

**INTERNATIONAL CONFERENCE:
“FOUNDATIONS AND THE ONTOLOGICAL QUEST.
PROSPECTS FOR THE NEW MILLENNIUM”**

**ROME, PONTIFICAL LATERAN UNIVERSITY, JANUARY 7-10, 2002
PIAZZA SAN GIOVANNI IN LATERANO, 4. 00120 VATICAN CITY**

AVAILABLE ABSTRACTS / ABSTRACT DISPONIBILI

A. MATHEMATICS AND LOGIC SESSION

Syntax and Semantics

by Edward Nelson

Department of Mathematics
Princeton University

The year is 2002 and here we are at a symposium on Foundations and the Ontological Quest. The first thing to say is how much this symposium is needed, for the present situation is bleak. In foundational studies of mathematics and physics we have been stuck for seventy years; despite numerous books, articles, and meetings, there has been no real progress. Seventy years ago Gödel established his incompleteness theorem, destroying the foundational program of David Hilbert. Just a year or two later, Gödel showed that Brouwer's intuitionism, advanced as a correct constructive alternative to an allegedly incorrect classical mathematics, was actually an extension of classical mathematics rather than an alternative to it. In short order Gödel dashed the hopes of the formalists and the intuitionists, seemingly leaving no choice other than blind Platonic belief. I shall say more about this later. Just over seventy years ago, Heisenberg and Schrödinger created quantum mechanics. There have been innumerable attempts to develop a rational understanding of this eminently successful physical theory, but not one of them has met with general acceptance. The foundations of cosmology seem to change radically every few years. It is a field in which, more than in any other science, the problem of separating observational fact from theoretical assumption is refractory. I look forward to learning about foundational problems of cognitive science. I hope there is progress there. But in mathematics and physics there has been little or none in seventy long years. So if this symposium produces even the flicker of a candle, it will bring hope in the darkness that envelops us...

Constructivism.
A Computing Science perspective
 by Bengt Nordström
 Department of Computing Science
 Chalmers University of Technology and the University of Göteborg

I would like to talk about the symbiotic relationship between Computing Science and Logic and the growing interest in foundational questions which has followed.

It is not an exaggeration to say that Logic gave birth to Computing Science. Already in the 1930's, logicians like Gödel, Kleene, Church and Turing were studying the limits of computability. This was at a time when a computer still was a human being performing calculations. In particular Turing's theoretical ideas had important consequences for the architecture of the first electronic computers in the 1940's. Now, in the turn of the new millennium, computers are influencing every day's life in the rich world. Society becomes more and more dependent on computers. We use computers to control complicated processes, like power plants, air-planes, trains and money transfer systems. These systems are so complicated that no human being understands them and it is of vital importance that they function correctly. (...) But Computing Science not only benefit and demands a development of Logic, it can also contribute to Logic in an essential way. A formal system like a programming language or a logic can be studied in three different ways. We can reason about it *theoretically* (mathematically), we can *implement* (make) it and *make practical experiments* with it. This is the same as with other human constructions, like houses, cars and tools. (...) We cannot have a formalistic attitude when we reason about programs. By formalism I mean that we look at reasoning as only following rules (like playing chess). Properties must have a meaning. When we say for instance that a certain program always closes a certain valve if the temperature is too high then we must be certain that the program really closes the valve. If we for instance prove that the program has the property A & B then we must be certain that the program has the property A and the property B . (...) An escape to formalism may save the mathematician in his worries about semantics, but it is not an option for programmers and computer scientists who are going to apply logical reasoning to concrete objects. (...) Constructive mathematics fits well with programming. During the last 20 years I have been interested in versions of Martin-Löf's type theory as a basis for programming. Martin-Löf has developed his theory as a foundational language for mathematics. It is based on constructive mathematics. This language seems to fit extremely well with programming. In it, a proof of a proposition A is a program which when executed yields a direct proof of the proposition. The fundamental idea is that a proposition is explained by explaining what counts as a direct proof of it. When we define a proposition we give an inductive definition of its direct proofs.

B. PHYSICS AND COSMOLOGY SECTION

The physics of the large and of the small, and the missing bridge between them

by Roger Penrose
 Mathematical Institute
 Oxford University

The laws of quantum mechanics (and quantum field theory) underlay our descriptions of small-scale phenomena), whereas large-scale physics is treated by the use of classical fields: specifically,

Maxwell's electrodynamics and Einstein's general relativity. The normal attitude amongst physicists is to take quantum descriptions as being more fundamental, classical descriptions coming into their own only as appropriate approximations when systems become large and complicated. The process of "quantization" is thus applied to classical fields. The theory of "quantum electrodynamics" provides a quantized Maxwell field (photons) in interaction with various sources (basically charged particles such as electrons). Yet, the correct "quantum gravity" theory is still missing despite several approaches being pursued with enormous vigor.

The missing quantum gravity would, amongst other things, be expected to resolve the profoundly intractable puzzle of the *singularities* (in the big bang and black holes) that arise in classical general relativity but I argue that these cannot be resolved without an actual *change* in the structure of quantum mechanics itself. I further argue that such a *change* is needed in any *case* because of the *measurement paradox* not being resolvable within the framework of standard quantum theory. I propose that these puzzles are deeply interrelated, and that the basic *principles* of general relativity cannot be reconciled with those of quantum mechanics without such fundamental change. I describe a proposal for a class of feasible experiments to test this, some of which are being actively explored by colleagues in Oxford. The missing quantum/gravity union would involve a *major* revolution in physical theory, with broad implications for future physics and its applications. Some of these could have significant relevance to biology and could affect our philosophical perceptions about the nature of physical and mental reality.

The Endless Universe

by Paul J. Steinhardt
Joseph Henry Laboratories
Princeton University

Over the last century, cosmologists have converged on a highly successful theory of the evolution of the Universe: the big bang/inflationary picture. According to this picture, space and time sprung into being 15 billion years ago in a 'big bang.' When the Universe emerged, it was filled with particles and radiation of nearly infinite temperature and density. Instantly later, the Universe underwent a period of extraordinarily rapid, superluminal expansion ('inflation') which made the Universe homogeneous and flat and which created fluctuations that seeded the formation of galaxies and large-scale structure. In the last decades, cosmological observations have supported the predictions of the big bang and inflationary theory in exquisite detail. They have also provided one major surprise. It appears that, billions of years after the big bang, following the formation of galaxies, the Universe was overtaken by some form of dark energy that is causing the expansion rate to accelerate. Although dark energy was unanticipated and has no particular role in the big bang/inflationary picture, the general view has been that it can simply be added by fiat to the initial make-up of the Universe. There is no compelling reason for a new theoretical approach. Quite the contrary, many cosmologists regard the basic cosmic story as being settled.

In spite of these remarks, this talk will boldly present a new paradigm, the "cyclic model" of the universe, that proposes to turn the conventional picture topsy-turvy. Or, perhaps the model should be called an old paradigm since it reinvigorates ancient cosmic mythologies and philosophies, albeit using the tools of 21st century physics. In this picture, space and time exist forever. The big bang is not the beginning of time. Rather, it is a bridge to a pre-existing contracting era. The Universe undergoes an endless sequence of cycles in which it contracts in a big crunch and re-emerges in an expanding big bang, with trillions of years of evolution in between. The temperature and density of the universe do not become infinite at any point in the cycle; indeed, they never exceed a finite bound (about a trillion

trillion degrees). No inflation has taken place since the big bang. The current homogeneity and flatness were created by events that occurred before the most recent big bang. The seeds for galaxy formation were created by instabilities arising as the Universe was collapsing towards a big crunch, prior to our big bang.

Seeing the edge of the universe

by Lyman Page
 Dept. of Physics
 Princeton University

Light from the birth of the universe arrives at the solar system after traveling nearly unimpeded through space for 14 billion years. This light, called the cosmic microwave background (CMB), brings to us a picture of the primordial universe. Observational techniques have now advanced to the point where CMB can be exquisitely imaged, and our theoretical framework allows us accurately and directly to confront cosmological models with the observations. We discuss the MAP satellite which is currently measuring the CMB from an orbit around the Sun, a million and a half kilometers from Earth. We imagine that future measurements of the CMB in combination with other cosmic probes will produce a fantastic interlocking web of constraints that allows us not only to single out a cosmological model but also to use the cosmos as a laboratory to probe new physics.

C. COGNITIVE SCIENCE SECTION

Brain and body: human acquisition of knowledge and wisdom through intentional action and perception of its consequences

by Walter J. Freeman
 Department of Molecular & Cell Biology
 University of California, Berkeley
 wfreeman@socrates.berkeley.edu

Outline

1. Introduction.
2. Epistemology through ontogenesis of the brain and body
 - Passive - reflex arc
 - Active - action-perception cycle
 - Thomist - intent-action-perception-assimilation
3. The neural basis for construction of individual experience.
 - Chaotic neurodynamics through neuronal interactions
 - Creation through abstraction and generalization
 - Assimilation through intentionality
4. The neural basis for construction of knowledge through culture.
 - Socialization through bonding
 - Isolation - autistic growth of individuals through Hebbian learning
 - Affiliation - formation of trust through joint action mediated by brain chemistry

5. Conclusions

Humans are finite, world is infinite
 Social experience and trust lead to knowledge
 Laws of science - tools, not truths, for example, causality
 Emergence of wisdom

Introduction

Today we address the cognitive sciences. These are broadly concerned with describing the processes and deriving the rules by which information from the world is gathered through the senses, processed in the brain, integrated, stored, retrieved, and deployed through muscular actions. There are many research pathways. Psychologists investigate the stages by which infants and children develop competence in dealing with their evolving worlds. Neurobiologists use novel imaging techniques to measure brain activity patterns relating to behavior. Neurologists observe and treat disorders of thinking and behavior in patients with brain damage, disease, or abnormal development like autism and Tourette's. Neurophilosophers sift through systems of thought that have been distilled from millennia of human experience. Engineers and mathematicians design computer-based dynamic devices that simulate thinking, as we experience it through logic and phenomenology. Computer scientists devise models of logic and language. Our talks in this session on the foundations of the cognitive sciences address these avenues of investigation. It is our task to distill some useful insights and perceptual constancies from our experimental investigations into human, animal and machine subjects. We intend these insights to be useful to philosophers and theologians, who seek to understand the philosophical and social consequences of these vigorously growing sciences.

We are mainly concerned with relations between cognition and behavior. We emphasize those aspects as "embodied cognition", in which we view the body as the principal tool of the brain for cognitive development and learning. We also use the term "situated cognition", to emphasize that structures in the environment determine, and are determined by, the actions of individuals seeking knowledge. It is a truism for most experimental scientists that knowledge of the material world comes through the senses. This view stands in opposition to alternative views that knowledge like language is implanted in the genome by evolution and is revealed to the individual in the course of ontogenesis, or that knowledge is received through spiritual intervention that is experienced by the individual as ontological inspiration or revelation. I state this truism at the outset to clarify my premise, that all knowledge is earned by individuals acting into the world and enjoying or suffering the consequences. The goal of neurocognitive scientists like myself is to describe, in terms of brain dynamics, how actions are conceived, planned, and executed in the brain.

A Phenomenology of Skill Acquisition as the basis for a Merleau-Pontian Non-representationalist Cognitive Science

by Hubert L. Dreyfus
 Department of Philosophy
 University of California, Berkeley

Existential phenomenologists hold that the two most basic forms of intelligent behavior, learning, and skillful action, can be described and explained without recourse to mind or brain representations. This claim is expressed in two central concepts in Merleau-Ponty's Phenomenology of Perception: the intentional arc and the tendency toward achieving a maximal grip. The *intentional arc* names the tight connection between the agent and the world, viz. that, as the agent acquires skills, these skills are "stored", not as representations in the mind, but as more and more refined dispositions to respond to the solicitations of more and more refined perceptions of the current situation. *Maximum grip* names

the body's tendency to respond to these solicitations in such a way as to bring the current situation closer to the agent's sense of an optimal gestalt.

I will argue that neither of these abilities requires mental or brain representations. Rather, simulated neural networks exhibit crucial structural features of the intentional arc, and Walter Freeman's account of the brain dynamics underlying perception is structurally isomorphic with Merleau-Ponty's account of the way a skilled agent moves towards the sense of equilibrium that signals a maximum grip.

**Emergence, mind and divine action: the hierarchy of the sciences
in relation to the human body-brain-mind**

Arthur Peacocke
University of Oxford

The hierarchy of complexity (both synchronic and diachronic) observed by the sciences in the natural world will be interpreted in terms of an 'emergentist monism' which is non-reductive and physicalist/monist; which attributes an influence of the properties and states of higher levels upon their components; and which, because of such a 'causal' relation, justifies the attribution of reality to higher-level properties and states. It will be proposed that such a metaphysic also applies to the body-brain-mind-society complex of the human person and so warrants the putative reality of reference of mental (and indeed spiritual) terms when applied to human persons — as well as providing valuable clues to the nature of divine action.

Human reasoning and rationality

by Philip Johnson-Laird
Dept. of Psychology
Princeton University

A long-standing tradition in Western thought postulates that human thinking is rational because it is founded on the 'laws of thought'. This paper argues to the contrary that thinking is not based on any such laws, but on the human ability to envisage the possibilities compatible with assertions. A conclusion is therefore judged to be valid if it holds in all such MENTAL MODELS of the set of premises. The theory postulates that each mental model represents a possibility, and that it captures what is common to the different ways in which the possibility might occur. Like a diagram, the model is 'iconic', i.e., its parts correspond to the parts of what it represents, and its structure corresponds to the structure of the possibility. In addition, mental models represent only the possibilities that are true given an assertion; and a model represents a clause in a set of premises only when the clause is true in the possibility. This principle yields parsimonious representations, because reasoners do not have to bother with what is false, and so they reduce what they have to hold in mind as they think. The paper reviews some of the evidence corroborating the theory of mental models. This evidence shows that one model is better than many. That is, reasoners are faster and more accurate to draw inferences from one model than from multiple models. The evidence also shows that knowledge and beliefs influence the PROCESS of reasoning. For instance, individuals draw invalid conclusion that fit their beliefs more often than they draw those that do not fit their beliefs. And, if falsity matters, then reasoners commit systematic fallacies, because they fail to represent what is false. Finally, the paper draws some conclusions about the nature of human reasoning. The single biggest limitation in performance is the inability to make correct inferences. Hence, when a complex system goes wrong, its human operators are often unable to infer either the cause or the cure. Humans are not always

rational: they do not reason like angels. But, they are not intrinsically irrational, either: they grasp the force of counterexamples.

Role of thalamocortical oscillation in normal and abnormal cognition

Rodolfo Llinás, M.D., Ph.D.

New York University School of Medicine

Attempting to understand how the brain as a whole might be organized has become a serious topic of inquiry in fundamental neuroscience. One aspect of the neuronal organization, central to global function, is the interaction between the thalamus and cortex, by far the most massive reciprocal connectivity in the brain. The dynamic interaction between these structures supports every aspect of human cognition. Moreover, the functional relation between the specific and non-specific thalamo-cortical loops indicates that rather than being only a “gate into the brain”, the thalamus represents a hub from which any site in the cortex can communicate with any other cortical site. The hypothesis that large-scale temporal coincidence of electrical activity in specific and non-specific thalamo-cortical loops supports the functional states that generate consciousness, and several neurological/psychiatric conditions, will be the topic of discussion.

D. ONTOLOGICAL CONNECTIONS

“State of the Art” and perspectives

by Bernard d’Espagnat

Institut de France, Paris

Within the realm of the history of science, if something is really universally known, it undoubtedly is the fact that in the early XVIIth Century the foundations of modern science were laid by Galileo, Bacon, Descartes etc. - in opposition to Aristotelian physics. In this respect however, a point is - curiously enough - practically never stressed. It is that, still, these “founding fathers” shared with Aristotle one very important idea. With him, indeed, they shared the idea that the basic concepts with the help of which science had to be built should all be ordinary, obvious ones. Within Aristotle’s approach these concepts (his “substantial forms”) were extremely numerous. In the “new physics”, on the contrary, they were very few in number - indeed, for describing what we now call “matter” Descartes only kept those of form, position and motion and the combinations thereof - and mathematics served as a cement, so to speak, linking them together. But this difference, momentous as it is, should not make us blind to the fact I am now stressing, which is, to repeat, that in both approaches the basic concepts were exclusively commonsense, familiar ones. (...)

It must be granted that, concerning the practice of quite a number of sciences, near realism, elementary as it is, is both a sufficient and a convenient conceptual framework. So convenient indeed that - in biology, geology etc. - many scientists tend to make it the basis of a genuine ontology, namely atomism. But let us have a quick look at some salient features of atomism. Ancient atomism conceived the World as composed of localized tiny objects interacting through contact forces. Modern-time atomism is not quite as restrictive in this respect. In it, genuine non-contact forces may be present, but with the proviso that they decrease when distance increases, as Newton assumed. In modern-time

atomism, therefore, there is only one way to explain observed strong correlations between very distant phenomena. It is to assume that these phenomena are due to some past *common* cause, from which effects are gradually propagated to each one of the phenomena in question.

Now, the theory of scientific knowledge took a momentous turn, in the sixties, when John Bell showed that some such correlation effects cannot be explained that way. That is, when it was definitely proved - through a conjunction of theoretical and experimental results including those of Aspect - that, contrary to what had been, for some two centuries, considered true, the World in its entirety cannot be thought of as composed as modern-time atomism claimed it to be (...).

They have induced me to state a postulate which I take as a basic one. I called it the *Open Realism postulate*. Open realism is a minimal assumption. It just posits that there is “something” the existence of which does not proceed from the existence of the human mind. But it assumes nothing at all concerning the nature of this “something”. Not even that it is knowable. The matter is just left open: it is to be decided on the basis of what factual knowledge, and in particular scientific knowledge, reveals. To sum up: there are forceful arguments against conventional - that is, traditional - realism. But then, if radical idealism (neo-Kantianism) is to be rejected as well, that is, if the postulate of *open realism* is adhered to, then only two possibilities remain: either Man-Independent Reality is altogether unknowable, a “pure X”, or it is such that we can get, or guess, some knowledge about it, but merely *allegorical*...

The New Physics and Opportunities for Ontological Initiatives

John Polkinghorne

In this Section of the Conference we are making what one might call a voyage from physics to metaphysics, using 'physics' in its ancient sense of what concerns the nature of things, and concentrating on those aspects of things that are disclosed by the natural sciences. The traveller on such an intellectual expedition has a choice of routes and end-points, for metaphysical views are selected and defended for metaphysical reasons, and no metaphysical view can claim the degree of coerciveness that would correspond to logical necessity. The relation between physics and metaphysics is a subtle one and there is no inescapable entailment linking the two. Yet, physics constrains metaphysics, rather as the foundations of a building constrain, but do not determine, the edifice that can be erected upon them. The connection between the scientific concepts of physics and the philosophical or theological concepts of metaphysics, is that of an alogical association, based upon a perceived consonance. I believe that modern physics has opened up a significant number of possibilities for fruitful metaphysical construction which I shall seek briefly to explore. A sub-theme in what I have to say will be that a theistic metaphysics has attractive insights to offer, but this is not an occasion on which I shall try to analyze in any detail the relationship between science and theology...

Levels of reality and the sacred

Basarab Nicolescu

Université de Paris

Modern science, via its most general aspects, allowed us to postulate that there are, in Nature and in our knowledge of Nature, different levels of Reality and, correspondingly, different levels of perception. The structure of the the totality of levels of Reality or perception is a complex and open structure : every level is what it is because all the levels exist at the same time. The open structure of the unity of levels of Reality is in accord with one of the most important scientific results of the twentieth century concerning arithmetic and all of mathematics which include arithmetic, the theorem

of Kurt Gödel, which states that a sufficiently rich system of axioms inevitably leads to results which are either undecidable or contradictory.

The resulting full knowledge is a new type of knowledge — the transdisciplinary knowledge, which corresponds to an *in vivo* knowledge. This new knowledge is concerned with the correspondence between the external world of the Object and the internal world of the Subject. By definition, the transdisciplinary knowledge includes a system of values.

By "Reality" (with a capital "R") we intend first of all to designate that which resists our experiences, representations, descriptions, images, or even mathematical formulations. By "level of Reality" I designate a set of systems which are invariant under certain laws. That is to say that two levels of Reality are different if, while passing from one to the other, there is a break in the applicable laws and a break in fundamental concepts (like, for example, causality).

The coherence of our physical universe implies that the unity of levels of Reality and the unity of levels of perception extend by a zone of nonresistance to our experiences, representations, descriptions, images, mathematical formulations and perceptions. Quite simply, the nonresistance of this zone of absolute transparency is due to the limitations of our bodies and of our sense organs — limitations which apply regardless of what measuring tools are used to extend these sense organs.

The unity of levels of Reality and its complementary zone of nonresistance constitutes what we call the transdisciplinary Object. The unity of levels of perception and this complementary zone of nonresistance constitutes what we call the transdisciplinary Subject. The common zone of nonresistance - the Interaction term - allows the unification of the transdisciplinary Subject and the transdisciplinary Object while preserving their difference. The Interaction term can not be reduced neither to the Subject nor to the Object.

Of course, one has to distinguish the words "Real" and "Reality". *Real* designates that what it is, while *Reality* is connected to resistance in our human experience. The "Real" is, by definition, veiled for ever, while "Reality" is accessible to our knowledge. The Interaction term corresponds to what Bernard d'Espagnat calls "the veil of the Real". The ternary partition { Subject, Object, Interaction } is different from the binary partition { Subject, Object } which defines modern metaphysics. The views I am expressing here are in conformity with those of the founders of quantum mechanics Werner Heisenberg, Wolfgang Pauli and Niels Bohr as well as with those of Walter Thirring. In fact, Werner Heisenberg came very near, in his philosophical writings, to the concept of "level of Reality". In his famous manuscript of the year 1942 (published only in 1984) Heisenberg, who knew Husserl well, introduced the idea of three *regions of reality*, able to give access to the concept of "reality" itself : the first region is that of classical physics, the second — of quantum physics, biology and psychic phenomena and the third — that of the religious, philosophical and artistic experiences. This classification has a subtle ground : the closer and closer connectivity between Subject and Object.

The Interaction term between the Object and the Subject has all the features of what Mircea Eliade understands by "the sacred" — that which does not submit to any rationalization. The problem of the sacred, understood as the presence of something of irreducibly real in the world, is unavoidable for any rational approach to knowledge. One can deny or affirm the presence of the sacred, but, if a coherent discourse on Reality is to be elaborated, one is obliged to refer to it. A crucial problem today is certainly the status of the sacred in its relation to technoscience.

The non-resistance zone of the sacred is, in fact, shared by all cultures. This fact could explain why there is an inextinguishable desire of universality, more or less hidden in any culture in spite of its claim of absolute specificity. It is precisely the acknowledgement of the presence of the sacred in the world and in ourselves which could insure a true dialogue of different religions through the mediation of modern science, possibly leading to what Philip Clayton calls a "positive theology".

Science, Religion, and the Metaphysics of the Infinite

Philip Clayton
Sonoma University

This paper comes at the end of a conference that has covered mathematics and logic, physics and cosmology, and the cognitive sciences in pursuit of their “ontological connections.” The position of a philosopher who is asked to say the “last word” on this subject potently symbolizes the conundrum of metaphysics today. I am preceded by three eminent physicists. Each one has traced for us the openings that arise within his discipline toward fundamental ontological questions. Yet each has equally emphasized the limits of scientific knowledge, of language and of thought, limits that block any straight inference from his science to ontology proper. For d’Espagnat, fundamental reality is “veiled”; for Polkinghorne, the self-revealing God cannot be demonstrated through scientific knowledge but must be known, in part, by faith; for Nicolaeescu, the fundamental point of contact between the objective and subjective realms cannot be fully conceptualized within either of the two frameworks. When the world’s most eminent physicists insist on the limits of knowledge and the breakdown of language, should the philosopher then plow ahead, confidently propounding a systematic ontology when neither the sciences nor contemporary theology has managed to do so? This conundrum is fundamental to the entire religion-science debate; it is, at the same time, suggestive of an answer. As this conference makes amply clear, the voices of modern-day positivists notwithstanding, we continue to need metaphysics and to engage unavoidably in a type of reflection that can only be called metaphysical. Yet it makes equally clear that what is now needed is metaphysics in a new key. The only systematic conceptual structure adequate to the science of the last 100 years — and, I might add, perhaps the only one adequate to the contemporary state of philosophy and to the dilemmas that theology faces at the turn of the millennium — is a metaphysics of the infinite. In the few minutes available I review the metaphysics of the infinite from the end of the Scholastic period through the shifting sands of modern philosophy, looking in particular to see how it may help to express the conundrums of modern science. Divorced (somewhat against its will!) from the ontology of perfection and from the *ens perfectissimum*, the infinite has played primarily a negative role of late: *in-finitas* has come to express that which we do not know and cannot know. Yet modern philosophy and contemporary physics have also preserved the positive ontological moment contained in this concept: the notion of a Ground that surrounds us and supports us, even as it recedes continually from our grasp. Utilizing a chastised form of the traditional *via eminentiae*, I invite the reader consciously to pursue a metaphysical quest that he cannot avoid, to reflect on the One that undergirds the Many and that remains the presupposition, but never the possession, of science and of human reflection.