

are half full. The constant heat of the water in the pool boils the brine poured into the containers no differently than the heat of a fire. When it first begins to solidify, which happens when it has been boiled for the third time, or more, they grasp the jars with forceps and pour them out into little square iron pans, which are likewise placed in the pool. The pans' inside dimensions are three feet long, two feet wide, and three inches high. Since these each stand on four heavy feet, the water passes under them and surrounds them, but still does not flow into them. Because the water also flows continuously out of the pool through channels, and the springs furnish a supply of new water, it is always boiling, and can condense into salt the water poured into the pans that is beginning to solidify. This is then taken out with sticks, and the same work is repeated over and over again. But if the salty water had been mixed with other liquids, as most hot springs water is apt to be, they cannot make salt from it."

Notes and Comments

The Divine Tinkerer

"If God had designed a beautiful machine to reflect His wisdom and power, surely He would not have used a collection of parts generally fashioned for other purposes," writes Stephen Jay Gould in the title essay of his book *The Panda's Thumb*. He goes on to say, "Odd arrangements and funny solutions are the proof of evolution—paths that a sensible God would never tread, but that a natural process, constrained by history, follows perforce."¹

I don't go along with Gould's portrait of a nonexistent God—a frail straw God who submits far too readily to being knocked flat. Maybe if He didn't exist, He would be like that, but the God who really does exist is much different—sensible, but treading paths that may not always make sense to us.

¹ Stephen Jay Gould, *The Panda's Thumb: More Reflections in Natural History* (New York: Norton & Co., 1980). Quotations taken from pp. 20-21, 26.

Gould concludes the essay by writing that nature is "an excellent tinkerer, not a divine artificer. And who shall sit in judgment between these exemplary skills?" Who indeed? And what's wrong with the image of a Divine Tinkerer?

Tinkering, in the sense of making something out of parts originally intended for something else, is an art, or at least an element of art. Limiting yourself to what comes to hand in creating what you need exercises ingenuity. To me, part of the essence of life is making Easter baskets out of milk jugs and filing back issues of *Scientific American* in 20-oz. Cheerios boxes (I take out the Cheerios first). Artists of all kinds impose limits on their work to stimulate and channel their creativity.

Is God too lofty to practice such a humble art? We know that the setting of limits is the basis of His creation, and that He works within the framework of His laws of order—not because He needs the creative stimulation of arbitrary constraints, but because creation needs a form.

Contemplating the principle that God makes everything may lead to the idea that God makes everything separately, from the ground up, from scratch, instead of building on previously established levels to create higher levels. This evokes for me the image of a toy world—a child unwrapping each piece of a new toy form and setting it up. The different parts begin in isolation from each other; they are not intimately, organically related into a coherent whole, but only assembled into an image of a whole. To see the real world in this way is to see it as "disconnected bits of wonder," to borrow another phrase from Professor Gould (in *Ever Since Darwin*).

The organic world is full of makeshift, improvised structures that work perfectly well. One of Gould's favorite examples is (what else) the panda's thumb: not really a thumb at all, but a modified wrist bone which forms a sixth digit for the express purpose of stripping the leaves from the bamboo the panda eats. A rather clumsy contrivance, but quite adequate for the purpose. This may be a strong piece of evidence in favor of evolutionary tinkering, and it may even suggest a thrifty, resourceful tinkerer who really knows what He's doing.

The concept of a Divine Tinkerer takes on a new and more urgent meaning when applied to human free will. God gives us a real contribution to make in carrying His purposes forward. I imagine it's something like having your preschool children help you bake Christmas cookies. He lets us make a complete hash of our affairs, and

skillfully molds the results to His ends. We know that all events in this world are not equally willed by God: some He only permits. But ignorant blunders, and even the deeds of evil men, are woven into the pattern of His Providence. This, I believe, is tinkering in its highest sense, when the most unpromising fragments form part of the Grand Design—not thrown into the scrap heap and melted down, not stripped of their identity, but used as they are, in all their awkwardness and imperfection.

The spectacle of God tinkering in human affairs may make the suggestion of His tinkering in the biological realm more plausible. The unpredictability of biological events serves as both a matrix and a prototype for the far greater unpredictability of human freedom. Even the inanimate world, by its very inertia and lack of response, seems sometimes to have a mind of its own. Indeed, the entire natural world, by virtue of its otherness from God, possesses an "as of self" essential to the human experience of self-life. The resistance and apparent waywardness of the natural world is just as important to God's ends as its conformability.

The Divine Artificer might well be an expert tinkerer on all levels of creation. Does it belittle the universal government of Providence to see it in these terms? Not if it underlines the utter otherness of His creation, and the ingenuity of His subtle guidance. The whole of creation is a Divine act of letting go—a release which sends all things along a path eventually leading back to Him. This insight illuminates Divine Providence as the delicate adjustment of the cycle of separation and union in everything: God deciding when to let go and how to lead back, and figuring out how to make the best use of all the odds and ends.■

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