



Why do We Think so Poorly? How Should We Think?

by Anthony Rizzi

Unfortunately, in our ordinary life, we seldom act from principle. Indeed, we usually act simply according to how we spontaneously think and feel about what is put in front of us.¹ And, few know that our spontaneous thought *and feelings* arise from our established habits of thought about the things around us.¹ And, because of the state of our culture, those habits of thought, in turn, arise from what we have been told to think about things, *not* from our own *deliberate* thinking *nor* even from the *deliberate* correct thinking of our parents and teachers. When questioned about why we do what we do, we often rationalize our choices and can even get irritated if pressed on the reasoning behind those choices. This is not surprising because we have not been taught to reason from first principles about ordinary situations but, instead, to live in a kind of fog of activity, not thinking too much about why we do what we do. Indeed, we have a kind of dislike of reasoning about ordinary life situations.

How and Why We Reject Thinking

The other day, I was sent an article² which points to male “abstraction” as the cause

¹ See (Four Steps) A. Rizzi, “How to Learn in Four Steps”, *Physics and Culture* (April 2014) to understand that spontaneous responses have a proper place in everyday life, but that for such responses to be good and proper, they presuppose proper reasoning has been done in the past.

² Sr. E. Gardner, “The woman physician as antidote to the ills of modern medicine”, *The Linacre Quarterly* 84 (4), 2017.

of a serious problem in medicine. The author quotes Edith Stein as saying “*abstraction in every sense is alien to the feminine nature*” to argue that woman physicians are the cure to certain core ailments of the practice of modern medicine. By this, the author does not deny that abstraction is good or that women cannot abstract (nor does Edith Stein), but the author speaks as if abstraction were of necessity leaving out the whole and, most importantly, gives the impression that focus on abstraction is the central reason for the mechanical, even inhumane, treatment of patients sometimes seen in systemic modern medical practice today.

Now, this example only serves to bring forward a natural line of thinking that *anyone* who thinks seriously will find it hard not to fall into. In fact, it is widespread among those that care about our culture. Namely, if you see that modern science is the base of our culture and you believe modern science is characterized by abstraction, it is natural to conclude that abstraction is, or at least over emphasis on it is, in some way the source of the mechanistic anti-human culture we are increasingly falling into. However, if we adopt this anti-abstraction conclusion and react against abstraction, it follows that we will not properly value reasoning because abstraction is a prerequisite to reasoning (indeed a prerequisite to all understanding).

In this same line, the Enlightenment³ is generally said to have ensconced “Rationalism” and this “Rationalism” (though it’s not rational at all) is, indeed, the source of our culture’s deep-seated anti-human tendencies, including its anti-religious tendencies.⁴ This implicit (false) understanding of reason (“rationalism”), which arises from a false understanding of modern science, leads us to assign the reason for the loss of our full humanity and of truly human goals to reason itself! Note that this “Enlightenment” narrative is itself an historical mechanism (all fields have their mechanisms) that is part of our trained distrust of making decisions based on principled reasoning, at least in ordinary life.

The source of our misunderstanding of the nature of reasoning is our ungrounded, and thus finally unprincipled, thinking. All of our thinking starts and builds on what we get through our senses! This makes physics, the study of the physical world, the first science. But, the great and good scientific method at the core of our modern world, and thus at the core of all our thinking, has been misunderstood and mis-digested over the (last 400) years and has effectively become an equation-alone physics.⁵

³ See also A. Rizzi, “What is America?”, *Physics and Culture* (Mar 2021).

⁴ Ultimately, it arises from our equation-alone physics, see “The Science before Science: Reintegration of the Modern Mind and its Science”, A. Rizzi, October 2006 plenary talk at the American Maritain Conference, Published: *Reading the Cosmos: Nature, Science and Wisdom*, American Maritain Association Publication (2011), also in Vol. 1 *Physics and Culture* and (SBS) *The Science Before Science: A Guide to Thinking in the 21st Century*, A. Rizzi (IAP Press, 2004) for full explanation.

⁵ Though many have been taught a definition of the scientific method and think they know what it is, such definitions are inaccurate and, outside of Institute for Advanced Physics (IAP), people do not know how to *properly* define the scientific method.

Our science, as a result, is focused on the organizational principles, not the reality captured by those principles. This means we reason within mental constructs not about reality itself.

Indeed, as a result, and this may sound harsh, but I don’t mean it to be (I only say it because it is literally true), we don’t know how to think! Indeed, we fundamentally reject thinking. The previously mentioned article notices rightly that we have lost some core part of our humanity and that women are particularly adept and much better at resisting the mechanical constructs that we make. However, the author is incorrect in thinking that the cause of the problem is a focus on abstraction and an attitude of domination. I use this example, not to single that author out or single anyone out but only to bring out the problem in understanding that all of us have and which has gone unnoticed because of our very poor ability to reason from first principles that we know, not simply believe. What then is the problem?

Modern Science’s Effect on our Thinking

The problem is the logical system of symbols, the equational focus, at the core of our culture and thus our thinking. And, we don’t realize that we have this focus. So that, not knowing it (outside of the Institute for Advanced Physics (IAP)⁶), people implicitly take the modern scientific method as defining what

For the definition: see (KIP) *A Kid’s Introduction to Physics (and Beyond) Vol. I*, A. Rizzi (IAP Press, 2012), also SBS, [fn 4](#). See A. Rizzi, “What is Science?”, *Physics and Culture* (Feb 2019). For more on science see: “A Brief History of Nothing.” *Physics and Culture* (Jan 2014) and *Reintegration of the Modern Mind* ([fn 4](#)).

⁶ It is also true inside of Institute for Advanced Physics (IAP) to the degree we have not reformed our step 4 habits (See Four Steps, [fn 1](#)).

it means to think (“Rationalism”). As a result, for the non-scientist, organizing the particulars of one’s activity (a kind of scientific method for the layman) is increasingly what it means to think! Indeed, people learn to think that abstraction and reasoning need less emphasis and particulars need more emphasis, especially more emphasis on individuality.

We, the story goes, do not value people as individuals (which is indeed true), and thus we need to leave aside abstractions. We need to get concrete and generally be more sensitive to the concrete as women are (as argued in the previously mentioned article²). Before continuing, let me emphasize that our failing culture does have trouble seeing the unique value of each of us. And, each man is irreplaceable, for each one of us has truth (and an attending beauty) that he alone can manifest in the way he can.⁷ Now, though the premise that we don’t sufficiently value each other is true, the conclusion that we need to deemphasize abstraction and focus on particulars is false. We need to respect **our human mode of thinking that starts with the abstract and moves to further and further specify that understanding as we grow in our thinking.** *This is something that our culture has not only not taught us but has trained us to reject.*

The core of our thinking, our physics, does not simply use abstraction, it creates mental constructs. Outside of IAP, this is not understood with any kind of clarity, so people identify abstraction with what goes on in modern science. They don’t know that, instead, what happens in modern science is

⁷ Furthermore, as a consequence, each one of us has a unique relationship with any given friend. Without that friend that relationship could be found nowhere else.

empiriological thinking (looking at the empirical through a logical system).⁸ If reasoning is simply and solely empiriological activity then reasoning really is not good for human activity. Indeed, empiriological-alone activity cannot reach reality, not reach any conformity of the mind with reality, cannot reach truth, so it is infinitely distant from right reason. So, once we have said empiriological-*alone* activity is reason we can see why we reject it in human activities.

But, it goes further. We falsely identify empiriological-*alone* activity with abstraction, so, for example, we identify its cutting off of essential parts of reality (and the resulting focus away from reality) with the work of abstraction.⁹

⁸ Nothing we say here should be taken as denying the goodness, indeed the essential importance of the modern scientific method whose defining characteristic is the empiriological method. The empiriological method is essential to man’s growth in knowledge after he reaches a certain level of specificity in his understanding. After that point, he cannot proceed further in his understanding without it. For completeness see SBS (fn 4), KIP (fn 5), PFR-M and PFR-E&M: A. Rizzi, *Physics for Realists: Mechanics, Physics for Realists: Electricity and Magnetism*, (IAP Press, Rochester NY, 2008, 2011). Note that the *empiriological method* is that method that looks at the world through the property of quantity using a system of symbols and rules (equations in physics) to make predictions about the world. The heart of the empiriological method is the *empiriometric method*, which, as noted, uses equations.

⁹ Modern science does not have to be the way it currently is and indeed should not be. The equations of physics, for example, should not be what we look at, but should be clear windows into reality. We should see the nature of things through the equations. This work of unpacking modern science has, for the first time been accomplished (at the Institute for Advanced Physics) from the beginning of modern physics (mechanics) up through ordinary quantum mechanics see PFR-M (fn 8), PFR-E&M (fn 8), and PFR-QM: A. Rizzi, *Physics for Realists: Quantum Mechanics* (IAP Press, Rochester NY, 2018). Also, this work, since physics is the ground of our thinking,

This leads us to reject abstraction, which (of necessity as we have already said) rejects reasoning. Reasoning needs abstraction to even begin.

Indeed, we do, in essence, reject abstraction in our ordinary thinking. Why do I say that? We reject generalities; we reject, no we don't even know the meaning of the word generic (and I don't mean non-brand name products--the fact that we think of this first demonstrates our lack of focus on generalities). True generalities and the general statements that arise from them are true for all special cases with no exceptions, and that seems extreme to us. If we say "all men are something" or say anything applies in all cases, then we are guilty of stereotypes or generalizations! But, this is the essence of true thinking, we see the general first and then seek to further specify it. That is the way the human mind works. If we reject that we reject thinking!

Yes, let me drive this home, we have come to that. We essentially reject thinking in our spontaneous habits! Before explaining more how true thinking actually works, thereby beginning to heal the equation-first thinking that has been trained into us since birth, let's look at an example of how we now think. It will light up the key issues involved.

then can serve to correct and deepen our understanding of all fields; IAP has done substantial work here as well.... for example, see the articles by A. Rizzi in *Physics and Culture* (iapweb.org): In history, see "What is America?" (fn 3), in psychology see "Two Types of Empiriological People" (Nov. 2019), in theology see "Does Grace Help You Think Better?" (June 2021), in ethics see "Death of Justice?" (Oct. 2018), and in metaphysics, see "Is your Computer Real?" (Aug 2014) and "Is there in Truth, Beauty?" (May 2015), and many more.

An Example of How We Think Badly

In trying to defend why the Catholic Church excludes women from the priesthood, in a discussion of the previously mentioned article, a man gave the standard explanation. [Here, I ask the reader to take this man as representing all of us and the way we have been formed to think, not himself alone.] In answer to the question, he said, "Jesus was a man,"¹⁰ so the priest who represents Him needs be a man." This response is at best a non-answer.¹¹ It reveals the lack of principled starting points and more generally the inability to reason soundly that accompanies our equation-alone physics. Before diving in to see what the problems in particular are with this response, let's first look generally.

Here are the core problems of our thinking that come from our equation-alone core. First, we don't start with general principles seen in reality and move toward the specific by adding minor premises from things seen in reality. As a result, second, we don't note the context that provides clues to, or even directly points to, parts of reality that must be included to address the question. Lastly, we don't ground our thinking in known first principles that ultimately derive and have their base in some way from what we know directly through the senses.¹² Now let's see how these general problems appear in our specific example.

¹⁰ I give the argument the way it's usually given. To be sufficiently accurate, Christians should say "God became a man;" saying instead "Jesus was a man", thus, also reveals our habits of poor thinking.

¹¹ There is an answer, but it, obviously, belongs to a different subject, not directly relevant to this article.

¹² For example, as shown in SBS (fn 4), ultimately, we only know (in the full proper sense) ourselves as knowers by "seeing" ourselves know things through the senses.

First, the argument does not start as it should with generic definitions, definitions that apply to all. In particular, we need a definition of man generally and of male and female specifically. Absent that, we cannot make an argument; we don't have the distinctions that we need to make an argument. Perhaps there is no core difference between men and women (it's not true, but remember we are analyzing the reasoning processes here), then the argument clearly fails.

Indeed, given the context of the argument, one cannot assume that there is a core difference. After all, the denial of that core difference is the primary force of the question! The context of the question is a culture that fundamentally holds that there is no core distinction. And, if there were no core difference, a woman could, in principle, represent a man just as well as a man with light-skin and light-hair can represent the darker-haired, darker-skinned Jesus. Indeed, not understanding that every substance has a generic (general) nature, an essence, a principle that determines it to be a certain thing, we can (and do) easily take what actually are disorders, privations, in a man or woman as belonging in some way to an individual person.¹³ In this way, we can make men and women "priests" look as close to the same as we want so that the apparent difference could even be less (in certain very disordered cases) than that between a light man and the dark Jesus. And, again, because we have not grounded ourselves

¹³ Indeed, instead of looking at the essence of a thing, scientism has us create a bouquet of "properties" that then substitute for the substance of the thing. The bouquet is judged solely by how well it functions in our lives. Thus, we effectively miss the very reality of the thing (in this case the person) and, therefore also miss its *proper* accidents (See KIP, [fn 5](#)), those "accidents" that arise out of its nature.

in the first physics that we get through our senses, nothing, in principle, stops us from doing so.

So, we see that missing the general principles causes us to misunderstand the place of the particulars and even to miss the context of a discussion.

Furthermore, the answer is not grounded. Even given a valid path to go from "Jesus was a man" to "a woman should not be a priest," this does not answer the question. It only begs the question, pushes the question further back...to why was Jesus a man, not a woman; why not twins?¹⁴ The fact that we don't even see this essential deficit in the argument reveals to us our defective training in the use of reason, our defective habitual thinking. Proper habits would have us see or at least seek these causal bottoms.¹⁵ We instead unconsciously start where we want to start, not at the real beginning. Note, the lack of generic definitions has facilitated this as well.

This example, thus, illustrates all three core deficits in our thinking: 1) lack of general principles, 2,3) the attending loss of context and grounding. Not starting generally leads to only organizing of particulars. This is not surprising since empiriological thinking (the base our culture's thinking) can be, and indeed effectively *is*, taken to do just that and nothing more. Solely organizing particulars is not

¹⁴ Of course, there is a reason, but, as before, this is different subject than that of this paper.

¹⁵ More generally, ideas, by their nature, are not stopping points, but take you to the thing which they are about. Furthermore, as we will see, they bring us to a general principle of the thing. This means they focus you on a real principle in the thing in such a way that you *also* see that there is further specification that you have not yet clearly seen. They call us beyond what we already see. If we feel stopped by an idea, it means it's not really an idea at all but a mental construct.

thinking at all, but effectively only a means of bypassing any real understanding, which is what proper thinking is all about. So, by following this path, as we do by habit, we have denied reason; we have denied any real place to thinking in our lives.

What is Proper Thinking? What is Abstraction?

Proper thinking begins with the general and moves to the specific, moving ever closer to the particular (as all actual things are particular, not general). As explained in *The Science Before Science*,¹⁶ the human mind sees the general first.

Take a classic example, we see some thing moving towards us in the distance, we cannot at first tell what it is exactly, but we know it is something, something physical. As it moves closer, eventually we see enough to tell it is alive and moving under its own power and is some kind of animal. Still later, we can see that it is a man walking towards us.

Now, this example gets us started and is easy to get at some level, but it assumes some things; for example, it assumes that you have done all the thinking that leads to seeing that there are physical things and animals and men, which is rather long and somewhat involved (much more than we normally think¹⁷).¹⁸ So,

¹⁶ See SBS (fn 4) and KIP (fn 5); also see A. Rizzi, “What is the Difference Between a Lab and a Border Collie?” *Physics and Culture* (Feb 2018).

¹⁷ See SBS (fn 4), KIP (fn 5) and “Lab and a Border Collie?” (fn 16).

¹⁸ This example, also, assumes that we have eliminated things that people have deliberately setup to fool us into thinking that a man is walking towards us (robots are, in their own way, just that sort of thing!). For such cases (included the sophisticated case of a robot), one would need much more detailed examination to make the necessary specifications to move each step of the reasoning.

let’s start simple with the things we really see first.

We see in physical things (through the senses), for example, warmness or yellowness. We sense this particular warm yellow thing.¹⁶ Through that feeling and seeing, the human *intellect* “sees” the principle of warm (warmness) and the principle of yellow (yellowness). This is the process of abstraction; namely, the human mind abstracts, pulls out, “sees,” in the nature of the thing (that you see) the principle of yellow. Note well, this means yellow is “seen” in context, not out of context. We thus “see” *through* the intellect the principle of yellow that exists as a property of the daisy plant.

Moreover, because this principle exists in reality (not in the mind), every time we see a particular yellow, we can see that it is yellow,^{19,20} even though it be a different particular daisy that is a different shade or intensity of yellow. Indeed, we can see the property of yellowness in any yellow thing, even things that, before we saw them, we might never have imagined could exist. In any yellow thing, we see the principle of yellow existing, perhaps in a different way in some aspect, but yet still having in some way that fundamental nature of yellow. Thus, we see the principle of yellow, for us, is general, not particular. This is the way our mind works! It focuses on certain real aspects of things, while not excising or dismissing others, just keeping them unspecified.

Abstraction puts us in contact with a principle in a thing in such a way that we see that principle as general but yet we also see it

¹⁹ See PFR-EM (fn 8) and SBS (fn 4) for resolution of sense related paradoxes, such as the apparent false identification associated with mixed colors.

²⁰ To understand ideas see SBS (fn 4).

as in need of further specification; so that, in this way, the general knowledge characteristic of human thinking includes the reference to a vague specific. We do not first see yellowness as distinct from the substance in which it exists. We do not see yellowness as complete and closed concept without a distinct (though perhaps unconscious) act in which we cut it off in this way. *This thinking of generalities, such as yellow, as if they existed on their own is characteristic of empiriological work. It is good and helpful when done with full awareness and in the right venue, especially in modern scientific work.*

So, in true abstraction, as opposed to empiriological work (which, again, contrary to what people usually think, is not natural human abstraction and reasoning), you do not sterilely dissect the world into mental constructs (beings of reason). When you look at a daisy, you see a yellow daisy, not yellowness existing on its own and independent of everything else. Proper abstraction does not cut things into isolated pieces, separating the parts from the whole in the way parts of a machine are necessarily made. One is not making a machine,²¹ but seeing nature through our senses through our intellect.

What is Reasoning?

And, How Should It Work?

In true reasoning, we start with generalities like the nature of yellow or the nature of a physical thing (see KIP), or more specific things, like the nature of man, which could serve as a major premise in an argument. Then we see other more specific things, like this is a woman, and then we use the new

specification as a minor premise in a syllogism (simple argument) and deduce a conclusion. We do this spontaneously first, and then logically and formally so that it is fully scientifically known (scientific in the proper sense, not in the modern empiriological sense, which is only a part of the full scientific method, not the whole²²). This is reasoning. Let's take a couple examples.

Because most have used real reasoning in math to illustrate proper reasoning, let's start with a simple example from math. In fact, math is the *only* area where most people are given some experience with rigorous reasoning; for most, if they haven't received it in math, they probably will never receive it. Logic in some form is sometimes even taught in math.²³

We see a flat piece of aluminum with a triangular shaped surface, and we focus on that surface's triangularity. We notice that it is a flat surface with three lines making its sides. We can see that a triangle is a closed planar surface with three sides. Now, with a lot more observation and reasoning, we can prove the general theorem that adding all three angles in the triangle will always give 180 degrees!²⁴ An amazingly general statement. Next, we see the triangular surface of an object that is much heavier than the aluminum object, which is the

²² Science includes the empiriological method as an essential part of further specifying our understanding. It comes later not at the beginning. See [fn 4,5](#).

²³ We have simplified the discussion here. In actual math classes, the topic would not center on the physical world in the clear way that follows in the text. As you can deduce from the fact that our culture is based on an empiriological physics, modern math is based in a system of symbols and rules rather than directly on reality. I call this empiriological method in math quantiological (see KIP ([fn 5](#))). A. Rizzi, "What is Math Really?" *IAP Journal of Physics and Math*, 2006 and "Brief History of Nothing" ([fn 5](#)).

²⁴ See SBS ([fn 4](#)) to understand how general relativity fits within the context of this argument.

²¹ This, by contrast, is a reasonable analogy for empiriological-alone work.

size of a house, rather than the size of my hand, and is bright red plastic, instead of a shiny aluminum. We then measure two of the angles of this new triangle add up to 100 degrees and deduce that the remaining angle must be 80 degrees. We have started with the general principle inherent in all triangular surfaces (major premise) and then noticed the further specification of the size of the two angles (minor premise) and from that deduced the remaining angle (conclusion). This is simply (syllogistic) reasoning! This is, in principle, how all reasoning works.

Finally, let's move to a simple example of reasoning that is closer to everyday life. One can show that we (us men) are rational animals.²⁵ That is, we note to ourselves: "I am a physical thing that is alive and has sense powers (animal) as well as intellectual powers." Then we notice that there are others like ourselves. We then ask ourselves what is the proper relationship I should have to my fellowman, then we note that each of us has different physical, emotional (more generally sense power), and intellectual strengths and weaknesses and likes and dislikes. What then does this mean? Seeing our intellectual nature, we see that we are made, at the highest level to know, and at the lower level, at the service of that highest level, to stay alive. Seeing man's physical nature and his physical dependence on his parents when he is young (these are specifications added to the general understanding of our nature), we deduce that we need others to survive so that *we can grow in truth*. We have gone quickly through this example, because our main purpose is to illustrate the simplest sort of reasoning and

²⁵ For further development of this principle: see SBS (fn 4) and A. Rizzi, *What is America?*, Physics and Culture, 2020.

how we move from generic to the specific and, by reasoning, on to conclusions that give us insight into the meanings we see. It also shows how important reasoning is for human life. In this short reasoned argument we have *proven*²⁶ our need for others.²⁷ Most of us know this need implicitly, but we don't usually see its full proper value, and in our thinking and living few ever try to prove it.²⁸

The Move to Right Thinking

These examples show how all of our thinking should finally be. Of course, part of human thinking is realizing that we can *not* prove everything ourselves, so we must trust others. How do we know who to trust? We reason from what we have known, from what we have actually seen, properly understood, and proved. Using what we do know, we can find and listen to people who know how to think, people who know what we know but better and can see from what they say (and from their education and background) that they know other things, important things that we do not. A proper authority today must be

²⁶ Assuming one already knows the nature of the intellect and the sense powers generically (see SBS, fn 4).

²⁷ Someone might say: what about machines and robots made to take care of us. Keep in mind, we are investigating the *nature* of man, which already exists. It is clear that our nature is such that pre-born children need, for example, to be nurtured inside their mothers. Thus, whatever things external to our nature that can physically mimic this process at some level (so as to replace it at some level) are not relevant to the issue and thus not to the conclusion. Because our habits have us looking to construct things, not for the natures of things, we miss those natures! This is part of our poor thinking.

²⁸ This issue is actually little known and understood for the general reasons we have been discussing. For more depth on our essential need for each other to grow in truth, see, in particular, the discussion on the common good in A. Rizzi, "Death of Justice?" *Physics and Culture*, (Oct. 2018).

grounded in the proper physics to be able to identify and resolve the deep problems affecting each one of us moderns. Once we have an authority, we listen and grow; he becomes our teacher. The better, the more true, the authorities in our life, the more we will grow in truth and avoid error, and the more our ability to think and even our ability to listen to the truly good authorities will deepen and grow. And, if we have the proper openness to truth, the proper humility, our ability to see them as truly good thinkers will grow.²⁹ All this will, finally, enable us through the four steps¹ to live a happy good life, a life in which we live the joy of the truth.

But, without sound, grounded reasoning, we haven't begun to live the life we are meant to live. The first step in that direction is to understand true abstraction and true reason (which we have begun here) and seek those who can help you with it and the resources that are needed to grow in your understanding of the principles and how to think about and live them.

After digesting this article, the next concrete step in understanding how to think properly is to learn the fundamentals upon which all of our thinking and doing is based and in so doing learn how to think. The reasoning required and thus developed there is the first reasoning we do implicitly as children and

²⁹ In addition, as we grow, we will begin to see who the proper authorities are. In particular, IAP is the first and only place that has uncovered the core problem of our culture and has significantly researched and understood the problem as well as advanced the solution, and done so fairly extensively (especially by uncovering the nature of a significant portion of modern physics). Only those that know modern physics *as well as* the starting physics that we get through our senses can even recognize the problem accurately enough to begin to fix it even in themselves.

provides the foundation for all future reasoning. What are these fundamentals that we must learn to live in our world? They are the basic physics, the basic understanding of the physical world, which is laid out fully for the first time ever (and at a simple child-like level) in *A Kid's Introduction to Physics (and Beyond)*.³⁰

We have an essential urgency to do this that people before us did not.³¹ We need to learn to think properly for our thinking is poorly done now. This, as we have seen, arises from a faulty grounding of our thoughts and habits of thinking. Both are now based in mental constructs, focused on organizational principles rather than the reality they encapsulate.³² We tend to think only in terms of organizing particulars, only seeing the faintest flickers of the principles, the deep intelligibility, that are in fact *in* every single thing around us. Again, these principles exist in reality, not in our minds; that's why reasoning works! Ultimately, that's why planes fly, cell phones ring, air conditioners cool, and computers compute. The false understanding (arising from a mis-digestion of the good and great modern

³⁰ After reading this (KIP I, [fn 5](#)), its best to read the *Science Before Science* ([fn 4](#)) and move on to the various articles in *Physics and Culture* magazine and other resources at IAPweb.org. After learning the basic physics that we get through the senses, we must learn, at least at a simple level, how to see through the empiriometric structure to the reality it encapsulates. This is done simply in the *Kid's Introduction to Physics (and Beyond)*, Vols. I and II, A. Rizzi, (IAP Press, 2012, 2018). For more see: *PFR-M* ([fn 8](#)), *PFR-E&M* ([fn 8](#)), and *PFR-QM* ([fn 9](#)). The more we can learn, the more we will understand about the world, our culture, and ourselves.

³¹ E.g., people before the scientific revolution did it naturally in a way we can barely imagine.

³² This is so in the hard sciences; in all other fields, there is not much reality proportioned to their proper subjects (see KIP).

scientific method³³), this focusing on particulars and the mental constructs that organize them, makes us think there are no general principles, which, in turn, forces us to reject reason. This finally is slowly killing each one of us.

We have a choice: to think like men or to fall increasingly into a cold, mechanical, pointless culture: to be alive to reality, receptive to reality, or to be a computer. In summary, invoking the famous “shut up and calculate” statement Richard Feynman³⁴ supposedly made upon being asked about the meaning of quantum mechanics: *“To be or to shut up and calculate” that is the question.*

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Physics for Realists-Quantum Mechanics. He has recently made groundbreaking discoveries in quantum mechanics.

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³³ Again see SBS (fn 4) and *Reintegration of the Modern Mind* (fn 4).

³⁴ This is not believable to me, as Feynman did try to deeply understand things and it does not seem to me he would be this dismissive. David Mermin thinks he, Mermin himself, might have said it, “Could Feynman Have Said This?”, D. Mermin, *Physics Today* 57 (5), 10 (2004).