

PERSPECTIVE

Developmental Twists: Only Human

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I first heard the news while sunning myself in the glasshouse. A call came through, informing me I'd been elected to the Academy's Developmental Biology Division. I nearly fell off my bench! I was being invited to attend the ceremony to accept the honour. Why me? I'd been highly recommended by a colleague.

I could hardly contain my excitement when the day came. The arena was already heaving with famous scientists by the time I'd ported myself there. Everyone seemed to know everyone. To avoid gawping at them like an imbecile, I turned to study the portraits of past presidents. I was perusing a fine depiction, set in the Bay of Naples, when I heard: "An excellent resemblance, don't you think?" I turned to see the portrait's subject, *Strongylocentrotus*, inspecting the picture alongside me. "Those were the days," said my companion, flexing her spines. "Morning bathe in the Med, then drop into the institute for an afternoon display. Not a bad life, eh?" I told her how I'd always admired her classic demonstration of totipotency. "Very kind of you to say so. Yes, amazing what can be conveyed through a simple routine." *Strongylocentrotus* prodded me gently with one of her spikes. "Do I know you?" I introduced myself and explained that I'd just been elected. "Congratulations! I've never met a liverwort before".

We were soon approached by two others. "Ah, *Xenopus* and *Gallus*, this is *Marchantia*, the first liverwort to join us," said *Strongylocentrotus*.

"Welcome to the fold," said *Xenopus*.

"How's your audience getting on *Xenopus*?" asked *Strongylocentrotus*. "Still having trouble with interpretations?"

I knew how tricky dealing with audiences could be. Audiences wanted to know whether their ideas might be right or not. But you couldn't tell them directly. Instead they had to play a guessing game. You gave a staged performance in the hope that they would glean the answer from your antics. If all went well, you got a joint publication. But it could go awry in so many ways – badly formulated ideas, poorly designed stage sets, lacklustre performances (one of my friends got stage fright while under a microscope objective), failures in interpretation.

"I'm displaying the coolest expression patterns," said *Xenopus*, "but my audience is so stuck in its ways it can't see their significance. So frustrating not being able to tell it what the patterns mean. We'll never publish at this rate".

"Mine's a washout," said *Gallus*. "I mean, I send these magnificent eggs onto the stage, but the sets are lousy and the

audience is continually dozing off or checking messages during the show".

Strongylocentrotus gave me a gentle prod. "How's yours doing?"

The question took me by surprise. I'd been so absorbed in perfecting my routines recently, I'd hardly noticed my audience. "I'm not sure," I said.

"Well you'll have to do better than that if you are going to help them".

"Help them?"

"They're like children finding their way. You can assist by giving them a little nudge every so often. Try a flamboyant gesture. Might trigger a new question or idea, if they're receptive that is."

"Mine's more of an obstinate brat than an inquisitive child," said *Xenopus*.

"I suppose we're lucky they chose us to put on stage," I said.

Xenopus inflated her throat to twice her body size and released a deafening croak: "Chose us? You've got it completely the wrong way round my friend! We're the ones who chose them, by putting ourselves in their path. Our audiences are so lazy they just go for whatever is around: *Drosophila* from garbage bins, *Mus* and *Rattus* from dirty dwellings, *Arabidopsis* from weedy gardens, *Caenorhabditis* from any old soil, *Strongylocentrotus* from swimming resorts and me from tropical ponds. And you're the *common* liverwort if I'm not mistaken?"

Gallus, who had been nodding her head so vigorously it seemed in danger of dislocating, steadied herself and added "Not to mention those of us who put food on their plates, provide alcoholic beverages or flowers for their table. *Zea*, *Pisum*, *Lycopersicon*, *Antirrhinum*, *Petunia*, the yeast sisters, to mention just a few. And me of course."

The conversation was interrupted by an announcement that the admission ceremony was about to begin. I stood in line, observing those ahead of me going up to be anointed. I hoped I wouldn't wilt. Finally, my turn came: "For services in the understanding the evolution of morphogenesis." I accepted the elevation on behalf of my kind.

Since returning from the ceremony, I've been observing my audience more closely. It puts in long hours and takes endless recordings but doesn't seem to spend enough time thinking about what each performance means. I've decided to grow exaggerated curves in the hope of triggering its curiosity. Of course, there's no guarantee of success. It's only human after all.