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Michael Barnes
Univeristy of Dayton

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Imagination and Purgation

The Ascent of Science Towards Truth

by Michael Barnes

I. Introduction

Science is a religious enterprise. By that I mean just the opposite of what science was once accused of. There was a time when science was perverted into a scientism. This was a highly dogmatic belief that science could eventually subdue mystery, answer even the ultimate questions of life, and somehow provide final salvation. The human project we call science is just the opposite of such dogmatism, however. It is nonetheless, even more clearly now, a project that is actually religious. Science is rooted in a fundamental faith in ultimate truth and value. By various steps it moves towards the ultimate. It observes reality, then by a leap of the imagination it creates new symbols of reality. This is followed by the act of purgation, the ascetical movement of self-denial wherein the mind acknowledges that the fullness of all truth is infinite Mystery, which forever exceeds the limits of every symbol of image. This awareness of the inadequacy of all images does not produce despair or frustration. This is because the underlying faith, the fundamental trust and commitment remains firm. With this faith as motivation the mind continues, creating images but also acknowledging the limitations of every image. And so science ascends towards truth. In doing this, science is but one form of the overall human ascent of the soul towards God.

There is a popular way of defining science that has obscured the religious and imaginative aspects of science. In 1883, Ernst Mach published his influential *Die Mechanik* in which he confirmed what many people thought then, and which many still think today, that science is a passionless observation of brute facts, a detached observation of the regularities in nature. Scientists, Mach declared, should accept as true only what hard empirical data confirms and should therefore remain detached towards all theories. Science should be coldly objective rationality, devoid of feeling or bias.

Even as this notion of science had been growing, notions of what religion is were developing in the opposite direction. Kant had removed much of religion from objective and scientific argumentation by treating religion more as a matter of moral vision made complete. The extremely influential Schleiermacher went further. Christian faith, he declared, is based neither on objective observations about the world nor even on rational arguments about what human morality required. True religiousness is a matter of inner experience and vision, not outward facts or rationalistic argumentation.

This division between science as cold objectivity and religion as inner sensibility continued to be reinforced. Bertrand Russell proclaimed that scientific statements are based on external evidence; religion consists of statements about inner emotions and moral feelings. Russell's one-time protege Wittgenstein eventually decided that science and religion are two separate and distinct kinds of language games, each with its own inner logic, different and disconnected from one another.

There continue to be ways, however, in which scientific attitudes have an impact on religion. Scripture scholars demythologize because they want to be scientifically objective in their exegesis. Stories of God's miraculous intervention in modern life are now considered highly dubious by many. In rebellion against such inroads made by science, religious people are often happy to emphasize inner religious experience and to attack rationalism. Catholics held out longest against this emphasis on subjective experience as the center of religiousness. Catholic theologians clung firmly to the rational analyses of Thomism. but increasingly now even this last bastion of rationalistic discourse has opened the gates to inner experience, to religious subjectivity, as the key to all else in understanding religiousness. The charismatics have gone far in this direction, as have many others.

In the face of this division between religion and science, I would like to attempt some work of reconciliation. I believe it is possible to claim that science is itself at least implicitly religious. In fact, I want to argue here that the overall method of science provides a useful way of better understanding just what religion is, because the method of science is what religion ought to accept as its own method. To make sense out of these statements we will have to begin with a description of just what it is that science actually does.

II. Science as Faith, Imagination, and Asceticism

A. Science as Faith

Science is, implicitly at least, an exercise of a primal faith in the knowing self, in reality as intelligible, and therefore in God.

This is a rather large claim. The validity of this claim can be seen by considering what the status of science would be if there were no God. In Western religion God is the name for the infinite fullness of truth, value, and personness. If this infinite fullness exists, then every bit of intelligibility, every moment of value, reflects the deepest and fullest reality, which is God. If God does not exist, then every little supposed truth is part of ultimate unintelligibility. Then every supposed value is part of an ultimate meaninglessness. Then every person is part of a dead and aimless universe. There is a basic option here: is reality, and our lives in that reality, ultimately meaningful or ultimately absurd. The human project known as science is a project that presupposes, at least implicitly, that striving unrestrictedly after more and more of truth does make sense. Science is an activity that trusts reality to be intelligible, and unrestrictedly so. Science trusts that being a knower who seeks after intelligibility is truly valid and worthwhile.

There are, of course scientists who are atheists or agnostics. They deny that such intelligibility as does exist is grounded in ultimate intelligibility. They deny that the person-as-knower who seeks intelligibility is engaged in an ultimately valid project. But even while they deny ultimate fullness of truth and value and personness, they seem to be working out of a different inner sensibility. David Tracy and others insist that the scientific enterprise is consistent logically only if it is based on faith in the ultimate truth, value, and personness we call God. After all, science refuses to set any limit to its search for intelli-

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bility. It acts as though intelligibility were inexhaustible and as though the ability of human consciousness to uncover intelligibility were endlessly open. It is illogical to act this way unless intelligibility and consciousness are somehow rooted in an infinite fullness of some sort such as many call God. This may well be the actual inner logic of doing science. I also suspect that the scientist is one who lives by a faith in the ultimate truth, value, and personness not as a matter of logic but as a matter of a general image of things.

Our most basic images of reality often go unnoticed because they are so basic we take them for granted. The enthusiastic scientist, the person most in love with the work of science, appears to have a very positive general image of reality. The enthused scientist leaps at the world as a continuing source of truth. The scientist lives out the life of inquiry with a sustaining confidence that to use one's talents and energy in the quest for understanding is so obviously valid and worthwhile as not to be doubted. This is the underlying faith that grounds science. This is the image of self-in-reality in which the scientist trusts and to which he or she makes a happy commitment. It is a deep and abiding faith in unrestricted truth, value, and personness. It is a sense that human life and all reality together exist not within ultimate emptiness but as grounded in an infinite fullness.

B. Science as Imagination

This general image of reality is what I want to call primal faith. It is faith in the intelligibility of reality, in the person as knower, and in the ultimate worthwhileness of being a knower in an intelligible world. Out of this faith, this general image of reality, come particular images of reality. In producing those images science is adventuresome in thought, creative and passionate. This can be seen easily in the history of science.

In Galileo's time most people lived with an image of the physical universe as an intrinsically very unenergetic kind of reality. Everything physical was resistant to motion. Only continuing effort could sustain any movements. If the stars and planets moved it was only because God unrelentingly pushed them, or least assigned angels to do so. And so when Galileo's contemporaries watched a pendulum slowly, very slowly, decrease its arc and eventually come to rest, they saw there a confirmation of their general image of all things as seeking rest, as naturally tired and motionless. But Galileo had the creative imagination to see things differently. Watching the same pendulum Galileo marveled at how very slowly it lost momentum. He was struck by the fact that, having reached the bottom of arc, it swung on upwards again. Galileo and his contemporaries saw the same raw facts. They saw the same pattern in all pendula. But they imagined differently. They interpreted the facts and patterns differently. Where most saw a pendulum coming to rest, Galileo saw a pendulum tending to keep on swinging. With this act of imagination Galileo set the stage for Newton's laws of thermodynamics and much of classical physics.

Newton had the bold imagination to watch an apple which did fall to the ground, and the moon which did not fall, and see nonetheless that the one force which we call gravity operated on both of them. Darwin collected data for twenty five years. He was not alone in this. His genius lay in being imaginative enough to use Adam Smith's theory of capitalism as applied by Thomas Malthus to a study of population growth, as the key for interpreting the development of all

life on the planet.

The history of science is not only a story of individuals who created new images as ways of interpreting things. It is also the story of people committing themselves passionately to their images, cherishing them beyond what the evidence supported, just because they offered so much intelligibility. Darwin's theory made sense, intelligible sense, out of things. Yet much stood opposed to it. There was no adequate genetic theory to support it. Lord Kelvin offered good scientific reasons for supposing the earth was too young for a process as long as Darwin's theory required. Yet it made so much sense! Out of a primal faith in the intelligibility of things and in the rightness of devoting oneself to discovering that intelligibility, many began to preach this new evolutionary image as the way of nature. Creative and dedicated imagination in the service of a basic faith produces those models of reality we know as the theories of science.

C. Science as Asceticism

Science is creative imagination in the service of faith. It is also asceticism, a purgation through self-denial. It is, in fact, precisely this asceticism that makes science scientific.

We can appreciate the place of asceticism in science if we first realize how very ordinary science is as a method of knowing. By and large, science is not really a special mode of human knowledge, distinct or separate from our daily and prosaic human understanding. All of our human knowledge, including that which we call science, is the result of the use of some basic human powers. Our senses are affected by various pressures, temperatures, wavelengths of light. From infancy we learn to organize these impressions into patterns of sight, sound, touch, and so forth. In doing this we are guided by some genetic predispositions. We are influenced by the sequence of experiences we undergo. One thing reminds us of a second and gives us some help thereby in interpreting what the both of them are. And we are strongly guided by our culture. Generations before us developed certain categories for interpreting out sensory experiences. Each category we employ is itself actually an interpretive generalization about some experiences, a generalization codified in an image. And each image is one way of seeing reality, not always the only way or even the most useful way.

From all of this we achieve understanding. We look at the world and find it intelligible. We see not just raw sensory data but "facts." Heat and light appearing in the East in the morning are sensory data. Yet "heat" and "light" and "East" are not just data; they are our way of classifying data, our way of making sense of the data.

Our lives are crowded with such facts. Every word we use, every statement we make, every conclusion we arrive at is at least partly an interpretation of the world. Every word, statement, conclusion, is also a personal act. That is to say, it is a way the person using them relates to the world. A statement such as "the sun is hot" is a way of positioning oneself in relation to the world. When we say the sun is hot we are also saying, usually unaware that we are doing so, that we are being affected by the sun, that we are there physically in the world being touched by a force outside of ourselves. We are doing this kind of thing every time we say that the sun is hot or the chair is hard or the food is good.

By itself it is a genuine marvel that the human consciousness can imaginatively interpret sensory data and turn the data into facts, categories, ways of consciously relating to the world. It is even more marvelous that human consciousness can compare and assemble facts into vast and complex images that integrate our interpretations of small aspects of reality. It took great imagination, for example, to develop the overview of the heavens that was the Ptolemaic astronomy. Alert and inventive minds found it possible to classify most stars as fixed stars, all rotating together in the heavens, to classify a few other stars as wanderers—"planets" we call them—and to devise a mental image of how they all move together in one grand system. Such grand and inclusive images as these first began to appear in human history in that era Karl Jaspers called the axial age, approximately the sixth century b.c. Then it was that science-philosophy-theology first appeared, all three of them really being just one mode of knowledge, the mode of all-inclusive generalization. That is the mode of seeking the one large-scale interpretation that makes coherent sense out of all lesser facts and patterns.

On every level of our knowledge, from individual facts to general categories to all-inclusive interpretations, the human imagination is at work, responding to real experiences of the world by interpreting those experiences in a way that makes some kind of sense of them. To say that the sun rises in the East is one such interpretation. To say that there is a universal and benevolent power at work in the world is another such interpretation. We live with interpretations and by interpretations and through interpretations. Without them there is no sense to things for us at all.

Because of this we must also live for interpretations. If we are to have any goals or purposes whatsoever, we must express them in some way. We must give them some concrete form. These expressions and forms are built on interpretations of self and the world; they are interpretations of self and the world. Even the God for whom and before whom we live can only be known to us in the form of an interpretation.

All this is said here to indicate that science has a basic identity with philosophy and theology. Science, philosophy, and theology are all attempts to construct all-inclusive interpretations of reality in order to make sense of it. And all such inclusive interpretations are built upon other lesser interpretations which together constitute our experience of reality.

We are accustomed to think of science as distinct from philosophy and theology, however, because science is so concerned with empirical testing. This means that science restricts its attention to physical aspects of reality. Science cannot be as all-inclusive as a theological or philosophical system. Nonetheless, science, like any thorough-going systematic thought, is an attempt to take the common sense search for truth we all practice in some ways in our everyday life, and make it more accurate, more complete, and more organized. When science applies its empirical tests to its theories, it is simply doing in its own way what philosophy, theology, and practical human sense must all do, and that is find some way of sorting out wise ideas from foolish ones, coherent ideas from incoherent, accurate ones from inaccurate, on a continuing basis. All of these modes of thought in general turn out to be just variant forms of the process of learning about reality by developing imaginative interpretations and

then purging those interpretations of errors as best is possible.

Every single interpretation of reality can only approximate reality as it is. There can never be a guarantee as to the precise accuracy of our images of reality. On the common sense level we all know this very well. Each of us makes countless mistakes about where we left the car keys, how strong the rungs of an old wooden ladder are, and whether there really is a worm in the apple. We take it for granted in our lives, that our interpretations need to be constantly corrected by further experiences.

On the other hand, there are many ways in which we forget this or even deliberately ignore it. We tend to get a little dogmatic in our interpretations, insisting that there cannot be any worms in our apples, or any flaws in our theories, or errors in our beliefs. We act this way for a variety of reasons. We do this because it is irritating to have our accustomed beliefs doubted. Such doubts are an attack on our good sense and wisdom. We also do this because it is upsetting to think that what our whole group, family, tradition, culture, has believed is adequate in some way. So much of our life's patterns come from that group or tradition, that a threat to its interpretations is a threat to our identity. Yet a wise person is one who has become accustomed to acknowledging that human understanding is imperfect and should always be open to correction.

What we call science is nothing else but this wisdom applied methodically. Science is experience and interpretation as is all human knowledge. But science is also methodical doubt. Every scientific generalization is in principle always open to further testing. Twentieth-century philosophy of science recognizes this by declaring that all general scientific conclusions are not the simple truth, but are models of reality. In other words, they are all imaginative interpretations, and so must always be left open to doubt.

Scientists have no easier a time letting loose of their favorite theories than does any human being. Scientists are often passionate people, dedicated to their theories, sometimes defending them beyond what the available evidence warrants. This is valuable. Darwin's theory might still be underdeveloped had not many people promoted it with a vigor beyond what all the evidence could support. But mere devotion to an interpretation can be very harmful if there is no technique for finally sorting out the accurate from the inaccurate. And so science builds into its method the principle of doubt. Every scientist must be prepared eventually to make the sacrifice of favorite images. Science develops best precisely because of this asceticism.

III. Religious Imagination

This description of science applies also to religion and to theology. In fact, by using the preceding description of science, it is possible to bring to clarity just what religious imagination involves.

When speaking of science, it is easy to make the mistake of concentrating only on the theories of science, on the conclusions science arrives at concerning the world. Those who have treated science as the sole source of all truth have made the mistake of treating science's theories as fully accurate, complete, and final truth. Those who recognize that science's theories are acts of creative imagination, images or models of reality that are tentative and open to change, can easily make an opposite mistake. They see science as nothing but

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imagination at work devising tentative ways of portraying reality. But science is not just image-making. It is also primal faith expressing itself. And it is also an asceticism of the imagination that seeks always to purge itself of excessive attachment to any set of images in order to remain firm in the primal faith, which is unrestricted in its goal.

All of this is also true of religion. It is possible to make the mistake of defining religion by concentrating exclusively on its theories, on its images or symbols. In religion, these images are often doctrines. Religious doctrines, like their kindred images, scientific theories, are subject to the same two misuses. On the one hand they can be mistakenly accepted as fully accurate, utterly complete, and absolute truth. It can sound rather bold to call this a mistake. Every religion claims to have some basic beliefs which are indeed simply the truth. But as in science, it is the primal faith which is the constant. The particular doctrines, images, symbols, theories, which express that primal faith are never complete and final.

There are a number of ways to make this point clear. One is to note that all doctrines are interpretations. Each is conditioned by its cultural context. There is no guaranteed way of knowing in advance just which doctrines, or which aspects of which doctrines, will eventually be modified or rejected. History confirms this. The doctrine "No salvation outside the Church" was long a hallowed one. It has been drastically reinterpreted today. Scripture scholars point out that the New Testament is itself a collection of interpretive writings. And even the most literal of fundamentalists finds it necessary at times to reinterpret these interpretations. To the facts of history and the conclusions of scripture studies add the traditional claim of Western theology that there is one and only one totally complete and immutable Truth. That is the infinite Mystery which is God. All else is finite, including every doctrinal statement.

Taking doctrines as final, complete, and wholly accurate is one mistake that can result from defining religion primarily in terms of its particular doctrinal images. The opposite mistake is also possible. Still taking doctrine as the whole or core of religion, it is possible to reduce religion merely to subjective feelings, by treating all the doctrines as nothing but myths, nothing but imagination at work. As in the case of science, religious imagination is best understood only when it is seen as part of a larger process. That is a process of a primal faith expressing itself in interpretations, and then always developing or correcting those interpretations in order to live out more fully a dedication to the primal faith.

In Western religions the primal faith is a trust that personness is the ultimate reality. This is a general image of reality that is a confidence in and commitment to certain fundamental interpretations. These include the basic faith in humanness as physically-embodied unrestricted consciousness, freedom, and love. Out of this primal faith come more particular images of God as Creator, as Incarnate, as Personness, images of the human person as a focal symbol of the divine Mystery.

All of these particular images are expressed at one time or another in concrete forms such as words, of scripture and tradition, or symbols or actions. Religious people are often most conscious of these particular images and not very conscious of the general primal faith which they express. Science learned

to follow its primal faith and practice an asceticism of the imagination concerning its specific theories. These are now times when religion too is painfully learning an asceticism of the imagination. Historical research and theological reflection are weakening the power of many specific traditional images. The image of the Church, for example, as the elite of God, chosen for salvation out of the masses of the pagans all damned to hell, was once a dominant image. Many still cling to it. But there is danger in clinging to such specific images too tightly. It leads too easily to a fanaticism in defense of such images, or to despair when the images break and fall apart, as everything finite might.

A willingness to hold only loosely to such images is an abandonment of faith only if faith consists solely of such images. Holding loosely to particular images is actually a confirmation of a primal faith. This is the faith that beyond all particulars in life there is that which is the infinite. It is not endless death and darkness. We do not have to cling to this particular image or that as to a liferaft in a sea of meaningless. The infinite Mystery is, instead, the fullness of creative power, of intelligibility, freedom, and love.

There must, of course, always be some degree of particularity to our images or our minds and imagination would be empty. And we must always make some choices among competing images. A Christian, for example, is one for whom Jesus is the focal image expressing the primal faith in the Mystery as a benevolent, involved, and humanly available creator. The reality of Jesus expresses most adequately for the Christian what the ultimate Mystery is. Yet the Christian would be unfaithful to the infiniteness of that Mystery if he or she refused to allow doctrinal interpretations of Jesus to change or be questioned. The asceticism of science has shown us that from critical doubt comes not confusion but growth. Those who believe in the infinite richness of the divine Mystery are empowered thereby to be ascetical also, and to doubt their own religion's interpretive images, not in order to lose faith but in order to grow in the expression of the primal faith.

It is obviously far easier to say that than to know just how to practice it. In the concrete the scientific enterprise is always redefining not just its own image-theories, but also even the basic methods it uses in developing them and criticizing them. It is only actual practice, not just theory, that dictates just how science sees its own faith, its own theories, and its own critical self-assessments. The same is inevitably true of religion. We theologize in order to have a functional and sustaining understanding of our religious heritage. But how we will perceive our own faith, our own particular image-beliefs, and our means of criticizing those beliefs by relating them to the infiniteness of the divine Mystery will all develop in ways we cannot foresee. But by accepting that, we acknowledge that there are limits to our images, we prepare ourselves to grow, and we express our faith that in using our consciousness and freedom to search after the always-more, we are thereby living for God.

University of Dayton.