

Matter and Imagination

Kees W. Bolle
University of California, Los Angeles, Emeritus

How do people in various places, times, and contexts see matter? The image that may spring to mind for us is that of our “hard” scientists endeavoring to find the origin of the universe. But mythology all over the world has something to say, and “matter” always comes up too in the earliest philosophical elaborations. The earth’s and the world’s origin is central in creation myths. A god sent a duck down into the primordial ocean to pick up a bit of dirt, and the god spread that dirt over the surface of the waters. Or the primordial element from which the earth came into being was the excrement of ants. Voilà, the earth. Or, in the beginning heaven and earth were so close together that people could not stand up straight: matters needed to be readjusted. Or simply, in the beginning God created the heavens and the earth. I won’t focus on any of these marvelous and poetic primordial creations.¹

Instead, I shall mention more ordinary things said in different places and times about matter in general. I think I can at the very least suggest to you that the unscientific, speculative, mythical stories are not altogether unrelated to our hard sciences. I am confident that it will become clear from such ordinary things said that people, including our scientists, cannot move too far from myth. The religious imagination of matter leaves little, if anything, untouched.

What “stuff” does the world consist in? ‘υλη (hylē) is the commonly used term in Greek texts for “matter.” The primary meaning of the term is “wood.” In a word like that of the Greeks, most everything—ships, houses—was made of wood. (Only the dwelling of the gods were to be eternal, hence made of stone.) The term “wood” offered itself as the obvious word for the material anything “ordinary” consisted of. Our word “matter” is rooted in a tradition in which abstraction had already taken over. At bottom is Latin *materia*, which is not derived from anything concrete, but means “stuff of which anything is composed.”

But the inquiry into matter remains endlessly fascinating. “What’s the matter?” Each one of us asks it when we notice something unusual or uncertain—whether in trivial occurrences, or a serious topic in history, mathematics, physics.

We ask the question in the sense of “what is really the issue?” Or, what is the crux? Or, what is really at stake that we can recognize, so that everything around it falls into place? The inquiry is more than a mere inquiry into some material that can be identified. In Buddhism *rūpa* is the grossest of the five *skandhas*, the constituent elements of a human being.² But at the same time it can also be translated simply as “matter.” That takes us to a place where the question concerning the “stuff” of the world is intrinsically and conspicuously related to human life. But—even if we don’t talk about it—are we not sneakily interested in that relationship even as physicists and astronomers?

Our talk about matter seems to retain a mythological overtone; our most indubitable scientists betray their footing in myth in one way or another, even if they would hesitate to admit it.

“Scienterrific” was a term Walt Kelley introduced in his comic strip “Pogo.” The word was always on the lips of Owl. It serves to point with irony to a scientific production in which any serious scientific quest was missing. It is important to learn that no progress in our knowledge ever cancels out that mythical, speculative, inquisitive, *wondering* element—regardless of what the “scienterrific” researchers themselves like to imagine. Without truly wondering, we merely calculate. We are mechanics, not scientists.

It is not uncommon in our age to find signs of a peculiar, absolute, and exclusive infatuation with what Owl called “scienterrific” enterprises. Which means using a perfectly calculated precision, most definitely devoid of anything resembling religious speculation.

Many of you are familiar with Stephen W. Hawking’s *A Brief History of Time* (1988). It is a marvelous little book that deserves all the praise bestowed on it. Hawking explains clearly what we have come to know of the universe through modern science. Almost everything! We have not found the grand, all-encompassing theory, but Hawking expresses his confidence that shortly we shall. And then there is this amazing final paragraph:

... if we discover a complete theory, it should in time be understandable in broad principle by everyone, not just a few scientists. Then we shall all, philosophers, scientists, and just ordinary people, be able to take part in the discussion of the question of why it is that we and the universe exist. If we find the answer to that, it would be the ultimate triumph of human reason—for then we would know the mind of God. (Hawking 1988: 175)

These words seem strangely analogous to the thought “creation scientists” among Christian fundamentalists indulge in: the business of God = creating the world. Here a splendid scientist surprises us by not knowing that there is another disci-

pline that has another object altogether. The science of theology does not focus on how the world came about. It does not compete with astronomy. It focuses on salvation. You may argue for or against the value of that object, but that is what it is. An astronomer may have feelings against it, privately, but it is not part of *his* science.

Offhand, it does not seem necessary for a wonderful discipline like physics or astronomy to go out of its way to misunderstand the task of another discipline in order to do its own thing. But perhaps those disciplines cannot help but approach the “religious” in some fashion. I think it is worth pointing out that even those perfect physicists who are astronomers still use ordinary human language while wondering about the great questions in their science. They are the ones who have been arguing over theories of the origin of the world. Which is the most defensible: the big bang or the steady state? Keep in mind that at the same time of that origin of the universe there was no one around to observe the steady state or hear the big bang. That is to say that we take our refuge in the language of myth; there even the most pristine scientist finds a certain comfort. We know very well that the game of chess is indeed perfectly mathematical—computers have proved it to us. However, we still play the game in a further dimension: to win or to lose, or arrive at a draw. And we still use, without hesitation, the archaic terms of sagas and legends: King, Queen, Bishop, Knight, Castle, Pawn. The game is a battle. No computers, no mathematical precision can change that.

We have all heard George W. Bush speak about the use of “small” atomic bombs to wipe out remaining evildoers hiding in the caves of the earth. This talk about evil too is the language of myth—and the language of myth, when abused by human beings, takes devious turns. I am probably not the only one who was shocked, for example, by the notion that atomic bombs might do the job of eliminating evil. But as a historian of religions, I could not help thinking of the undermining of biblical teachings which, one would suppose, are not altogether unfamiliar to George Bush’s Methodist Church. The realization that George Bush has not gone as far as the third page in the Bible to understand something basic about “evil” is absolutely frightening.

The story of the banishment from Paradise after God’s commandment is transgressed, and the first act of murder which soon follows, is not a story one can easily tell children—no matter how many have tried to reduce it to childish proportions. Only we adults can be told that we are sinful. Moreover, we may comprehend that we are the ones responsible for it. *We* transgressed. In the language of the myth, it is not God’s idea.

That story is not a fairytale, or a mere reminder that occasionally we goof. No, the story of our responsibility for evil in the world, our worthlessness before God, is encompassing. It is repeated in a variety of ways and styles, in the Psalms, in the book of Job, in Ecclesiastes.

It is irrelevant whether you consider yourself “religious.” For all human beings moments arise when the language of myth cannot be avoided—and we must take care that we do not deform it. For good reasons, the Church, in trying to systematize “sin,” saw *superbia*, the conceit in which man sees himself as an equal of God, as the worst sin of all. Even a president cannot assume the task of making short work of all evildoers. That is overstepping our human boundaries according to the language of myth which Israel, Judaism, Christianity, and Islam have in common. We are led to a grotesque *superbia* when the wonderment in which each and every science has its origin fades, and is replaced by fake certainty, a narrow absolutism the size of a single mind.

[What puzzles me most is that, in spite of our delicious freedom of religion, we do not give much thought to any religious traditions or teaching. We make whatever happens into a little problem to be solved by our highly touted reason and science or some escapist trust in some highly placed “leader.” (The history of Nazi Germany seems so long ago that no one remembers its most notorious features)].

One word with a central place in the highest achievements of modern science is the word *atom*. It is the term scientists found in Greek writings ready for their use. To be sure, the Greek atom was not exactly the same as the atom of modern physics; the ancients knew nothing of the proton and the electron and all the rest that comes with the atom today. However, our early modern scientists were educated people, and they (Newton, Leibnitz, Dalton, etc.) did not call the work they engaged in “Physics,” but “Natural Philosophy.” They knew they had to *think*, to *philosophize* about what they thought they detected. Their language was very different, for instance, from the lingo used by modern physicians, a peculiar mishmash of Latin and Greek words, of which the only purpose seems to be keeping things secret from their patients. The basic meaning of the Greek atom is transparent; *ἄτομος* means without (*α-*) a *τομή* (cut), hence “indivisible.” That basic meaning is what our scientists turned to. And it is obvious that that original meaning of atom, the indivisible, absolutely smallest part of matter, is an invention of the human speculative imagination: after all, no one could see the indivisible diminutive entity.

Modern physics, of course, encourages us to think we know and can measure unimaginably small things. That is where the danger of self-deception grows strong. We now have specialists in *nanotechnology*. *Nano* is also a Greek word, whose basic meaning is “dwarf.” It does not have the imaginative quality of the term *atom*, which begins in imaginative and abstract speculation. I am afraid a term like “nanotechnology” might be evidence of a turn toward language like medical dog-Latin among our more recent scientists.

Yet some of them produced a wonderful book, called *Nanotechnology: Molecular Speculations on Global Abundance* (Crandell 2000). It has everything to do with the nanometer, a unit of measurement for matters of molecular and

atomic proportions. A statement by Hippocrates, the ancient Greek physician, is printed at the beginning of the book: "In all abundance there is lack." The choice of this wonderful quote, I think, is very encouraging. It expresses the wonderment that no real scientist should repress. It is a shame that few modern doctors would think of quoting Hippocrates. Modern doctors are more inclined to think that the science of medicine began not much more than a few decades ago. The nineteenth century is ancient history to them. Not only physicians, but also quite a few indubitable scientists, are devoid of the experience of wonder. Hippocrates' remark shows an eye for strange opposites, and no doubt an openness to speculative thought.

We all begin our lives fascinated by matter, from the moment we start crawling as babies. The wonder stays with us until incompetent teachers succeed in wringing it out of us. If we are lucky, there remain some puzzlements and we start speculating again until we find something that satisfies us for a moment. Such speculating is part of science. Humanists with an inferiority complex imagine that they should not speculate, but—so they suppose—*know* everything for certain, *visible*, *provable*, *measurable*, while they proceed step-by-step, building their system block-by-block. Nevertheless, even if that is what we can do to things for a long time, it is not how we begin, and even if we find that kind of security, we may always touch new riddles, and start once more by speculating.

I think there is plenty of evidence that what all of us specialists have in common is the need to speculate in order to get somewhere. That leads some of us into nano-technology. With nano-measurements none of us in the history of religions have anything to do, but we do understand how the nanotechnologists with their work touch on the unimaginable. Of course, we all know that the term "visible" has meaning, and yet here it is left behind and surpassed in the sciences of the infinitesimally small. Consider merely this: the size of the atom in modern science can be expressed only in nm, nanometers. An nm is 10^{-9} , i.e. 0.000000001 meter. Now, there is something baffling.

And just because of its incredibly *large* numbers, astronomy is equally baffling. But, whether *macro-* or *nano-* this or that, things cannot begin without history, and no scientific enterprise can begin without speculation. Many among you know the work of Stephen J. Gould (2002), who, some would say, sought to keep re-writing the true story of evolution until he could get it right.³ Good scientists—it is usually evident also in astronomers—know their history. Here we touch on the very reason why the foundational unity of all our scientific enterprises deserves much more attention than we usually give it.

The earliest reflections of people—reflections that we may truly call scholarly or scientific—are fascinating, not only because of their diversity, but also because of the sense they make. They make sense even when given to us in a language that does not conform to what for us has become "scientific language." The clearest examples of the inseparability between "science" and a wonder-

ment that arises from the religious imagination come from India. They still concern our question about matter.

In Buddhism, thought about “reality” has been articulated from the beginning. Westerners usually see one early school, *Vijñānavāda*, as a school of “idealism”. We might be allowed to call it even a radical idealism. Surendranath Dasgupta sums up that in this school “There is no movement in the so-called external world as we suppose, for it does not exist” (1951: 145). It seems clear that such a statement would not be a good starting point for physics. Dasgupta calls this Buddhist idealism “extreme” and goes on to describe it in some detail, in the process addressing the obvious question: what then is the world we see and experience? The answer is: “We construct it ourselves and then are ourselves deluded that it exists by itself.”

The Sanskrit term for this type of self-deception is *nirṃmitapratimohi*, which literally conveys the construction we ourselves bring about to purposely confound ourselves. In other words, it points to the lengths we go to in order to ignore what the world we are placed in actually is: an illusion. The analysis of the illusion in which we are caught forms a long chapter in Buddhist history. The obvious reason why the subject is so important in Buddhism is that being freed from the illusions we suffer from is the condition we should meet in order to enter liberation, *nirvāna*.

[For the present discussion it must be underlined that calling a Buddhist school by our western name of “idealism” is misleading. We are facing something much more important than an intellectual position. When it comes to idealism, in the history of the West we have done little more than play intellectual games. To Buddhists it would seem that we did not really mean what we said. The Buddhism to which early India gave birth means changing our life beginning to end.

The point not only of Hinduism and Buddhism, but of each and every religious tradition in the world, is that it grants something for which we have no better general term than *salvation*.⁴ The peculiar thing is that this obvious fact is ignored, especially when we most need to recall it. For a long time we have seen books roll off the presses explaining religion on the assumption that in religion nothing can be called true. This general custom puzzles me. I don’t think we have any other discipline than the study of religion where practitioners hold that there is no truth or reality to their object of study. Could we imagine an astronomer like that?]

I conclude with another example from India of the inseparability between the religious imagination and “science.” It comes from what is known as *Sāṃkhya*, generally considered the most ancient philosophical system in Hinduism. *Sāṃkhya* has its ideas largely in common with the system whose name is well known to us: Yoga. If you will allow me a shamefully simplistic summary: The world we know arises from the junction of two opposite principles. One is the masculine, wholly spiritual principle, called the *purusa*. The other is the feminine, primordially

material principle: *prakṛti*. These principles are indeed primordial, from the time-before-time, before anything real and actual exists. Only their conjunction sets the process in motion. And we, human beings, can reach the great goal of liberation by a systematic process of meditation and self-control. This way toward our emancipation is the reverse of our world's unfolding. Our emancipation occurs only when the original *purusa* separates from the *prakṛti* with which it conjoined and thereby set the unfolding of the world in motion.

Our question, natural to our own process of education, would be: how do these Indian ideas ever lead us to do anything concrete? For instance, how could they stimulate an interest in physics and astronomy? After all, their only purpose is to lead to the religious goal of our liberation from the ties that bind us to the world.

I don't have a good answer to that question. Neither *Sāṃkhya* nor Buddhism nor any of the other Indian systems seems to lead us directly to any of the sciences we value highly. Yet who could possibly fault them for analyzing the doubtfulness of the senses? Can one argue that in this they avoided science? Or did not give rise to sciences? All I can say is that India has a great tradition in astronomy. And it seems of enormous value to me that India was the first in the world to develop the science of linguistics, literally a couple of thousands of years before we began that quest.

What counts in the present discussion is that matter, although it exists everywhere, appears very differently to people. We have our roots mainly in the Biblical tradition and in Aristotle. It is Aristotle who begins his *Metaphysics*, his influential work on what is essential in knowledge, saying: "All men naturally desire knowledge." And he continues immediately: "An indication of this is our esteem for the senses; for apart from their use we esteem them for their own sake, and most of all the sense of sight . . . sight best helps us to know things. . . ." (Aristotle 1935: 3). The principal Indian traditions analyze the senses and in the end find them undependable.

"Matter" is not simple. There are different paths leading to it. There are different aspects we see. There remain different things we focus on or overlook at the crucial moments of our speculations. Many specialists have a hard time imagining the legitimate focus on another object of study than their own. Our own specialty, however, is never the criterion of all other disciplines. We have to be aware of the importance of other objects. Without this awareness no communication is possible.

The religious imagination never ceases. But people can thwart even the religious imagination. It is not likely that all dyed-in-the-wool scientists will agree with me. But in the first place, we have caught a glimpse of the religious imagination, which is not shut off just because a physicist makes a discovery. And secondly, that same religious imagination raises its voice in the course of scientific investigation. It is wise to listen to what it says.

Notes

- ¹ Merely paging through the index volume of Thompson (1936) is astounding for the endless variety of motifs one finds listed.
- ² For the theory of the *skandhas*, see Conze (1959: 107), or the splendid work by Etienne Lamotte (1967: 30)
- ³ See the review by Rose (2002).
- ⁴ It is an obvious truth most emphatically and repeatedly made by Gerardus van der Leeuw in his *Religion in Essence and Manifestation*, and other publications.

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