

PROTON

A simple trick.

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& CHARLES PELLEGRINO

I had not imagined that working with a Jesuit physicist at CERN might become a problem. The Vatican's Academy of Sciences long ago subsumed their faith in the sciences, so I had not expected theology to trouble our collaborations.

Our confirming observations, carefully mathematized, did not worry me. They predicted new observations, like it or not. But for him, truth had weakened his faith.

"So what is it?" I asked.

Our discovered particles had branched ever outward, each branch tracing its origins beneath the microverse of gluons to a common quantum root, where every particle that had ever existed was linked to the same crack in space-time geometry. My collared friend's aesthetic senses feared a universal defect that could not be adjusted away by theory.

"A single cheap trick does it all," he said.

We had peered deep below the proton, into realms of space smaller than a blade of grass compared with Earth's diameter. A place where space itself vibrated as twisting balls of tangled yarn, with every nine strands born of a differing space-time flaw, arising from 'strings', the real agents of time and space.

We circled this common watering hole of universal root cause, even as theology threatened my friend's mind.

"Don't you see, Jason?" he asked, grasping my hand. "Feynman's joke of there being only one identical proton, bouncing back and forth through all the cycles of space-time, was the only reality, appearing timelessly everywhere and every-when at once. Our adding a twelfth dimension to the eleven of 'membrane' theory now supports everything that we see, gravity included."

"So what's your problem? One proton being so distributed?"

"Don't you see?" he asked, paling.

"It's settled," I replied.

"God made it all on the cheap," he said.

"So? Physical nature, unlike biology, is more parsimonious. Even biological complexity grows out of its simplicity."

"He could have made it another way..." he said like a hurt child.

"Maybe he couldn't."

"What do you mean?"

"It's the... way he found himself in," I said.

"What kind of God is that?" he asked bitterly. "Not worship worthy. No God at all."

"And it's not really empty space," I said reassuringly.

"But... a single proton!" he cried.

"It's just the way it is, eternally. No vast creation needed, just development."

God to have done..." he whispered.

I saw his dismay as he stared past me at the blank wall of our suite. What more could I say after what could well have passed for transcendent knowledge? Aquinas had called it divine knowledge, unlike secular, which would forever be incomplete. Our research had broken through a wall, and there was no going back.

"No one will believe us," he said, glaring at me, and I told him that he did not have to think that his God was too cheap to have made only one proton and spread it around.

A minimalist theism could accept a God making only one proton and smearing it across 12 dimensions; but here, secularly proven, was also Einstein's vision of sublime simplicity, blurred out in red and black marker where once chalk had spoken on our unsuspecting blackboards. Grounded in 12-dimensional thinking, where everything existed in one place, was a final goodbye to the problem of spooky action at a distance for both Newton and Einstein.

Faith-free physical conclusions did not threaten me. Either they were justified by observation and experiment or not. But to my friend it was a transcendent truth, for what it ruled out. My heart spoke and I wished in that moment that our mathematics might be ruled out on physical grounds, as not applicable to our universe in a crowded infinity. Einstein had said as much about how mathematics selected itself.

I took a red marker and we stepped off a precipice to do battle. A chill passed through me as I realized there was no going back, that our sciences had seen the universe be one thing after another, but was now damned never again to be anything else.

Our universes had died...

But as we stood together, he said for a resurrection: "You know, uncreated and unbegun as it all is, we might one day learn enough to remake it." ■

"Do you realize what that means? No God."

"Well, a kind of pantheism," I said.

"Same as atheism. They hung that around Teilhard de Chardin."

"Theology also develops," I said.

"I don't like it," he answered.

I said: "Well, you don't have to conclude that God does not exist. This is simply the subtle way he did things up, even leaving us his existence as unprovable, so we would get on freely, without intimidation."

He smiled. "You're too kind, but I have to think better of God. You don't object to the absurdity?"

"I like the Einsteinian simplicity of an eternal lone proton. And it's provable. Aristotle denied that there could ever be first events. We have his logic and observable facts. Democritus sang of atoms and the void. Two thousand years later we proved

that matter is granular. Did you want it all to be solid all the way through?"

"Not much for a

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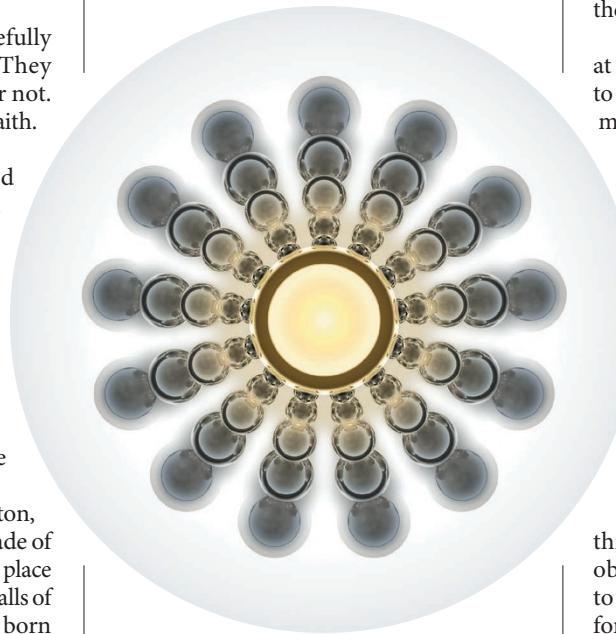


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