

Philosophy: the Bridge between Religion and Science

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Abstract

Ever since Francis Bacon attacked Aristotle's theory of causation, neither philosophy nor science has ever been the same. Bacon made such a sharp distinction between material and efficient causality on one hand, and formal and final causality on the other, that he set the stage for what would subsequently become an almost unbridgeable gap between Modern science and philosophy and metaphysics (natural theology). He argued that physics ought to concern itself with material and efficient causality alone (at least two aspects of efficient causality), while philosophy and metaphysics should deal only with questions of formal and final causality. Consequently, the pace of scientific progress skyrocketed. Not many really questioned the wisdom of this fast pace of modern scientific progress until, after two world-wars, both philosophers and scientists began to ask what really had gone wrong with human knowledge. This paper revisits Bacon's attack on the Aristotelian doctrine of causality and seeks to show that a return to the Aristotelian account, which has already begun with the modern emphasis on interdisciplinary education, may be just what is needed today in order to bring about a much needed unity to modern education. Such unity in knowledge and education must inevitably be rooted in a return to metaphysics, that is, to the questions of God, religion, and the ultimate purpose of human living, but not from the point of revelation, but simply from the point of reason.

Biography

Edward J. Alam graduated from the University of Utah in 1996 with a Ph.D in Philosophy, after completing graduate and undergraduate degrees in philosophy and theology from the Catholic University of America, Washington, D.C. in 1985 and 1987 respectively. He currently teaches philosophy and theology at Notre Dame University, Louaize, in Lebanon, where he has taught courses in Philosophy, Theology, World Religions, Logic, and History of Human Thought.

His research focuses on contemporary developments in Metaphysics. He has published a book titled "Out of the Shadows into Reality" on John . Newman's "Grammar of Assent," as well as a number of papers in several international journals. He has participated in numerous international conferences and was chosen to give the plenary address at the World Congress of Metaphysics, in Rome, in July 2003, and at the First Asian Regional Conference in Bangkok, sponsored by the International Institute for Metaphysical and Mystical Studies. He is a member of the Eckhart Society and the organizer of the LSI group in Lebanon. In his free time, he likes to travel, and to read and write fiction and poetry.

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Bertrand Russell's attempt in the last century to disprove the proofs for the existence of God is well known, what is not as well known, perhaps, is that while Russell rejected the classical proofs for the existence of God, he did not maintain that the non-existence of God could be proved, as he clearly stated in a now published debate he had with Father Frederick Copleston on the BBC in 1948. In other words, for Russell, disproving the proofs is not equal to disproving the existence of God. This insight, in my judgment, is perhaps one of the most important things Russell ever said. This does not mean that I accept his argument against the proofs, in fact, I do not, though I do think that one of his objections to the First Cause Argument is an important one, for it raises vital questions about the idea of causality, which are still relevant today with respect to the crucial dialogue between religion and science.

Russell thought that the First Cause Argument, or, as it is sometimes called, the Cosmological Argument, could not be valid for the very simple reason that its first premise "everything has a cause," must necessarily mean that God, too, must have a cause. Russell claimed that he had accepted the argument of the First Cause as a young man until one day at the age of eighteen he read the autobiography of John Stuart Mill, who had written: "My father taught me that the question 'Who made me?' cannot be answered, since it immediately suggests the further question 'Who made God?'" Russell tells us that that very simple sentence showed him "the fallacy in the argument of the First Cause. If everything must have a cause, then God must have a cause. If there can be

anything without a cause, it may just as well be the world as God, so that there cannot be any validity in the argument.”¹

Though Russell’s peroration was somehow powerful in that context, it can hardly be thought of as anything vaguely approaching a philosophical and formidable objection to the argument of the First Cause—precisely because the first premise is not that “everything has a cause,” as Russell said, but that “every occurrence or happening or event has a cause,” or we could say that “everything that comes into being,” has a cause. This is quite different. Thus, Russell’s first point really misses the point of the argument. His second point, however, is much more important and is indeed problematic for the First Cause Argument. Russell states that the argument does not “carry very much weight nowadays,” (remember he was writing this in 1957) “because, in the first place, cause is not quite what it used to be. The philosophers and the men of science have got going on cause, and it has not anything like the vitality it used to have.”²

Now this is, undeniably, a very accurate and serious statement, and it does pose a problem for the so-called First Cause argument. The “philosophers” referred to by Russell are presumably David Hume and Immanuel Kant. For each in their own unique way had critically challenged the traditional notion of causality, although there were significant subtle differences in their challenges. In a word, both Hume and Kant claimed that the concept of causality could not be extended to God simply because knowledge of God transcends the realm of possible sense experience, and the realm of possible sense experience is the only realm in which we can have (if we do have at all) any knowledge

¹See *Why I Am Not a Christian and Other Essays on Religion and Related Topics* (New York: Simon & Schuster, 1957), pp. 5-14

² *Ibid.*, 5-14

of the cause-effect relationship. And the “scientists” which Russell had in mind were presumably those twentieth century physicists who played a role in overcoming Newton’s deterministic account of causality. But long before Hume and Kant, and long before the great awakening that took place in Newtonian Physics, and the subsequent enlightenment that followed in relativity theory, which, contrary to popular opinion, did not invalidate Newtonian physics, but deepened it, a much more fundamental move took place, which places all of the significant discussions on causality that took place after it, whether in science or philosophy, in their proper context. It is to this move that I now turn, and wish to dwell upon in this paper.

Ever since Francis Bacon attacked Aristotle’s theory of causation, neither philosophy nor science has ever been the same. But Bacon did not reject the theory altogether, he simply argued for a clean cut division between material and efficient causality on one hand, and formal and final causality on the other. His suggestion, which certainly caught on, was that natural philosophy should be sharply divided into two camps so that each camp could do their own proper work unimpeded by the other. Physics, he argued, should inquire into material and efficient causality, and metaphysics into formal and final causality.

For Aristotle, to know (*scientia*) a thing meant to know its causes, plain and simple. More specifically, we could say that to have scientific knowledge of a thing meant to know its four different causes. He then suggests that these four different kinds of causes may be understood as principles that are inevitably implicated when attempting to explain any given thing. The first is the *material cause*, which refers to that which something is made out of, for instance, the actual wood is the material cause of the potential wooden chair. Then there is the *efficient cause*, which brings something from potential being into

actual being. We could say that the carpenter who fashioned the wood into a chair is its efficient or moving cause. Then he speaks of a *formal cause*, which refers to the definition or essence of a thing. In the case of a chair, the concern here is with what a chair is, let's say, with "chairness itself." We could say that the formal cause of the chair is the idea of what a chair is. Formal cause must not be understood as form in the sense of *shape*, on the contrary, formal causes have no shapes, they are non-corporeal, shapeless causes. That is to say, in thinking about the formal cause of the chair, we should not think of any particular chair, but of the timeless idea of what a chair is, and which may universally apply to any specific chair. Finally, Aristotle spoke of the *final cause*, which concerns the purpose or goal of something. In the example we are using, the final cause of the chair is *human sitting*. Aristotle tells us that the efficient, the formal, and the final causes all really belong to the same general category, which he called formal causality. What we end up with then is basically a two-fold division between the *formal causality* on one hand and *material causality* on the other, a division which mirrors another important Aristotelian distinction between substance and accident, with substance corresponding to form, and accident corresponding to matter. Thus the substance of the chair concerns its essence, its form, its definition, its whatness, if you will, while accident concerns the chair's matter, that is to say, the potentiality of the chair, which involves its potential size, or its potential and particular shape, color, weight, or position.

Aristotle's account of the efficient cause was fluid enough to allow Aquinas, and other medieval philosophers, to interpret it as having three components or parts. In the second of his famous five proofs, Aquinas refers to three different kinds of efficient causes: he speaks of a *first efficient cause*, an *intermediate efficient cause*, and an *immediate*

efficient cause. It is important to see that, for Aquinas, only the first kind of efficient cause, namely the first efficient cause, belongs to the general category of what Aristotle called formal causality. The intermediate and immediate efficient causes can be classified along with the other general category of material causality. Thus, we have formal causality, which includes *first* efficient causes, formal causes, and final causes. And we have material causality, which includes intermediate and immediate efficient causes, and material causes. If we continue with the example of the chair's causes, we could say that the *immediate efficient* cause of the chair is the carpenter himself. His skills, and perhaps even the tools he uses to bring the potential wood into an actual wooden chair may be spoken of as the *intermediate efficient causes* or moving causes.

For Aristotle, that which really distinguishes the general category of formal causality from the general category of material causality is that the general category of formal causality is characterized by causes and effects that are simultaneous, whereas the general category of material causality is characterized by the separation of causes from their effects. In material causality, the immediate and intermediate efficient or moving causes are not simultaneous with their effects. That is to say, once the carpenter and his skills and his tools are no longer causing the chair, the chair continues to exist as an *effect* of being caused by its immediate and intermediate efficient causes. With the general category of formal causality, however, such is not the case. Here, rather, causes and effects are simultaneous and cannot exist apart. A chair, as an effect, is always being caused by its formal and final cause. It is impossible to think of an actual chair existing apart from the idea of chairness or apart from its purpose, sitting. Both *sitting* and *chairness* (the idea of what a chair is) can never be separated from any chair whatsoever; cause and effect here are simultaneous.

Now one may argue that the material cause of the chair, wood, is also simultaneous with its effect, namely, the chair, and that cause and effect can not be separated here either, but if we think about it for a while, we come to see that there is nothing in the essence of either wood or chair, which necessitates that cause and effect be simultaneous. We could have a metal chair, and wood is potentially a pencil or a table. Also, the material wood of that particular chair preceded the chair in time, so, in this case, cause and effect were at on time separate, not simultaneous.

Now Bacon acknowledged that questions concerning formal causality were important, but he insisted that they must be separated from questions regarding material causality. For instance, when studying the leaves of a tree, Bacon thought it inappropriate to address all four causes in the same study. The physicists must inquire only into the physical components of the leaf and into what makes it change. Inquiries into its essence or its final purpose only confuse matters and slow down progress in knowledge. For Bacon, to ask about the final purpose of leaves is a misplaced question when studying physics, thus, an answer such as “the leaves of the tree are there to protect the fruit,” should never come from the mouth of the physicists, at least not while doing physics. Bacon’s conception of natural philosophy, then, laid the foundations for modern science and raised doubts about whether the whole of nature was really part of a grandiose plan or a divine design, as the ancient and medieval worlds had generally held. There is no doubt that Bacon was right about the effect such a division would have on the pace of scientific progress. The pace of modern scientific progress, in fact, was stunning after Bacon. And for a few centuries after Bacon, the physicists and metaphysicians remained privy to, and interested in, one another’s domains, but all the while they were gradually

moving further and further apart. As the pace of scientific progress continued to skyrocket, it became increasingly difficult for philosophers and physicists to communicate. By the nineteenth century, scientists were either too busy or too embarrassed to ask metaphysical questions about God, or about the ultimate purpose of human life and the universe as a whole, and philosophers, with few exceptions, could no longer keep up with the technical and mathematical advances to keep lines of communication open. In fact, mathematicians themselves had trouble keeping up with cutting edge changes in their own fields, so fast was the pace of development. And this became true for virtually every academic field of inquiry. Moreover, there were very few philosophers or scientists by the late nineteenth century who questioned whether Bacon's shift had been a good thing or not because it was difficult to argue with such success. The industrial revolution carried with it an imposing stamp of authority and authenticity. (Although there were those giants, like Comte, who began to fear that too much specialization would eventually wreak havoc in the world, and so tried to unify all the branches of knowledge.) All the while, those philosophers who dared to continue asking questions about final and formal causality were increasingly marginalized and their subject matter was all but scoffed at by so-called "real" scientists.

But by the middle of the twentieth century, especially after the horror and madness of two world wars, things began to change. Philosophers and scientists alike began to ask what had gone wrong with their technically advanced civilization. Perhaps the rate of progress had been too swift and did not allow enough time for reflection and meditation. Perhaps, some said, questions of final causality, questions about ultimate purposes and essences of things, were necessary questions in every field of inquiry even if it meant slowing down the rate of technical progress a little, or even a lot. Needless to say, this did not mean

that people stopped specializing, but it did mean that a new emphasis arose in education, which gave more importance to interdisciplinary approaches to learning, an emphasis that is still with us today.

I think this new emphasis is a positive development, but lest it become simply a passing trend, as a mere reaction against over-specialization, it needs to be advanced along solid philosophical, and I would say, Aristotelian lines. That is to say, in returning to a very simple definition of science, or knowledge, as “to know a thing is to know its causes,” there must be an emphasis on knowing all causes. This is a great challenge. The Baconian objection, of course, was that it is much more difficult to agree on questions of formal causality, than it is on questions of material causality. And without consensus, it is difficult to progress. There is no doubt that Bacon was right here, but his decision to divide tasks, without the further prescription of getting back together to share results after the tasks were done, has ultimately led to the over-development of one kind of knowledge and to the exclusion of the other. This *other* just happens to be, however, the most important kind of knowledge, namely, “wisdom” knowledge—knowledge of ultimate ends, knowledge of the ultimate purposes of things. For human beings this includes knowledge of the reasons why we are living in the first place. If we don’t ask such questions and seek answers to them, I don’t see how any other activity will have any real human significance, because technical and material progress can hardly be an end in itself.

At any rate, we are left with the question as to how precisely we are to achieve the great task of pursuing knowledge in this broader and deeper sense. Today, as mentioned above, there is so much specialization that it is difficult enough to stay on the cutting

edge of one's own field, let alone someone else's. But here is where cultivating an interest in formal causality makes the most sense. We don't have to become experts in each other's fields; we simply have to make room for the metaphysical question, after, before, and during each and every investigation. It matters not whether there is a consensus in the answer, the important thing is to acknowledge the magnitude of the question, and to see that it somehow matters for, and is relevant to, each and every discipline. To see this is not a matter of a sentimental seeing, as if here we are trying to appeal to those who somehow *feel* that questions about God, religion, and the purpose of human living have a bearing upon their scientific pursuits. No. The point, with which I began this paper, and with which I will begin its conclusion, is that such questions are also a matter of science and reason. That is why I began with a reference to the traditional proofs for the existence of God which, although put forth by a believer and a Saint, employed the purely philosophical principles of a pagan Greek thinker. Aristotle's doctrine of causality, when seen in the light of another crucial Aristotelian principle, namely, the *principle of limited regress*, are as viable today as when they were first introduced nearly twenty-four hundred years ago. They are the two pillars upon which the classical proofs for the existence of God stand, and still warrant, in my judgment, our attention here.

The principle of limited regress is that it is impossible and inconceivable to have an infinite regress in the general order of *formal* causality, although an infinite regress in the order of *material* causality, which, as we've seen, includes both the ultimate (immediate) and intermediate causes, is conceivable and perhaps possible. Aquinas uses this Aristotelian principle in his proofs, and gives it a special emphasis in the first three. That an infinite regress in the order of material causality is possible for Aristotle squares well

with his cosmology of an eternal world. For instance, it is possible that that seed was the cause of that tree, which was the cause of that seed, which was the cause of that tree, which was the cause of that seed. . .so on and so on infinitely, like an infinite set of numbers. Or it is possible to conceive of one's parents being caused by their parents and their parents being caused by their parents. . .so on and so on to infinity, since here we are talking about causes and effects that are not simultaneous. But an infinite regress in the order of formal causality, wherein causes and effects are simultaneous, is not, according to Aristotle, possible. In this order we must have a first efficient cause or there is no way to account for the phenomena of causality itself. It may help here to look briefly at Aristotle's discussion in the *Metaphysics* of the Law of Non-Contradiction, which states that 'nothing can both be and not be at the same time and in the same way.' He claims that this is a fundamental law of thought upon which sound thought depends, but at the same time, he claims that you can't prove this law. If you could prove this law, he says, then you would be involved in an infinite regress, which would ultimately prevent anything from being proved. In other words, the fundamental laws of thought are undemonstrable and *un-movable* anchors of thought, which are simultaneous with the production of sound reasoning and thought.³ Thus, a fundamental law of thought as unprovable, is analogous to a cause that is uncaused. It is not a matter of going back in time to the first cause, just as it is not a matter of going back *in time* to some fundamental law of thought. The key to seeing the force of Aristotle's principles, upon which the classical Thomistic proofs are based, is to see that they have nothing to do with time. Aristotle's world is an eternal one, wherein the first efficient cause, which is identical to the first formal cause, which is identical to the first final cause, is not first in terms of time, but in

³Aristotle, *Metaphysics*, 1006a. tr. W. D. Ross, in *Basic Works of Aristotle*, ed. Richard McKeon (New York: Random House, 1941).

terms of sacred order, or hierarchy. And Aristotle calls this first cause, God, the first principle and last end of all things—an unmoved mover that eternally moves the eternal world.

It is interesting to note that Aquinas did not hold, as Aristotle did, that the world was eternal. For Thomas, the world was created, that is to say, it had a beginning in time. But Thomas does not claim that Aristotle made a mistake in reasoning when he argued for an eternal world. St. Thomas, of course, happens to believe the world is created in time, and not eternal, but only, he says, because God revealed it. The key word here is *believe*. He believes it, that is to say, it is a matter of faith because God told him so. The written record of this revelation for him is found in the Holy Scriptures. But Thomas clearly says that if God had not revealed that the world was created in time, we would have no way of knowing that it was. In this, he preserves in the proofs a clear distinction between what we can know through faith and what we can know through reason. In this sense, he really does put forth the proofs as proofs from reason alone, which do not depend at all on faith or revelation or the bible or the church. In the proofs, Thomas does not cross over into the world of faith and belief even though he holds firmly that the things we believe by faith are true and do no damage or violence whatsoever to the things we know to be true through reason. In fact, St. Thomas holds that faith perfects our reason.

In any event, once we begin to see the Aristotelian doctrine of causality in all of its richness, and to understand the function of the principle of limited regress in the proofs, we are bound I think to take them more seriously. But the question remains: does taking them more seriously necessarily mean that we will accept them? Obviously the answer is

no, because as Russell noted, the very concept of causality remains an enigma. But if scientists and theologians alike were to return seriously to such philosophical questions, the religion/science dialogue would take on greater proportions and have a better chance of bearing genuine and lasting nourishment to modern interdisciplinary education. This would mean that the theologian would have to return to natural theology and give up the notion that revelation is the only source of true knowledge, and would likewise require the scientist to admit that genuine scientific and even “certain” (knowledge) is much bigger and more profound than simply that which comes as a result of employing the strict scientific method. In short, both theologians and scientists must again become philosophers!