

Lucky Draw

Bridging art and science: a talk between Nora Douady, painter, and her brother Stéphane Douady, physics researcher at the Centre National de Recherche Scientifique

Nora: For a long time I painted figuratively, that is looking around me and painting then and there what I saw.

For the past several years though, my starting point has switched to textures of paint. The interactions and reactions occurring in the medium itself speak to me as much as what I see when I paint from close observation: dripping, spots, projected spatters, imprints, dendrites* , the pushback between oil and water-based paints...Provoking and observing these random reactions is as rich to me as scrutinizing nature.

What are your thoughts on this as a physicist, specialized in Materials and Complex Systems?

Stéphane: I think you are spot-on, because either way, working from observation or from material interactions of the paint itself, in some sense you are emulating how so-called natural shapes are produced. How do patterns in Nature appear by chance? That's exactly what we study in physics. In fact the forms we find in nature are produced randomly.

The same principles are at work making shapes in your painting as random as those that produce biological life. The only difference is a wee bit of control. In scientific experimentation, we let Nature make a shape, what is known as an instability, and it will morph into many different forms, becoming increasingly rich and complex. That's what's interesting. Living systems use this creative complexity but it controls the process somewhat, so we get more or less the same form every time. An oak tree will always share the characteristics of an oak, but at the same time it will be one of a kind. The basic shape arises out of developmental biology, but if you take off that bit of control, it's random chance.

Nora: But whatever is at the source of life and determines its shape is not completely random, is it?

Stéphane: We tend to explain nature by natural selection: the shapes that work the best will be selected and survive. That's what I call the lucky draw. But that doesn't entirely explain how those shapes came to be. Nature uses these instabilities to make a multitude of complex forms and random shapes. It starts with an abundance of random designs, and then exerts some control over the outcome so that there will be consistency of shape, a rose is a rose is a rose, even if every rose is unique. The underlying randomness is the root cause of such diversity, branching into a plethora of complex forms.

So getting back to painting: to work with chance shapes mimics life, because that's how nature itself is shaped.

Nora: Leonardo Cremonini, my mentor at the Beaux-Arts School, would speak of "biological equivalents." Now you tell me that painting this way, starting from the material reactions of the paint, is following a similar design-making course as Nature. No wonder this lucky draw method of using the haphazard paint spots inspires me. I begin to see in the chaos of the paint droplets

landscapes, or recognizable shapes of plants or other natural elements I've seen. But sometimes the chaos of random paint splatterings and drippings doesn't inspire me, so then I put it aside. I guess that's my "natural selection" within my work's evolution.

Stéphane: Yes, just as nature, you discard what isn't useful. Those instabilities don't always produce interesting things. Actually, you say that it's just chance, but as you work on the background you've begun, with drips and drops, your choices aren't entirely random.

Nora: True, I have strategies. I select colors, and materials to work on. I'm an active participant, choosing amongst the haphazard splashes of paint. I select and edit. You could say I exert my control over the painting so that the body of work should come to life 2...

Yet the initial élan is that lucky draw, the fertile ground which I hope will spawn life in the painting.

Stéphane: But you are a skillful artist – for example you totally master the technique of how to make an interesting imprint, just by pressing paint between the canvas and another surface, which you then peel off.

Nora: Well I'm not completely in control, that's the fun of it... It's experimental, full of unknowns. When I use that suction trick, of lifting a paper after having pressed it on a gob of paint, I hope for the arborescent shapes I call dendrites . Each time I'm surprised. This technique was already being used by George Sand in her watercolors. Is there a physics principle behind this technique?

Stéphane: There is. It's called Saffman-Taylor instability ³, or viscous fingering, according to Darcy's law. This type of growth, in finger or branch shapes, is also found in the crystallization of certain minerals. You also see it in biology, in neurons, the vascular and nervous systems, lungs, or kidney. Widely found in nature, it's a random system that works wonderfully.

Nora: I'm fascinated by those ramifications, which magically appear in that suction process. Often you get a better design than if you set out to draw, say, a tree. It's a gift of Nature. Our imagination pales in comparison.

Stéphane: Faced with Nature's profusion, the mind works by classification. We establish an order, creating boxes and categories so as not to get lost. This of course reduces the complexity, and we lose something.

In the creative process, it may be better to get lost, and keep that multiplicity rather than label and categorize. You can avoid these limitations by working more from the unconscious.

Nora: Inviting chance into painting feels liberating, precisely because it's no longer your voluntary action producing the image. Ideally, the painting would just work itself out alone, like in paésines (4), those Tuscan marble pieces where landscapes designs naturally appear in the stone, forming a ready-made painting. I'd like to be just a conduit, seeing and seizing that moment of instability.

Stéphane: You mean like a shaman, letting natural forces speak through you.

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Translated by Virginia Isbell

Footnotes

1. Dendrites : from greek δένδρον déndron : tree. Term used in mineralogy, neurology and art. In painting, they can be obtained by pressing two thick dabs of paint together which when they are peeled apart, present ramified, tree-like designs.
2. Leonardo Cremonini, in his teachings at the Beaux-Arts de Paris, encouraged his students to think of the painting as ‘a living body, balancing between what is hard and what is tender.’
3. Saffman-Taylor instability: also known as viscous fingering, is produced when two fluids of different densities interact. The less viscous fluid penetrates the more viscous fluid, forming finger shapes.
4. Paésine : a form of pictorial stone, the originally named from such marbles found in Tuscany. When polished, you see fissures and marks of mineral salts that “draw” landscapes.