

and while Dickens's narrative might not be "realistic" in the post-Victorian sense, there is something universal and enduring in his depiction of life's mysteries that we all relate to yet can never fully explain. As Pip says retrospectively about his meeting with Miss Havisham, "That was a memorable day to me, for it made great changes in me.

But it is the same with any life. Imagine one selected day struck out of it, and think how different its course would have been. Pause you who read this, and think for a moment of the long chain of iron or gold, of thorns or flowers, that would never have bound you, but for the formation of the first link on one memorable day." ■

---

## RECOVERING BY GROUNDING MODERN PHYSICS — PART I

---

ANTHONY RIZZI

# HOW A NEGLECT OF PHYSICS HAS TURNED CHRISTIANITY INTO A MYTH FOR MODERN MAN

What would most Christians say if asked to give a brief summary of the history of the world and the meaning of life? Most of us would likely give an account whose core depended solely on words, images, and analogies taken from the Bible and Christian Tradition. And, if questioned, most of us would quickly reveal how little we understand the meaning of those words, images, and analogies. Take, for example, these queries: *What is a body? Why do we have one? Why should we respect it?* To the last, we might answer something like, "Because the body is sacred." But that is a circular reply, invoking another undefined word from the tradition; it appears to say, "It's good because it's good." *In what sense are we made in the image of God? What is man's soul?* To the latter, we might reply, in what would probably be among the best of the answers one could expect, "The part of man that lasts forever." But which part is that? This last answer at least shows some movement beyond the sentiment of "holy words" to some thought, but even this answer does not allow one to conclude that we really understand the words and analogies we repeat. As a result, despite our best intentions, such words and analogies can become more like an incantation than an expression of the rational faith that Christianity is.

Such un-thoughtfulness about meaning is, as we

all know at least theoretically, first and foremost an affront against truth and thus against Truth Himself. It is also contrary to Scripture's admonition to "always be ready to give a reason for the hope that is within you" (1 Pet. 3:15).

The cause of this absence of meaning springs from our not starting with what we know first — namely, those simple physical things given through our senses that we all learn, though in a confused way, as children.

---

Anthony Rizzi, who has a Ph.D. in physics from Princeton University and a B.S. in physics from MIT, is the founder and director of the Institute for Advanced Physics ([www.IAPweb.org](http://www.IAPweb.org)). He solved a long-standing problem in Einstein's theory of general relativity. He is the author of *The Science Before Science: A Guide to Thinking in the 21st Century*, which was made into an EWTN miniseries cohosted by Marcus Grodi; two textbooks, *Physics for Realists: Mechanics — Modern Physics with a Common Sense Grounding* and *Physics for Realists: Electricity & Magnetism*; and, most recently, *A Kid's Introduction to Physics (and Beyond)*. This is the first of a two-part series.

We should have had these physical principles clarified by our parents and teachers, and made into a thought-out science. That science is the most general part of physics, which is the study of the physical world, and these simple things we learn as children are that upon which all of our other physical knowledge builds, including modern science. But instead of having these principles clarified, solidified, and gradually become a greater and greater part of our thinking, making, and doing, these principles are not even mentioned by our parents and teachers because they do not know them in any clear way either, having also not been taught them. Indeed, things contrary to these commonsense principles are taught frequently: For instance, atoms are said to be mostly nothing, and animals and people are said to be not really wholes but parts put together out of such atoms. Such contrary teaching is subtle and affects our thinking directly and indirectly. This confused thinking is habituated deeply by current cultural norms that reward behaviors that conform to the confused thinking and discourage behaviors that do not. In this way, the confused thinking gets a deep foothold in us. And, of course, since all of our words ultimately get their meaning from these physical principles (either directly, by analogy, or by negation), our words begin to lose clear meaning.

To regain these fundamentals, books that explain these *integrated into*, and in the context of, modern science are now available *for the first time*.<sup>1</sup> We cannot rest, however, with regaining these principles; they must be applied and brought into ordinary life, including our spiritual life. To underline the severe problem of our neglect of the fundamental physics and the urgent need for it to be addressed, let us look at how we think about the history of salvation and then see how recovering physics in the broad sense allows us to begin to see again the deep structure of God's plan.

That history of salvation will take us into the root cause of our loss of the fundamental physics — namely, a lack of digestion of the great and essential modern scientific method. It will also allow us to see what the next chapter in that history needs to be and how to bring it about.

### The “Mythologized” Story

As already mentioned, we tend to think of salvation history solely as the words, images, and analogies themselves, not what those words, images, and analogies are meant to convey. Hence, most people cannot go much

further than the story of creation and an apple and a serpent, followed by a flood and an ark, followed by the coming of the Redeemer and the founding of the Church with the coming of the tongues of fire. Those who use more than such recitation of biblical words, images, and analogies usually add, if they are orthodox, dogmatic words that are only confusedly grounded and thus only very confusedly understood.

For those inclined not to believe this, consider the report from *Deseret News* (Sept. 14, 2011) on the study done by political pollster Gary C. Lawrence, in which he tried to probe the difference between Mormons and religious people who believe in the Trinity. That report says:

The poll asked two questions of Christians across the country. Half were asked, “Do you believe that God, Jesus Christ and the Holy Ghost are three separate Beings, or are they three Beings in one body or substance?”

Twenty-seven percent responded similar to the Mormon belief that they are separate beings. Sixty-six percent answered in line with traditional Christian beliefs that they are “three beings in one body or substance.”

The other half of Christians surveyed were given a different question about the Trinity: “The New Testament says that God, Jesus Christ and the Holy Ghost are one. Do you believe that means they are one in purpose or one in body?”

This time the answers went the other direction. Those answering the traditional “one in body” were 31 percent. Those answering “one in purpose” were 58 percent.

The questions are, of course, badly worded, but it is nonetheless evident that, for a large segment of people, the meaning of the words does not matter much. The answer to the last question should be, “Neither. Therefore I refuse to answer this part of the survey.” If a significant segment of people had refused in such a way, the question would not have a valid sample, and thus it would not be the scientific poll it purports to be. Indeed, in the news report an expert goes on to characterize the difference between the words *substance* and *body* as “theological minutia.” Further, James E. Faulconer, a professor of philosophy and the Richard L. Evans Chair of Religious Understanding at Brigham Young University, is quoted as saying, “The results don’t surprise me, because religion for most people is more a matter of experience and feeling than it is a matter of rationality.”

Another way to get a glimpse of the problem is to ask people what Christianity is about. Rare is the person whose answer will even include the pivotal word *truth*, let alone a thoughtful understanding of what truth *is*. Stop for a moment and meditate on the crucial dialog between Christ and Pilate, in John 18:37-38. By contrast, Christ's summary of His mission makes the word *truth* central. John 18:23, where Jesus is questioned by the high priests, is also relevant.

To glimpse the essential importance of the fundamental physics in our lives, let us now lay out the *reality* of salvation history behind the analogies, images, and words, doing what the Church has always done with those images, words, and analogies: allow them to be the powerful mediators of the truth that God meant them to be. To accomplish this, we will, as we have said, make use, in a broad way, of the fundamental physical principles that our culture has neglected. To keep our focus on those things closest to the problem in physical understanding, we will not attempt the much larger task of explaining *all* the words, images, and analogies used in the explanation of salvation history.<sup>2</sup>

Let us begin by asking the biggest question: *What is salvation history about?*

### The Real Story

Christ gives us the reason for His coming, and in that the reason for the entire world, when He says, "For this I was born, for this I came into the world, to testify to the truth" (Jn. 18:37). We are made for Truth. We are made to act according to reason. Our emotions, our senses, and our whole being should be ordered by our right reason. Our will should be firmly directed toward maintaining this order. This is what Christ means when He tells us that we should love God, love Truth Himself. Our reason should direct our every action so that ultimately each action will lead us toward greater truth, toward greater perfection in acting and thinking according to reason. We are indeed made to know, love, and serve Him who is Truth Himself. But this is really a rather dense statement, though we have been trained to ignore its depth, via the absence of the first physics in our culture. Discussing the reality of what God has done will unpack that statement and reveal its depth.

From eternity, outside of time — i.e., having no changeability whatsoever and no need for it — God, Truth Himself, perfect intellect knowing perfect intelligibility, perfectly exists. From revelation we know that this one God is three Persons in one substance — i.e., in perfect

union with one another. This is why we say that God is Love itself.

### The Creation of Angels & Man

Out of His generosity, God made angels and men to share this inner life — that is, He made knowers, persons with free will.<sup>3</sup> He first made angels who shared with Him an essential unchangeability, except with respect to their existence. He then made man. Clearly wanting to share His nature widely, He made this knower, man, to know through physical (changeable) things. This means that man himself needed to be physical. This is the fundamental reason why man has a body — viz., it is required for his proper way of knowing. *Man knows nothing without his body*. This is the central point that we all miss and need to learn and integrate the consequences of into our everyday thinking, feeling, and acting.

### It Is Not Good for Man to be Alone

God knew that, because of the very nature of the physical world He chose to create, there were an unimaginably large number of possible men to create. And, when He created one man, Adam, He clearly knew that

## NOR BOOSTERS

Here are two ways you can boost the NEW OXFORD REVIEW's circulation and spread our message of orthodox Catholicism:

One way is to order a bundle of NORs on a continuing basis — to give to friends and relatives or to place in parish vestibules. To place your order, call the NOR at 510-526-5374, ext. 0, and ask for details. (Minimum order: 5 copies.)

Another way is to order gift subscriptions. The first one-year subscription is \$24; each additional one-year subscription is only \$21. (You may also extend your own subscription at these rates.) For recipients outside the U.S., add \$12 for each one-year subscription. Payment must be drawn in U.S. Dollars. We will send a card to the recipient announcing your gift. The renewal notice will go to the recipient unless you instruct us otherwise. Payment must accompany order. Send your order to: Gift Dept., NEW OXFORD REVIEW, 1069 Kains Ave., Berkeley CA 94706-2260.

We thank you for your apostolic zeal!

He must leave the unimaginably large number of other men out of that creation. One man only brings about one of the possibilities, not all of them. This means that this one man is lacking a certain access that those other men have to reality. It is a daunting task for a creature that is made to know to have to reach the end of his nature, Truth itself, starting from the simple things he sees and touches. Only with the help of other men with complementary talents, which also multiply his abilities to gather and process his understanding of reality, can man reach what he is made for. In short, by the nature of the type of knower he is, man's learning depends on the community, both learning from those in the past and those around him. Furthermore, because of his bodily nature, he needs others to help him with the material things necessary for a healthy body, a prerequisite to knowing in the best way.

Said in a more principle-centered way: Because each man is limited in his talents and abilities by his particular body, and because physical reality (by its nature) is spread out,<sup>4</sup> we need other men to complement what we lack. In this way, we are already a body of men under God, even before Christians extended the analogy to speak, in the supernatural realm, of the body of Christ. From a final causal point of view, this shows why procreation exists. It exists because man's physical nature limits him qualitatively, in time, distance, and scope; he thus needs a community to enable him to reach his natural end of Truth. For example, once we realize (1) what a physical thing is (something that can change) and (2) that we have a fundamentally physical part, we see that we can change and we can ask *why* we change. In making us to know through the physical, God gave us physical bodies through which we can do so; this means that we have to grow in understanding through changes — i.e., through time. This means that it is not a benefit, for example, for God to make all men at one time, because growth in understanding would not be able to build from one generation to the next.

### Man Is Two: Man & Woman

Due to man's need for community, there needs to be procreation, and thus there is only one essential division among men. Man is, in a real way, two: he is man and woman. To bring to mind this principle embedded in our nature, God said it is not good for man to be alone. Without woman, one does not have man. If God only made one man and one woman, and they only had one child, man would be essentially complete. Though he

would be lacking much that should naturally accrue to him by this very procreative nature, man's full nature would be *essentially* present. Indeed, because of the potential presence of the child, already with man and woman together, one essentially has man.

It is from the union of the two sexes that new men come about, and these new men are animals with the power to know intellectually, which is something of infinite value relative to all the rest of the material universe. Because of this, the complementarity between man and woman needs to be deep and profound. Why so? The more complementarity, the more the union of the two can bring out what neither has without the other,<sup>5</sup> and the more the very need for man to know (for which procreation exists) can be satisfied.

This is, of course, what we see: Man and woman share the same nature — i.e., both are rational animals — but they are fundamentally different at the next level of specification of man's nature. In fact, it is from seeing that man has a rational nature and that men and women have children together and are different that one comes to understand what we have just discussed, *not in the order in which we figure it out, but from the order of principle.*

Knowing that man is an animal (a rational animal) allows us to see analogies in higher mammals to the key differences between man and woman. Mere animals have a higher nature than all other physical creatures<sup>6</sup> save man (who also has a non-material core), because they are ordered toward knowing sensorially. This type of existence requires more complex forms of reproduction to produce their more complex structure as well as maintain the requisite diversity among themselves in the habitat appropriate to them. Analogous to man, this diversity is required both for the animal's survival individually and as a species, and for their mutual enrichment at the appropriate level.

An animal's sensory makeup reveals its essence, which in turn reveals its needs. It is important to realize here that sensorial knowing consists not only in the external senses, but also in the internal senses, such as the *sense imagination*, the *sense memory and recall*, the *unifying sense*, the *evaluative sense*, and the *instincts and emotions*, all of which are largely seated in the brain. Again, higher animals need sexual distinction to meet their need for diversity, both physically and cognitively. Again, analogous to man, male and female complementarity in higher animals' sensory knowing needs to be proportionally deep in order for them to diversify in the

proper way. In higher mammals, for example, the female's role is upbringing-oriented and thus nurturing and social; the male's role is in protecting and setting the environment. Without the female role, the male role is pointless, and vice versa. This is seen in the different ways of sense knowing, evident in the internal senses, that are characteristic of each. It must be emphasized that, in analogy to the case of man, male and female animals both have the same generic type of knowing — i.e., sensory knowing. These are, however, specified in *distinctively complementary ways*.<sup>7</sup>

This is not the place to get into the important details about how these animal sensory differences translate to the case of man and woman who have, as we have said, a rational nature and are not mere animals. Still, it must be said that, in principle, the respective procreative roles of man and woman (with respect to each other and the children and the community) determine their approach to understanding the world, which determine their sensorial powers<sup>8</sup> which, in turn, determine the emotional and other affective differences between men and women. All these amount to different yet complementary ways of knowing and acting. This progression follows because the sensory powers are the base of the intellectual powers. This reality is radically different than the “spiritual soul-alone” view that people in our culture, even those who profess to disbelieve in the soul, tend to take of such issues. Thus, it starts to become clear that our problem is not simple materialism but a kind of false spiritualization. We are profoundly subjective, stuck in ourselves, stuck in the subject rather than the object. In particular, we are

stuck in our beliefs and in what we think about what we think. We are radically unmoored from the principles of physical reality, which are the starting point of all of our knowing.

### The Fall of Man

By observing our own propensities and those of others, we see that man's nature is damaged. Revelation tells us more than that: Man was created in a state of grace but lost it. Following the enticement of the chief fallen angel, man tried to take a shortcut around his nature to get to the *appearance* of truth, reduced to “the knowledge of good and evil.” (This can be taken as a kind of pragmatic bypass of truth, for truth leads to finding the good.) This set the pattern, repeated throughout history, of man trying to bypass his physical nature to get directly to his happiness. Man seemed to be able to maintain the belief that he could reach his happiness (resting in Truth) without that very Truth and without his very self (for without his physicality he is not himself).

In the end, a knower's choice is between self and God. Our radically contingent nature is most evident in our physicality, our need to learn through the senses, so the first step in the deification of the self is to begin to believe and act as if we can bypass that physicality. In original sin, man tried to deify himself, as if it were his thoughts that make reality what it is, as if he could ignore the fact that he cannot even know or act without his body. Man, by his choice of the shortcut around his body, severely damaged his ability to know. It introduced, via his radical change in thinking, a change in



his physical being. Habits of thought change us physically as they make us think (which always, while we are alive, involves the body) and act in certain ways. Take an extreme example: A child who is deprived of “stimulation” — that is, of things to feel, see, and think about — will later have many problems learning in any sphere. A *sign* of this is seen in modern scientific studies of how our central parts are affected by such deprivation — namely, the brain structure is changed by this childhood experience.

The effects of this choice of a shortcut are profound because of the rejection of reason at its root. Indeed, because it is a rejection of reason, it is also a fundamental rejection of God Himself. Revelation makes it clear that man realized at the time that this rejection was a rejection of God’s will. Afterwards, man is subject to death — that is, the natural result of living a lie is spiritual and physical death. Indeed, from then on, each man’s individual sins (individual choices at various levels to act against truth and thus ultimately Truth Himself) compound. And it is made evident that the wages of sin is not only literal death but also things worse than death: losing sight of even minimal truths, falling into despair, and allowing one’s attitude and actions toward oneself and one’s brother to sink below that of mere animals.

All this damage is intimately linked to man’s deliberate attempt to take a shortcut around his own nature to get to the truth. Rather than the work that his *physical* nature requires to get to the truth — work that was *joyful* prior to the Fall — man wanted some “magic apple”-type shortcut to spirituality, to truth. In this way, he necessarily redefines truth into a lie and rejects God as his end. We call the disorder that results from this profoundly *ir-rational* choice “original sin.” This is how even those who have no personal sin can have original sin; it is similar to the fact that a man can inherit say, dwarfism, and still be of the best character. Original sin is a disorder in our nature, making it no longer spontaneously respond to the control of right reason but tend toward lower things in an inordinate way — the latter is called “concupiscence.” Following this inclination ends in a definition of self that neglects truth and therefore is a counterfeit definition since, as we have said, man’s nature is that of a *rational* animal.

In sum, man’s deliberate disobedience to the source of his being, God, and his deliberate acting against his own nature, which intrinsically is *also* an act against God, resulted in a damage to his nature that is

passed on biologically from generation to generation. His decision and action also resulted in the loss of the grace that had given him a unity with God beyond that which belonged to his nature; this too would no longer belong to man after the Fall.

What will God do about this damage man has done to himself? He will send His Son. In the next installment we will turn to this, the most important event in all human history. ■

Ed. Note: *The second and final installment of this two-part series will appear in our May issue.*

## ENDNOTES

1. See my books *The Science Before Science* and *A Kid’s Introduction to Physics (and Beyond)*, available at [www.IAPweb.org](http://www.IAPweb.org) or by phone at 225-667-0244.

2. My hope is that this article will serve as a springboard for thinking about (1) those words we could not get to and (2) those aspects of the words we did discuss but were unable to flesh out.

3. Of course, to become part of the inner life of God, more is needed than these natural powers; still, these highest powers of intellect and will are needed.

4. This is because a body’s first property (accident) is its extension — i.e., it has parts one next to another. This is, properly speaking, called *quantity*. See *A Kid’s Introduction to Physics (and Beyond)* and *Physics for Realists: Mechanics*.

5. Man and woman have complementary aspects that cannot be actualized without the other. As an analogy, if I have hydrogen and oxygen, I have the potency to make water but I do not *actually* have water until they interact.

6. More specifically, man is a form-matter composite and thus is physical. His intellect, his highest power, is, however, an immaterial power, as proved in *The Science Before Science*, and thus his *form* has an element that is not material, cannot be other than it is. Thus, the *core* of man cannot be other than it is. Because of this we know man’s *form* is subsistent and cannot die, unlike that of mere animals. Note, however, that the separated soul is not fully human as it is missing an essential element — i.e., its animation of its body.

7. In terms of the *quantitative* way — i.e., relating the distinctive parts of a thing — in which we are habituated to think, this means, among other things, that the brains of the male and female animals are different.

8. This is because a different approach to understanding means different qualifications of the internal sense powers, which, in turn, affects, for example, what things are abstracted and when and what thoughts are given precedence and emphasis.

Copyright of New Oxford Review is the property of New Oxford Review and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.