

An Aurobindonian Discourse

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The first and the highest are truth; in the middle there is falsehood, but it is taken between the truth on both sides of it and it draws its being from the truth.
— Brihadaranyaka Upanishad V. 5. 1

As Sri Aurobindo (2005, p. 619) explains, the “first” stands for “the truth of the physical reality,” the “highest” refers to “the truth of the spiritual and superconscious reality,” and the “middle” encompasses “the intermediate subjective and mental realities.”

As any contemporary philosopher knows, the truth of physical reality is inextricably entangled with metaphysical presuppositions. Science operates within an interpretative framework that formulates questions and interprets answers. This framework is not testable by scientific methods. Take the general theoretical framework of contemporary physics, quantum mechanics (QM, also known as quantum physics and quantum theory). According to its “bare” formulation — the “minimal instrumentalist interpretation of quantum mechanics” (Redhead, 1987) — the mathematical framework of QM is a probability calculus. It allows us to calculate the probabilities of the possible outcomes of possible measurements on the basis of actual measurement outcomes. Differently put, it quantifies correlations between measurement outcomes.

Why is the fundamental theoretical framework of physics concerned with *measurements* of physical quantities, rather than the physical quantities themselves? Why does it let us predict the *probabilities* of the possible outcomes of a measurement but not the actual outcome? These and related questions are collectively known as “the measurement problem.” In this regard a referee for a philosophy of science journal once wrote to me: “to solve this problem means to design an interpretation in which measurement processes are not different in principle from ordinary physical interactions.” In other words, to solve the measurement problem is to sweep it under the rug. The name of the game is to design an interpretation in which measurements do not play the crucial role that they do in all standard formulations of QM. To see the impossibility of this demand, one only has to bear in mind that QM describes “ordinary physical interactions” in terms of correlations between measurement outcomes. The referee’s demand leads to a vicious circle.

How did physics get there? Under the influence of the positivism of the late 19th and early 20th Century, measurements had come to be called “observations,” and with the discovery of the special theory of relativity in 1905, reference frames had come to be called “observers.” Thus when quantum mechanics entered the scene around 1925, there was a ready answer to the question of why measurements play this crucial role in all standard formulations of QM. Measurements owe their exalted status to the consciousness of an observer (London and Bauer, 1983; von Neumann, 1955; Wigner, 1961)! The desire to rid measurements of their special status is thus in large part an overreaction to this red herring, for which the new-age community, unfortunately, appears to have fallen hook, line, and sinker.

There is another reason. In the previous lecture I mentioned that, for psychological rather than physical reasons, physicists tend to divide their field into *kinematics*, which is concerned with the description or state of a physical system at any one time, and *dynamics*, which is concerned with the state’s evolution in time. This gives them the impression that they know both the furniture of the universe and the laws it obeys. In other words, it makes them believe that they are, at least in principle, omniscient. It is also why they persist in straitjacketing contemporary physics into this conceptual scheme, and why, as a result, QM “makes absolutely no sense” (Penrose, 1986). If, on the other hand, one relinquishes this scientific hubris and simply looks at the manner in which QM assigns probabilities, several important ontological conclusions can be drawn, and to me, for one, they seem to make perfect sense.

As we saw last time, in the quantum world everything is possible, in the sense that every conceivable measurement outcome has a probability greater than zero *unless* it violates a conservation law. Physics *never* explains *how* something is possible, let alone “how nature does it.” It only explains — via its conservation laws — why certain things *won’t* happen. As I said last time, this is exactly what one would expect if the force at work in the world were an *omnipotent* force operating under self-imposed constraints. If so, what needs to be explained is not “how nature does it” but the reason why this force works under self-imposed constraints, and why under this particular set of constraints.

We also saw that this particular set of constraints — comprising all well-tested physical theories — is a consequence of the existence of (sufficiently) stable objects that (i) “occupy” space and (ii) are “made of” (finite numbers of) objects that do not “occupy” space. Since it is hard to imagine a world without objects that are stable and “occupy” space, the pivotal issue is this: why are objects that “occupy” space “made of” (finite numbers of) objects that don’t?

To be able to answer this question, I will list some further conclusions at which we arrived last time:

- Ultimately there is only one “thing,” and this is or constitutes everything.
- Reality is “built from the top down,” by a self-differentiation of this one “thing.”
- This self-differentiation does not go “all the way down” but instead results in a multitude of fuzzy spatial relations.
- Matter is the corresponding multitude of relata — an “apparent” multitude because

the relations are self-relations.

- Ultimately there is only one place, and this is everywhere.
- To this, these self-relations owe their spatial character.
- The shapes of things are particular sets of spatial relations.

If the shapes of things are sets of relations, the ultimate relata must be formless, and a formless object cannot “occupy” space. What has spatial extent is the relations between formless objects. And since these relations are self-relations, those formless objects are numerically identical: they are that one “thing” which is or constitutes everything.

So, you see, we can start with QM and arrive at a spiritual conception of reality without ever mentioning the word “consciousness.” If you should come across one of those many books on QM that contain the c word more than once — to dismiss its relevance to QM — my advice would be: don’t waste your time with it. Physics has nothing to say about consciousness. To understand the mysterious relations between consciousness and matter — How can a material object be conscious? How can there be consciousness of material objects? — we need a much larger conceptual framework. And because it is the pretensions of science that most stand in the way of the needed enlargement of our conceptual framework, I have to prefix some caveats. As philosopher of science Michael Polanyi (1969) wrote,

In the days when an idea could be silenced by showing that it was contrary to religion, theology was the greatest single source of fallacies. Today, when any human thought can be discredited by branding it as unscientific, the power previously exercised by theology has passed over to science; hence science has become in its turn the greatest single source of error.

In the 6th century BCE, the Greek philosopher Xenophanes wrote: “Even if a man were to represent to himself the world exactly as it is, he could not discover that this is the case.” Yet to this very day, scientists pretend that they are in the business of discovering ontological truth. To give just one example, writing in *American Journal of Physics*, De la Torre and Zamorano (2001) “postulate the objective existence of physical reality that can be known to our minds ... with an ever growing precision by the subtle play of theory and experiment.”

To counter this naive epistemology, one most helpful distinction, due to philosopher and psychologist Ernst von Glasersfeld, is that between a *match* and a *fit*. The scientific search for knowledge is not a search for an iconic representation or faithful depiction of an external reality. Science at best provides ways of thinking that are adequate to our experience. If we postulate a reality exceeding that, what we can achieve is not a match but only a fit. We are in the position of a skipper who passes in the dark of a stormy night, without navigational aids, a narrow strait whose contour he does not know. If he reaches the open sea without mishap, he has found a course that *fits*: if next time he takes the same course, he will again pass safely. What he has not obtained is anything *matching* the coastline — something like a map. Only if he chooses a course that does *not* fit the coastline does he learn something about it — usually at the cost of wrecking his ship.

According to the epistemology of von Glasersfeld (1984; Mohrhoff, 2008a), known as Radical Constructivism (RC), scientific knowledge is knowledge only in the sense of a fit. This follows from two fundamental insights:

- Knowledge is not passively received but is actively built up by the cognizing subject.
- Cognition serves the subject's organization of her experiential world, not the discovery of an objective ontological reality.

For more than a century, science instruction has resulted in little or no change in student understanding of the phenomena studied (Gardner, 1991). What most science students learn is that they are on the lower rung of a system in which they are dependent on a higher rung for declarations of the truth. Orthodoxy holds that once the teacher has presented the established canon by approved methods, she has done her job. Whether or not a student "gets" it is out of her hands (Dykstra, 2005; Mohrhoff, 2008b). Traditional science instruction thus fails society by promoting elitism and rendering most of its members intellectually stunted or handicapped.

Constructivist approaches to science instruction, on the contrary, have shown significant results. Yet they are resisted or ignored. Why? Because in substituting a constructivist epistemology for the realist conception of the knowledge constituting the canon, they deflate the social status of scientists and the prestige of the institution of science, by undermining its claim of access to ontological truth.

According to RC, the only way in which a teacher can help is by first uncovering students' existing conceptions and then providing them with experiences that compel them to revise their conceptions. The agreement with Sri Aurobindo's views on the subject is obvious:

The first principle of true teaching is that nothing can be taught. The teacher is not an instructor or taskmaster, he is a helper and guide.... He does not actually train the pupil's mind, he only shows him how to perfect his instruments of knowledge and helps and encourages him in the process. He does not impart knowledge to him, he shows him how to acquire knowledge for himself. (Sri Aurobindo, 2003)

RC does not deny the possible existence of an objective reality; it only asserts that it is impossible in principle to obtain knowledge of such an entity. As a matter of fact, von Glasersfeld (1991) held that "anyone who claims to have knowledge that represents the world objectively, that is, as it might be prior to our experiencing it, can justify this claim only on the basis of mystical revelation."

It is safe to say that one of the most reliable sources of mystical revelation in our time is the philosophy of Sri Aurobindo. Its authenticity rests on the fact that its author was anything but a philosopher in the usual sense of the word. "Let me tell you in confidence," Sri Aurobindo (1972, p. 374) once wrote to a disciple,

that I never, never, never was a philosopher, although I have written philosophy which is another story altogether. I knew precious little about philosophy before I did the Yoga and came to Pondicherry — I was a poet and a politician, not a philosopher. How I managed to do it and why? First, because [Paul Richard] proposed to me to co-operate in a philosophical review — and as my theory was that a Yogi ought to be able to turn his

hand to anything, I could not very well refuse; and then he had to go to the war and left me in the lurch with sixty-four pages a month of philosophy all to write by my lonely self. Secondly, because I had only to write down in the terms of the intellect all that I had observed and come to know in practising Yoga daily and the philosophy was there automatically. But that is not being a philosopher!

What Sri Aurobindo means by “yoga” is “a methodised effort towards self-perfection by the expression of the secret potentialities latent in the being and — highest condition of victory in that effort — a union of the human individual with the universal and transcendent Existence we see partially expressed in man and in the Cosmos” (Sri Aurobindo, 1999, p. 6).

In order to express what he had observed and come to know, Sri Aurobindo chose the conceptual framework he had found in “the original Vedanta of the Upanishads.” Preceding his description in the *Synthesis* of supraphysical planes of existence, he wrote:

I shall follow here consistently the Vedic and Vedantic arrangement of which we find the great lines in the Upanishads, first because it seems to me at once the simplest and most philosophical and more especially because it was from the beginning envisaged from the point of view of the utility of these various planes to the supreme object of our liberation. (1999, pp. 448)

Here is a possible summary of the fundamental affirmations of the original Vedanta of the Upanishads:

- There is an Ultimate Reality — Brahman.
- Intrinsically ineffable, Brahman can be described by how it relates to the world:
 - as substance (*sat*), it constitutes the world,
 - as consciousness (*chit*), it contains the world,
 - as force (*tapas*), it shapes the world,
 - as infinite bliss/quality/value (*ānanda*), it expresses and experiences itself in the world.
- The world in which we participate is evolutionary. In this particular manifestation, Brahman is “playing Houdini.”
- Evolution presupposes and is preceded by a process of involution: supermind in mind, mind in life, life in matter.

Supermind is Sri Aurobindo’s term for the conscious force (*chit-tapas*) that shapes and contains the world. The action of the supermind is primarily qualitative and infinite and only secondarily quantitative and finite. Essentially, mind is this secondary, limiting and dividing action.

The supermind encompasses several poises of relation between self and world. In its primary, comprehending poise (*vijñāna*), Brahman qua self is one, coextensive with the world, and indistinguishable from Brahman qua all-constituting substance. No distance separates the perceiver and the perceived. Don’t even try to imagine this state of affairs. “At certain moments,” Sri Aurobindo (2005, p. 143) wrote,

we become aware of such an indivisible regard upholding by its immutable self-conscious unity the variations of the universe. But we must not now ask how the con-

tents of Time and Space would present themselves there in their transcendent truth; for this our mind cannot conceive.

In a secondary, apprehending poise of the supermind (*prajñāna*), consciousness bifurcates: the self distantiates itself from the content. There now is a distance between the perceiver and the perceived. Objects are seen from outside, presenting their surfaces. It is in this poise that space with its three dimensions — viewer-centred depth and lateral extent — comes into being. Concomitantly, the one self of the primary poise adopts a multitude of viewpoints within the content of its consciousness, effectively becoming a multitude of situated selves.

If it is by a multiple concentration that the one omnipresent self assumes the aspect of a multitude of situated selves, it is by a multiple *exclusive* concentration that it assumes the aspect of a multitude of apparently *separate* selves. As we shall see presently, the exclusiveness increases by degrees.

The process of creation — from infinite quality to revealing form — may be divided into the following stages:

infinite quality → expressive idea → executive force → revealing form

Prior to involution, the individual is identified with an infinite quality, its *svabhāva*. When supermind is involved in mind, the first stage appears to be missing. Consciousness is situated at the level of mind, concerned with the formation of ideas, while infinite quality — together with the fundamental identity of all selves — has withdrawn behind the “veil” of *avidya* (the Vedantic term for ignorance of the essential oneness of all selves). Whatever quality is expressed is subliminally supplied:

infinite quality][expressive idea → executive force → revealing form

When mind is involved in life, consciousness is identified with its executive force, while expressive ideas are subliminally supplied:

infinite quality → expressive idea][executive force → revealing form

What if life gets involved in matter?

infinite quality → expressive idea → executive force][revealing form ?

Yes and no. Corresponding to each stage of involution there is a supraphysical world or plane of existence. In particular, there is a subtle physical world in which consciousness is identified with the revealing form, while the executive force, too, works behind a veil. But if the process of involution is carried to its ultimate extreme, then the veil is too thick for the executive force to work at all at the level of the individual. (It still works at the universal or supra-individual level, regulating the interactions between individuals.) And since the executive force working at the individual level is responsible for the creation of individual forms, what remains is a multitude of *formless* individuals. The stage for the drama of evolution has been set. Welcome to the physical world.

In the previous lecture I argued that QM supports a creation story whose parsimony is hard to trump: *Brahman enters into spatial relations with itself*. As a result, there are forms (sets of spatial relations), there is space (the one place “containing” all forms, to which

the relations owe their spatial quality), and there is matter (the corresponding relata, also known as “fundamental particles”). What we found out just now is how Brahman enters into spatial relations with itself, namely by a gradual and essentially *psychological* process (Mohrhoff, 2004).

Evolution is not simply the reverse of involution. If it were, the fundamental particles themselves would acquire (i) forms with a growing capacity for self-determination and (ii) minds with a growing capacity for self-expression. Instead, these things evolve by aggregation. Aggregates of particles manifest forms, in which the capacities for self-expression and self-determination can then manifest themselves.

Evolution, moreover, starts out not with one but with two multitudes: a multitude of formless particles and a multitude of formless souls or *psychic entities*. We may think of the former as a multiple instantiation of *sat* (Brahman qua all-constituting substance) and of the latter as a multiple instantiation of *ānanda* (Brahman qua infinite bliss, quality, or value):

When earth was built in the unconscious Void
And nothing was save a material scene,
Identified with sea and sky and stone
Her young gods yearned for the release of souls
Asleep in objects, vague, inanimate. (Sri Aurobindo, 1997, p. 129)

The “young gods” are, of course, the involved powers of life and mind.

Between these multitudes there initially yawns a gulf. The psychic entities lack the means to form (let alone express) ideas, while the particles lack the means to manifest revealing forms. Evolution proceeds from both sides and may be likened to the building of a bridge. On the side of nature there emerges, first, the formative force of life, executing ideas, and then mind, able to form ideas. On the soul side, the psychic entity acquires a psychic personality, becomes a *psychic being* in command of an increasingly effective soul-dynamism, infusing its essence of quality and bliss into the mind’s expressive ideas and life’s revealing forms.

Another important factor, at once enabling and complicating, is the continual intervention by beings and conscious forces native to the supraphysical planes of existence, which were created in the course of involution.

It is the pressure of the Life-world which enables life to evolve and develop here in the forms we already know; it is that increasing pressure which drives it to aspire in us to a greater revelation of itself and will one day deliver the mortal from his subjection to the narrow limitations of his present incompetent and restricting physicality. It is the pressure of the Mind-world which evolves and develops mind here and helps us to find a leverage for our mental self-uplifting and expansion, so that we may hope to enlarge continually our self of intelligence and even to break the prison-walls of our matter-bound physical mentality. (Sri Aurobindo, 2005, p. 811)

Supraphysical influences supply the evolving life force with ideas to execute, and the evolving mind with qualities to express. Continually enriched by subliminal influences from supraphysical worlds, the workings of our nature — including those of our minds

— become increasingly complex. This offers the psychic being a growing range of experience and increases nature's susceptibility to its influence. The bridge is complete when nature's complexity is sufficient for the full integration of its force into the soul's dynamism, so that it is no longer possible to draw any distinction between the two. Nature then is wholly capable of expressing the soul's infinite quality and delight.

Before then, a subtle-physical, a vital, and a mental being evolve, which at death dissolve into their subtle-physical, vital, and mental constituents. However, once the mental being is fully integrated into the psychic personality, it partakes of the soul's immortality. The same holds for the vital being. When the integration of nature-force into soul-dynamism is complete, the physical being is either transformed into or replaced by the subtle-physical being, which then also partakes of the soul's immortality.

Let us now return to the problem of consciousness. As the question is usually posed, it assumes that matter isn't a problem, and that all we need to understand is how matter — more specifically, the human brain — *produces* consciousness. Once we have formulated the question in this way, we have painted ourselves into a corner, for consciousness isn't produced by the brain. All that we experience, exists inside the "bubble" of consciousness. All that we are aware of, exists for a subject, a conscious self. It won't do to attribute consciousness to appearances, nor is it consistent to first postulate a reality that exists out of relation to consciousness and then wonder how that reality produces consciousness.

If we cannot get from electrochemical signal patterns in a brain to a conscious self, then we must start from the other, less problematic end. It is less problematic because the one thing we cannot doubt is that we are conscious selves. (Only a conscious self can have illusions.) The challenge is then to understand how the self relates to its brain. My suggestion is that the brain is instrumental in the self's seeing, say, a cherry much as a telescope is instrumental in a person's seeing the rings of Saturn.

Obviously there is a difference. Looking along one spatial axis (through the telescope), we see the rings of Saturn. Looking along the remaining *two* mutually perpendicular axes, we see the telescope but not the rings of Saturn. On the other hand, when a neurosurgeon opens a patient's skull, she looks along a non-spatial axis through her own brain (without seeing it), and she can look along all *three* spatial axes at her patient's brain (which she sees). The mind-boggling complexity of the brain may pale in comparison to the complexity of this four-dimensional "instrument" of which the brain is merely the objective, three-dimensional surface. There are, however, two perfectly valid reasons why the non-spatial dimension extending from an irreducible self to its brain is hidden from us: it is transparent to the self that looks through it, and it is inaccessible from an objective point of view.

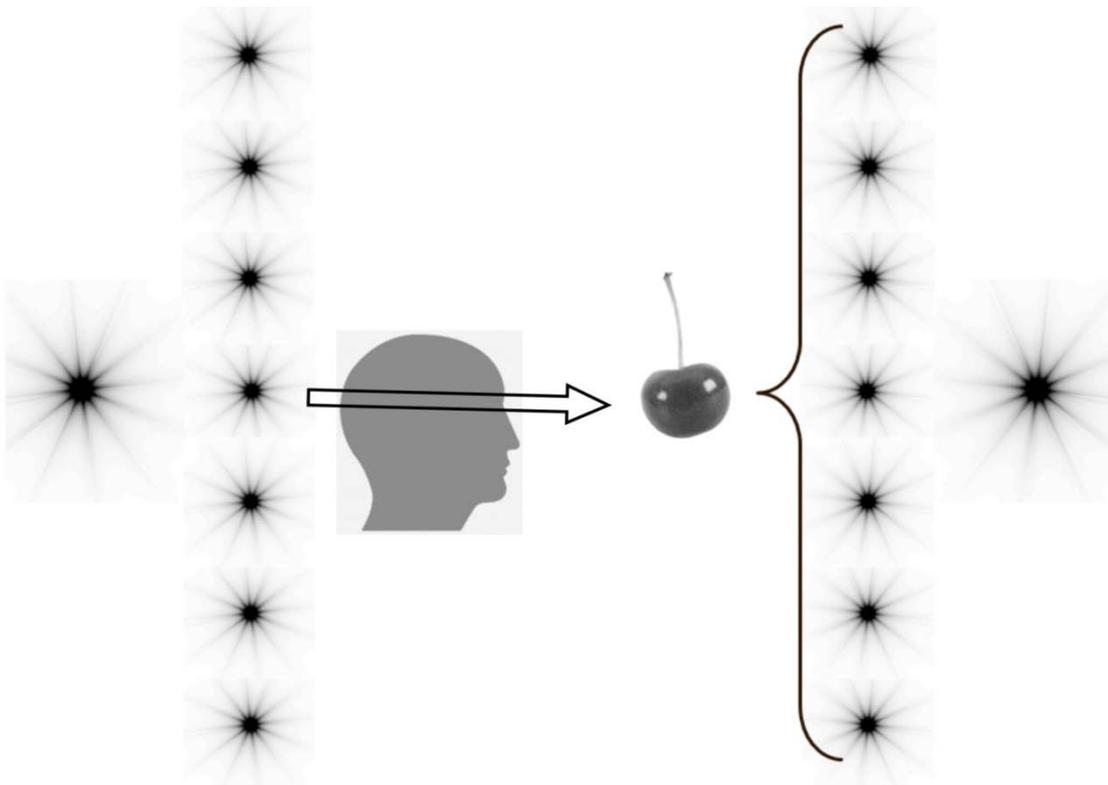
To achieve a more adequate understanding of a cherry, it helps to think of it, too, as extending into a fourth dimension. For, as we saw last time, if we conceptually partition the world into smaller and smaller regions, we reach a point at which the distinctions we make between regions no longer correspond to anything in the actual world; and if we keep dividing a material object, its so-called "constituents" lose not only their

forms but also their individuality. What begins as a progression to smaller and smaller scales of length turns out to be a regress from the manifested world to an ultimate reality that encompasses the world as an omnipresent point and constitutes it as an indivisible, formless substance.

Following the opposite route from unity to multiplicity allows us to understand the progressive coming into being of form. The first milestone along this route is an apparent multitude of formless particles – “apparent” because the relations between them are self-relations. The second milestone marks the formation of composite objects – such as protons and atoms – which can only be described abstractly, in terms of correlations between measurement outcomes. The third milestone, finally, marks the emergence of objects with aspects that can be visualized “as they are” – molecules. But atoms and molecules are instrumental in the manifestation of colours as well as forms.

It used to be said that qualities (such as colours) are “nothing but” quantities (such as frequencies or reflectances). It would be closer to the truth to say that quantities are “nothing but” means for the manifestation of qualities.

One begins to understand also how arrangement of design, quantity and number can be a base for the manifestation of quality and property; for design, quantity and number are powers of existence-substance, quality and property are powers of the consciousness and its force that reside in the existence; they can then be made manifest and operative by a rhythm and process of substance. (Sri Aurobindo, 2005, p. 319)



The above graphic may serve as a summary. The big flare on the right symbolizes Brahman qua substance, and the small flares in front of it symbolize the multitude of formless particles that serves to manifest a cherry. The big flare on the left symbolizes Brahman qua consciousness (the single self of the supermind's primary poise), and the small flares in front of it symbolize our selves, rendered effectively separate by a multiple exclusive concentration of that single self. The head is associated with one of these selves, and the arrow symbolizes this self's look at the cherry — through its brain. The world, we may say, has two modes of existence: it exists *by* Brahman (the big flare on the right), and it exists *for* Brahman (the big flare on the left).

How can there be consciousness of material objects? The answer: Brahman is looking at them, and Brahman relates to the world as a self relates to the content of its consciousness. How can material objects be conscious? The answer: Brahman is looking *through* them. (And how can there be material objects? The answer: Brahman relates to them as their constituent substance and as the force to which they owe their forms.)

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