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Is God a mathematician?

MUZEUM HISTORII POLSKI

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*IS GOD A MATHEMATICIAN?**

This question is becoming an ever more central one to the continuing quest of the John Templeton Foundation to engage society in seeking answers to some of the most fundamental questions with respect to our existence in a physical universe as it is known to science. This question is at the core of the intersection of the two cultures of science and religion in today's world. The Foundation has clearly focused on this question by awarding its most prestigious prize, the 2008 Templeton Prize, to Michael Heller, a Catholic priest, theologian, mathematical physicist and cosmologist, who has researched the significance of this question for a good part of his adult life.

Many scholars have addressed similar questions and have come to speak of the "Mind of God" (Paul Davies), the "Language of God," (Francis Collins), etc. But Heller approaches this question in a unique way. He begins by marveling, as many others, including Einstein, did, that the universe is comprehensible. In fact, I have been privileged to co-author with him a book entitled: "The Comprehensible Universe." But Heller sees the comprehensibility of the universe as due to its mathematical structure. He challenges the notion that physics is limited to the investigation of matter. He puts the emphasis on the fact

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that physics constructs mathematical models of the world and then confronts them with empirical results. And such an approach has had an astonishing success because, indeed, the world has a mathematical structure to it. And who set up that structure?

Science itself cannot find the WHO? But, Heller sees that mathematical structure as an enticement, an invitation to go beyond the strict methodology of science to the ultimate question: WHO? The approach taken by Heller is to grasp the independent but intertwining roles of science and religion by claiming that science gives us knowledge, religion provides us with meaning.

But let us look more closely at Heller's concept of the mathematical structures of the universe, which provide its comprehensibility and, ultimately, the invitation to approach the WHO. At the birth of modern science there was the persistent idea, as there had been for the Pythagoreans, that physicists were discovering some grand transcendental design incarnate in the universe. As to religious insights, the concept in St. John's Gospel of the *logos* becoming incarnate was particularly appropriate and hailed back in some way to Platonic and Pythagorean concepts of the world of eternal ideas and of the transcendental character of mathematics. Indeed, Newton, Descartes, Kepler and others can be cited as viewing physics and mathematics in this way. Kepler for instance, saw geometry as providing God with a model for creation. He went so far as to see the circle as transcendentally perfect, the straight line as the totally created and incarnate and the ellipse as a combination of the two, an incarnation in this world of what would have been the perfect geometry for the motion of the heavenly bodies in an ideal world. The simple equations in which Newton expressed the law of gravity and the laws of motion redirected for future centuries the role of mathematics in physics. No longer was mathematics simply a description of what was observed; it was a probe of the very nature of what was observed. This role of mathematics was only enhanced as relativity theory, quantum mechanics and then quantum cosmology came on the scene.

As a religious believer and theologian, Heller can, therefore, embrace the proposal first made by his hero, Leibniz, who claimed that "When God calculates and thinks things through, the world is made." For Heller things thought through by God should be identified with mathematical structures interpreted as structures of the visible universe. For God to plan is the same as to implement the plan and thus to create. Furthermore, Heller senses that chance and random processes are an essential ingredient of this mathematical structure of the universe planned by God. He says: "Like in a masterly symphony, elements of chance and necessity are interwoven with each other and together span the structure of the whole." He, therefore, faults the intelligent design ideology as propagating a grave theological error, similar to Manichaeism, which saw matter as essentially chaotic and evil, in opposition to the good God's plans. There is no opposition between chance and intelligent design. God has planned and, thereby, created a structured world which participates, through the subtle random events intrinsic to the structure, in the very creativity of God.

Will we eventually understand comprehensively the structure of the universe and, therefore, the mind of the mathematician God? I suggest a definitive no. God is mystery and the source of all that is mysterious in the universe. The search for the ultimate mathematical structure is unending and that is what makes the search being carried on by such scholars as Michael Heller such a passionate adventure.