The Vista of the Natural Sciences

One of the most exciting things in the literate world is the renewed interest in classical education. Catholics, Protestants, unchurched Christians, and even unbelievers are demanding that education turn away from immediate career preparation and back to matters of substance, to the matter of serious mental formation. It is fervently to be hoped that this renewal will produce a generation of great thinkers who may unwind the tangled paths of their lost brethren and bring them home from a culture steeped in confusion.

But such a hope cannot come to fruition under the circumstance where classically educated students remain scientifically illiterate until very late in their education, sometimes permanently. Indeed one of the most frustrating features of the classical renewal is the attitude towards the natural sciences of the last four centuries, an intractable combination of indifference, suspicion, and backwardness, in peculiar contrast to the maturity at the philosophical end of the syllabus.

The Problem

It is certainly true that the natural sciences, which assess the immediate physical world in its profusion of transformations, must occupy a peculiar niche in an education whose goal is perennial wisdom and even eternal truth. Seasonal change, migrations of birds, eroded stone records of volcanic tumult, alternating electrical current, the precession of the equinoxes, the blast of a supernova… what have these to do with philosophy? They're all here today and gone tomorrow, while Truth remains unchanged. Physics is the Many; Philosophy is the One. Ought they not keep their distance? As far as One is from Many?

Or at any rate, it is argued, shouldn't the mind be formed in philosophical maturity before it faces the confusion of sciences that have but lately come to their maturity — and apparently in spite of philosophy? Indeed, we might notice, as witness against the wisdom of an early introduction to natural sciences, the well-proclaimed conflict between faith and science, or, if that be shown up as mere fiction, consider the subterranean rumbling about the antagonism between poetry and science. Surely the natural sciences are a threat to interior formation!

On the basis of such arguments, scientific physics, or natural science — is in trouble among the classicists. Even if it is not a threat, what has physics to offer to philosophy; what have the natural sciences to say to religion; what have measure, weight, and number to contribute to poetry? Natural science is, at best, a career specialty. It is not Education, certainly it is not Classical Education. As we seek to turn the direction of education *towards* the eternal and *away* from career preparation, surely it is appropriate to drop, or at least radically postpone, the natural sciences.

That is the argument.

There are exceptions. Ptolemy, Galen and Bacon, Harvey, Newton, Kepler, and Copernicus are within the classical curriculum. These classical writers are thought to exhibit "scientific method" which is of perennial value. That so many of their conclusions

are outdated is a mere footnote. All that is of lasting value in the natural sciences is just this: scientific method. Nothing more.

Right?

I reflect on the outraged disappointment reported to me by one classical student who worked so hard to master Ptolemy, only to discover he was mistaken.

Method is not enough. You need facts. Natural Science is the field where the hunger for eternal truth, which refers to matters of unchanging character, touches the Earth, which is utterly specific: thus and not otherwise. That "thus and not otherwise" is the first form in which truth approaches the soul.

Fact is the primal form of truth

If you don't know some facts, you cannot evaluate other facts as facts. What is more, all of thought, right down to the least word in the language, rests upon metaphor, and metaphor rests upon the physical world. Deeper acquaintance with the physical world means deeper metaphors for deeper thoughts. Indeed, the metaphor for truth itself must be right understanding of the commonplace and immutable facts of the visible world.

Furthermore:

1. The "conflict" between science and religion is a crock, for how could Creation be a falsehood of the Creator?

2. The conflict between science and poetry is a fiction, for how can metaphors flourish without events?

3. The conflict between science and philosophy is a contradiction. Philosophy is metaphysics; how could that contradict physics?

The source of the problem

So where is all this confusion coming from? Part of the problem is certainly the tired old misinformation — the disinformation — about Galileo and Darwin. Philosophers and theologians are cowed into thinking that if they get into the terrain of the natural sciences, they will be humiliated, "as was the Church" in its opposition to these thinkers. But in fact, no one is humiliated by seeking the truth; and neither was the Church, for it was not so ignorant as it is portrayed to have been.

It is impossible to move forward without a word of background on these volatile issues.

The Galileo background

In Galileo's time, which was already a good two or three generations after Copernicus, most educated men actually thought the earth must revolve around the sun as Copernicus had suggested; and Galileo knew this. And educated or not, the navigators were using tables of the planetary motions based on Copernicus, so his work was in use and in men's minds everywhere. Additionally, in Catholic countries the calendar had been changed in conformity with the work of Copernicus.

Keep in mind, however, that Copernicus had been the contemporary of Luther, who instantly forbade his works to be published in Lutheran territory. Galileo was thus head-to-head with men who wanted to compromise with the Bible-centered Protestants and bring them home. Even so, the Church did not condemn Galileo for believing that the earth went round the sun; certain powers within the Church demanded that he not teach it as a fact until he could prove it. He claimed he could do so and he tried, but most people

looking back say that proof would not be possible for another 150 years. Even so, this stricture against Galileo was reached only after nearly twenty years of intermittent turmoil, at the end of which his Cardinal protector, the great Saint Charles Borromeo, had died and lesser minds came to dominate the litigation about Galileo.

So while the decision against Galileo was not a good decision, it was neither as extensive nor as hasty as it has come to be portrayed in the last two centuries. More importantly, it was neither unanimous, nor "from the top", from the Pope, that is. Nor was it required of Galileo that he "recant" what so many believed or deny what he thought true. The humiliation of the Church in this matter is largely a deliberate polemic, some two hundred years later.

What happened two hundred years later?

Darwin was born.

In Darwin's time, most educated men understood that the fossil record implied some sort of sequence of species. This idea was by no means original with him. The question was whether or how species could actually generate other species. This question is still unanswered. Darwin's insights provided no more than a clue, regarding which Mendel's (contemporary) work raised a disturbing doubt. If inheritance is accomplished through a perfectly orderly system of replication, how can evolution take place? Yet if species have an orderly historical progression as indicated by progressive levels of genetic separation, how can we doubt the actuality of changing inheritance in the process?

None of these reflections are contrary to the teaching of the Church, and the investigations which they suggest are also not forbidden to Catholics. Associated, however, with Darwin's ideas about the origin of species were certain other ideas, which do not necessarily *follow* from species-sequence as points of logic, but which continually reappear wherever Darwinian evolution is promoted:

- There came a new railing against the reality of the soul since men were viewed as merely the latest primate development
- There grew a eugenic philosophy which despised marriage and wanted all decisions of procreation placed in the hands of an elite, just as decisions of cattle mating are made by the ranchers, not the cattle.
- Evolution became the new excuse for racism, because it is suggested that since the dark races are older, they must be a closer link with our animal ancestors, and their continuation might cause the human race to lose its forward momentum, even devolve! This nonsense was trotted out in the textbooks of the famous Scopes Trial, and has been repeatedly discredited since Darwin, but it remains alive and well.

Whenever the Church tried to counter Darwinism, however, the story of Galileo was pulled out, especially as distorted by Andrew Dickinson White, to enforce the opinion that the Church was beneath incompetent in matters of science. The confusions about Galileo and Darwin are serious and must be confronted from a united historical, philosophical and scientific front. The truth is that neither philosophers nor theologians have anything to fear from the discoveries of the natural sciences.

But the classicists do have something to fear from unbelieving scientists who make an easy hash of philosophy to their ignorant contemporaries, and then use the evident

scientific ignorance of the classicists to support their claim that classical philosophy is no more than ignorant chatter.

Philosophy in the Natural Sciences

Indeed, philosophers have less than nothing to fear from the physical sciences. They could be shouting about Planck's constant amid the flux. They could proclaim the double helix in support of the unity of life. The truth of a time-limited universe shouts of a Beginning — physically evident in the Big Bang. And lately, physics has come to perceive that the vastness of the universe is precisely tuned to the generation of human life.

Such strides in clarifying and specifying issues once deemed purely philosophical should put physics on a happy footing with the classicists. But they do not. Only the barest essentials of natural science are encouraged, a mere high school education stripped (rightly) of politics and eugenics; then at the college level, these old writers, with all their convoluted deductions and all their physical errors. After that, formal education is over, and the natural sciences are still broad undulating fields of featureless ignorance.

This is just not serious.

And that is very serious.

Time out

What is science? What is "natural science"? What is classical?

And then: What is scientific literacy? Does it differ from philosophical, mathematical, artistic, theological, historical or literary -- literacy? If so, how so?

And therefore, finally: Do the natural sciences have a place in Classical Education?

1. What is science?

Science, broadly and philosophically considered, is ***reasoning from evidence to conclusions***. That simple. Theology is a Science; History, factually pursued, is a Science; biology, chemistry, and physics are Sciences. All these fields of knowledge proceed from evidence to conclusions.

The antonym for Science is gnosis, the doctrine of a knowledge which is interior and whose validation is exclusively interior, regardless of the claims of reason, regardless of any apparent evidence. *Gnosis* is knowledge without reasoning and without evidence.

Note that I do not offer and I do not allow — intuition as the antonym of science, for true intuition is an exact knowledge which submits, when possible and appropriate, to validation outside the mind. Furthermore, although intuition is not itself a logical process, it often suggests evidence about which the human mind may then reason to a logical and definite conclusion. Intuition, rightly understood, is therefore not contrary to reason or disrespectful thereof; it merely operates where natural observations or other forms of evidence may be handicapped. Indeed, intuition is often a product of metaphor, which is a fundamental operation of all human thought. Occasionally, intuition is based on religious consciousness, even upon a contemplative awareness of or conversation with the Eternal, the Creator.

So, no; intuition is not the opposite of natural science.

And poetry is not the opposite of natural science except when it is gnostic, that is,

when it is a mere sloshing about in the gut-mind of a man. Good poetry is an exact record of human interior experience, supported by precisely appropriate metaphors and linguistic music. Good scientists have interior experiences too, and the joy they have in their work often overflows in poetic or near-poetic language. Furthermore, the frontiers of science require the operation of intuition, which, often as not, receives its training in the metaphors of poetry and religion.

Nor is religion the opposite of science. How could it be, if theology is a Science? How could it be if, as religious people say, God is the Creator of the World?

Gnosticism is the opposite of Science because it rejects both reason and evidence in favor of formless and undisciplined interiority.

2. What is Natural Science?

If Science, broadly considered, is reasoning from evidence to conclusions, Natural Science is reasoning from evidence which can be measured, numbered, and weighed, — to conclusions which can be tested the same way -- by measure, number, and weight.

The present generation of classical educators wavers between the classical idea that science is about observation and a modern definition which states that it is about experimental method — observation and hypothesis continuously recycled. The observation part of the definition reflects the concept of measure, weight and number; but the secular doctrine (it *is* a doctrine) of the everlasting evolution of hypotheses can never yield truth. This application of the concept of evolution is a new and extremely dangerous development in the philosophy of science. It was, inevitably, only a matter of time before the same concept would be applied to ethics, dividing man from goodness as well as truth, and yet the classicists still don't get it. Evolution is a sloppy scientific idea, and it is, by way of metaphor, producing a sloppy philosophical climate. And the classical scholars are content to be ignorant.

A good philosopher demanding clear definitions is badly needed.

Evolving knowledge

Every field of human knowledge undergoes development, but in every field, those things which were accurately recorded and certainly known at any time, remain to be reckoned with. What changes in every field of Science is that the interpretation of accurately recorded information must periodically adjust to a wider frame of reference. This is not just an alternation of theories, like the swinging of a pendulum; still less is it a merely opportunistic "evolution" or random shifting of thought. It is the ripening of a mental fruit whose early stages truly prepare for the later ones; it is a widening of horizons, which do not blot out the single violets that bloom beneath the hedgerows, but put them in a context which, while not centered upon them, is essential to their being.

In the Natural Sciences, as in all other Sciences, honest men seek truth, and find it. In the natural sciences, observations are made as exactly as possible, often using tools developed and refined for measurement, which is itself merely a refinement of observation. Thus modern measures are connected with the ancient definition of science. After measurement, the mind promptly seeks to organize the

new and old observations into a meaningful whole; this is, more or less, the stage called "hypothesis".

Based on that meaningful organization, the natural scientist perceives what other things ought to be observable and then sets out to observe them as well. Finding them, he rejoices; not finding them, he seeks better tools or a more subtle organization of his information. There is nothing mysterious about this, and it differs from other sciences only in the type of evidence that is allowed: measurable, gravity-responsive, and numeric.

Natural science does not differ from other sciences in the kind of thinking that is done. Arguing from evidence to conclusions is normal human thought. Limiting the types of evidence that may be used for certain types of conclusion is also normal. Organizing evidence is normal human thought; drawing conclusions from the organization of evidence is just "plain vanilla" *thinking.*

3. What is classical?

So what is the classical view of science?

First off: what does "classical" mean?

Classical sometimes means the study of Greek and Latin. Modern classical revival does not limit itself to those languages or things written in them, but somehow the implication remains that classical means old. Like Thomas Harvey instead of Alexis Carrell or Charles Drew.

But how old is old? Old to mankind is young to geology. Old to a Protestant is young to a Catholic. Old to a child is young to an adult. Such a definition does not definitely restrict the parameters of the topic. Because old things which are fragile may break and old things that are not valuable may be lost, the "old" that survives *may* have a special claim to our attention, but still, some old things are merely aged; the new could be better.

If classical means anything important, it must refer to those studies including, but not limited to old studies, which are of perennial value because they refer to realities in their right and true relationship with each other and with man, with his physical life and with his interior life. Better yet, classical education refers to the study of various levels of reality in their right relationship with God; "the greatest and the best" as Arnold put it. Survival is suggestive, but the classicist would surely like to think he would have recognized the genius of Shakespeare on the spot, had he lived in the 16th century. Indeed, someone had to love the great Dramatist, or 300 years would have buried him.

Classical is about what is permanently *and inherently* valuable.

4. Is there a classical definition of Natural Science?

The classical definition of science, meaning natural science, (the definition used in the classical revival) is that it is the study of the observable world. Studying with awe seems to be what makes it different from "modern science," which is thought to be cold and inhuman, even anti-human.

Meantime, the prevailing extra-classical paradigm of natural science holds it to be the experimental knowledge of what we learn from our senses: see, hear, touch, taste, or

smell. In its final philosophical gasp, the rebellious modern refuses even to acknowledge a genuine outer world, and claims only to know his own hypotheses.

All of this is a trivializing side-step from the truth. Sensory information and experiment are the most obvious features of natural science, — and correctly definitive to the extent that only the sensory can be measured and counted — but sense is not the center of the definition. Stupid experiments and voluminous sensory records can still produce bad science. The only view that can claim a useful and specific meaning is both broader and more definite.

Natural Science, philosophically considered — is the process of seeking truth within the physical world by arguing from measurable evidence ("measure, number, and weight") to logical conclusions. By this definition, which, as Duhem has shown, begins with Medieval reflection on Wisdom 11:20, — "He has made everything by measure, number, and weight" — By this definition, Natural Science takes all sensory evidence as evidence, as the modern paradigm requires, and it goes on to require that all such evidence be subject to the available refinements of measurement. Crucially, the modern Natural Sciences apply advanced mathematical reasoning so that scientists are able apply reasoning from evidence which is immediate to the senses to conclusions about evidence which is remote from the senses. Thus the silly suggestion that astronomy is not a science because we cannot "experiment" on the stars is blown away. (Yes, this nonsense is occasionally advanced in anti-scientific circles.) Mathematical reasoning, rightly applied to observations, is still natural science. But we must insist that experimentation is not the center of science; experimentation is merely an orderly plan for gathering new measurable evidence. All Sciences must proceed with orderly plans for gathering and sifting evidence.

The idea of natural science as the study of the "observable" world is classical only in the sense of being old. Specifically, it predates telescopes, microscopes, space travel, computers, and a thousand other mathematical and technological refinements of human observation, which have made modern science so powerful. Keeping pace with technology, mathematics has grown to meet the new challenges. It is no longer merely about number, but about patterns of relationship which transcend number.

Yet the classicists linger behind and are scientifically illiterate. They don't really think they have to know facts. They are content to study Galen and Copernicus because these men embody scientific "scientific method" — And yet the entire life work of Copernicus was bent upon reforming the Roman calendar so it would *accurately* measure the year. What would he think of becoming part of The Fact-Free Canon?

5. What is Scientific Literacy?

When we say that someone is literate on a given subject, we mean that he is familiar with those excellent and formative works in that subject so that whatever opinion he holds, in any case he can participate in a discussion on the topic, or at least follow it. If you have not studied the Summa, for example, you have not studied what half the Christian world has talked about for the last 800 years. If you have not read Shakespeare, you don't know what the standard of English literature is, and thousands of literary references are obscure to you.

But scientific literacy has a little twist to it. This is the crux of the matter.

Scientific literacy, after all, surely means familiarity with the general outlines of what is certainly known about the physical world. It isn't about thoughts or interiority or literature, but about physical creation itself. Scientific literacy doesn't mean knowing what the greatest scientists of the past thought, the way philosophical literacy means knowing what Aristotle thought; still less does it matter what the greatest scientists of the distant past did. Scientific literacy is about knowing the actual outlines of physical reality. Discipline by discipline, there are formative works that are useful to read; and the meanings of these works do take some life from the biographies of their authors. But literacy in the natural sciences is not centered on manuscripts or biography; it is centered on the natural world itself, to which the formative works in each discipline are secondary, especially if they have been radically superseded by new information.

This twist in scientific literacy comes about because the natural sciences are about weight and measure, and measurements become more accurate over time.

It matters, therefore, that a vast technological explosion has transformed the scope of our knowledge concerning both the lower orders of magnitude — molecules, atoms, sub-atomic particles, and associated energies of stupendous subtlety — and the higher orders of magnitude — stars, quasars, and half-billion-light-year bubbles of empty space. Furthermore, the transformation in our understanding of the vast and the minute magnitudes has permanently changed our perception of those objects that have always been within the range of ordinary vision. What is obvious to us now is overwhelmingly greater and more detailed than what was "obvious" to our 16th century brethren. When, for example, we look at the sky, even the average person is aware of vast, specific distances, unimaginable to our ancestors.

"I think I can't" or "I think I can"

The dis-educational response to all this vast information is to throw up our hands and say that we cannot know it all. We can't read (with comprehension) a much larger number of books than our forefathers; that is that. (Actually we can, some of us.) And since it takes 200 years to know what is of lasting value, we cannot include 20th century physics in classical education. Period. It simply must be relegated to career preparation later in life for some, not for all.

Indeed, we cannot know it all. Neither could St. Albert the Great know all of an apparently smaller cosmos, — but with each new advance in the range of human information, comes the possibility for a new advance in the organization of information. That new organization means that what one generation learned as a list, the next generation learns as a principle. We go from a shifting and uncertain list of material elements to just 95 that are definite, and these are organized in periods and groups. We go from an ever-lengthening list of herbs to the names of botanical families with similar properties. We describe an endless array of cloud forms; when we understand the physics of clouds, the forms are organized.

This is what we must consider, and from here, move on to a serious consideration of what would constitute literacy. The work of a man like Thomas Harvey, fascinating as it may be, is not essential to the education of a modern doctor in anything like the way the Shakespeare is essential to the education of an English teacher, or even an English reader.

So what is?

What then shall we read?

Before considering any scientific literacy list, let us pause once more, to consider the specific natural sciences beyond the high school basics: "biology, chemistry, and physics." Here again, we face a fundamental curricular issue. With thousands upon thousands of specializations in the natural sciences, where and how does one draw the line on literacy? We can't read the whole encyclopedia.

The Magnitudes approach:

One of the simplest yet most striking things about the physical world is the function of magnitude in how things are formed.

Think, for example, of the genre of the Thumbelina fairy tale. This story appears world-wide with different names, Issuombochi for example in Japan. But — could a person really be as small as your thumb? After all, to be a person, one must have the capacity for intelligence and free will. To have that capacity, one must have a brain complex enough for such intelligence to come to expression. Size seems to be a factor here, just to provide the "wiring". Will Thumbelina's mouse-sized brain do the job? This is an interesting question.

Well, one might ask: Can you not make the cells in her brain smaller and more delicate for her? But that is not so easy, because individual cells have structures that require the circulation of fluids with dissolved materials. This requirement quickly impinges on the size of proteins, amino acids, and water molecules. Cells need every tenth-micron of space they have to carry on their functions. For many other objects as well, both living and non-living, size and weight are determinate factors in what sorts of things can exist and how they can behave. Thumbelina is a good and encouraging story for small people to hear; but it is just that.

And on the other side, — those nightmare stories about elephant-size chewing insects! Can these be? Consider how the "armor" of the ant or cricket must be enlarged to hold the gallon volumes even of a dog, let alone an elephant. Their chitin would either split from their weight, or it must be thickened so that they could not walk for their stiffness. Not everything that can be imagined can be. This is not a critique of the literary imagination, but a reflection on the unexpected delicacy of the complex and ever-present reality of size.

It might just make sense to approach the study of the natural sciences, the study of what can be measured, in terms of the measures that are possible for each object — and why. This approach has fascinating outcome.

Of what can be measured and weighed, there are presently known about 42 orders of magnitude:

- from the total universe whose span is something like the 26^{th} power of ten times the size of a meter
- down to the size of a proton, which is about the minus 15^{th} power of ten times the size of a meter
- There is a further realm of quantum physics which goes to about 10^{-35th} meters.

Twenty-six plus 15 plus one equals 41. The 42^{nd} power is, of course, the very real "0" power of ten; things that are the order of magnitude of one meter, such as man himself. And another 20 powers or so takes us through the realm of quantum physics.

Forty-two is not such a large number. It is only 5 more than the number of weeks in an average school year. And if you look at the range of orders of magnitude, you quickly see that the lower orders, from Planck's constant to about 10^{-11}, exhibit the laws of what is commonly called physics. The next higher orders, from 10^{-10} to 10^{-6} meters, belong to the realm of chemistry or bio-chemistry. At around 10^{-6} meters, we have the size of the smallest cell, the unit of biology, which uniquely inhabits the next eight or nine orders of magnitude. Just about where life forms cease to be possible, from 10^{3} up to 10^{7} meters, we move into the realm of geology and meteorology, the studies of land and weather. From 10^{8} to 10^{21} or so, we find the solar system and the stars, up to the Milky Way. Finally, the universe itself comes into focus, vast *yet finite,* and curiously dominated by particle physics, unexpectedly bringing us full-circle.

If we were to organize a study of the natural sciences around magnitude, we would find a unified perspective from which to view the relationships between the disciplines. Atoms do what they do because of electrical properties derived from elementary particles. Molecules do what they do — most unexpectedly! — largely because of the interaction of underlying atomic structures. Life forms are constrained both by their molecular foundation and by their ecological niche — the molecules come from chemistry; the niche is formed by geology and meteorology. These in turn must be understood partly in terms of the electro-magnetic activities of the sun and the atmosphere alongside the molecular and gravitational activities of large bodies.

And so forth.

In this way, we might develop a course of studies, and we might choose documents both old and new, without having either an encyclopedic hash or a free-for-all among the competing disciplines, either of which outcome would be admittedly chaotic and therefore anti-classical in character. We can have the plain intention of introducing the physical universe to our students, so that God's command to take dominion over creation becomes a natural challenge.

Returning to practicality

With that clear purpose in mind, what books are useful?

It would be unthinkable not to begin here with the charming little book, The Universe in Forty Jumps by the Dutch schoolteacher who first attempted to present the universe from the perspective of magnitude. Kees Boecke has a solid claim to the classical label, and has been outdated only by the addition of a few magnitudes, plus the realm of quantum physics.

This work and some derivatives, including my own Universe in My Hands, offer a universe outline, so that the student feels that the universe is ordered and knowable. It is vast, but it is not a jungle.

6. The Place of Natural Science in a Classical Education

Let us briefly return to the specific question why the sciences of change and immediacy should be an integral part of classical education? The answer is threefold:

First of all, the Natural Sciences uniquely place the concept of truth before man's mind, particularly modern man's mind. Again and again, its results can be checked

without ambiguity. The importance of this intellectual discipline to setting up a catechetical foundation for the concept of the knowable true/false dichotomy must not be underestimated.

Second, men live within physical creation and are called to be stewards of this, our home. A comprehensive understanding of the universe is essential to the vision and fulfillment of that vocation. The late 20th and early 21st century cacophony about global warming should have made it clear that stewardship is not something to be exercised in ignorance.

Third, for all their adult lives, our students will live in a world where science has the power to change circumstances for the better: to increase human power over the world, to provide more leisure, to clarify our understanding of common physical processes and allow us to control. But the same natural sciences will also continue to provide the power for some men to dominate other men — and in unprecedented ways. What voice will the classically educated man have in decisions that turn on a comprehension of the natural sciences, if he remains walled in his philosophical tower, unable to follow the conversation? What respect will he have from the serious participants in this discussion who regard him as a mere child of the wilderness? How will he turn the eyes of his contemporaries to either art or faith, seeing that he has not accepted the challenge to harmonize the demands of logic and intuition within himself?

The Incarnation and Science

Once, only once, the Second Person of the Trinity entered time through a single womb in a small town off the coast of the Mediterranean Sea. In this action, the Son of the Creator sanctified the particular and took his stance against the slush of gnosticism:

Thus and not otherwise.

Classical education is education that sets human life in its true and enduring context, which is intellectual and spiritual but also curiously physical.

As well as physical.

Serious and orderly acquaintance with facts about the physical world, indeed with enough facts to enable one to readily recognize the meaning of many more facts, is part of literacy. St. Albert the Great would not have approved of a curriculum which treated the natural world as a mere footnote to philosophy, and he would never have tolerated the teaching of known mistakes. The Incarnation is not a footnote to the Trinity.

Our study is creation itself. Take a rod and measure the length and breadth of it.