Science in the Light of the Christian View of the Human Person

A talk given at the first annual conference of the Society of Catholic Scientists.
Chicago, IL, April 22, 2017.

Joachim Ostermann, OFM

It is a rather intimidating task to talk to a highly learned audience on a topic that steps beyond both their and my core expertise. This makes this talk quite a challenge, but such is life in interdisciplinary discourse.

I will just have to take my chances and try my best, and I pray that it will be enough. There is much that needs to be accomplished. I believe that you, as Catholic scientists, have a special duty in the world today. You need to be the voices of a truly Catholic unity of faith and reason, speaking in an increasingly fragmented, faithless, and unreasonable world.

You need to hold together two seemingly distinct orthodoxies that together express true understanding: the orthodoxy of the Catholic intellectual tradition, from antiquity through the Middle Ages until modernity, and the orthodoxy of the highly disciplined analysis of personally observed evidence that we call "modern science." I want to convince you that they belong together. They complement each other when properly understood.

This is how I want to go about it. First, I want to emphasize that science remains always embedded in a larger philosophical and theological view of the human person. The human person is not an afterthought, to be considered after the science is done, but it is prior to it, where we begin rather than end.

Then I want to draw your attention to the three principal questions that trouble the lives of the faithful, and that require philosophically sophisticated answers from you: the vast expanse of the universe in space and time, the evolutionary past of the human person, and the existence of life as a distinct property in non-living matter.

I will mention just one philosopher as a reference: Robert Spaemann. He is not as well known as one would hope, considering how well he synthesized philosophical insights from different periods into a contemporary understanding of the human person in the world, but I trust that some of you will have heard of him. He is German, and in addition to being a highly respected professor of philosophy, he is also a well-known public intellectual who has spoken on many topics from the perspective of his philosophical expertise and Catholic faith. He turns 90 this year, so nowadays one hears less of him. If there are good ideas in what I have to say, then you can safely assume that I found them in his works.

Scientists are naturally drawn to truth. In my own career prior to entering religious life, seeking true understanding of the world was what drove me to spend long hours in the library and in the lab. Key personal experiences in becoming a scientist were the awe and wonder that I experienced by considering the grandeur of the universe while learning astronomy, and then examples of physical experiments that showed the fundamental rationality of the world. This rationality is accessible to human understanding. The possibility of using this rational structure towards the betterment of human life led me into biomedical research. These were the driving forces that propelled me to become the best scientist that I could be: the desire to understand and to use this understanding in beneficial ways.

You can see right away that there, already, the facile separation of ontology and ethics, or what is and what ought to be, or facts and meaning, is already breached in the choices that I made. Truth and goodness in knowing and acting tend to go together.

Back then, I would have spent very little time at Church or in prayer. While my faith helped me with emotional needs and while I continued to be attentive to my Church's teaching on ethical matters, it took me a long time until I realized that the Church's teachings were founded on an even more solid foundation than the sciences.

We live in a scientistic age, and I was deeply in its grip. When I use the label "scientism" or "scientistic," then I mean any understanding of science that considers it to be a self-sufficient activity that is capable of reaching understanding separate from other forms of understanding, as if scientific investigation were recording the world's revealing itself, entirely independent of us and as if we would not exist.

There is danger in considering science in such isolation from all else. As science is an encounter with truth and an attempt to articulate it, it has consequences in all aspects of a comprehensive worldview. We cannot keep it in isolation. It is always in a context. This is not to say that science

need not defend its autonomy as a method of investigation. But it is always embedded in something larger, and understanding this requires recourse to philosophy and theology. If these relationships are not made explicit and properly ordered, then science becomes both philosophy and theology, with terrible consequences.

The human person is never the detached observer of nature that is assumed by scientistic theory. We, too, are phenomena within nature, and we cannot *really* step out of them. When we try, then the human person is alienated from nature. And such alienation necessarily results in a limited, incomplete understanding.

It is the approximate truth of scientific understanding. Of course, you can see how speaking of approximate truth is illogical: what is not true is false, rather than approximately true. But you know what I mean. Science is an approximate glimpse of what is true, and this is what makes science so attractive to us. But we must always remember what is missing.

Science begins with the human person asking questions about nature and trying to make sense of nature. This making sense, this asking "why," begins with a conflict between the inner world of understanding and the external world of observation. Analyzing this separation between the inner and the outer world gives rise to science. A daffodil in the Friary's front yard in spring is an occasion for joy rather than questioning, but it startles and demands an explanation when found on the Island Highway's median in November.

The in principle infinite regress of "why" questions ends once the inner and outer world are reconciled, when the world "makes sense" again, and when the daffodil is explained wherever it is found. More generally, it is in this process of making sense that the world, with all its creatures, is discovered and understood. It concludes with an integrated picture, one in which the inner and outer worlds are again in harmony.

The first reality that is understood in this picture is one's own being and the being of other persons. It is the recognition of one's own self and the distinction between one's own self and the self of others. In this recognition, the concept of a distinction between the inner and outer world is established and "why" questions begin. The purposefully and intentionally acting individual is the paradigm through which understanding is expressed. We apply it to nature from the outset, when we dissect our world into the distinct beings of our perception and analyze their actions and relations in space and time.

One particularly successful approach to scientific understanding is by way of abstractions, leaving behind fundamental features that are the conditions of our existence. One such abstraction is the abstraction of life and consciousness, leaving behind the dust from which we are made, and to which we shall return.

When life and consciousness have been abstracted from nature, what is left of purposeful acting among the living is inanimate causality, such as in the striving of a moving object in a certain direction that we call vector velocity. Such behaviour is now fully contained in comprehensive causal laws. However, these causal laws treat all physical reality as a unified reality. Our understanding of the world with its distinct parts, including ourselves, is not an emergent property of the physical description of the world, which is radically unified. We apply our concept of individual beings to the physical description of the world. Separate subsystems in the physical explanation of the world are separate only by way of an approximation that we have to introduce in order to make sense of the world.

In this process, we apply the paradigm of individuals acting upon each other, such as in the distinction between component parts and the way they act upon each other. This is why the formalism of mathematical physics is not the discovery of a deeper level of reality that is independent of us, but merely an abstraction from reality that helps us to make sense of the world.

Here is a specific example. It is the well-known but counterintuitive fact of nature about the falling of heavy and light objects. Birdshot falls as swiftly as a cannonball, to the astonishment of Simplicio in Galileo's "Two New Sciences." This calls for an explanation.

The critically important passage in this book is when Galileo argues that he can abstract numbers from two distinct objects, such as a birdshot and a cannon ball, and treat a combined object, such as a birdshot tied to a cannon ball, as if it were now governed by the sum of these numbers. This is the argument that leads him to predict that heavy and light objects must fall at the same speed: otherwise, the sum being greater, while its components being smaller, it would have to move faster, in spite of its lighter component slowing down its faster component, making the sum move slower than its larger part alone. This being a contradiction, they must all move at the same speed. And indeed, this is what the experiment shows.

Much can be learned when numbers are abstracted in such a way from distinct beings and treated within an all-encompassing mathematical framework. This began a development that now goes all the way to a comprehensive explanation of all that astronomers can see. Of course, I am referring to Einstein's theory of gravity, and what we call cosmology, or the study of the cosmos as if it were an observable whole that is governed by the mathematics of our understanding.

Cosmology is a strange science. All too easily, we think of the Big Bang as if it were an event, as if it were an event in the beginning that we can describe just like an ordinary event in the observable universe. However, this is a lot more complicated.

In a manner of speaking, the Big Bang is an observation, as we observe its aftermath as the cosmic microwave background. Even what developed subsequently, the earliest galaxies, with the earliest stars forming, remain as light visible to us now, in our present time, as it reaches us from the farthest bounds of the observable universe.

Our present reality includes the past, and the further we can look, the further back we reach into the past. Our observable universe is finite and enclosed, but it is enclosed by disclosing its history, which converges in an initial singularity, pointing beyond the physical reality that is our present and observable reality.

One of the most astonishing results of this work is the fantastic size of the universe revealed by this cosmological inquiry. However, what surrounds us is not a larger version of the present that we share with other creatures, like what we see when we gaze upon valleys from a mountain top. When we gaze into the night sky, we are gazing into the past, and we can gaze as far back as the beginning of the observable universe. However, our experience remains in the present, and we only infer the past as past rather than present out of the logical relationships that we discover in the present time.

We recognize that our universe is finite. It has a clear boundary. This boundary, however, is the moment of its beginning. This beginning is inverted into a sphere that extends into the past with us in the present at its center. It is quite ingenious, if you think about it. It is really hard to think of any other way how there could be an observable universe of finite size, without something fundamentally absurd, such as a wall surrounding it all. The center is the present, and the past surrounds us.

But it is an abstract and incomplete past. The uniqueness of individuals was abstracted in the mathematical formalism of this science. You and I are not part of this past. It is not the kind of past that already contains the unique features of present beings as a teleological necessity. It is much less than this, as it is just an abstraction from the present, and it merely reveals the physical underpinnings of the world of our perception.

Young earth creationists who let science be science but claim that God made the world on a human time scale, while creating our present world together with a distant past far beyond our existence, shouldn't be dismissed quite so quickly. The cosmological past is observed in the present, and any commitment to reality beyond these observable facts in the present is likely to include a commitment as to who or what God is—the personal creator of Christian faith, or a mathematical first principle acting as the modern equivalent of the Aristotelian prime mover. Only the latter commitment would require giving equal claim to all reality that is mathematically possible, including the distant past long before human history and any alternate universes that seem possible.

For the former, all of this is a lot more complicated. Our personal being is built upon the mathematical structures of the universe that we can understand in analogy to our personal acting, even while they describe reality far beyond the possible range of our

experience. This does resonate with the belief that all this is indeed the self-expression of a personal creator God. Furthermore, it now also makes sense that this creator God would reveal himself in personal form, as his word made flesh, as a human person, within this creation. Lastly, of course, there is no reason for us to believe that the creative powers of God are in any way limited to the world that is accessible to us.

However, we do not have to make a commitment to realism in physics beyond human existence. We certainly do not have to relativize our self-understanding in response to contemporary cosmology and the apparent size of the universe. If our understanding is always by analogy with our existence, then reality beyond our existence is simply outside the scope of meaningful speech. It can be considered within the context of God's reality, but not our reality. Whether he created it before us or with us is really a distinction for the angels to ponder, but not for us to know.

This thought can now also be applied to the other challenges: the evolutionary past of the human person in impersonal life, and the origin of life in non-living matter. If all of this is real in the same sense, then our time now is just one episode in a much larger narrative. We may not be so special. And there is still plenty of future left, and our end as a species is not likely to coincide with the end of the world. If the world as a whole has a purpose, then it does not seem to be us, as the timescale of the world far exceeds our own.

This is the same problem as with cosmology, but it is more acute, as it is about living beings, and it is not simply a mathematical abstraction far removed from life.

However, it remains an abstraction. What was abstracted is the perception of the personal self that stands at the beginning of the process of doing science, and from which we borrow the concepts for making sense of the world. The realism about one's own existence as a persons is the starting point for scientific inquiry, including the understanding of the evolutionary past, and the understanding of beings that are not themselves persons. Our existence is embedded in their existence, but our existence also reveals a level of reality, the reality of personal being, that is different. It is not explained out of the history of life in which we are embedded. It works only the other way around: we understand non-personal life by abstraction from our experience as persons.

Similarly, when life is attempted to be explained out of the chemistry of non-living matter, then the essence of what it means to be alive is abstracted. Just as personal being, life is something that we experience and understand in analogy with our own existence. Life is what we lose when we encounter death. It is the end of a distinct and unique being in the world, and not merely the change of one arrangement of matter to another arrangement of matter. Death coincides with the breakdown of a non-equilibrium homeostatic biochemical system, but life is not identical with this system. Life and death are something of which only persons know, as only persons know that they possess life, and that they can lose it, and that they depend on life through the biochemical processes that sustain it. But while only persons can know that they are alive, they can also see life and death in living beings that are not themselves persons.

Personal being and living beings emerging in a mathematical universe draw attention to the importance of uniqueness in nature, and this is where we recognize that understanding the world cannot be the same as understanding science, and that science is embedded in something larger. The natural sciences are about what is lawful, what happens always as a necessary consequence of circumstances. But uniqueness is what happens just once, and it is what happens once that is most meaningful, as it is unrepeatable and irreplaceable.

We see this at the beginning of life, which happened just once. I am always surprised that so few people seem to consider it remarkable that life did not begin several times here on Earth. I can easily think of reasons why there could not be a second beginning of life like we know it, as circumstances on earth have changed since the beginning of life, of which we are part.

But why not a different beginning of life, taking advantage of the possibilities opened up by the existence of other living beings? There would have been an abundance of building blocks that could have been rearranged in a different way. Competition alone is not a good answer, as competition leads to

diversity by specialization and adaptation, and it is just the lack of diversity that is missing in life at its most fundamental. There is just one root in the tree of life.

And there is just one species that is aware of the distinction between being a person, being a unique individual that is ontologically different from just another arrangement of matter, and more than just alive and enclosed in a system of living beings, but individual and possessing oneself—looking at the world as "I," like the first man, looking at the whole world spread out before him.

What scientists must do is remind people how much science has learned that is new about the world, but also how much has remained the same. The human person, in his or her individuality and unique dignity, just by virtue of being an individual person, is prior to scientific inquiry. The context of our lives provided by science is an abstraction from our understanding, and it reveals conditions under which we exist and a framework within which we exist, but it is not the same as our existence.

While our science can do much to improve the conditions of our lives, science cannot be called upon to relativize the importance of the human person, as an individual and as a species. The ethical imperatives derived from understanding oneself and others as persons are prior to science, but science allows us to extend our understanding to include non-personal beings and non-living matter in ways proper to them. Our scientific understanding certainly provides us with a better understanding of our ethical obligations to all of creation, but these ethical obligations do not come at the expense of our obligations towards other persons.

The value of life, the value of the individual living being, and, most importantly, the value of each and every human person is something that we know before we begin to do science. And only by recognizing these values at the outset that science truly make sense.

The orthodoxy of Christian faith, with its obligations for human persons in their daily life, to each other and to God and to all creation, is not questioned by the orthodoxy of science. Indeed, what we learn from the sciences can only be properly understood and applied in beneficial ways when it is recognized as being embedded in the larger orthodoxy, the revelation of the Word of God, Jesus Christ, who remains with us, in the teachings and the sacraments of the Catholic Church.