

The Veil of Avidya

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An examination of some of the ontological implications of the quantum theory leads to the conclusion that the number of so-called “ultimate constituents of matter” is one. If this single ultimate constituent is called “*brahman*,” quantum theory countenances the following claim: by entering into spatial relations with itself, *brahman* creates both matter and space, for space is the totality of existing spatial relations, while matter is the corresponding (apparent) multitude of formless relata. The *psychological* processes by which *brahman* enters into spatial relations with itself and takes on the aspect of a multitude of formless relata, are discussed. Adopting Sri Aurobindo’s view that the creation of the physical world has set the stage for *brahman*’s adventure of evolution, we are in a position to explain why the laws of contemporary physics have the particular form that they do. (Since the laws of physics merely serve to set the stage, the adventure itself cannot be directed by the same laws.) We are also in a position to understand why, in the quantum world, to *be* is to be *measured*. Jean Gebser’s insights into the evolution of human consciousness are outlined, and its implications for contemporary psychology are examined. Attention is drawn to a recent important publication — *Irreducible Mind* by Kelly et al. — which has the potential to bridge the gulf between current mainstream psychology and such profound insights as those of Gebser and Sri Aurobindo.

1 Introduction

Let me proceed straight to the plan of this paper. Following this introduction, Section 2 presents the quantum theory in a nutshell, and Section 3 discusses its ontological implications. We shall arrive at the conclusion that the number of so-called “ultimate constituents of matter” is one. Calling this single ultimate constituent *brahman*, quantum theory countenances the following story: by entering into spatial relations with itself, *brahman* creates both matter and space, for space is the totality of existing spatial relations, while matter is the corresponding apparent multitude of relata — *apparent* because the relations are *self*-relations.

Section 4 discusses the psychological process by which *brahman* enters into spatial relations with itself. It begins with the observation that *brahman* does not simply manifest itself; *brahman* manifests itself *to itself*. *Brahman* qua substance constitutes the world, and *brahman* qua consciousness contains it. The world exists both *by* and *for* *brahman*. Consciousness *of* is existence *for*. Subsequently both the emergence of space and that of the subject-object dichotomy are traced to the (psychological) process by which *brahman* takes on the aspect of a multitude of relata.

Avidya, the ignorance veiling our true self and the truth of the world, arises when this

process — a multiple concentration of *brahman* qua consciousness — becomes exclusive. When it is carried to its ultimate extreme, the result is a multitude of formless *relata*. This is discussed in Section 5.

In the quantum world, *everything* is possible, *unless* it violates a conservation law. This suggests that the force at work in the world is an *omnipotent* force working under self-imposed constraints. If so, the relevant questions are: why, and to what extent, does this force subject itself to laws? And why to one particular set of laws rather than any other? These questions are discussed in Section 6. We shall find that the validity of all empirically tested physical theories — the so-called “standard model” plus Einstein’s theory of gravity — is guaranteed, *provided* that spatially extended objects are composed of finite numbers of objects that lack spatial extent. Why should this be the case? The uniqueness of the physical world lies in its being the scene of *brahman*’s adventure of evolution. The reason why spatially extended objects are composed of finite numbers of objects that lack spatial extent is that the physical world was created in order to set the stage for the drama of evolution. (If the laws of physics merely serve to set the stage, the drama itself won’t be directed by them.)

Of all the baffling features of the quantum theory, none is more baffling than the supervenience of the microscopic on the macroscopic. Molecules, atoms, and subatomic particles have the properties that they do because of what happens or is the case in the macroworld, rather than the other way round, as we are wont to think. In the microworld, to *be* is to be *measured*. Section 7 explains why this is so.

Section 8 looks at the evolution of human consciousness from the point of view of evolutionary philosopher and cultural historian Jean Gebser. According to Gebser, the evolution of human consciousness passes through five stages. Gebser’s identification of what he calls the “integral structure of consciousness” with what Sri Aurobindo has termed “supermind” is largely justified. Gebser urges us to reject the naïve folk tale according to which science can make us understand things as they are in themselves. The paradigms of modern science stand or fall by the particular consciousness structure that brought them into play — the mental. While the mythical world is a world of images, the mental structure is able to integrate two-dimensional images into a system of three-dimensional objects — the so-called “material world.” But as this three-dimensional “coagulation” of images came into being with the mental structure, so it will fade into irrelevance with the consolidation of the integral structure.

One is left to wonder what could bridge the enormous gulf between current mainstream psychology and such profound insights into the nature of reality, evolution, and consciousness as those we owe to Jean Gebser and Sri Aurobindo. Here a recently published book, *Irreducible Mind: Toward a Psychology for the 21st Century* by Kelly et al. (2006), offers hope. The authors of this outstanding volume marshal evidence for a large variety of psychological phenomena that are extremely difficult, and in many cases clearly impossible, to account for in conventional physicalist terms. The relevant issues are framed in the context of the work of F. W. H. Myers, a largely forgotten genius of scientific psychology, who conceived of evolution as tending toward a “constantly widening and deepening perception of an environment infinite in infinite ways” (*HP*, vol. 1, p. 96). The final section offers glimpses into this work.

2 Quantum theory in a nutshell

The mathematical formalism of quantum mechanics — the fundamental theoretical framework of contemporary physics — is a computational tool. It allows us to calculate the probabilities of the possible outcomes of measurements that may be made, on the basis of the actual outcomes of measurements that have been made. Whereas Newton “framed no hypotheses,” and whereas Hume reduced causality to consistent covariation, quantum mechanics reduces consistent covariation to statistical correlations between measurement outcomes. Nobody has the slightest idea how the actual outcome of one measurement influences the probabilities of the possible outcomes of another measurement. Quantum theory does not throw light on the origin of these correlations, not does it account for the occurrence of the correlata (Mohrhoff, 2005ac, 2006a).

What earns measurements this pivotal status in a fundamental physical theory? Under the influence of the positivism of the late 19th and early 20th Century, measurements or their outcomes came to be called “observations,” and with the discovery of relativity in 1905, frames of reference came to be called “observers.” Thus when quantum mechanics made its appearance in 1926, the obvious thing to do was to attribute the special status of measurements to the *consciousness* of the observer.

Whereas some physicists persist in claiming that quantum mechanics involves the consciousness of the observer in an essential way (e.g., Stapp, 2007), most today hope that measurements will eventually be reduced to “ordinary physical interactions.” This claim, too, is misguided. Since quantum mechanics describes “ordinary physical interactions” in terms of correlations between the possible outcomes of measurements performed on interacting systems, the reduction of measurements to ordinary physical interactions can only yield a vicious circle.

3 Ontological implications

Classical physics lends itself, with a certain measure of consistency, to the transmogrification of its mathematical symbols and relations into actual physical entities and processes. Quantum mechanics does not permit this sleight of hand. To the extent that it has ontological implications, they derive from the manner in which it assigns probabilities to possible measurement outcomes, rather than from the reification of a mathematical structure (Mohrhoff, 2005b, 2007cd).

To calculate the probability of a possible measurement outcome on the basis of an actual outcome, we may imagine a possible sequence of intermediate measurements. Each sequence is called an “alternative,” and with each alternative is associated a complex number called “amplitude.” If the intermediate measurements are actually made (or if it is merely possible to learn by some means what their outcomes would have been if they had been made) then that probability is the sum of the absolute squares of the amplitudes — that is, the sum of the squares of their absolute values (Rule A). If the intermediate measurements are not made (and if it is impossible to learn what their outcomes would have been) then that probability is the absolute square of the sum of the amplitudes (Rule B). What ontological difference corresponds to, or necessitates, this algorithmic difference?

Simply put, whenever Rule B applies, the distinctions we make between the alternatives are distinctions that Nature does not make. They correspond to nothing in the physical world. They exist solely in our minds.

As an illustration, suppose that the following is true:

- 1 At the time t_1 we have a system made up of two components (particles, atoms, or such) with certain properties, which can be inferred from certain events or states of affairs in the rest of the world (“measurements”).
- 2 At a later time t_2 we have the same system with different properties, which also can be inferred from certain events or states of affairs in the rest of the world.
- 3 There isn’t any event or state of affairs from which anything of relevance to the state of the system at intermediate times can be inferred.
- 4 The two particles (or atoms, or molecules) do not carry identity tags; their properties at t_1 and at t_2 do not suffice to answer the question, “which particle existing at t_1 is identical with which particle existing at t_2 ?”

Does this question nevertheless have an answer? If it had an answer, the answer would be consistent with the predictions of Rule A. But it isn’t; it is consistent with the very different predictions of Rule B. And so there is no answer; the question is meaningless.

Here as elsewhere, the challenge is to learn to think in ways that do not lead to meaningless questions. Meaningless questions arise from false assumptions. The false assumption, in this case, is that at t_1 there are *two* things with *two* sets of properties, and that at t_2 there are again *two* things with *two* sets of properties. What quantum mechanics is trying to tell us is that this is one “two” too many: what there is, is *one* thing with two sets of properties at t_1 and with another two sets of properties at t_2 . It should be clear that now the meaningless question “Which is which?” cannot be asked. The bottom line: As far as physics is concerned, the number of substances in the world is one. Considered by themselves, the so-called “ultimate constituents of matter” are identical in the strong sense of *numerical* identity.

What about the world’s spatial aspect? Analyses of the quantum-mechanical probability assignments in various experimental situations have led to the following conclusions (Mohrhoff, 2005b, 2007d):

Physical space is not a self-existent (substantial) and intrinsically differentiated expanse. If we think of it as an expanse, then we must think of it as undifferentiated — lacking parts. An undifferentiated expanse, however, is more appropriately thought of as a property that is possessed by each spatial relation. (A relation doesn’t have parts.) Space then is a set of (more or less) fuzzy spatial relations, and the shapes of things are particular sets of spatial relations. An object without parts, lacking internal spatial relations, is therefore *formless*. (Fuzziness — Heisenberg’s term *Unschärfe*, usually mistranslated as “uncertainty” — is an objective feature of the physical world. The stability of a material object rests on the objective fuzziness of its internal relative positions and momenta, not on our subjective uncertainty about the values of these quantities.)

While physical space thus contains — in the proper, set-theoretic sense of

“containment” — spatial relations (including the forms of all things that have forms), it does *not* contain the formless relata, the so-called “ultimate constituents” of matter, which we found to be numerically identical.

If we call the single ultimate constituent of matter *brahman*, we are in a position to formulate what is surely the most economical creation story ever told: by the simple device of entering into spatial relations with itself, *brahman* creates both matter and space, for space is the totality of existing spatial relations, while matter is the corresponding apparent multitude of relata — *apparent* because the relations are *self-relations*.

4 Supermind, mind, and the emergence of duality

Brahman does not simply manifest itself; *brahman* manifests itself *to itself*. The world exists not only *by brahman* but also *for brahman*. Saying that the world exists *by brahman* is the same as saying that *brahman* — qua substance — constitutes the world. Saying that the world exists *for brahman* is the same as saying that *brahman* — qua consciousness — contains the world. Consciousness *of* is existence *for*.

A distinction has to be made between mind and the original creative consciousness — supermind, to use Sri Aurobindo’s terminology. To the supermind, the unity of the all-constituting substance (*sat*), of the all-containing consciousness (*chit*), of the infinite quality/delight at the roots of existence (*ananda*), and of all the three fundamental aspects of *brahman*, is self-evident. The creations of the supermind are primarily qualitative and infinite and only secondarily quantitative and finite. Essentially, mind is the agent of the supermind’s secondary, limiting and dividing action.

When mind is used by supermind, its tendency to divide *ad infinitum* is checked. This is why there are limits to the objective reality of spatial and substantial distinctions. (As a consequence of the fuzziness of all existing spatial relations, the spatial differentiation of the world does not go “all the way down”: if we conceptually divide a “region of space” into smaller and smaller parts, there comes a point beyond which the distinctions we make between regions correspond to nothing in the actual world. They exist solely in our minds. By the same token, if we go on dividing a material object, instead of obtaining an ever growing number of parts we arrive at numerically identical parts.)

When mind is separated in its self-awareness from its supramental parent and left to run wild, as it is in us, it not only divides *ad infinitum* but also takes the resulting multiplicity for the original truth or fact. This is why we attempt to construct reality from the bottom up, by assuming the existence either of ultimate material parts or of property-instantiating points of space or space-time. And it is why making sense of quantum mechanics is so hard, for what this is trying to tell us is that the world is structured from the top down (and *not* all the way).

Another important distinction is that between two poises of relation between supermind and the world — comprehending (*vijnana*) and apprehending (*prajnana*). In the *comprehending* poise the self is coextensive with the world. The subject is wherever its objects are. No distances exist between the seer and the seen. Nor is there a

difference between *brahman* qua all-conscious self and *brahman* qua all-constituting substance. Using an objective metaphor, we may describe the process of creation or manifestation in terms of substance and force; using a subjective metaphor, we may describe it in terms of consciousness and creative imagination. Both metaphors are equally adequate (but also equally inadequate).

In the *apprehending* poise consciousness distantiates itself from its content. There now is a distance between the perceiver and the perceived, and objects are seen from outside, presenting their surfaces. Concomitantly, the single Self of the primary poise adopts a multitude of viewpoints within the content of its consciousness, thereby effectively becoming a multitude of situated selves. It is in this poise that the three dimensions of space — viewer-centered depth and lateral extent — come into being, and that that the familiar difference between consciousness and substance becomes an actuality. Whereas in the primary poise, preceding individuation, the world's features exist *indistinguishably* both as determinations of a single substance and as content of a single consciousness, the features of an individual exist *distinguishably* as determinations of the same individual (qua substance) and as content of many another individual (qua consciousness).

5 Involution

We all know first-hand a state of exclusive concentration, in which our awareness is focused on a single object or task, while other goings-on are registered, and other tasks attended to, subconsciously, if at all. According to Sri Aurobindo, it is by a *multiple* concentration that the one self assumes the aspect of a multitude of selves, and it is by a multiple *exclusive* concentration that it loses sight, in each self, of its identity with the other selves and with the self of all selves. The result is *avidya*, the great ignorance, the thick veil hiding from us not only our true self but also a broad tangle of subliminal influences both acting on us and exerted by us.

Three main stages can be discerned in the process of creation. As mentioned, *brahman* is not only the substance that constitutes and the consciousness that contains but also (subjectively speaking) an infinite bliss (*ananda*) and (objectively speaking) an infinite quality that expresses and experiences itself in finite forms. The first stage concerns the development of infinite quality into expressive ideas. The second stage concerns the transition from expressive idea to executive force. And the third concerns the creation, by the executive force, of a revealing form.

Hence there exists the possibility of deepening the multiple exclusive concentration to the point that the first stage takes place subliminally. The result is an individual whose consciousness is centered in ideation, and who is largely unaware of the qualitative influx that controls this from behind a veil. Deepening the exclusive concentration further, to the point that the second stage takes place subliminally, produces an individual that executes expressive ideas unconsciously. And if the multiple exclusive concentration is carried to its ultimate extreme, then even the executive force falls dormant. And since this is instrumental in the creation and maintenance of individual forms, the result is an apparent multitude of formless individuals — “apparent” because without their individualizing properties they are numerically identical.

Welcome to the physical world.

6 The truth about physics

In the quantum domain, everything is possible, in the sense that every conceivable measurement outcome has a probability greater than zero unless it violates a conservation law. In this domain, we never have to explain why something is possible; we only need to explain why certain things are not possible. This suggests to me that the force at work in the world is an omnipotent force that works under self-imposed constraints. If this is indeed the case, then we need not be surprised by the impossibility of explaining the quantum-mechanical correlation laws — whether by postulating underlying processes or by transmogrifying the symbols or relations of the mathematical formalism into physical entities or processes. There is no need to explain the working of an omnipotent force.

What needs explaining is why the laws of contemporary physics have the particular form that they do.

One of the reasons is that without it stable material objects could not exist. Specifically, the existence of objects that (i) have spatial extent (they “occupy space”), (ii) are composed of a finite number of objects that lack spatial extent (particles that do not “occupy space”), and (iii) are stable (they neither explode nor collapse as soon as they are created), requires the theoretical framework of physics to have exactly the form that it does. And since this framework presupposes measurement outcomes, its consistency requires their existence, and it is eminently plausible that this in turn requires the validity of all empirically tested physical theories — the so-called “standard model” plus Einstein’s theory of gravity (Mohrhoff, 2002, 2006b). The validity of these theories — at least as effective theories, which are valid over many but not all scales of length — is guaranteed, provided that spatially extended objects are composed of finite numbers of objects that lack spatial extent. This is the sole nontrivial input and the only real mystery. Why are things that “occupy space” made of things that don’t?

The physical world, according to Sri Aurobindo, is by no means the only possible manifestation of *brahman*. Its uniqueness lies in its being the scene of *brahman*’s adventure of *evolution* (Mohrhoff, 2007abc). Evolution presupposes involution, and the final outcome of the process of involution is an apparent multitude of formless relata. The fact that the physical world has been created in order to set the stage for the drama of evolution, may therefore be seen as the reason why things that “occupy space” are made of finite numbers of things that don’t.

At the end of the day, the laws of physics are simply preconditions (conditions of possibility) of *brahman*’s evolutionary manifestation. There are several take-home messages here.

For the materialist, physicalist, and naturalist, the message is this: since the laws of physics merely serve to set the stage for the drama of evolution, the drama itself isn’t directed by the same laws. The force at work in the world is an omnipotent force. If at first it works under self-imposed constraints, it does so for a transient purpose, while

its ultimate purpose (according to Sri Aurobindo) is to free itself from all constraints.

For the theoretical physicist, the message is this: irrespective of whether or to what extent the laws of physics are capable of mathematical refinement, attempts to interpret them in ontological terms are misconceived. The formalism of contemporary physics is a tool for calculating the probabilities of possible measurement outcomes on the basis of actual outcomes. The manner in which this assigns probabilities does indeed have ontological consequences, but they are precisely such as to preclude any reification of the formalism's mathematical structure or structural elements.

For the psychologist, the message is that there isn't any ground for physics envy. You want to understand the commerce between mind and matter? Physicists don't even understand how matter interacts with matter! On the contrary, since the physical world owes its existence to a process that is psychological rather than physical, if any discipline is fundamental, it is psychology — at any rate, *Indian* psychology.

7 Why to *be* is to be *measured*

Of all the baffling features of the quantum theory, none is more baffling than the supervenience of the microscopic on the macroscopic. Molecules, atoms, and subatomic particles are what they are because of what happens or is the case in the macroworld, rather than the other way round, as we are wont to think. A property or value exists only to the extent that its possession is indicated by — or inferable from — an actual event or state of affairs. In the microworld, to *be* is to be *measured*. Why?

Imagine that you experience something the like of which you never experienced before. How are you going to describe it? You are obliged to use familiar terms. It is the same with our experience of the microworld. Quantum mechanics affords us a glimpse “behind” the manifested world at formless particles, non-visualizable atoms, and partly visualizable molecules, which, instead of being the world's constituent parts or structures, are *instrumental* in its *manifestation*. But it does not allow us to describe what is instrumental in the world's manifestation, except in terms of the finished product — the manifested world.

It is, however, not merely a matter of missing terms. What is missing in the absence of measurements is attributable properties. The reason why the properties of the microworld exist only to the extent that they are measured, is that without a measurement apparatus (in the broadest sense of the term) attributable properties do not exist. A detector, for instance, not only serves to indicate the presence of something in a region **R** but also, and in the first place, makes the property of being in **R** available for attribution. If **R** were not realized by being the sensitive region of an actually existing detector, it would be impossible for anything to be in **R**.

8 Evolution of human consciousness according to Jean Gebser

According modern evolutionary theory, our sensory systems are shaped by natural selection to allow *homo sapiens* to survive within its niche, not to present it with a faithful depiction of its niche. We don't expect the sensory system of a cockroach, a gecko, or a chipmunk to reveal the true nature of reality. We expect it to give simple signals suited for survival in a particular niche. The neo-Darwinian synthesis leads us

to look upon the phenomenal world as a species-specific user interface. A user interface, like a computer desktop with its icons, is useful precisely because it does not resemble what it represents. A file icon hides the complexity of the hardware and software that makes it so useful as a representation of a file (Hoffman, 2000, in press, forthcoming).

What the scientific theory of evolution rarely takes into account is that the paradigms of modern science stand or fall by the particular user interface that brought them into play. Nobody has brought this point more clearly into focus than evolutionary philosopher and cultural historian Jean Gebser (1985), in his magnum opus *The Ever-Present Origin*. As the subtitles of its two parts indicate, *The Every-Present Origin* is “A Contribution to the History of the Awakening of Consciousness” and “An Attempt at the Concretion of the Spiritual.” According to Gebser, the awakening of consciousness passes through four “user interfaces”: the *archaic* structure, the *magic* structure, the *mythical* structure, and the *mental* structure. As its name suggests, the mythical structure deals with the world through the medium of myth, whereas the mental structure deals with it with the help of philosophy and science.

Each of these structures of consciousness has an efficient and a deficient phase. A once efficient structure becomes deficient when it is confronted with the irruptions of the next structure. The diminishing returns of modern science documented by John Horgan (1996) in *The End of Science*, by Lee Smolin (2006) in *The Trouble with Physics*, and by Peter Woit (2006) in *Not Even Wrong* are signs that we are once again on the threshold of a new structure of consciousness — this time a structure that neither philosophy nor science is able to cope with, as little as the mythical medium is able to cope with the manifestations of the mental structure. We therefore need to distance ourselves from the claim that science can make us understand things as they are in themselves. While the mythical world is a world of images, the mental structure is able to integrate two-dimensional images into a system of three-dimensional objects — the so-called “material world.” But as this three-dimensional “coagulation” of images came into being with the mental structure, so it will fade into irrelevance with the consolidation of the integral structure, along with its representational mediums, philosophy and science.

The mutations from one consciousness structure to another are analogous to Kuhn’s (1962) paradigm shifts, but they happen on a grander scale. We are not merely presented with a theory that is capable of dealing with the anomalies of a previous theory. By gaining a new user interface, we enter a new world.

Gebser (1985, p. xxix) himself equated the consciousness he called “integral” with that Sri Aurobindo has called “supramental,” and he described it in similar terms. For Gebser, the origin — the source from which all springs — is spiritual; evolution is essentially a series of transformations by which the world becomes ever more *diaphanous* — transparent and revelatory of its spiritual origin. The *diaphaneity* or “shining through” of the origin leads to concrete awareness of the whole in each part. Released from its perspectival fixation both in space and in time, the individual comes to perceive the manifestation from the aperspectival viewpoint particular to the origin — i.e., from everywhere and everywhen at once. This corresponds to the supermind’s

primary poise. Seen from the supermind's secondary poise, both the past and the future are present in the present.

It is interesting to note that Gebser became familiar with the works of Sri Aurobindo a long time after the completion of *The Ever-Present Origin*. In a lecture published towards the end of his life, he observes:

my conception of the emerging of a new consciousness, which I realized in winter 1932/33 in a flashlike intuition and started describing since 1939, resembles to a large extent the world conception of Sri Aurobindo, that was at that time unknown to me. Mine is different from his insofar, as it is directed only to the Western world and does not have the depth and the gravity of origin of the genially represented conception of Sri Aurobindo. An explanation for this apparent phenomenon may be seen in the suggestion, that I was included in some manner within the strong field of force as radiated by Sri Aurobindo. (Gebser, 2005)

When dealing with individuals that are integrally conscious, the metaphor of the user interface breaks down. The supermind is *truth consciousness*. It knows things as they are in themselves, for it is by its own creative imagination that they exist. And since the integral structure will not only supersede but also fully integrate the mental and all preceding structures, as was emphasized by both Gebser and Sri Aurobindo, its emergence will justify the interpretation of the consciousness mutations discussed by Gebser as progressive thinnings of the veil of *avidya*.

9 Epilogue

One is left to wonder what could bridge the enormous gulf between, on the one hand, current mainstream psychology, neuroscience, and philosophy of mind and, on the other hand, such profound insights into the nature of reality, evolution, and consciousness as those we owe to Jean Gebser and Sri Aurobindo.

Here the recently published book *Irreducible Mind: Toward a Psychology for the 21st Century* by Kelly et al. (2006) offers hope. The authors of this outstanding volume marshal evidence for a large variety of psychological phenomena that are extremely difficult, and in many cases clearly impossible, to account for in conventional physicalist terms. The relevant issues are framed in the context of the work of F. W. H. Myers. Myers's model of human personality, which he began to formulate in the early 1880s, became the theoretical framework for psychical research and remained so for decades. Much of the later work of William James, including *Varieties of Religious Experience*, can be viewed as the systematic application of Myers's central theoretical ideas to problems in religion, epistemology, and metaphysics. Aldous Huxley (1961, pp. 7–8), comparing Myers's (1903) posthumously published *Human Personality and Its Survival of Bodily Death* to better-known writings on the "unconscious" by Freud and Jung, justly wondered:

How strange and how unfortunate it is that this amazingly rich, profound, and stimulating book should have been neglected in favor of descriptions of human nature less complete and of explanations less adequate to the given facts!

Myers's huge body of published writings is essentially an elaboration of the view that certain phenomena of psychology, particularly of abnormal psychology and psychical

research, demonstrate that human personality is far more extensive than we ordinarily realize. It was Myers who introduced the term “subliminal” into scientific psychology. He held that the biological organism, instead of producing consciousness, limits and shapes ordinary waking consciousness out of a vastly larger subliminal self, concealed from the former by what we have called the veil of *avidya*. Anticipating Gebser, Myers described the evolution of consciousness as a process in which we become “more and more awake.” A “general perceptive power” (Myers, 1903, Vol. 1, p. 118) informs the protoplasm, and

having shown itself so far modifiable as to acquire these highly specialised senses which I possess, it is doubtless still modifiable in directions as unthinkable to me as my eyesight would have been unthinkable to the oyster. (Myers, 1889, p. 190)

Myers conceived of evolution as tending toward “constantly widening and deepening perception of an environment infinite in infinite ways” (*HP*, vol. 1, p. 96). Psychological anomalies, therefore, come in two basic varieties — *evolutive* and *dissolutive*:

in studying each psychical phenomenon in turn we shall have to inquire whether it indicates a mere degeneration of powers already acquired, or, on the other hand, “the promise and potency” if not the actual possession, of powers as yet unrecognised or unknown. (Myers, 1885, p. 31)

Contemporary mainstream psychology is in dire need of this insight. “Not only is the number of rediscoveries shamefully high,” Draaisma (2000, p. 5) writes, “but valuable empirical and conceptual work carried out in older traditions has disturbingly little impact on present-day research. The result is that certain defects in theory formulation diagnosed as long ago as the nineteenth century, are repeatedly reintroduced in psychology.” Anticipating Sri Aurobindo’s concept of involution, Myers (1903, Vol. 1, p. 118) stated that

All human powers . . . have somehow or other to be got into protoplasm and then got out again. You have to explain first how they became implicit in the earliest and lowest living thing, and then how they have become thus far explicit in the latest and highest.

In his review of *Human Personality*, William James (1903) wrote:

Myers’s theory, so far, is simple enough. It only postulates an indefinite inward extension of our being, cut off from common consciousness by a screen or diaphragm not absolutely impervious but liable to leakage and to occasional rupture. The “scientific” critic can only say it is a pity that so vast and vaguely defined a hypothesis should be reared upon a set of facts so few and so imperfectly ascertained.

A century later, the relevant facts are no longer “so few,” and a significant fraction of them is anything but “imperfectly ascertained.” Many of Myers’s observations have been powerfully confirmed, reinforcing the need for a theory of human personality which — like his — encompasses the full range of human experience. *Irreducible Mind* is an important pointer in the direction of such a theory.

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International Seminar – Valedictory Session

Ulrich Mohrhoff: I have a question that came to me from the audience: whether unconsciousness is connected by any link to the dark matter of astrophysics. To my understanding unconsciousness is very much connected to matter, and you can say that matter is dark, but I don't see a specific connection to the dark matter of astrophysics. How is unconsciousness connected to matter? Let us assume that Sri Aurobindo in particular or Vedanta in general is right in saying that this world is a manifestation of Brahman. Brahman is Sat-Chit-Ananda, which means, Brahman relates to the world in three particular ways: it is the Substance (Sat) that constitutes it, it is the consciousness (Chit) that contains it, and it is an infinite bliss (Ananda) that experiences and expresses itself in it. Moreover, this world, this manifestation of Brahman, is special in that it is involutory. Evolution presupposes involution.

This was my personal entry into physics: I first became familiar with Sri Aurobindo's development of Vedanta in a modern framework of thought. Sri Aurobindo made me realize that the material world is the greatest invention, the greatest creation of Brahman. How did He do it? I wanted to know from all angles how He did it. So I began to study physics as well. I came to realize that the well-established laws of physics—not strings and all that stuff which is purely speculative—but what we call the Standard Model, which some physicists call the Theory of Matter because it is so well established, can be deduced in its mathematical details by simply asking: what does it take to set the stage for Brahman's adventure of evolution? Evolution starts from a complete involution of what Brahman essentially is—Sat (Pure Being), Chit (Pure Consciousness) and Ananda (Pure Bliss).

Let me just slip this in because somebody was questioning Pure Consciousness as a viable concept: If you take away the content of Consciousness, the result is exactly the same as if you take away the properties of Substance. You end up in one case with Pure Consciousness and in the other case with Pure Being, and this happens to be Brahman in two of its relations to the world. If you take away these relations, there is no difference any more. Pure consciousness is Pure Being, or rather it is something beyond both Sat and Chit, which terms describe relations between Brahman and the world.

So involution produces the opposite of Sat-Chit-Ananda's essential qualities. That is to say, something unconscious that has no freedom, that expresses no quality, where all these faculties and powers of Brahman have to evolve, gradually, to recover themselves. So there you have the connection. Matter equals unconsciousness for a purpose, for an adventure into which according to Sri Aurobindo we are not drawn

willy-nilly. According to Sri Aurobindo every one of us has consented to take part, knowing what it would entail, a lot of headaches, lots of suffering, but then, if you do not have unconsciousness and then an ignorant consciousness, how can you have the joy of discovery? If you do not have opposition, how can you have the joy of victory? So, as Brahman, you must reduce your powers in order to have these beautiful experiences, which we can have in this world. So my last world about physics, again: it sets the stage for Brahman's adventure of evolution, it does not direct the drama, it just sets the stage for it. Thank you.

Professor Mukunda: There is a question addressed to me not because I said something, but perhaps because I am the chair in this particular meeting. The question is: Have you found the confluence where science and spirituality can meet? As far as I am concerned, I have not found it. Others may have found it.

Ulrich Mohrhoff: I started with a great respect for scientists. I always thought that they are people who do not want to fool others and also do not want to fool themselves. But I have been painfully made aware that is not the case. If you are in an academic setting today, you have to be a materialist or at least a naturalist denying anything supernatural. If you are questioning any of these dogmas—and they are pure dogmas—then you better don't do it before you have tenure. I am quite disappointed with science and I see that it is not at all possible to have a science that is free of dogma or of metaphysical presuppositions. If you take away the philosophy from science, you get what we actually have right now in fundamental physics: we have experiments and we have mathematical formulae and that is it. If you want to go further, you need philosophy and it would be better to have a philosophy that agrees not only with what we see in the laboratory but also with the great discoveries of the mystics. And perhaps we give preference to a worldview that has place for values because the materialistic way of explaining from the bottom up says that ultimate reality is valueless dust—particles—and then builds its model of reality by explaining how things interact and combine. So value is a stranger in this world. Now take the Vedantic view. Ultimate Reality is Ananda, pure Bliss Infinite Bliss—which is manifesting itself in forms, in movements, in space and time—for the fun of the thing. This is a worldview that has value at its core. Now pick your choice.