waiting for it to diffuse. This is fascinating, watching the radials form in a not-quite-random way. However, my experiments with milk, dilute yogurt or cream did not yield the lovely tendrils that Stevens published in his book.



The point is that just as the dye blots, changing form under differing conditions, so do living things. The tiniest of forms, like virus or bacterium, have simpler outlines, while the ones that grow larger must increase in complexity – their surfaces tend to change in regular ways. Patterns get repeated.

There are compound explosions, like fireworks in the sky, as a rocket explodes once – and then again – into a myriad of smaller explosions. In my herb-garden, similar formations are seen as chives, fennel, dill and parsley flower and, at the end of summer, the lovely blue Agapanthus heads produce seed pods which in turn break open, then drop.