

(who was accused of being more of a popularizer than a genuine scientist) found ample evidence of what he calls "genetic noise," or "negative mutations," thus incurring the wrath of some of his colleagues (he took the idea a little too far). An academic debate ensued, plotting Gould against colleagues like Dawkins who were considered by their peers as better trained in the mathematics of randomness. Negative mutations are traits that survive in spite of being worse, from the reproductive fitness standpoint, than the ones they replaced. However, they cannot be expected to last more than a few generations (under what is called temporal aggregation).

Furthermore, things can get even more surprising when randomness changes in shape, as with regime switches. A regime switch corresponds to situations when all of the attributes of a system change to the point of its becoming unrecognizable to the observer. Darwinian fitness applies to species developing over a very long time, not observed over a short term—time aggregation eliminates much of the effects of randomness; things (I read *noise*) balance out over the long run, as people say.

Owing to the abrupt rare events, we do not live in a world where things "converge" continuously toward betterment. Nor do things in life move *continuously* at all. The belief in continuity was ingrained in our scientific culture until the early twentieth century. It was said that *nature does not make jumps*; people quote this in well-sounding Latin: *Natura non facit saltus*. It is generally attributed to the eighteenth-century biologist Linnaeus who obvi-